

Lectures on clinical medicine delivered in the Royal and Western infirmaries of Glasgow / by M'Call Anderson.

Contributors

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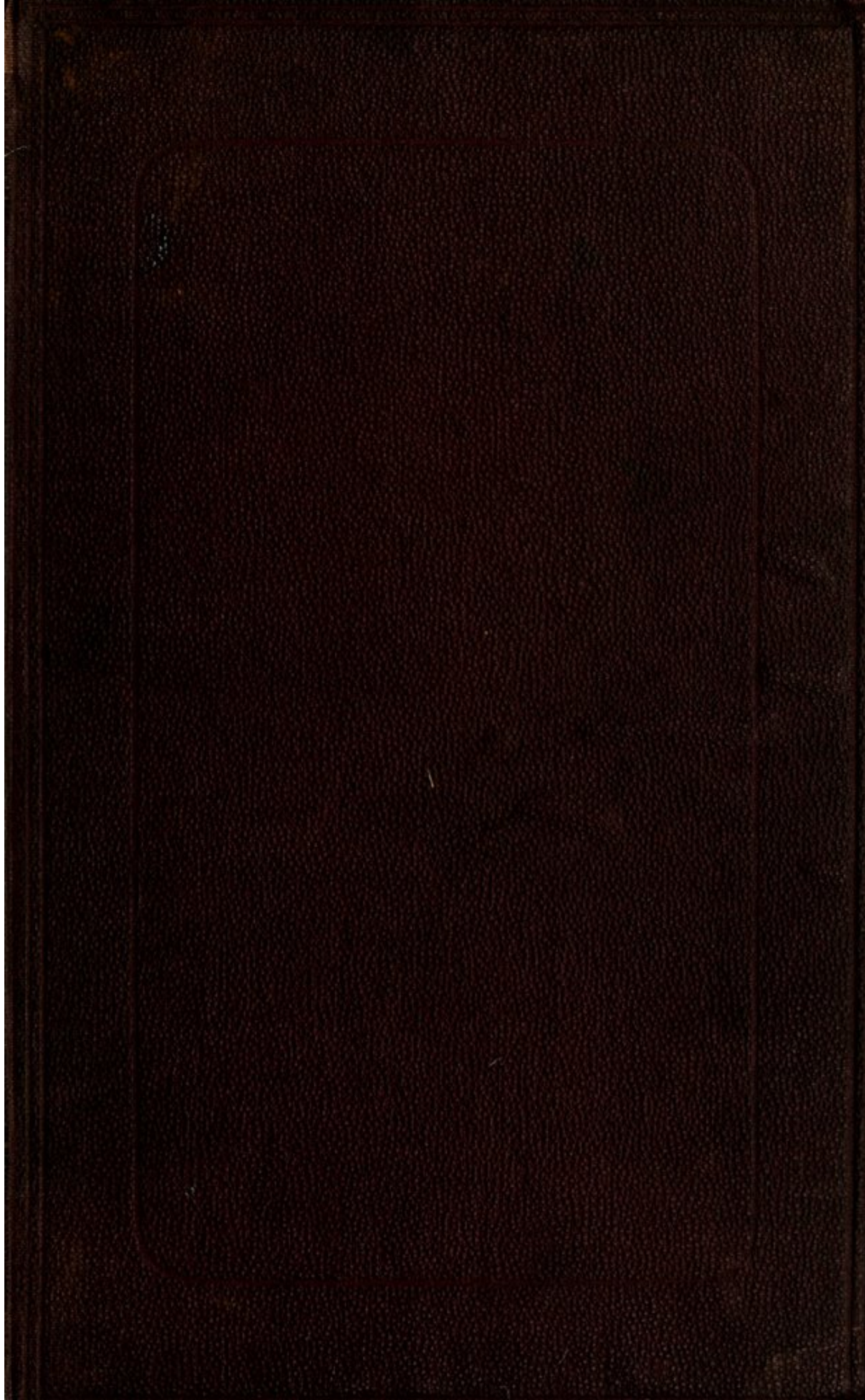
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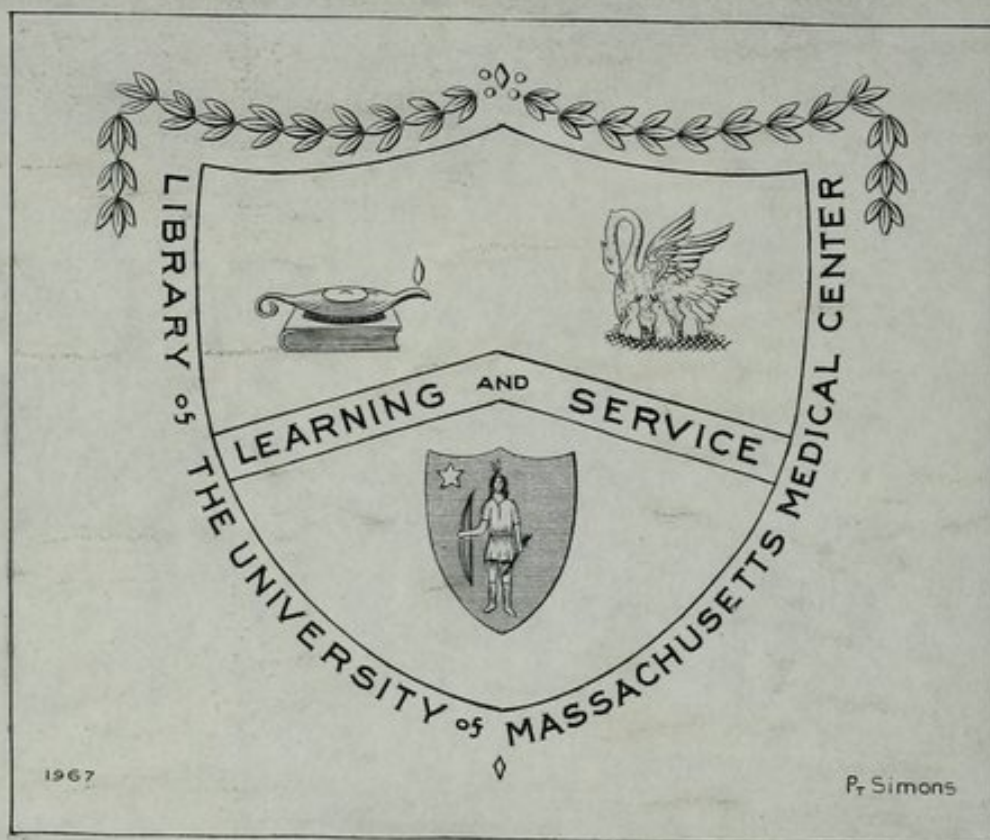
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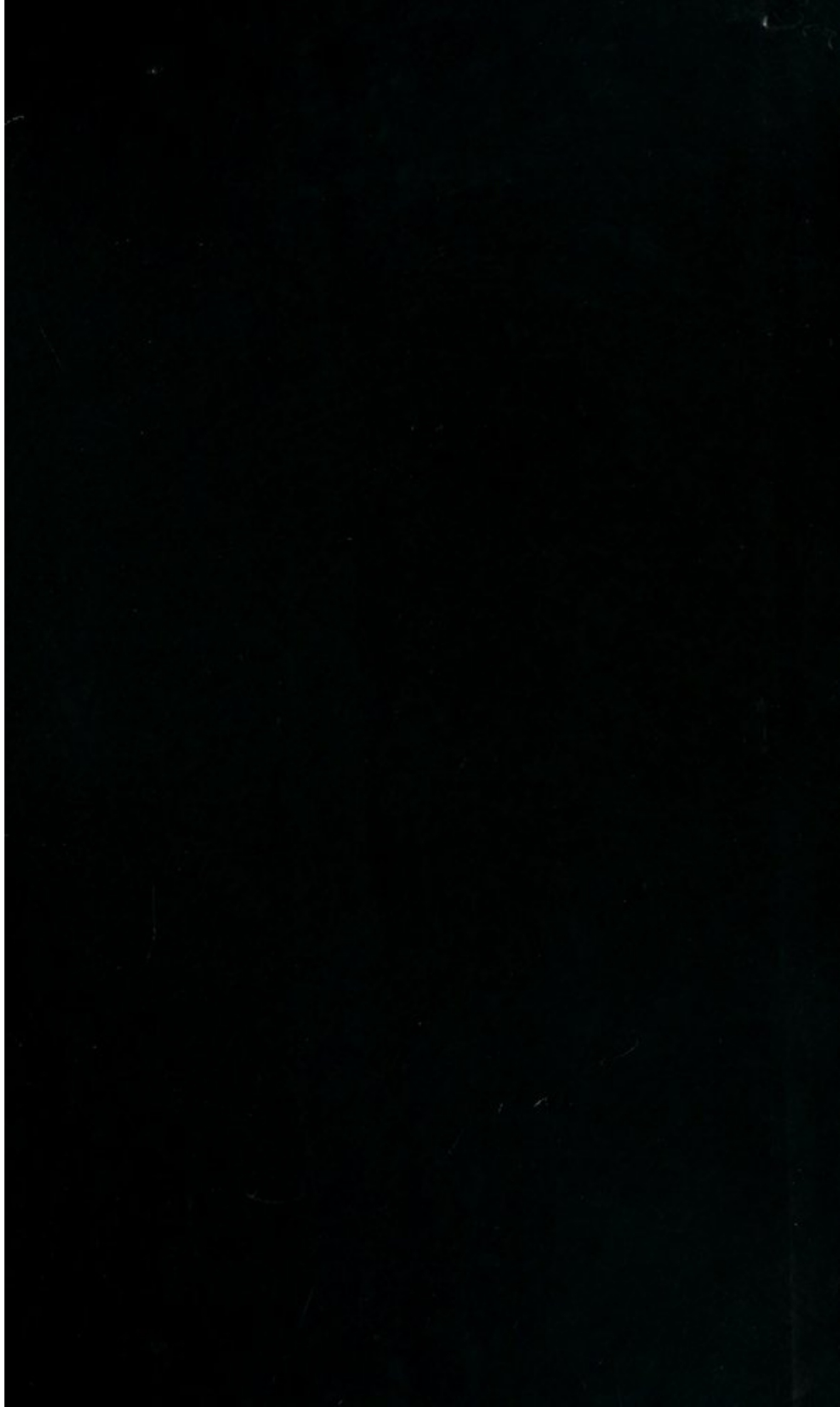
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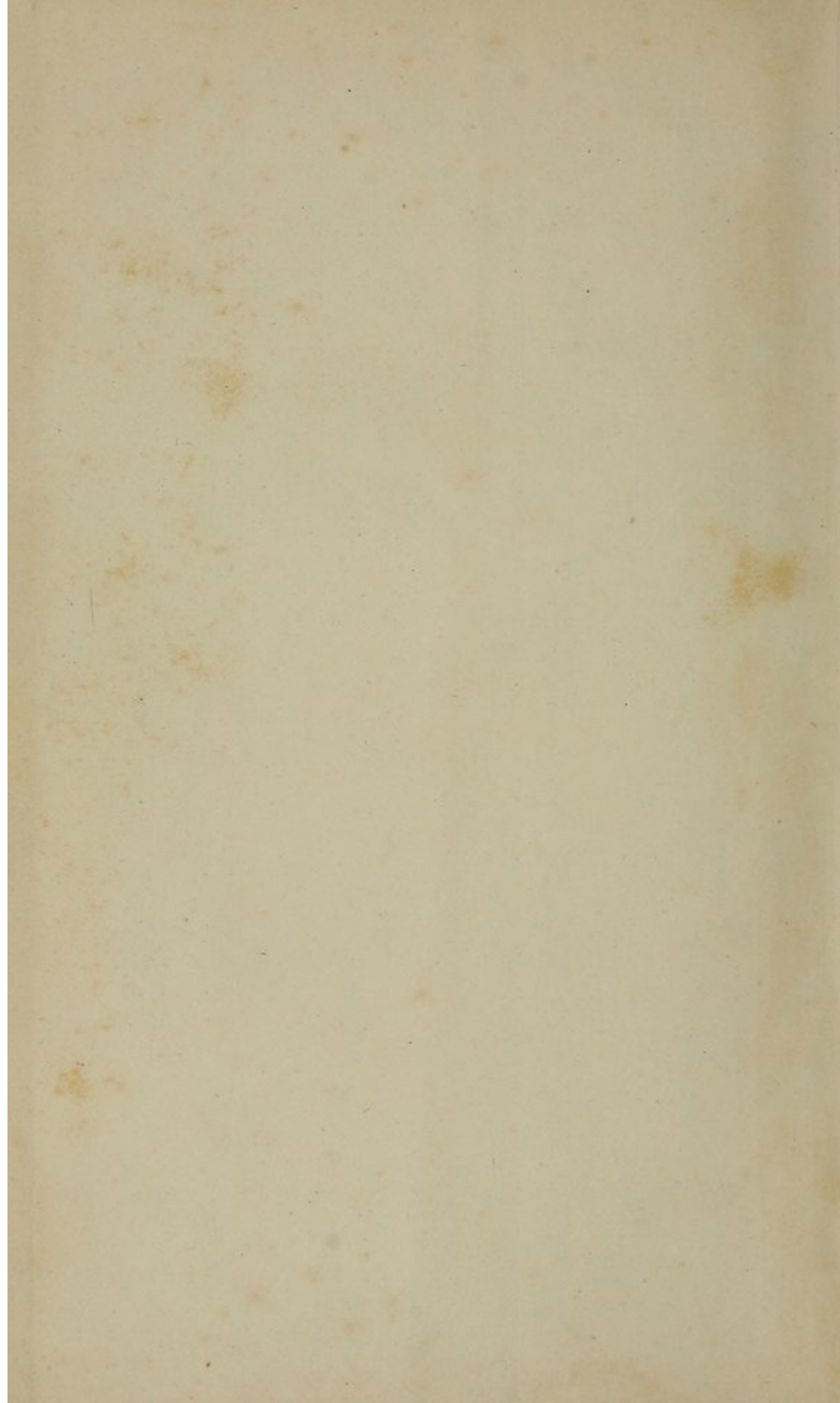


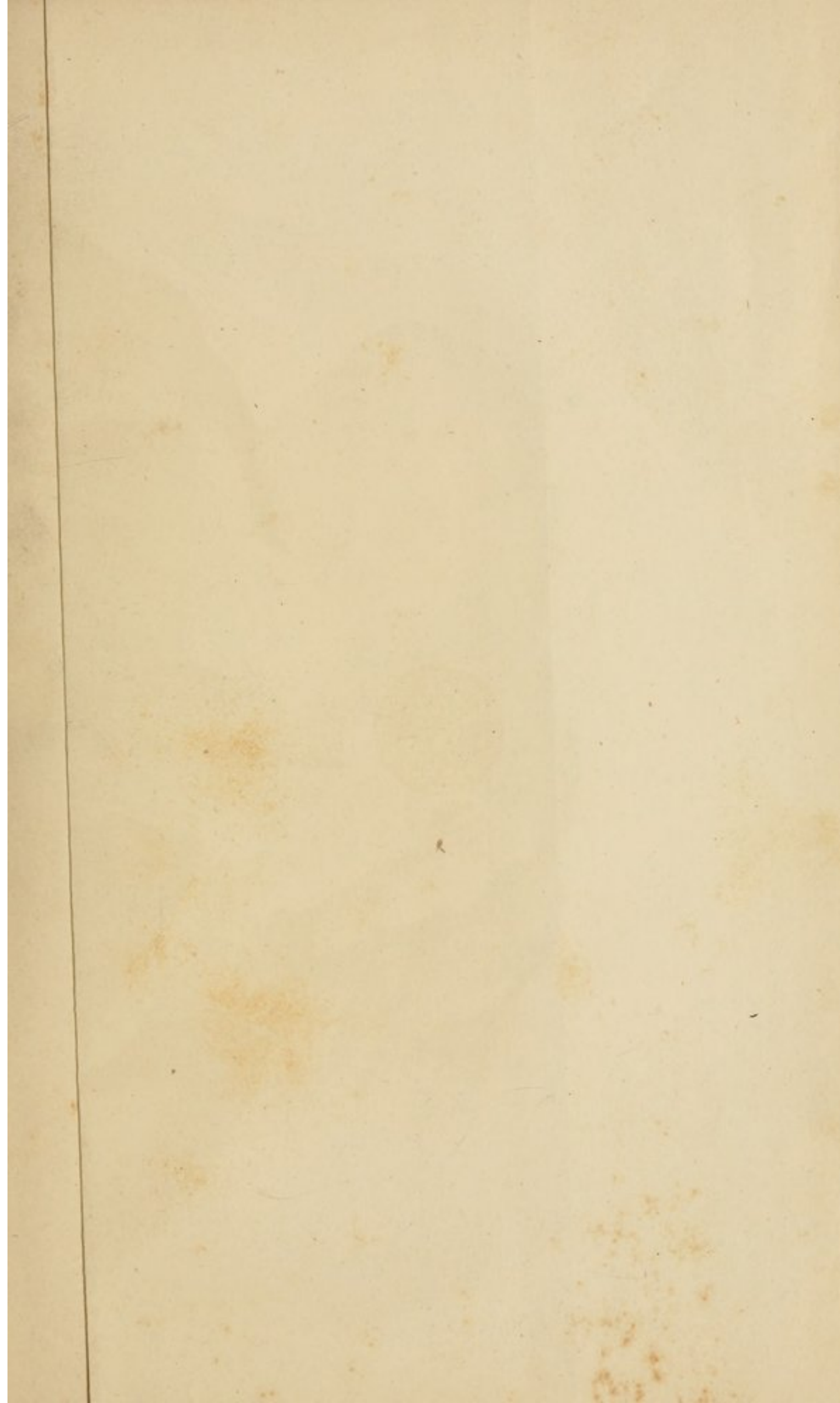


1967

P. Simons









ANEURISM OF ARCH OF AORTA (Full Size) INVOLVING THE INNOMINATE ARTERY.

SOLIDIFIED AFTER GALVANO-PUNCTURE.

A Pericardium. B Aorta laid open showing Valves and Patches of Atheroma. C Aneurism laid open showing how it is completely filled up with concentric layers of clot. D Vessels of Neck given off near each other from upper part of Aneurism. E First and Second Ribs. F Trachea. G Outer view of wall of Aneurism.

LECTURES
ON
CLINICAL MEDICINE.



Geo D Bruce

LECTURES

10/19/78

ON

CLINICAL MEDICINE,

DELIVERED IN THE ROYAL AND WESTERN
INFIRMARIES OF GLASGOW.

BY

THOMAS

SIR DR. M'CALL ANDERSON, 1836-1908

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF GLASGOW.

GM

WITH ILLUSTRATIONS.

PITTSBURGH ACADEMY OF MEDICINE
322 North Craig St.,
PITTSBURGH, PA.

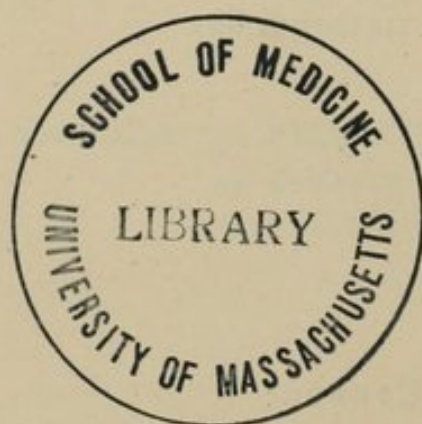
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PITTSBURGH ACADEMY OF MEDICINE

322 North Craig St.,
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To the Students

WHO HAVE ATTENDED THE AUTHOR'S LECTURES
ON CLINICAL MEDICINE IN THE UNIVERSITY OF GLASGOW,
AND WHOSE INDUSTRY AND PERSEVERANCE HAVE CHEERED AND
STIMULATED HIM IN THE DISCHARGE OF HIS DUTIES,
THIS VOLUME
IS AFFECTIONATELY DEDICATED.

18224

THE LIFE OF

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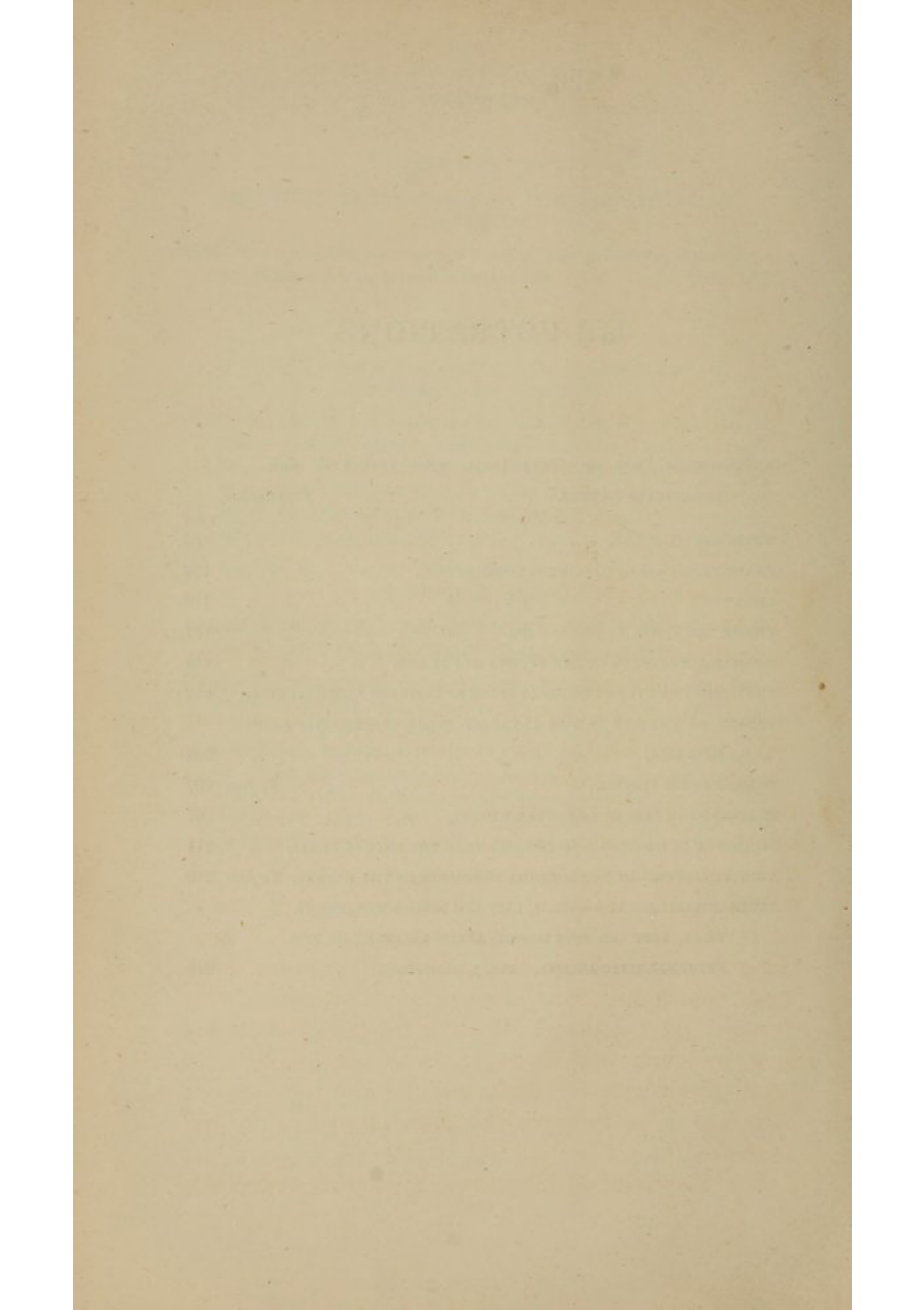
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LECTURES ON CLINICAL MEDICINE.

INTRODUCTORY.

It is a remarkable fact that, until very recently, comparatively little attention has been paid to Clinical instruction; and even at the present time, there is great difference of opinion as to the best way of carrying it into effect. Without desiring, in any way, to undervalue the importance of systematic lectures, and of reading, it must be admitted that these are but sorry substitutes for bedside instruction; and no one who has had much experience in the examination of students can have failed to encounter many instances of those whose examinations on systematic medicine and surgery were everything that could be desired, and who yet broke down most lamentably when brought face to face with disease. And as the great aim of the physician should be to recognize, and to treat it with success, so mere book knowledge is of little value, unless its possessor be in a position to apply the principles which he has learned.

The best method of conveying clinical instruction

must depend in great measure upon the size of the class. When the number of students is small, there is comparatively little difficulty in accomplishing the end in view, if the teacher be possessed of the requisite knowledge and experience; but when the number is great the difficulties are of a much more serious nature than many would suppose, the most prominent of all being that of bringing every student into contact with a certain number of the patients. For this reason, and because the number of students at a great Medical School such as this is very large, the remarks which follow apply exclusively to large classes.

It is very undesirable, for the sake of the patients, that crowds of students should accompany the physician at his ordinary visit, because the excitement, confusion, and noise attendant upon such a course is very likely to have an injurious effect upon some of them; and it is also undesirable, for the sake of the students, because only a comparatively small number can approach the bedside. And, besides, in many instances at all events, especially in cases that are complicated and obscure, and involve a lengthened examination, it is advisable for the medical attendant to have the opportunity of examining the patient leisurely and quietly, so that the least possible risk of an error in diagnosis may be incurred, that the most suitable cases may be made the subjects of instruction, and that the time of the students may not be unnecessarily frittered away, and their patience unduly taxed.

For these, and other reasons, which I need not dwell on here, I shall follow the plan of meeting the members of my class, formally three times a week

—namely, on Mondays, Wednesdays, and Fridays—one of these being devoted to the exposition of selected cases in the wards, and the other two to clinical lectures in the class-room, on some of the cases previously seen in the wards, in accordance with the University ordinances.

The objection which may be urged to this plan is that the majority of the students have not the opportunity of actually examining the patients for themselves; but that will, in a measure, be obviated by dividing the class on Tuesdays, Thursdays, and Saturdays into three sections, one section accompanying me in my visit to the patients, while the others are instructed in rotation by the medical tutors acting under me. This part of the work of bedside instruction could be carried on with much better effect were the medical tutors qualified men with some experience, and not senior students only; and I take this opportunity of saying that the idea which seems to prevail so extensively here of gentlemen supposing that they are fully competent to undertake the treatment of the sick whenever their degree has been obtained, is a most absurd and often a most disastrous one. The first feeling which many a student has, when his time of trial is past, is that he knows everything, that he is fully equal, nay, in some instances, that he is decidedly superior to his teachers, and this perhaps has something to do with the sudden leap from the position of student to that of practitioner. In many cases, however, it is a dire necessity, or arises from a desire for independence, or from a "hasting to be rich"; but in this respect it will often be found that "the more hurry the less speed."

It is impossible to devise any system of clinical

teaching which would be altogether unassailable ; but it is submitted that the conscientious and earnest student has, in the way I have indicated, ample opportunity for becoming to a certain extent familiar with the symptoms, diagnosis, and treatment of disease ; and he can, moreover, hope, by perseverance, for advancement to the position of a clinical clerk, or even to that of resident physician, an appointment which should be the great aim of every one who desires, in after life, to distinguish himself in the practice of his profession.

In considering upon what subject I might appropriately address you on the present occasion, it appeared to me to be a suitable thing to give you a few illustrations of the more recent advances and discoveries in the field of Practical Medicine. These have been neither few nor unimportant, and have materially added to our means of recognizing disease and of treating it with success.

It was only in the days of my student life, when visiting the German hospitals—at a time when it was almost unknown in England—that I first saw the Laryngoscope in the hands of Czermak and of Lewin, and then the importance of this means of investigating the functional and organic affections of the larynx was the more deeply impressed upon my mind from the fact that it was eagerly studied by a young physician with whom I was chiefly associated, by one who has since popularized the instrument in this country, and who has earned for himself the distinction of being the first living authority on the diseases of the throat—I mean Morell Mackenzie of London. Previous to the discovery of this instrument, hardly anything was known of laryngeal diseases, from a clinical point of view ; our knowledge

was of the vaguest and most unsatisfactory kind, and it was with difficulty that even the commonest varieties could be ascertained. Now, however, by means of it we can diagnose them with clearness and precision, and can distinguish laryngeal affections from those presenting pseudo-laryngeal symptoms.

There is at present in the Western Infirmary a patient who is under my care, and who is labouring under that terrible disease, aneurism of the arch of the aorta, which threatens to penetrate the thoracic walls and to prove fatal by hæmorrhage. In this case, amongst other symptoms, hoarseness, croupy-cough, and dyspnœa were noted. These may occur in connection with intra-thoracic aneurisms, from a variety of causes ; but a laryngoscopic examination cleared up all doubt by demonstrating the existence of congestion, coupled with paralysis of one of the vocal cords.

Another case illustrative of the value of the laryngoscope will be mentioned by and by, although quoted for another purpose.

I leave it to my colleague, the lecturer on ophthalmic medicine to instil into your minds the vast increase to our knowledge of the healthy and morbid appearances of the deeper structures of the eye, which the Ophthalmoscope has unfolded, and I content myself, in passing, with reminding you that the employment of this instrument is not only serviceable in the study of diseases of the eye themselves, but that it is frequently of much use in throwing light upon the nature of obscure affections of the brain, and of distant organs, such as the kidneys, so that it is worthy of cultivation, not by the oculist only, but likewise by the physician, who desires to avail himself of every means of elucidating the nature of deep-seated lesions.

One of the most recent novelties is the instrument devised by Marey, and denominated the Sphygmograph, by means of which we can register upon paper the state of arterial tension, as well as the frequency, amplitude, degree of regularity, and other characters of the pulse with a certainty and precision such as cannot be obtained by the mere application of the finger. The discovery of this instrument naturally excited a great deal of attention, and aroused the hope that the key to most of the obscure diseases of the organs of circulation had at last been obtained, but as far as I am able to judge, the results to the physician have not hitherto come up to expectation. The field of its utility appears to be exceedingly limited, and I know of no disease which can with certainty be diagnosed by means of it, which could not be ascertained by the ordinary methods of examination. It is an instrument which, in my opinion, is much more likely to be appreciated by the physiologist than by the physician; medically speaking, it is little more than an interesting toy, and one which is not likely to come into general use in the practice of medicine.

It is far otherwise with regard to another instrument of comparatively recent introduction, and which is by no means so generally employed as its merits deserve. I refer to the Clinical Thermometer. The investigations of Wunderlich and others have shown that by careful and repeated observations of the temperature of the body, by its introduction into the axilla or rectum, valuable information as to the nature of the disease may be obtained, and even in some instances by its means alone, a diagnosis may actually be arrived at. It is only in exceptional cases, however, that its readings are pathognomic of disease, and I am satisfied that it

will come to be chiefly valued for one of two reasons—either to ascertain the presence or absence of pyrexia in doubtful cases, or, when fever is undoubtedly present, to gauge its intensity. The use of an ordinary thermometer too in the sick room of a patient, with the view of regulating the temperature of the atmosphere which surrounds him, more accurately than can be done by the unaided senses, is of the utmost value, especially in inflammatory affections of the respiratory tract, and should be universally adopted, as inattention to this rule is not only calculated to aggravate symptoms and retard recovery, but also to favour the occurrence of relapses, or the supervention of some other disorder.

The introduction of the clinical thermometer as an infallible guide to the intensity of the febrile state has led on the part of a few to the systematic adoption of a method of reducing the temperature in cases of hyperpyrexia, and one which is far more effectual than the administration of drugs; for it must be borne in mind that high fever is, in itself, a source of great danger, apart altogether from that of the disease which has called it into being. This consists in the sucking of ice, the application of iced cloths to the surface of the body, the cold douche, and the cold bath. Of these the most powerful, and the most permanent in its effects, is the last, and which may be usefully employed when the temperature in the axilla registers 105° Fahr. or upwards. The average length of time for the patient to be in the bath is a quarter of an hour, but we must be guided chiefly by its effects, and especially by the rapidity with which the temperature, as ascertained by the thermometer retained in the axilla, approaches the normal temperature of the body, and it must be repeated whenever the results of the previous bath have passed

off. Many recommend that the water should be tepid or slightly warm, and gradually cooled down, but the balance of evidence is in favour of employing it cold from the first, as being in the end less distressing to the patient. If there be cerebral symptoms, such as delirium, the cold douche may, with advantage, be combined with the cold bath, although the latter, by reducing the body-heat, generally modifies the head symptoms. It may appear to those who have not had the opportunity of seeing this treatment carried out, and which I trust you may in the course of the session, that it is a very heroic, not to say dangerous, practice, and I must confess that on the first occasion on which I used it it was with fear and trembling ; but now I am so satisfied of its value and of its safety, that I never would hesitate to recommend it as the best means of combating that terrible concomitant, an inordinately high temperature.

The first case in which I tried this treatment (a case of enteric fever) was a most unpromising one. The patient, a young female, had a temperature varying from 104° to 105.4° ; a pulse of 134 ; respirations, 48. She was delirious, bordering upon insensibility, in a state of great prostration, with profuse diarrhœa, and with very pronounced congestion of the lungs. Before leaving the bath her temperature had fallen to 101.3° , her pulse to 120, her respirations to 42. Her delirium was gone, her cheeks less flushed, and she expressed herself as feeling more comfortable. From this time onwards all the distressing symptoms rapidly subsided, and she made a perfect recovery.

The application of iced cloths, from time to time, if properly administered, is likewise beneficial, not only with the same object in view, but also for the purpose

of removing congestion and inflammation of internal organs. A few weeks ago I was consulted by a young man of sound constitution, but of intemperate habits. He had a hard cough, without, however, any further evidence of pulmonary implication; his tongue was tremulous and coated with a thick white dryish fur; he was constantly sick, and could retain no food; his motions were pale and offensive, and there was tenderness with some enlargement of the liver, and slight jaundice. To these symptoms, on two occasions, was superadded an attack of convulsions, although repeated and careful examinations of the urine yielded negative results, and there was no dropsy. In a short time most of the symptoms moderated; but his tongue remained coated, and his appetite *nil*, while the tenderness and enlargement of the liver became somewhat aggravated, notwithstanding the employment of active treatment. At last I recommended the systematic on a future occasion explain to you. (See Lecture on Galloping Consumption.) The result was almost magical; for within three days his tongue became clean, application of iced cloths to the hepatic region for half an hour three times a day, in the way I shall } *change*
his appetite returned, the area of hepatic dulness was reduced, the pain and tenderness of the liver had almost disappeared, and the poor fellow was loud in his praise of the virtues of the ice-treatment. Cold water is a very simple thing, and we are very apt to despise simples in the treatment of disease; but I trust I have said enough to prove to you that, just as water may be the medium of conveying into the system the seeds of fatal mischief, so may it be the means, in skilful hands, of alleviating symptoms, and even of arresting disease which is rapidly tending to a fatal issue, and I am

surprised to find that it is used so exceptionally in the practice of medicine.

From the study of medical books you might naturally suppose that there is no disease more completely under control than rheumatic fever, and yet when you meet with it at the bedside you will find that most of the remedies recommended for it are useless, if not injurious, a fact which has been recently brought home to the profession by the experiments of Sir William Gull with mint water, although I am far from wishing it to be supposed that my experience would lead me to endorse the conclusions which have been drawn from them. In this complaint I have been very much struck with the value of hydropathic treatment in certain cases. A sheet of oil cloth is placed upon the bed, and on the top of this a blanket wrung out of warm water. The patient is then laid naked upon the bed, and enveloped in the blanket, the ordinary bed-clothes being superadded. He remains in the pack for an hour or two, and the operation is repeated from time to time, if necessary. The first case in which I tried this method of treatment was that of a woman who had been labouring under a severe attack of rheumatic fever for some weeks, and for whom most of the orthodox remedies had been tried in vain. She was wrapt in the blanket for six hours; the following day she was much improved, and a few days thereafter was convalescent.

Again, no one who has given a fair trial to the treatment introduced by Dr. Herbert Davies, of surrounding the inflamed joints with fly-blisters, can have failed to be impressed with the advantages which it sometimes offers—indeed the patients themselves constantly bear testimony to the fact, and call out for

their repetition, the pain of the blisters being child's play in comparison with the pain of the rheumatism ; and there can be no question of the wonderful influence of salicine, salicylic acid, and salicylate of soda, given in large doses, and at short intervals, the temperature speedily falling, and the rheumatic pains in many cases rapidly disappearing. These facts may serve to show you that when we come face to face with rheumatic fever we must not fold our hands, even though we have the sanction of the distinguished authority I have named for doing so, but that by taking advantage of some of the more recent methods of treatment we may help to bring our patients safely into the harbour of convalescence.

It was only in the year 1853 that Sir Charles Locock read a paper at a meeting of the Royal Medico-Chirurgical Society on the value of bromide of potassium in the cure of epilepsy, and since that time it has rapidly risen in favour, and has opened out a new era of hope for the poor epileptic. But its value is not limited to cases of epilepsy, for it is a most useful remedy in the treatment of a great variety of diseases, especially those of a spasmodic character. Thus, if given in appropriate doses, it is capable of arresting the paroxysms of laryngismus stridulus, a complaint which strikes terror into the minds of the little sufferers equally with their guardians, and which too often carries them off with lightning rapidity in the midst apparently of the most perfect health ; and I know of no medicine in the whole pharmacopœia which is so likely to prove beneficial in the treatment of that obstinate affection, urticaria perstans, or recurrent nettle-rash. You are all doubtless familiar with its value, too, in cases of sleeplessness, a condition which is most

distressing to the patient, and calculated, when prolonged, to undermine the health, and to contribute to a fatal issue. But I need not accumulate further proof of the fact that, in the discovery of the therapeutical properties of the bromide of potassium a valuable addition has been made to our means of combating disease.

In the diagnosis and treatment of accumulations of fluids in inward parts medical men were in the habit of resorting to the use of grooved needles, trochars, incisions, and caustics, and even now they are employed by the majority of practitioners; but, thanks to the ingenuity and skill of Dieulafoy, these must soon in great measure be things of the past, that gentleman having applied "the power of pneumatic aspiration" which the vacuum of the air-pump supplies to the "removal of pathological fluids," and the instrument which he has devised, and with which his name will always be honourably associated, he has called the Aspirator. The advantages offered by this method of treatment are, 1st, the simplicity of the operation; 2nd, its safety, which is due to the fineness of the hollow needles employed, and the impossibility of air entering the cavity containing the fluid, so that it may be sought out with freedom, no matter where it is situated, or what its nature may be; and, 3rd, the uniformity which it affords in the treatment of pathological fluids by operation.

It is unnecessary to dwell at present upon the various kinds of aspirators, or upon the way in which they are used, as this can best be done at the bedside when appropriate cases present themselves, and I therefore conclude by remarking that the discovery of this method of operating is of great service to the physician, as

enabling him not only to ascertain with accuracy the presence or absence of fluid accumulations, but also to treat them himself without the aid of the surgeon. Formerly he acquired to avail himself of the services of the latter; now he can carry the surgeon about with him in his pocket. "The treatment of pathological "fluids," as Dieulafoy has said, "is no longer the "exclusive property of surgery; it takes its place in "the domain of medicine: aspiration is ground on "which surgery and medicine may meet, and on which, "I hope, they will be able to draw closer the bonds "which ought to unite them. The diagnosis of fluid "collections is most commonly confided to the art of "the physician; it is auscultation and percussion which "discover to us the effusions of the pleura and peri- "cardium, the cysts and abscesses of the liver, &c.; "and I trust that this method of aspiration, in giving "to medicine the means of testing diagnosis, will also "enable it to institute the treatment."

Until five-and-twenty years ago, medicines were either administered by the mouth or rectum, or rubbed into the skin, or sprinkled upon an abraded surface; but in the year 1855, Dr. Alexander Wood published a paper in the *Edinburgh Medical Journal*, on a "new method of treating neuralgia by the direct application of opiates to the painful part," that is by subcutaneous injection. Since that time this mode of introducing drugs into the system has rapidly risen in favour with the profession (indeed, in some quarters, it seems to be employed to an unjustifiable extent), although it is now pretty generally admitted, as was first pointed out by Mr. Hunter, that the action of the medicine injected does not depend upon its localization at the morbid part—that is to say, it is nearly indifferent where the

injection is made, except in so far as a part which is not very sensitive, in which there is an abundance of adipose tissue, and which is not exposed to local irritation or pressure, is to be preferred. It should only be used in preference to other methods in certain cases and because it offers the following advantages:—

1st. The medicine is quickly absorbed, and its therapeutical action occurs with great rapidity. Some time ago I injected a quarter of a grain of morphia into the cellular tissue of a gentleman who was labouring under a tumour in the brain, which prevented sleep. After making the injection I walked to the table, a distance of a few yards from the bed, laid down the syringe, and turning round, found, to my astonishment, that he was sound asleep.

2nd. Its effects are much more intense than when administered by the mouth, and hence a smaller quantity of it is required, which is sometimes a consideration. For example, quinine is a valuable medicine for the cure of ague, and requires to be given in much larger doses by the mouth than by subcutaneous injection; but it is an expensive drug, and cannot always be had in unlimited quantity in ague districts.

3rd. In certain cases it is the readiest way of bringing the patient under the influence of a drug—in the case of maniacs or those who are unable to swallow, for instance.

4th. Its action is much more certain than when introduced into the stomach, where it is liable to decomposition.

5th. In the case of some drugs unpleasant symptoms, such as vomiting, may sometimes be avoided.

The remedies which I have hitherto used in this way

are morphia, for the relief of pain, cough, sleeplessness, and the like; atropia for the arrest of perspiration; strychnia for the paralysis consequent upon diphtheria, and for the removal of other nervous affections; quinine for the cure of ague and rheumatic fever; corrosive sublimate, with the view of counteracting the effects of a syphilitic taint in the blood; and ergotine for the purpose of arresting hæmorrhage; but I doubt not that many other medicines may be usefully employed in a similar way, and there can be no question of the fact that in certain cases results can be obtained which it would be hopeless to expect from the ordinary methods of administration. It only remains to be added that the objections which have been urged against it are few, and easily overcome. Thus the pain of the puncture may be avoided by freezing the skin with ice or ether spray, while the irritation and inflammation which occasionally follow the injection may in great measure be averted by the use of unirritating and neutral solutions, or by dissolving in the fluid to be injected one-sixth of a grain of morphia, and by the application of iced cloths to the part after the injection has been made.

Electricity, as a means of combating disease, is no recent discovery, but in so far as it is now employed scientifically, and in accordance with our knowledge of its physiological effects, that is, so as to do no mischief, but on the contrary to effect the maximum of good, to that extent must it be ranked as a new therapeutic agent. But even yet there is great difference of opinion as to its value. For, as Althaus has remarked, "there are few remedies employed in the treatment of disease on the value of which the professional mind is less settled than on that of galvanism. Enthusiastic panegyrists

contended fifty years ago, and contend still, that it is a therapeutic agent, superior to all hitherto discovered ; whilst the great majority of the profession entertain serious doubts as to the reality of the remarkable successes which are now and then recorded by medical galvanists." Now, why should this be so ? The cause is not far to seek. It is due to the ignorance of the great majority of those who use it as to the form of electricity which should be resorted to in individual cases, as well as to its intensity and quantity, and as to the mode and duration of its application. Arsenic is a most valuable medicine, but apply it on a poultice to the unbroken skin, or administer it in a very small dose in a case of ague, and it will be altogether inert, or in a very large dose, and it will prove poisonous, or give it to a patient labouring under acute inflammation of the stomach, and it will only serve to aggravate the symptoms : and so it is with electricity. We must study carefully its different forms, its physiological effects, and its therapeutic action, before we can expect to use it with safety and with advantage. On a future occasion, I may refer to this subject in detail, but in the meantime I content myself with two or three illustrations of the benefits it is capable of conferring.

A few weeks ago a young woman was admitted into the Royal Infirmary labouring under a chronic affection of the skin, complicated with partial loss of voice. Well, whenever we meet with this combination of symptoms, we at once suspect that they may be dependent upon a syphilitic taint. But there was no history of syphilis ; a careful examination of the cutaneous manifestation showed that it presented none of the characters of a syphilitic

affection, while a laryngeal examination demonstrated the existence of loss of power of the muscles connected with the vocal cords, and the absence of any organic lesion. The loss of voice was evidently functional, and we came to the conclusion that the case was one of eczema, complicated with hysterical aphonia. Faradization was accordingly resorted to, a pretty strong current being applied directly to the glottis by means of Mackenzie's laryngeal electrode, and instantaneously her voice was restored.

I am at present in attendance upon a gentleman who has a large cancerous tumour in the upper part of the abdomen, and who, in addition to other symptoms, has been much worn out for want of sleep. Before I saw him he had been in the habit of resorting with benefit to that valuable new medicine, but one which is very liable to abuse, the hydrate of chloral. I warned him against the regular and systematic use of this drug, and recommended a trial of the continuous current instead. Accordingly, at bedtime, he was galvanized for ten minutes, the electrodes being applied to the head for four minutes, when ten cells of a Piggot's battery were employed, and to the spine for six minutes, when twenty cells were used. He had been previously quite satisfied with the chloral, but he told me that he had never tried anything which could at all compare with the electricity, having slept more soundly after it than he had previously done for months.

Recently a poor woman, aged about sixty, was admitted into the infirmary labouring under rheumatism of all the large joints, except the left hip, and complicated with valvular affection. The disease was of many months' duration, and having obstinately resisted

the remedies which had previously been employed, cutaneous faradization with the wire brush was resorted to, the skin covering the affected joints being well brushed daily. After the very first application considerable relief was experienced, and after five or six applications the pains in the joints had entirely disappeared.

These are comparatively familiar illustrations of the advantages to be derived from the appropriate use of electricity; but I may give you another which is not so generally known, and which, in Scotland at least, has only been employed by two or three practitioners. In the treatment of aneurismal dilatations of the blood-vessels of the extremities various methods of procedure are open for adoption by the surgeon; but it is far otherwise with regard to internal aneurisms which usually come under the notice of the physician. The prospects of patients labouring under this form of the disease, and especially when it is situated within the chest, are far from encouraging. There are many sources of danger, but of these the most terrible by far is that of rupture of the sac externally and death by hæmorrhage; and I know of no more harrowing spectacle than that of the life's blood of the poor sufferer welling up out of the ruptured sac while we stand at his bedside unable to succour or relieve. Until very recently we knew of no effective means to which we could with any confidence resort with the view of averting so terrible a catastrophe. But, curiously enough, within a comparatively short time, two new methods of treatment have been introduced—the one the administration of large doses of iodide of potassium, and the other, with which we are at present specially concerned, galvano-puncture. This consists

in plunging into the aneurism one or more needles, connected with one or both poles of a battery specially adapted for the purpose, and endeavouring to coagulate the blood by means of electrolysis. The operation may at first sight appear to be a bold one, and one replete with danger ; but a considerable experience of it has satisfied me that, if carried out upon correct principles, and with due care, it is comparatively safe and harmless. It would be out of place at the present time to direct attention to the method of performing this operation, or to cite at length the cases in which it has been employed (see Lecture on Aneurism of the Arch of the Aorta) ; but this I may say, that, while it is far from uniformly successful, it has been the means of prolonging life to an extent which could hardly have been expected, and which is very gratifying indeed.

But the most striking of all the improvements in the treatment of the sick of late years, because the most universal in its operation, is to be found in the increased attention which is being given to the subject of nursing, although it must be admitted that, in this respect, much remains to be done. The days of the Gamps, with their brandy-bottles on the mantelpiece to put their lips to when they feel "disposed," are rapidly passing away, and the generous and self-denying efforts of Florence Nightingale and others who have associated themselves with the movement, are already beginning to yield their much wished-for results. And however much we may differ in opinion as to the propriety of the fair sex sharing with us the labours and responsibilities of medical practice, we are all pretty well agreed that men cannot successfully compete with them in the domain of nursing ; for they have a natural and

inherent aptitude for such duties, such as men cannot possibly pretend to.

In private practice I have often been struck with the repugnance evinced by families to secure the services of a skilful nurse in cases of sickness. They think, not unnaturally perhaps, that a stranger cannot supply the place of those who would make any sacrifice to be of use to the friends they love. But in this respect I thoroughly endorse the statement of Graves that "affection and sorrow cloud the judgment, and the mistaken tenderness of relatives, their want of due firmness, presence of mind, and experience, will frequently counteract your exertions, and mar your best efforts." For nursing is a science, and not a mere intuition; it requires special knowledge, and a special training, and hence the rise and progress of training institutions such as are to be met with in this and other cities at the present day.

In hospital practice, it is impossible to exaggerate the importance of making a careful selection of nurses, and it is with the liveliest satisfaction that I record the fact that the greatest care is being taken in this respect by the excellent Matron of the Western Infirmary. These should not be taken, as is so often done, from the lowest ranks of the community; they should be well educated women of good principles, possessed of tact, firmness, and discretion; who have given evidence of special fitness for the work; and who have been specially trained for the purpose. And in large hospitals such as ours, I am quite satisfied that each physician and surgeon should have under him a head nurse, or sister as she has been called, who is responsible to him for his department, and for the carrying out of his instructions, and it is in the last degree desirable that she should be a lady by birth and by educa-

tion. We should, therefore, earnestly appeal to our lady friends, who have come to recognize the fact that they have duties and responsibilities to their fellow-creatures to discharge, to come forward and help in the good work, for I am perfectly satisfied that by so doing, they will not only earn for themselves the gratitude of the community, but at the same time, in the truest sense, consult their own happiness. It may be said by some that such a scheme, if not chimerical, is at least extravagant; for such persons cannot be got, and if they could, they would require to be remunerated on a much higher scale than the ordinary nurses of the present. But I hold that it is neither the one nor the other. Let ladies understand that there are such openings for the exercise of their abilities, and in a short time there will be no lack of applicants; and although it may be necessary to give them better salaries, it will be found in the long run that it is the most economical course which could be pursued, while there can be no question that it would add very materially to the welfare and comfort of the sick.

Did time permit, I might add many other illustrations of the improvements and advances which have been made of recent years in the practice of our profession; but I have said enough, I hope, to show you that medicine is not a stationary, but a progressive science, and that he who would be successful must cultivate it with assiduity, and must be content to be an earnest student, not only in the class room and in the hospital, but throughout the whole course of his professional career.

The subject which is to occupy our attention throughout this course is an eminently practical one. It shall be my aim, therefore, to make my teaching as

practical as possible, and to pave the way to your being recognized as skilful and successful physicians. I shall strive to show you how to overcome the difficulties which I have myself experienced ; to lay before you the means which best conduce to the recovery of the sick, however empirical they may be, and however little they may be in accordance with the theories which are fashionable ; to make mere theory give place to experience, but, at the same time, to point out to you how, in many cases, the practice of medicine is in accordance with the dictates of theory. These remarks are specially called for at the present time, when so much scepticism is abroad with regard to the value of medicines, and when even distinguished physicians are deluging our periodicals with views subversive of the usefulness of certain remedial measures, because forsooth the theories upon which they are based are incorrect. Let us be scientific if you like ; but when well grounded experience in the treatment of disease clashes with the result of scientific research, let us cling to the former ; for while the one is too often based upon theory, the other is founded upon fact.

In conclusion, let me say that while, in one sense, I am regarded as your teacher, and you are looked upon as my pupils—in another, I may look upon you as my teachers, and myself as your pupil ; for I trust you will ever keep alive in me an ardent desire to increase and consolidate my own information, without which there can be no real advancement, and thus we shall realize the fact that we are mutually interested in one another's improvement, and shall work together cordially and harmoniously for the benefit of all.

LECTURE II.

CASES ILLUSTRATIVE OF PAIN AS A SYMPTOM OF DISEASE.

I PROPOSE dwelling for a little this morning upon a few cases illustrative of pain as a symptom of disease, with the view of impressing upon you the circumstance that the clinical significance of this symptom is exceedingly varied, and that we must endeavour in all cases, if possible, to ascertain the nature of the morbid state of which it is the expression before devising measures for its removal. A short time ago we made a careful examination of a patient in whom pain in the chest was a very prominent feature, which we found to be the result of an aneurism of the arch of the aorta, the treatment of which led to the complete subsidence of the neuralgia. In the following case pain in the chest was likewise a very marked symptom, but its clinical significance, as we shall see, was very different.

James M——, aged forty-nine years, labourer, was admitted into the infirmary on the 19th of August, 1872, suffering from severe pain in the chest. With the exception of an attack of relapsing fever three years ago, he had always previously enjoyed good health, but

his habits were very irregular. This pain, which was of three weeks' duration, seems to have set in suddenly after exposure to cold while perspiring. It extended across the front of the chest and up to the back of the head. It was rheumatic-like in character, very severe, especially at night, was accompanied by a slight cough, and was aggravated by coughing, drawing a long breath, and the like, and also by lying on the left side. He had no fever, and his bowels were regular, but his appetite was indifferent.

The pain in this case was very similar to that in the one just alluded to, and we therefore suspected that it might be dependent upon pressure on the nerves by an aneurismal or other intra-thoracic tumour. A careful examination of the chest, however, failed to elicit any evidence of disease, except a little wheezing at the bases of the lungs posteriorly. On further inquiry we ascertained that three months previous to admission he had an indurated chancre on the glans penis, accompanying an attack of gonorrhœa. We found, further, that the inguinal and posterior cervical glands were enlarged, and that the trunk of the body was pervaded by little, irregularly-shaped, dusky-pink, slightly-elevated blotches, giving to the skin a mottled appearance, unaccompanied by itching, presenting, in fact, all the characters of syphilitic roseola. As the pain in the chest made its appearance about the same time, and was markedly nocturnal in character, we concluded that it was the result of the syphilitic taint. A drachm of mercurial ointment was therefore rubbed into the skin of the thighs and arms alternately, night and morning, and in ten days the pain had entirely disappeared, and the patient refused to remain longer in the hospital. This, then, is a very good illustration of the rational

as distinguished from the empirical, method of treating pain.

Nocturnal pain is a very typical feature in syphilis, but unless this character is well marked we must not at once conclude that it is syphilitic, because painful affections are generally rather more complained of by night than by day ; and, on the other hand, when pain is not nocturnal, we must not of necessity conclude that it is not syphilitic, for this character, as is the case with so many other symptoms of disease, may be wanting.

On the 29th February, 1876, a patient, aged thirty, was admitted into Ward 2, complaining of very severe hemicrania and pain in the left shoulder of ten weeks' duration.

His former history with respect to health was very satisfactory, and his appearance on admission was that of a healthy man. The pains complained of were first experienced ten weeks previous to admission, and almost from the beginning they had much the same severe character as immediately before treatment was commenced. They never presented markedly nocturnal exacerbations, but were as intense in the daytime as during the night, and it did not occur to the patient himself that they were the result of venereal disease. Five years before he had suffered from gonorrhœa and bubo, and two months previous to the occurrence of the symptom referred to he contracted two chancres on the penis. The latter sores healed within a very short time under simple treatment, and he was under the impression that he had escaped the more serious consequences.

On making a physical examination, two small cicatrices were discovered on the glans penis, which,

however, were not indurated. The inguinal and cervical glands were slightly enlarged. On the back and shoulders was a roseolous eruption of no great extent. No other syphilitic manifestations could be discovered. There had been no falling out of the hair and no sore throat. Treatment was begun on March 1st. The patient was ordered light diet, consisting chiefly of milk and soup, and half a drachm of iodide of potassium was to be taken at night. After four or five doses of this medicine had been administered, a very decided change in the patient's condition was experienced. The pains became much less severe, and every morning, after a previous night's dose, he was sensible of a gradual improvement. After March 5th, mercurial inunction was carried on, contemporaneously with the administration of the potassium iodide. The former was stopped two months after its commencement, when the gums began to be sore, and slight salivation was induced, the latter on the 12th of June, more than three months after the date of its first administration. In a fortnight after the commencement of the above treatment, the pains complained of had almost entirely subsided. A complication, however, occurred on the 20th of March. The left knee-joint was attacked with synovitis. For this affection local measures were employed in addition to the foregoing general treatment. On the 24th of May the disease in the knee had disappeared, with the exception of a slight amount of stiffness.

The true nature of this case might very easily have been overlooked, because the patient had no idea that his pains had any connection with a venereal taint, and gave no information under this head until he was specially questioned. Apart from the pain, too, the other

constitutional symptoms were of a very slight character, and the nocturnal exacerbations which, when markedly present, are so characteristic of syphilitic pains, were wanting. The rapidity, however, with which they disappeared under anti-syphilitic treatment left no doubt of their syphilitic parentage. Those who are sceptical of the value of mercury in syphilis may be inclined to point triumphantly to the development of synovitis during the mercurial course; but it must be borne in mind that mercury is like any other drug, in so far as it is unable all at once to grapple with the taint in the system, and so to checkmate it as to render it immediately powerless to call forth further manifestations.

The next case is one of a very different character. Jane H——, aged sixty years, married, was admitted into the infirmary on the 1st of July. Three weeks previously she began to complain of a severe pain in her right hip and right iliac region, which gradually increased in severity, was paroxysmal and smarting in character. About a fortnight before coming into the hospital, a vesicular eruption, extending from the middle line behind to near the middle line in front, and crossing over the hip, made its appearance, and on her admission a few crusts and discoloured marks of this eruption, which had all the appearance of the remains of an attack of shingles, were still apparent. Adduction of the limb gave great pain, but other movements of the hip occasioned no uneasiness. The right iliac region was tender on pressure, but otherwise normal. She slept badly; her pulse was 92, but soft; there was no fever; her tongue was coated, and her appetite bad, but *her bowels were reported regular*. Regarding the pain in the light of a neuralgia, such as so frequently accompanies and follows attacks of shingles, various

anti-neuralgic remedies were employed, but without relief. On the 7th of August, fever, great tenderness and pain of an inflammatory character in the right iliac region, and the other usual symptoms of localized peritonitis were discovered, and on the following day, at 2.30 p.m., she died.

On making a post-mortem examination, a pint of deep-red fluid was found in the cavity of the peritoneum. The lower portion of the ileum, to the extent of about two feet, and to within an inch of its junction with the cæcum, was deeply congested and distended with gas and fluid fæces. The vermiform appendix was firmly adherent to the peritoneal surface of the ileum immediately above the congested part, and the whole of the congested portion had slipped beneath the vermiform appendix and become constricted. In the absence of evidence of obstruction of the bowels, it was quite impossible during life to form a reliable opinion as to the nature of the lesion which gave rise to the pain.

It may be interesting to compare this case with the following.

On the night of Saturday, February 10th, 1872, I was requested by Dr. J. G. Wilson to see along with him a boy aged fourteen, who was suffering from violent paroxysmal attacks of abdominal pain, associated with constipation. He was a delicate lad, but had recently enjoyed good health. His bowels were moved naturally on Thursday morning, but never afterwards. On the evening of that day he lay down upon his back on the floor, and allowed his brothers in play to run over him, their feet being planted upon his abdomen. He went to bed apparently well, but awoke in the middle of the night complaining of intense abdominal pain coming on in paroxysms, and so violent that his screams could be

heard at a distance. Purgatives, warm water injections, and hot applications to the abdomen were employed, but without relief either to the pain or constipation. He was allowed only very small quantities of milk and ice; and on Sunday morning the purgatives were omitted, and during that day he was kept more or less under the influence of belladonna, with some relief to the pain. His pulse during all this time was somewhat quick, but his skin was cool and his tongue clean, and there was no evidence of fever. His urine, it is true, was rather scanty and high-coloured, and at times muddy from deposit of lithates, but this was sufficiently accounted for by the small quantity of fluid which was taken.

On Monday, February 12th, as the case began to assume a surgical aspect, it was thought advisable to avail ourselves of the services of the late Dr. Lyon, who coincided with us as to its serious nature, and, at his suggestion, half a grain of opium was administered every four hours, and with every second dose two grains of calomel. He had in all sixteen grains of calomel and eight of opium. We then gave him three doses of magnesia, a teaspoonful at each dose, at intervals of two hours during the day on Wednesday, but without effect. A good many injections of warm water were administered from time to time by Dr. Bell, who kindly superintended the treatment, and who remained in the house each night.

The examination of the abdomen yielded the same results throughout, except that tympanitic distention appeared to a slight extent two or three days after the illness commenced, and steadily increased to the end. The pain complained of was referred principally to one point—namely, a little below and to the right of the

umbilicus (where also there was slight tenderness), whence it radiated over the abdomen. No dulness could be detected anywhere except towards the right iliac region. The tube of the enema syringe was repeatedly introduced to the extent of at least fifteen inches, showing that there was no obstruction in the lower part of the great gut, while the well-marked tympanites over the whole of the colon led us to conclude that the obstruction had its seat in the small intestine.

On Wednesday, February 14th, and the sixth day of the illness, there being no improvement in the symptoms, and the question then being in the main a surgical one, Dr. George Buchanan was associated with us. After the most careful examination of the patient, and having weighed in the balance the dangers of, and the prospect of relief from, the operation of gastrotomy, it was decided to delay, especially as, although there had occasionally been vomiting, the matters ejected were not in the least stercoraceous, and as there was no certain guide to the seat of the obstruction.

On the morning of the following day, February 15th, and the seventh day of the illness, Dr. Bell reported that our little patient had passed a tolerably quiet night. He had been kept, at our request, pretty fully under the influence of opium, and once he got chloroform to inhale, and once a warm-water injection was given for the relief of paroxysms of pain. His tongue was rather dry, his abdomen more distended and tympanitic, and his bowels had not acted; but there had been no vomiting, and there was little if any tenderness. The paroxysms of pain, though less severe, presented the same characters as before, and always commenced at a point a little below and to the right of the umbili-

cus. His pulse was rather weak, 90, and his temperature as before, normal. Opium fomentations were applied to the abdomen, and eight minims of tincture of belladonna were given for two successive hours and one minim every quarter of an hour thereafter, and he was allowed ice to suck, and champagne and strong soups were given frequently—a teaspoonful at a time. On visiting him again at nine p.m., Dr. Bell reported that he had passed a very comfortable day, and had slept a good deal. He had vomited once, but the matters vomited were not in the least feculent. There was, however, considerable increase of abdominal tension. His pupils were little affected. The treatment was continued, but, with the view of supporting his strength, injections of chicken soup instead of warm water were recommended.

On Friday, the 16th, and eighth day of the illness, there being no improvement in his symptoms, but, on the contrary, his pulse being weak, his temperature for the first time a little above the normal, 99.5° , his abdomen being much more distended, and the vomited matters having emitted a stercoraceous odour, it was determined to try the effect of abdominal puncture. The object of this was threefold : first, to relieve tension and make the patient more comfortable ; second, to give the bowel the chance of contracting upon and expelling its contents ; and third, to enable us to make a more satisfactory examination of the contents of the abdominal cavity. Three punctures were made by Dr. Lyon with a long fine trocar, one about an inch and a half above and to the right of the umbilicus, one about an inch higher up, and one a little to the left of the umbilicus, the most prominent and most tympanitic points being selected. Very little gas escaped, however,

and as fæces began to flow through the trocar, it was considered advisable speedily to withdraw the instrument for fear of any escape of fæces into the peritoneal cavity.

From this time the abdominal pain and the weakness steadily increased, and early on Saturday morning, the 17th February, and ninth day of the disease, he sank.

A post-mortem examination was made on Monday evening, 19th February, two days and a half after death. On opening the abdomen, the colon was found to be collapsed and shrunken, while the small intestines were distended and their peritoneal covering highly congested. Towards the right iliac region well-marked indications of a bygone attack of a localised peritonitis were observed. Here and there the surface of the peritoneum was rough, and, to the touch, as if sprinkled with sand, while in the right iliac region false membranes were detected, and bands and loops of tissue as firm and dense as fiddle strings. Through one of these a knuckle of the small intestine, about fifteen inches from the cæcum, had slipped, so that the tube was completely obstructed. This portion of gut was intensely congested, but not in the least gangrenous.

I shall not stop to discuss the question as to the early employment of gastrotomy in a case such as this, for it is a surgical rather than a medical one ; but I may say that, were a similar case to occur, I should be strongly inclined to recommend early operative interference.

The following is an illustration of abdominal pain due to a very different cause :—

On the 22nd January, 1877, a man aged 20, a ship carpenter, was admitted into Ward 2, complaining principally of occasional pain in the right lumbar region, passing downwards and forwards towards the bladder.

Two years previously he got his left ankle severely sprained, and on his admission into the surgical wards of the Western Infirmary two months after its occurrence, it was found necessary to amputate the foot. While recovering from the operation, his right knee became the seat of inflammation with effusion, which prolonged his confinement to bed for seven months, and during the latter part of that period he was freely stimulated.

About a month after leaving the hospital he began to experience an aching sensation in the right lumbar region, and in a short time this was replaced by a dull pain, which occasionally darted down towards the bladder. The onset of the pain was always preceded by some degree of heaviness and lassitude, and during, and for some hours after each paroxysm, he had nausea, retching, and frequently vomiting. At first these attacks recurred about once a month, but oftener if he exerted himself unusually, lasted for two or three hours, and then left him comparatively well. Latterly, however, the paroxysms came on at shorter intervals, were of longer duration, and were much more severe. The urine at such times was, he thinks, higher in colour, and on standing, presented a slight cloudy appearance.

Physical examination revealed nothing abnormal except that on pressure there was some tenderness in the right loin. His appetite was good, and had been unimpaired all along, while his bowels were rather costive.

On the day after admission, he had a recurrence of the pain, which he felt slightly in the perinæum, as well as in the above-mentioned parts. Relief was almost immediately experienced from $\frac{1}{4}$ gr. of morphia administered subcutaneously.

On examination, it was found that he had passed, in twenty-four hours, 50 ounces of dark, straw-coloured urine—spec. grav., 1022—and presenting a decided “powdered wig” deposit, which, under the microscope, was found to consist of abundant octahedral crystals of oxalate of lime. For three days the pain returned again and again, and the urine all the while retained the above characters. Save slight sickness, he was almost free from disturbance between the paroxysms.

From the above symptoms it was concluded that the paroxysms were those of nephritic colic, due to the presence of a calculus in the pelvis of the right kidney, while the intense acidity of, and the presence of oxalate of lime crystals in the urine, favoured the view that its superficial layers, at all events, were composed of oxalate of lime.

On the 2nd February he was put upon light diet, and began to take a tumblerful of water night and morning, and between meals. For some days he was perfectly free from pain, but on the 5th he complained, for the first time, of pain at the point of the penis, and on one occasion the flow of urine suddenly ceased during the act of micturition. The urine presented a few of the crystals, which were usually absent between the paroxysms.

Forty grains of the citrate of potass in four ounces of water were ordered, on February 7th, to be taken every three hours, and he had, in addition, barley water *ad libitum*. The quantity of urine, which had averaged about 50 or 60 ounces, increased the following day to 120 ounces, and was free from crystals.

He continued well until early on the morning of the 22nd, when he felt an excruciating, sharp pain—unlike anything he had before experienced—in the right loin,

passing gradually downwards and forwards to the hypogastric region in the line of the ureter; then sudden relief from pain ensued, but he continued restless and somewhat exhausted during the day. On getting out of bed the following morning, and attempting to micturate, he was seized with a sharp "stinging" pain at the "root" of the penis; urine was voided slowly, and in small quantities, and then stopped abruptly, the cessation being attended by so much pain that he had to desist from any further attempt. Acting upon instructions, he lay quietly in bed with his pelvis elevated, and partook freely of barley water, along with the citrate of potass, and continued so for some hours till his bladder became distended. He then went down on his elbows and knees, grasped the point of the penis firmly for a few minutes, then suddenly withdrew the pressure and allowed the urine to come with a "gush." This was repeated twice, the last time accompanied by an almost unbearable "cutting" pain passing slowly along the penis. At length the pain ceased, the urine flowed freely, and on examining the vessel, a small mulberry calculus, a little larger than a pea, was found at the bottom. After this he made a rapid recovery, and till March 10th, when he was dismissed at his own request, he remained free from pain, the tenderness in the loin had completely disappeared, and his urine was perfectly natural. On the 31st March, when we last heard of him, he had had no return of his former symptoms, and felt in the most perfect health.

In conclusion, let me refer to two other cases which have recently come under my notice.

On the 26th of January, 1873, I was requested by Dr. Hector Cameron to see with him a gentleman, aged

about sixty-four years, who was complaining of intense pain in the right side, of a few days' duration. He had had a finger amputated on account of disease of the bone about six weeks previous to this date, but the wound was nearly healed before the present disease commenced. He had always hitherto enjoyed good health, and there was apparently no hereditary tendency to disease. The pain was situated in the right side, just below the infra-axillary region, was very intense, and was aggravated by movement, so much so that he sat almost constantly day and night in an arm-chair: he could not be persuaded to lie in bed. His pulse was quiet, his temperature 100° , his appetite bad, his bowels costive, and his urine normal. The pain was so severe that we were unable to examine him thoroughly. On the 3rd of February, when I next saw him, his general state was much the same, but there was tenderness on pressure in the mid-dorsal region, the abdomen was much distended, there was retention of urine, the bowels were obstinately costive, while the lower extremities were œdematous and partially paralysed. A blister was applied to the spine, twenty drops of the liquid extract of ergot were prescribed, and the constipation and retention of urine were treated in the usual way. On the 6th of February we found him very weak, there was complete paralysis of motion of the lower extremities, with partial anæsthesia, the urine was bloody and ammoniacal, and there was a tendency to bed-sores. On the 14th of February we found him pretty much in the same state, but, in addition to his previous symptoms he had cough, with wheezing in the chest, and was exhausted with constantly recurring hiccough. On the 17th he died.

The clinical significance of the pain in this case was at first obscure, but the subsequent symptoms left no doubt as to its dependence upon inflammation of the spinal cord, although no post-mortem examination was permitted.

On the 22nd of October, 1872, I was requested by Dr. Paterson, of Partick, to see, along with him, a young lady, aged about seventeen years, who had previously enjoyed good health. She was in the habit of taking a cold bath at the cessation of each menstrual period; and two days before I saw her, while the other members of the family were at church, she had taken a cold bath presumably after the cessation of menstruation. The day before my visit she had a rigor, which was followed by obstinate vomiting, severe pain in the front of the head, and semi-stupor. When I saw her these symptoms continued, although her countenance was intelligent, her eyes natural, and she understood everything which was said to her, but she had completely lost the sense of hearing. She had slight fever, her skin was rather hot, her pulse 100, but otherwise natural, her tongue slightly coated, and her bowels costive. A dose of senna was prescribed, an ice-bag was applied to her head, and milk and soup were allowed. On the 23rd these symptoms continued; but the headache had become more severe so that she frequently screamed with the pain. Her bowels had not been moved, and therefore one minim of croton oil was administered. Her hair also was cut away. In the evening a blister was applied to the crown of the head. On the 24th it was reported that her bowels had been freely opened by the croton oil, and she was very hungry, and calling out for food. She had, however, a slight cough, and spat a little blood, although there

were no physical signs of pulmonary disease. The sickness had stopped, she looked quite intelligent, her eyes continued natural, but the pain in the head and the total deafness remained. Ten grains of bromide of potassium were given thrice daily. From this time she gradually improved; and in a few days, though still weak, she had quite recovered, but her sense of hearing has never returned. A careful examination of the ears after recovery showed that there was no disease of the tympanic cavities.

This is in my experience a unique case, for the symptoms seem to imply the occurrence of a localised inflammatory exudation at the base of the brain, implicating the roots of the auditory nerves.

Did time permit, I might give you many other curious illustrations of pain as a symptom of disease; but I trust I have said enough to teach you that, while it is often necessary to treat this symptom in an empirical manner, it should always be our endeavour to ascertain the exact nature of the disease of which the pain is the expression, and to treat it accordingly.

LECTURE III.

CASES ILLUSTRATIVE OF GASTRIC AND CEREBRAL
VOMITING.

At our meeting in Ward 2, the other day, I brought under your notice two cases in both of which vomiting was a prominent symptom. In the one the vomiting was dependent upon abdominal, in the other upon cerebral, disease; and as they illustrate well the distinctive features of gastric and cerebral vomiting, we shall, if you please, refer to them, in the first place, from this point of view.

The patient who was the subject of gastric vomiting, lay in bed 6; he who was affected with cerebral vomiting in bed 12; and for convenience we may speak of them as No. 6 and No. 12 respectively.

1st. When vomiting is dependent upon gastric disorder it generally sets in with stomach symptoms. This was the case with No. 6; for in October, 1873, he began to suffer from pain in the stomach after taking food—a pain which in a couple of months became much more severe, and then was accompanied by vomiting. In No. 12, on the other hand, the symptoms were referable to the nervous system—namely, impairment of sight, paralysis of the side of the face, and pain in

the head—symptoms which were succeeded by vomiting.

2nd. In No. 6 the vomiting was associated with retching; while in No. 12 there was no retching, and the vomiting was easy.

3rd. In No. 6 the vomiting was brought on by taking food, but after the contents of the stomach were evacuated the tendency to vomit ceased until food was again taken; while in No. 12 the taking of food had nothing to do with the vomiting, nor did the emptying of the stomach put a stop to it.

4th. In No. 6, on palpation of the epigastric region, there was decided tenderness, and a tendency to the induction of vomiting; in No. 12, on the other hand, there was no tenderness in the epigastrium, nor did manipulation of the abdomen produce any tendency to vomiting.

5th, and lastly. While in No. 6, as we have seen, many stomach symptoms were present, in No. 12 there were none, but, on the other hand, well-marked symptoms referable to disease of the brain.

We now pass on to the consideration of the nature of the diseases under which these patients were labouring; and, first of all, to the case of No. 6, of which the following history was taken at the date of his admission into the infirmary, on the 20th February, 1874:—He is a married man, aged thirty-three, and a plumber by occupation. He has six brothers and three sisters alive and well; but his mother, who is sixty-eight years of age, has been paralysed for four years, and his father died at sixty-five, having been paralysed for some time before death. He seems to have been temperate in his habits, but his diet has been defective and his meals irregular. Until the present illness commenced he has

always enjoyed good health. For two months during the summer of 1873 he was exposed to the fumes emanating from the action of nitric acid upon lead, and two months after this, in October of the same year, he began to complain of pain in the stomach, coming on immediately after taking food. During the Christmas holidays he caught cold by throwing off his flannel underclothing, and after this the pain became much worse and was accompanied by vomiting. He now remained in bed for three weeks, and under medical treatment improved somewhat, but a few days after resuming work he complained of rapidly increasing debility; his legs began to swell, and all his previous symptoms returned in an aggravated form. The pain he describes as being burning or gnawing, giving him the sensation as if his stomach were on fire. At first, however, it was distinctly shooting or darting in character. The pain is greatly aggravated by taking food, but is relieved by vomiting, which generally occurs from three to seven hours after a meal. The vomited matters have latterly had a coffee-ground appearance on many occasions, and occasionally they have been as black as ink. He has all along suffered from flatulent distention of the stomach and bowels. His appetite has continued unimpaired until quite recently, although he did not dare to eat much on account of the pain induced by taking food. As a consequence he has become much emaciated, and complains greatly of debility. He is very pallid, and his skin has a lemon tint. He has never been a smoker. Pulse 92; respiration 20: temperature 99.2°; tongue moist, red, and smooth; bowels very costive.

At the time of admission there seems to have been some suspicion of lead-poisoning; but on examining the

abdomen instead of retraction, which is usual in such cases, we found very decided distention; further, there was no blue line along the edges of the gums, nor was there the slightest tendency to paralysis of the extensor muscles of the forearm; so that the theory of lead poisoning was dismissed as untenable.

The most prominent symptoms in the case were pain, vomiting, abdominal tumour, emaciation, and lemon tint of skin. The *pain*, at first shooting or darting; in the later stages gnawing in character, came on immediately after food was taken, was relieved by evacuation of the contents of the stomach, and did not return until another meal was partaken of. The *vomiting* usually occurred from three to seven hours after eating; the matters discharged having often a coffee-ground appearance, and being sometimes as black as ink. Again, on placing the patient upon his back, and inspecting the abdomen, we found that it was distended, and that it had an irregular outline, there being greater fulness on the left than on the right side. Percussion over the prominent part was distinctly dull, and produced decided uneasiness. On manipulation we found that the dulness depended upon the presence of a large *tumour*, apparently about the size of a child's head, occupying the epigastric and umbilical regions to the left of the middle line. This tumour was somewhat nodulated, and harder at some parts than at others. I need not dwell upon the other two symptoms—namely, the great and increasing *emaciation* and the *lemon tint of the skin*.

These are the symptoms from which we are generally warranted in concluding that the stomach is the seat of malignant disease; but, as we shall see presently, while the tumour was malignant, it was not connected with

the stomach, but with the mesentery and jejunum, and only indirectly interfered with the former. Such being the diagnosis, and the disease being evidently far advanced, it was apparent that a fatal issue might be expected at an early date. I need not dwell, therefore, upon the treatment, which was palliative, and which consisted of the regulation of the bowels by means of castor oil and warm-water enemata, the application of iced cloths to the abdomen for the relief of pain, and the administration of bismuth and strychnia in effervescence, to give tone to the digestive organs and to relieve vomiting. The diet consisted of milk, and small quantities of brandy in combination with iced soda-water were given occasionally.

This patient died within a few weeks of his admission; and, on post-mortem examination, a large tumour was found in the abdominal cavity. It involved the mesentery of the small intestines and the first part of the jejunum; while the walls of the ileum for a considerable distance were much infiltrated with the same material. The canal of the jejunum was represented by a large excavated cavity, the walls of which were formed by the tumour. The duodenum was for the most part free, except at its lower extremity; while the stomach contained a large quantity of brown fluid, but showed no evidence of disease. The large intestine was adherent to the tumour immediately above the sigmoid flexure. The tumour was smooth on the surface, and presented a slightly irregular outline; it measured six inches from above downwards, and the same distance across. On section it was pale; and on microscopic examination it was found to be principally composed of round cells, which were loose, but admitted of a section being made with ease. It was, in fact, a case of *lympho-sarcoma*.

From the other patient, who is a labourer forty-two years of age, and who was admitted on the 18th of February, 1874, the following history was obtained :— One sister died in childhood, and his father had been an inmate of a lunatic asylum for some years ; otherwise the family history is good. He has always been a steady man, but at times his diet has been poor, especially of late years. On two occasions he “lost his sight” —first when he was about sixteen years of age, and again about a year thereafter, and the sight has been indifferent since then. Four years ago, while carrying a twelve-foot plank upon his shoulder, he suddenly felt his head drawn to the right side, and his left arm and leg, as well as his head, began to shake. He retained consciousness, however, and sat down immediately, but the fit did not pass off for about an hour and a half, and it left a feeling of numbness in the arm and leg. On the following day he had two similar paroxysms, which were preceded by giddiness of a minute’s duration ; these continued for about a quarter of an hour, and were succeeded by a violent pain in the forehead, which has never entirely left him, and which has been generally worse about eleven o’clock at night. He has had a great many fits in all, following one another at regular intervals—sometimes being absent for days, sometimes for months ; while one day he had as many as nine paroxysms. The last occurred four months ago. These fits have been associated with a gradually increasing weakness in the muscles of the left side of the face and of the left arm and leg. The pain in the head is often accompanied by eructations of sour fluid into the mouth, and occasionally by vomiting, but without any preceding feeling of sickness ; the vomiting is easy, and has no connection with the taking of food. Tongue moist

and coated ; appetite bad ; bowels costive ; pulse 72, natural ; temperature normal. Of late he has felt so weak as to be unable to follow his occupation.

An ophthalmoscopic examination of the eyes was made by Mr. Whittaker, who reported congestion of the retina and its disc, with choroiditis in a slight degree. The paralysis of the left side of the face was very marked. The paralysis of the left arm and leg, though distinct, was very partial. Another feature in this case was the pain in the front of the head, which was dull and aching in character, and constantly present, with paroxysmal exacerbations ; it was usually most severe about eleven o'clock at night. In addition to these symptoms, giddiness was complained of, which was most marked on exertion ; and vomiting, which, as we have seen, presented the characters of that symptom when dependent upon cerebral disease. The bowels were constipated.

These symptoms evidently pointed to cerebral disease ; and the question we had to solve was the nature of the brain lesion. I was led to suspect that it might be dependent upon syphilis, and for these reasons :—1st. The pain in the head was decidedly worst at night, particularly about 11 p.m., so much so as to keep him from sleeping, and syphilitic pain, as we know, is generally nocturnal in character. 2ndly. Upon the left tibia, a little below the knee joint, a painful swelling was discovered, evidently the result of implication of the periosteum, such as we frequently meet with in the later stages of syphilis. 3rdly. The skin of the whole of the left side of the neck posteriorly was marked by cicatrices (the result, he said, of an “income” two years before admission), the edges of which were composed of segments of circles, such as we might

expect to follow upon an ulcerated tubercular syphilitic eruption.

Previous to my seeing him the head had been shaved, and blisters applied without benefit. On the 25th of March the iodide of potassium, in ten-grain doses, was prescribed; and, within five or six days of its commencement, the patient felt a great deal better and was able to go about the wards; his appetite returned, his bowels became regular, and the pain in the head entirely disappeared. This improvement was permanent; and by the 20th of April no trace of the paralysis of the arm and leg could be discovered, although that of the left side of the face continued, and still continues, in a modified form. The result of the treatment, then, proves pretty conclusively the correctness of the suspicion that the cerebral lesion was syphilitic in character.

LECTURE IV.

ON A CASE OF HYSTERIA.

MANY of you have been puzzled to account for the symptoms present in the patient who lies in Bed 4 of Ward 5. Let me therefore, in the first place, read you the history which she gave us, and then let us see what we can make of her case. She is nineteen years of age, unmarried, a domestic servant, and she entered the hospital on November 19th, 1874.¹ She complained of pain at the epigastrium, and vomiting of blood of twelve months', vomiting of food of six months', fits of one month's, and retention of urine of two weeks' duration. Her father died of "intestinal disease," and her mother, at thirty-two, in childbed. She has only one brother alive, eight brothers and sisters being dead—one from bronchitis, and one from small-pox, and the rest from fever. She has been in service since she was eleven years of age, and until the commencement of the present illness she has enjoyed good health, with the exception of an "ulcerated throat," which she says troubled her for two years. Her diet has always been good and her habits regular. The catamenia appeared

¹ Case reported by Dr. Charles J. Plumer.

at the age of sixteen, and continued regular, although attended by much pain in the back and head, and sickness, till nine months ago, when they ceased entirely, and since then she has had a constant leucorrhœal discharge.

The epigastric pain came on quite suddenly one evening when she was carrying a heavy tray up stairs. It was of a sharp, tearing character, and caused her to let the tray fall, and to stagger to the ground. After this she was confined to bed for five weeks, and is said to have suffered constant pain. Subsequent to this, after taking a short walk, she was seized with sudden faintness, nausea, and increased pain, followed shortly by the vomiting of a considerable quantity of blood. These attacks have recurred almost every day since then, and always about five o'clock in the afternoon; she knows when one is impending, owing to the occurrence of a creeping sensation in the stomach, accompanied by an increase of the pain. After suffering for five weeks she went to the Glasgow Royal Infirmary, where she was treated for three months, and, thinking herself well, she then returned to work for a few weeks. The vomiting of blood continued, however, unrelieved, and the other symptoms became again aggravated, so that she returned to the hospital for two months more. About this time she began to vomit everything which she took, and continued to do so up to the date of her admission. About a month ago she was suddenly seized, while sitting at the fire one evening, with giddiness, nausea, and faintness, and fell to the floor insensible. The same thing happened about a week ago twice in one day.

Three weeks ago she began to experience pain and scalding when passing water, and had some difficulty

in emptying the bladder. This gradually increased till only a few drops could be made at a time, and a fortnight ago the flow ceased entirely, necessitating the use of the catheter twice a day. During the past year the bowels have been very costive, and for some months injections have been necessary to open them. She has often noticed that the evacuations were very dark, and she says that she has not been moved for a fortnight.

During the last three weeks her feet, legs, and abdomen are said to have been swelled several times, but the swelling has been relieved by putting her feet in hot water, and by assuming the recumbent posture.

Now, if we analyse these symptoms we find that there is manifest derangement (A) of the digestive system, (B) of the genito-urinary system, and (C) of the nervous system.

Let me refer to each of these in succession, and first of all to *the derangement of the digestive system*. The patient's tongue is coated with a thick white fur, she is not thirsty, but she has no appetite. She complains of pain in the stomach, and of tenderness in the epigastric region; she vomits, and sometimes puts up blood, and her bowels are exceedingly costive. Such a catalogue of symptoms at once suggests the suspicion that she may have ulceration of the stomach. Let us see whether this view can be sustained.

(1.) The symptoms of ulcer set in gradually as a rule; the patient at first complains of dyspeptic symptoms, and it is only by degrees that the disease emerges from the mist which in the early stage obscures it. But our patient's stomach symptoms set in almost instantaneously when carrying a heavy tray up stairs.

(2.) A patient with ulceration of a year's standing is generally pallid, the features are wrinkled, and expressive of anxiety and distress, and there is emaciation ; but our patient is plump and rosy, and healthy-looking.

(3.) In ulceration of the stomach there is pain of a gnawing or burning character, coming on shortly after food is taken, and gradually increasing in intensity until the contents of the stomach are discharged by vomiting, after which the pain generally subsides. Our patient, on the other hand, tells us that the pain is of a pricking character, does not come on until some time after food is taken, is as severe at first as it is after a time, and does not end with vomiting. In ulceration, too, it is hard, hot, and irritating food which is specially provocative of pain, while in this case the pain comes on equally after a mouthful of water or a beefsteak.

(4.) Again, in ulceration, localized tenderness is frequently complained of immediately beneath the ensiform cartilage, and from this our patient apparently suffers ; but it is difficult to believe that there is any real tenderness, for when the part was touched at first she nearly sprang out of bed, but when her attention was directed to other matters, she did not complain at all.

The symptoms characteristic of ulceration of the stomach will be more fully impressed upon your minds if I recall the case of a woman who was admitted into Ward 9 on the 4th November, 1874. She was forty-six years of age, and complained of pain in the epigastrium and chest, shooting through to the back and up to the neck, of vomiting, hæmatemesis, and anorexia of two years' duration. She was married

at the age of twenty-six, and had three children, her catamenia were regular until three years ago, when menstruation ceased, and for twelve months thereafter she suffered constantly from leucorrhœa.

Two years ago she began to complain of pain in the epigastrium of a gnawing character, which gradually increased in severity; it always came on soon after taking food, especially hard, hot, or irritating food, and rapidly increased in severity until she vomited the contents of the stomach, after which she was relieved for the time. One morning, about a month after the onset of the pain, and soon after breakfast, she was suddenly seized with giddiness, faintness, and nausea, and vomited a basinful of blood. Nine months after the first attack of hæmatemesis she had an attack of epistaxis, necessitating plugging of the nostrils, and six months ago she had a second attack of hæmatemesis, when, however, only a small quantity of blood was lost.

After her admission there was no more vomiting of blood, but the pain and vomiting after food continued unabated, and she complained greatly of weakness. Her tongue was slightly coated and her appetite was fair, but she was afraid to eat. Her bowels were very costive, and there was distinct localized tenderness immediately below the ensiform cartilage and at the corresponding part of the spine behind. There was no fever, though considerable emaciation, pallor, and anxiety of countenance, and with the exception of the stomach, the internal organs were healthy.

Here, then, we have a very different history from that given by the other patient, although there is in some respects a superficial resemblance between the two, and I am led to conclude that she is not labouring under ulceration of the stomach at all, but that her

stomach symptoms are of a hysterical nature. But you may very naturally say that although the other symptoms may have no real foundation in fact, surely the vomiting of blood must be real. This is by no means certain, however. In cases of ulceration the hæmorrhage is usually profuse, and takes place after food, at a time when the blood-vessels of the stomach are gorged with blood, whereas in our patient the vomiting occurred very regularly at five o'clock, and unconnected with the taking of food, and it was discharged in small quantities only. My suspicions having been aroused, the nurse was directed to watch the patient narrowly, and since that time no blood has been put up, a circumstance well calculated to confirm the suspicion that the hæmorrhage was either extraneous, or was brought about by some act of the patient herself. Some time ago I had under my care in the Royal Infirmary a woman who presented symptoms somewhat similar to those met with in the present case, including the vomiting of blood, and for a long time we could not tell where it came from. I therefore had the patient watched, when the nurse discovered that she was in the habit of retiring into the scullery, where she made her gums bleed by pricking them, after which she returned into the Ward and had her usual attack. I think it was the late Dr. Bennett of Edinburgh who reported the case of a patient who had suspicious vomiting of blood, which, on microscopic examination, was found not to be human blood at all, for the blood corpuscles were oval. So you see we must not be led away from the diagnosis of hysteria merely because there is apparent hæmatemesis.

Secondly—*There is derangement of the genito-urinary system.* Amenorrhœa is a very frequent accompani-

ment of hysteria, whether as cause or effect I shall not pause to inquire at the present time; while retention of urine in a young woman in whom there is no apparent cause to account for it is a very usual symptom of hysteria. And here let me pause for a moment to refer to the diagnosis of retention of urine as a symptom of disease, because this is by no means such a simple matter as you might suppose, unless care is taken, and I have frequently seen mistakes made with regard to it. Our patient on admission had a tumour in the hypogastric region, and on inquiry she informed us that she was making water more frequently than usual. You are very apt to suppose from this that the tumour is not a distended bladder, and to be thrown off your guard; but on the contrary it should rather increase your suspicions in that direction, because when the bladder is distended, although the sphincter does not thoroughly relax, there is apt to be an overflow in the shape of frequently dribbling of urine. In doubtful cases the use of the catheter clears up the difficulty, but then you should not use the ordinary silver female catheter, as, owing to the stretching of the neck of the bladder, it may not fairly enter the viscus, but a long gum elastic one such as we use for the male. Even then your diagnosis is not absolutely certain, as the following case, which the late Dr. M'Farlane used to tell us in his lectures on Practice of Medicine, will show. A medical man suffered from gradually increasing distention of the abdomen, which at last became enormous, and he himself supposed that he was dropsical. A medical friend suspected, however, that the symptoms were due to retention of urine. A catheter was accordingly introduced, and a very large quantity of urine removed, but this only reduced the tumour one

half. Three days after the patient died, and on *post-mortem* examination it was found that the bladder had an hour-glass contraction in the middle, and upon the orifice of communication between the two chambers lay a flat calculus, thus preventing the escape of the urine from the upper chamber when the catheter was introduced. In the great majority of instances, however, if you are on your guard, and use the catheter, an error of diagnosis is not likely to occur.

Thirdly,—*There is derangement of the nervous system.* About a month previous to admission she had what was described as a fit, and after she entered the hospital she had several. Now, epileptiform seizures often occur in hysterical subjects, and we had little difficulty in this case in making the diagnosis of hysterical epilepsy, partly owing to what has been already stated, but also for the following reasons. A true epileptic seizure presents the following characters in typical cases. The “aura epileptica,” which varies in character, immediately precedes the fit; the patient falls to the ground insensible, pallid and rigid, but the pallor soon gives place to lividity, and the rigidity to clonic convulsions, which are more marked upon one side of the body than the other, and are frequently associated with foaming at the mouth, which may be bloody if the tongue is bitten. The pupils are dilated and do not respond to light, and the eye is so insensible that you may touch the cornea without the patient wincing. The convulsive movements soon begin to subside, but the patient at first is in a state of stupor, and has a great tendency to sleep. In our patient, on the other hand, the phenomena of the paroxysm were very different. She could tell for hours before an attack set in that it was impending. During the paroxysms both sides were equally affected,

and the convulsion was very demonstrative. She flung her arms about, and cried, and moaned. The paroxysms lasted longer than a true epileptic convulsion ; the insensibility was not complete ; the cornea was sensitive ; the pupil was not dilated, and finally the seizure ended in a fit of crying or of laughing.

We have come to the conclusion, then, that the derangements of the digestive, genito-urinary, and nervous systems are manifestations of hysteria. But what is hysteria ? If you ask a medical man this question he will, perhaps, tell you that he can tell it when he sees it, but that he cannot accurately define it ; and truth to say, it is very difficult of definition, because we really cannot say in what it essentially consists, and because it may simulate almost every known disease. It gives evidence of its presence in a distinct perversion of the moral and physical well-being of the individual attacked, a perversion which is of a purely functional nature, and yet which may occur as a complication, and be called into activity as the result of organic disease. We know really very little of its ætiology. In persons who are predisposed to it, depression of the system, such as results from diarrhœa, over-lactation, and the like, is apt to call it into activity ; it is also likely to follow upon sudden fear, agitation, or anxiety. It is much more generally met with in females than in males, because, probably, they are endowed with more delicate and more sensitive nervous systems, and when it occurs in males, it may be, as has been well remarked, because their nervous systems are of the feminine type. In females it usually commences about the age of puberty. Thus, of 351 recorded cases of hysteria, 273 persons had their first attack between the ages of 10 and 25. When males are affected it is gener-

ally later in life. It is more frequent in unmarried than in married females, and it would seem to be often associated with menstrual disorders and displacements of the uterus ; but we must not exalt these conditions too much as causes of hysteria, for if there be a predisposition to attacks, any derangement of any organ may call it into being. "Some women," says Reynolds, "are as little likely to become hysterical as some men are to fall pregnant ; they are of masculine build, both mental and bodily, and their existence and predisposition to disease furnish another proof of the truth of the general proposition, that it is in the nervous endowments, and not in the nature of the reproductive apparatus, that the special predisposition lies."¹ The same writer has also well remarked that "absence of employment, as it is commonly met with among the upper classes, favours the production of hysteria in women," "and that overwork, anxiety, and great strain upon the intellectual and moral faculties, lead to the development of hysteria in man."² One other circumstance must be kept in mind from an ætiological point of view, and that is, that the disease is at times hereditary, occurring as it does in certain families, and cropping up amongst them in a remarkable manner, depending, no doubt, upon a particular vice or quality of the nervous system ; but at the same time it may happen, when it occurs both in mother and child, as the result of imitation rather than of hereditary tendency, thus illustrating the truth of the old saying, that "as the old cock crows the young one learns."

The treatment of cases of this kind is always tedious and requires very careful regulation, but in carrying it

¹ A System of Medicine, vol. II., art. Hysteria, by J. Russell Reynolds, M.D., p. 307. Macmillan & Co., London, 1868.

² Op. cit., p. 309.

out we must operate upon the mind rather than directly upon the body. We must on no account whatever make light of our patient's symptoms, we must listen attentively to all her complaints, and make her feel that we consider them real, but at the same time we should hold out good prospects of ultimate recovery. We must try, as much as possible, to take the patient out of herself by interesting her in other persons or in other things ; we must make her feel that she is useful to others, but for their sakes, not for the purpose of benefiting herself. With this object in view, we have asked our patient to leave her bed, and to assist the head nurse in the work of the wards, on the plea that many of the other patients are very ill, and that the nurse is unable to give sufficient personal attention to them all. In addition to this, we are apparently attacking with energy the ailments of which she specially complains. Besides attention to her general health, we have applied a belladonna plaster for the cure of the fancied epigastric pain. For the relief of the constipation and retention of urine and amenorrhœa we have resorted to Faradization, one pole being applied to the lower part of the spine, and the other at first above the pubis, and then upwards in the direction of the colon, a method of procedure which we trust may have a beneficial effect upon the mind, as well as upon the body. At the menstrual periods, too, she is to have warm hip baths, and her bowels are to be kept freely open with aloes and iron pills. I have very little faith in anti-hysterical remedies apart from the impression which their nauseous taste makes upon the mind, and I close these few observations by repeating, that in the treatment of hysteria, we must endeavour to cure by moral rather than by medicinal measures.

LECTURE V.

CASES ILLUSTRATIVE OF SPINAL IRRITATION.

IN the year 1828 the late Dr. Brown of Glasgow¹ directed attention to a class of cases illustrative of disorder of the spinal cord, to which he gave the name of spinal irritation. This affection had previously been alluded to by Mr. Player of Malmesbury in an article in the *Quarterly Journal of Science* for January 1822, and a good many years afterwards it formed the subject of important contributions to our knowledge of it as a distinct affection from the pen of the late Mr. Teale of Leeds,² and a few years later from the Messrs. Griffin of Limerick.³ To these gentlemen we owe almost all that we know of it at the present day.

It is especially apt to occur in debilitated, nervous, and hysterical subjects, and, although it is sometimes met with in males, it is *par excellence*, a disease of the

¹ "On Irritation of the Spinal Nerves." By Thos. Brown, M.D. *Glasgow Medical Journal*, vol. I., p. 131, 1828.

² "A Treatise on Neuralgic Diseases of the Spinal Marrow and Ganglia of the Sympathetic Nerve." By T. P. Teale. London, Highley, 1829.

³ "Observations on Functional Affections of the Spinal Cord and Ganglionic System of Nerves, in which their identity with Sympathetic, Nervous, and Irritative Diseases is illustrated." By Wm. Griffin, M.D., and David Griffin, M.R.C.S. London, Burgess & Hill, 1834.

female sex. This is well shown by the statistics of the Messrs. Griffin, for of one hundred and forty-eight cases, twenty-six occurred in males, forty-nine in married women, and seventy-three in girls. According to Radcliffe, a strain or blow upon the back is apt to prove its starting point, although I cannot say that I have noticed such a connection, and it is the opinion of some that it is at times hereditary.

The true nature of this morbid state is much disputed, and as the disease is one which is seldom, if ever, fatal, it is somewhat difficult to place its pathology upon a reliable basis. According to Brown, "the immediate cause . . . is spasm of one or other of the muscles, arranged along the spine, altering the position of the vertebræ, or otherwise compressing the nerves as they issue from the spinal marrow." Teale, on the other hand, attributed it to congestion, which by continuance and repetition may so far impair the tone of the capillaries as to produce a state of actual inflammation; while Radcliffe seems of opinion that the opposite condition, namely capillary contraction and bloodlessness, is nearer the truth. But whatever the correct interpretation may be, certain it is that the abstraction of blood by leeches or cupping glasses, applied over the tender spine, and the application of blisters in the same situation, that is, the usual remedies for local congestion, are the most efficacious means of cure.

The most characteristic symptom of spinal irritation is tenderness of the spine, which may implicate it in its whole length, but much more frequently at one or several parts, and the symptoms of functional derangement of internal organs, and the pain so often complained of, generally bear some relation to the seat of the tenderness. In a large proportion of cases the

patient makes no complaint of uneasiness in the region of the spine, and when asked if he has any pain in the back, answers as often in the negative as in the affirmative, so that, unless this symptom is specially looked for, and the spine carefully examined, the tenderness is exceedingly apt to be overlooked. For this reason, and because there is hardly a single disease in the whole category of ailments which may not be more or less accurately simulated by it, errors of diagnosis are of everyday occurrence. The following points, all of which, with the exception of the last, perhaps, I can verify from my own experience, are specially insisted upon by the Messrs. Griffin as aids to the diagnosis:—

“1. The pain or disorder of any particular organ being altogether out of proportion to the constitutional disturbance.

“2. The complaints, whatever they may be, usually relieved by the recumbent position, always increased by lifting weights, bending, stooping, or twisting the spine; and among the poorer classes, often consequent to the labour of carrying heavy loads, as in drawing water, &c.

“3. The existence of tenderness at that part of the spine which corresponds with the disordered organ, and the increase of pain in that organ by pressure on the corresponding region of the spine.

“4. The disposition to a sudden transference of the diseased action from one organ or part to another, or the occurrence of hysterical symptoms in affections apparently acute.

“5. Perhaps we may mention the occurrence of continued fits of yawning, or sneezing. They are not very common symptoms; but as scarcely ever occurring in

acute or organic diseases, they may generally be considered as characteristic of nervous irritation."

With these preliminary remarks, I pass on to give you a few illustrations of this curious complaint, and I commence with one of the most familiar varieties. A short time ago—and many such cases have come under my observation—a lady brought her daughter to me from the country because she feared that she had heart disease. On enquiry it seemed that she had for a considerable period of time suffered from palpitation, and from pain immediately below the left nipple, and on asking her to point to the affected part, she covered it with the point of the finger, not with the palm—that is to say, the uneasiness was very localized, as it so generally is in these cases. I asked her if she had any pain in the back and she answered no; but, on examination, very decided tenderness was experienced on pressing upon the spine opposite the seat of the pain in the side. She seemed in every other respect to be a very healthy girl, and I was able to assure her that those who feared they had heart disease, generally had it not, and that there was a good prospect of speedy amendment. A fly blister was applied over the tender part of the spine, and, a fortnight afterwards, when I next saw her, the spinal tenderness had completely disappeared, and the palpitation and pain below the nipple were no longer complained of.

Some months ago a labourer, aged forty-two, was admitted into the Royal Infirmary under my care, complaining of pain which, commencing in the lumbar region, "went in stounds" down the outside of the right thigh and leg nearly to the ankle, *i.e.* along the course of the sciatic nerve. Two years previously he had an attack of what he called lumbago, the pain of

which was aggravated by motion, especially on stooping or rising suddenly, but on that occasion the leg was not implicated. The attack of sciatica commenced two months prior to admission, the pain in the limb being much more marked than in the back. It was worst at night, and was aggravated by motion and by pressure behind the trochanter.

No history of venereal affection of any kind could be obtained, but a number of small, coppery, erythematous spots, about two to four lines in diameter, were scattered over different parts of the trunk and limbs, which had rather a suspicious appearance. There was no evidence of digestive derangement: the tongue was clean, bowels regular, skin rather muddy, pulse eighty-two, regular, and of good strength.

This was doubtless a case of sciatica, but sciatica merely means pain along the course of the sciatic nerve; and it is therefore necessary in every case to endeavour to ascertain the cause of the pain, or rather the nature of the condition of which the pain is the expression. In some cases no cause can be detected, and then the pain itself must be directly attacked, as, for example, by the subcutaneous injections of morphia, or the use of the continuous current.

Sciatica is sometimes the result of an injury, or due to inflammation attacking the sheath of the nerve, but there was no evidence of either of these in this case. It is sometimes a manifestation of gout or rheumatism, but the patient was apparently neither gouty nor rheumatic, nor had he any hereditary tendency thereto. It is sometimes the result of digestive derangement, but the digestive organs appeared to be in good order. It may occur in connection with gonorrhœa, in which case it must be regarded as a variety of gonorrhœal rheu-

matism, but the patient had no discharge from the urethra and there was no history of gonorrhœa. It is occasionally a symptom of syphilis, and in this case the dusky tint of the skin, the coppery stains, and the nocturnal exacerbations of the pain, led to the suspicion that it might possibly be the result of this taint.

Finally, it might be a symptom of spinal irritation, in which case pain or pressure over the spine should be present. A careful examination of the spine was accordingly made, although the patient said that he had no uneasiness in that situation. On inspection no abnormality could be detected, but very decided tenderness on pressure was noted over the spinous processes of the upper lumbar vertebrae to the extent of about two inches. The tenderness was equally distinct on each side of the spine in this situation, and the pressure upon the tender part did not aggravate the sciatic pain. Notwithstanding this, the conclusion arrived at was that in all probability the sciatica was the result of spinal irritation.

Accordingly six leeches were applied on two occasions over the seat of the spinal tenderness. The first application diminished the spinal tenderness, while the second removed it almost entirely and diminished the sciatic pain. A few days afterwards a fly-blister was applied in the same situation, and by the time it had healed, both the sciatic and the spinal pain had completely disappeared.

Here is an instance of spinal irritation simulating disease of the liver. A few weeks ago I was hurriedly summoned to the bedside of a lady—aged about thirty—whom I found in great distress. She complained of intense pain in the hepatic region in the situation of the gall-bladder, a pain which was constantly

present, but with paroxysmal aggravations. It seems that it set in gradually, and I was not called until it became intense, and was accompanied by sickness and vomiting. At first I thought that she was passing a gall-stone, and all the more so as she told me that she had a similar attack some years before. But, on enquiry, I ascertained that she had no jaundice in connection with the former attack, nor was there any trace of it during this one, and that she was not aware that she had ever passed gall-stones, although little reliance can be placed on that, seeing that they are often unnoticed. I also observed that she was a delicate-looking and nervous person, and that the pain was aggravated by movement. I therefore asked her if she had any pain in her back, and she said that she had. On examining it I found that, in the dorsal region, at a point corresponding to the seat of the hepatic pain, the spine was exquisitely tender. Little doubt therefore remained in my mind that it, and not the liver, was the prime offender. Accordingly a large blister was applied over the tender part of the former. Next day there was great improvement, and in a few days thereafter, she was able to be up, although the pain in the back and spine were still a little troublesome, especially when she exerted herself. A second blister was therefore applied, after an interval of three or four weeks, in the same situation as the last one, and with immediate improvement, and now she is convalescent and able to go about.

The next case is an illustration of a variety of spinal irritation which occurs more frequently than is perhaps generally supposed, for its true nature is very apt to be overlooked.

On the 20th July, 1871, I was requested to see, in consultation with Dr. Axford, of St. Leonard's, a gentleman, aged about forty-five, who, with the exception of an attack of secondary syphilis about twenty-five years before, had enjoyed good health, until fifteen years previous to my seeing him, at which time he had a very severe attack of gastric fever. For this stimulants were administered very freely, which seems to have proved the starting point of intemperate habits, which continued at intervals till recently.

He never exceeded (indeed, was usually very temperate) in society, and entertained large parties at his own house without even being suspected of inebriety; but, no sooner had the last guest retired than he made his way to the dining room, drank large quantities of any kind of stimulant which was at hand, and in a few minutes was drunk and incapable. This was repeated almost every night for months sometimes, so that the extent to which his system was saturated with alcohol may be readily appreciated.

This induced two attacks of eczema, one of them at least being a most aggravated one, which implicated almost the whole body, and which lasted some months. He had likewise two attacks of what Dr. Axford described as rheumatism of the abdominal muscles. The first was treated by a German surgeon, who mistook the case for peritonitis, and treated him with mercury and leeches applied in great numbers to the abdomen, which weakened him very much; the second by Dr. Axford, and yielded in twenty-four hours to narcotics and soothing remedies.

On recovering from the second attack of eczema, at the close of 1870, he gave up the use of stimulants entirely for three months, and since then, being much

debilitated, and his strength not returning, he resorted to them in great moderation and under medical advice.

When I saw him, with Dr. Axford, he was very weak, could take very little exercise, and had great difficulty in walking upstairs or in going uphill, so much so that his friends feared that paralysis was setting in. His legs were slightly œdematous, and his pulse, which was rather weak, was regular though rapid, being rarely under 100 per minute.

His skin was very dark and swarthy, especially that covering the legs, where it was almost coppery, so much so that Dr. Axford, viewing this circumstance along with his extreme debility, feared the onset of suprarenal disease.

He slept well, and his appetite was good ; but for a good many weeks he ate very little, owing to a frequent obstruction to the passage of food into the stomach, accompanied by severe pain which he referred to the lower third of the sternum, and which was evidently due to spasm of the œsophagus. This spasm only occurred at times, and especially when hard or hot food was swallowed, and sometimes it lasted several minutes, and yielded pretty suddenly when he felt the food "fall into the stomach." If he swallowed a mouthful of fluid the spasm was occasionally overcome, but if not, it increased the obstruction and intensified the pain. Physical examination of the throat and chest yielded negative results ; but marked tenderness of the spine was detected in the upper dorsal region to the extent of several inches, but more at some points than at others.

The urine was free from albumen, but frequently contained crystals of uric acid, which were passed without pain. The bowels were regular.

Many of the symptoms presented by this patient were of a nature to cause much anxiety as to the future. The dusky tint of skin and the debility pointed somewhat to Addison's disease ; but it was hoped that the former was the result of bygone attacks of eczema, either alone or in conjunction with the old-standing syphilitic taint which is well known to favour deep pigmentation of the skin ; and that the latter was sufficiently accounted for by the previous illnesses, and, above all, by the intemperate habits.

The history of the case led us to fear that structural changes might have commenced in the liver ; but there were no symptoms pointing with any probability to this conclusion.

The spasmodic affection of the œsophagus made us suspicious of the presence of an intra-thoracic tumour, syphilitic, aneurismal, or otherwise ; but, apart from the spasms, there was no evidence whatever of such a complication. On the other hand, there was no indication of permanent œsophageal obstruction, as the food was only at times checked in its passage downwards, although too much stress must not be laid upon this fact, for it is well known that spasm of the œsophagus, as of other parts, may occur as the result of tumours which have no direct connection with the œsophagus, and which do not press upon it at all. But the very decided tenderness of the spine led us to hope that that was the cause of the spasms, and that its removal, coupled with the use of means to soothe the nervous system and improve the general health might have the effect of dissipating it. The prognosis, therefore, depended a great deal upon the result of the treatment, which was, therefore, looked forward to with much interest.

A long narrow blister was applied over the tender

part of the spine; light nourishing diet, two glasses of sherry per day, and the following mixture were prescribed:—

R. Potassii bromidi, $\bar{\text{z}}$ ii.
Potassæ bicarbonatis, $\bar{\text{z}}$ i.
Carb. ferri saccharatæ, $\bar{\text{z}}$ ss.
Inf. calumbæ, ad $\bar{\text{z}}$ xxiv.

Sig. A table-spoonful in a wine-glassful of water thrice daily.

In a letter received from this gentleman's wife five days after my visit, she says "The spot in the back which you found tender, and over which the blister was applied, has become very painful, so much so that he feels it whenever he moves or coughs, a thing which he never experienced before. He took food both yesterday and to-day without any choking, the first time for many a month." After the first blister was healed a second one was applied, and, in a short time thereafter, the dysphagia finally disappeared. That these applications were the curative agents is proved, not only by the immediate improvement in the power of swallowing, but also by the increased sensitiveness of the spine immediately succeeding the application of the first blister; while the disappearance of the dysphagia, coincident with the removal of the spinal tenderness, showed that the former was one of the manifold symptoms of spinal irritation.

But the most remarkable instance of this complaint which it has been my lot to encounter, came under my notice while physician to the Royal Infirmary in 1871. This patient, aged seventeen, a plumber, was admitted on the 1st of June.

It was said that he had been very nervous all his life, but had otherwise enjoyed good health until about three years prior to admission, when one forenoon,

while at Ayr, he felt very sick, and vomited, and his abdomen swelled—symptoms which were somewhat relieved by an enema. On that day, too, his hands and his head shook for a short time at intervals, and he complained of severe palpitation. For two and a half months he was unable to work, and seems to have had one or more shaking fits each day, and more aggravated ones at night. For the next six months he was free of these, and was able for light work, but complained of weakness. About this time he seems to have had some sort of tumour in the region of the upper maxilla, which was seen by one of the surgeons to the out-door department of the hospital. It was painted with iodine, and subsided in great measure, but no sooner was it better than the fits recurred: he has never been more than eight days without one, and for the last two and a half months they have been getting gradually worse. He can generally tell when one is impending, as he has, for a minute or so before it, a “feeling of weakness, and trembling in his inside.”

On entering the ward on the 2nd of June, I found him in the midst of one: he was lying on his back quite conscious, able to answer questions which were put to him, and to take food, but he was flapping his arms slowly and regularly, as if they were wings, and closing and opening his eyelids synchronous with the movement of the arms. If we agitated him, by proposing to interfere with these movements, for example, they became incredibly rapid. When one arm was held sufficiently firm to stop its movements, the side-to-side movement of the other ceased, but he immediately began to slap the bed with it with great violence and rapidity. When both arms were bound

down, he at once began to flex and extend the lower extremities with similar force and celerity. When both his arms and legs were bound down he rocked his head from side to side with exceeding rapidity, and said he felt as if his "heart would burst." When the pressure was removed from the lower extremities his head soon ceased to oscillate, and then the legs moved as before. When the pressure was removed from the upper extremities the movements of the lower ceased, and those of the former recommenced.

On entering the ward on the 3rd of June, I found him in the midst of another fit, which at first presented the same characters as on the preceding day, but within a couple of minutes all movements ceased, and the muscles of the trunk became perfectly rigid. While the rigidity continued he was noticed to open his mouth, and thereupon he commenced to open and shut it with great rapidity. About a minute afterwards these movements ceased, his mouth remained widely open, and then he proceeded alternately to protrude and retract his tongue with a rapidity which was perfectly marvellous. In a few minutes all the symptoms passed off, and he expressed himself as feeling well, but much exhausted. He then shook hands with me, and evidently felt much relieved that the paroxysm was over.

On the day of his admission he was put fully under the influence of chloroform, but whenever its effects passed off the paroxysms recommenced. Subsequently twenty-five grains of chloral were administered, half an hour after which he fell asleep, but awoke in a paroxysm in six hours. The subcutaneous injection of one-third of a grain of morphia had a similar effect. It

was thus proved that the fits, which at this time were very numerous and severe, were only temporarily relieved by sedatives and narcotics.

On careful examination of the patient on the 3rd of June, it was found that the lower portion of the spinal column, from the middle of the dorsal region downwards, was decidedly tender upon pressure, especially at the middle of the upper and lower thirds of this part. He was fairly nourished, but looked rather weakly and dwarfed. There was no evidence of fever; his tongue was clean, his appetite deficient, his bowels rather costive, and he denied masturbation. He was ordered light nourishing food, and two ounces of brandy in the twenty-four hours. Six ounces of blood were withdrawn by cupping from the tender spine, and a dose of chloral was repeated at night. On the 5th of June the following report was made:—"Spinal tenderness all but gone; has only had a few slight fits since the cupping and none at all since noon yesterday."

By the 7th there had been no return of the fits, but as the spinal tenderness had not entirely disappeared, a long narrow blister was applied in that region.

On the 8th of June he had one slight fit at one p.m., which lasted about five minutes.

On the 10th of June the following mixture was prescribed:—

R Vini ferri, ℥ij;
Solutionis Fowleri, ℥ii;
Syrupi simplicis, ℥i;
Tincturæ calumbæ ad ℥vi. M.

Sig. A teaspoonful in water three times a day.

On the 14th of June, having been allowed to go

about the ward on the two previous days, he had a severe fit, which lasted from 4.30 till 6.30 a.m., and which was followed by several slighter ones. This is quite in accordance with what we generally notice, that the symptoms of spinal irritation are relieved by rest, and aggravated by exertion.

On the 3rd of July, having had no fits since the 14th of June, and being otherwise well, although his intellectual powers were, as they had all along been, decidedly below par, he was dismissed.

Although cases presenting some features in common with the above have from time to time been observed and recorded, this is, taken as a whole, unique as far as my reading and experience go. The occurrence of anomalous functional disorders associated with well-marked spinal tenderness, and the removal of the symptoms by treatment applied over the seat of the tenderness, prove, in my opinion, the correctness of the diagnosis. It is true that a few fits—one of them a severe one—occurred after the leeching and blistering; but this by no means invalidates the conclusion arrived at, for we often find that the immediate effect of the most appropriate treatment, in this as in many other diseases, is rather to aggravate than to alleviate the symptoms, while the ultimate result is all that can be desired.

Did time permit, I could give you many other illustrations of this curious complaint, but I trust I have said enough to prove to you—1st, that there is such a disease as spinal irritation; 2nd, that its symptoms are of the most varied kind, so much so that it may simulate almost every known ailment; 3rd, that, if we are on our guard, and make a careful examination of the

spine, their true nature can generally be ascertained ; and 4th, that remedies applied directly to the seat of the spinal tenderness, especially leeches and blisters, are the most efficient means of cure, and that, in the majority of cases, they are speedily, and often permanently, successful.

LECTURE VI.

THE PHENOMENA OF EMBOLISM.

ONE of the most valuable results of recent pathological research is the discovery that obstruction of blood-vessels is at the root of a great variety of morbid states, and we are thus put in possession of the key to many lesions, the origin of which was previously mysterious and incomprehensible. In a large proportion of cases this obstruction is due to coagulation of the contained blood—resulting either from its stagnation, or from some alteration in the walls of the vessels—and is termed thrombosis; but, if a thrombus is washed away by the circulating fluid, it is arrested at the first vessel which is too small to allow of its passage, and the results which follow are spoken of as the phenomena of embolism, the obstructing body being then termed an embolus.

Now it is my desire this morning to give you a few illustrations of the phenomena of embolism, the embolus in each being derived from the heart. The first two may be taken as samples of the class of cases most commonly met with in practice, while the last is exceedingly rare, if it is not altogether unique.

On the morning of the 6th February, 1872, a healthy-

looking man, apparently between thirty and forty years of age, was brought into the Glasgow Royal Infirmary by two policemen, who had found him lying on the street in a state of semi-insensibility. No information whatever could be obtained with regard to him, and as he never spoke, we remained to the last quite ignorant of his history.

On admission he was not insensible, but in that state which may be described as "stupid," for when we roused him he seemed to understand at times what was said to him, but was quite unable to speak.

His pupils were rather sluggish, but otherwise natural; the whole of the right side of the body was paralysed; his bowels were only moved by medicine, and he passed his urine involuntarily.

His pulse was 80 and weak; respirations, 28; temperature, 101.4° ; tongue dry and furred.

The area of splenic dulness was found to be considerably increased.

He passed a large quantity of pale urine,—on several days as much as 140 oz. The specific gravity was low, varying from 1,010 to 1,015. It contained albumen decidedly, though in small amount, and a few granular casts were detected in the scanty deposit.

On examination of the heart, which was hypertrophied, a distinct systolic blowing murmur was heard, which was most audible over the aortic valves, and was communicated upwards along the course of the aorta. There was no evidence of pulmonary disease.

These symptoms pointed to the conclusion that deposits had formed upon the segments of the aortic valve, a piece of which had been washed away by the blood, and obstructed the middle cerebral artery of the

left side. Accordingly, he was kept in a state of the most perfect repose, and light nourishing food was given; while, with the view of counteracting the effects of collateral hyperæmia of the brain, a dose of calomel was administered, and cold cloths applied to the head. The cold applications were only continued for a few days, and the calomel purge was not repeated, as the febrile symptoms rapidly subsided. His diet was gradually improved, solid food being substituted for milk and soup. Four ounces of sherry were given, and latterly 30 drops of tincture of perchloride of iron thrice daily.

For three weeks he improved slowly but steadily, became much more intelligent, could utter a few words, such as "yes" and "no," and although he never recovered the least power in his arm, he came to use the leg with considerable freedom.

But on the 28th February it was reported that he was much worse. He was feverish, his temperature and pulse were much elevated, his breathing was very hurried, and he moaned a great deal,—in fact, he had relapsed into the state in which we found him on admission, except that he could move the leg.

On enquiry into the cause of the relapse, it was found that the day before he had got out of bed, contrary to orders, and was assisted to a seat at the side of the fire. That evening the symptoms just noted set in.

He gradually sank, and died on the morning of the 1st of March.

On post-mortem examination an embolus, about the size of a small pea, and tapering in both directions, was discovered in the left middle cerebral artery at its bifurcation. In the left corpus striatum there were several softened patches. The heart was much enlarged, and

each segment of the aortic valve was converted into a bulky, brittle, calcareous mass, which was broken up with the greatest ease.

The lungs were much congested and œdematous. The liver was much enlarged and fatty. The kidneys also were much enlarged, weighing together 1 lb. 10 oz., and congested, the pyramids in particular.

The spleen weighed 1 lb. 13½ oz., and many of its blood-vessels were obstructed by emboli, and the parts supplied by them were either congested, or exhibited a cheesy appearance, or were contracted and cicatricial-like.

Compare this with a case which came under my care about a year previous. The subject of it was a married woman, thirty years of age. Her husband stated that four days before I saw her she rose about 5.30 a.m. for the purpose of sewing a button upon his trousers, when her bowels suddenly became loose, and she fell. She was not insensible, but remained quiet for about twenty minutes upon the floor, after which she was lifted into bed. She never spoke after falling, but next day she came out of bed and did some work in the house. On the following morning she had an attack similar to, though more severe than the first, and after it passed off it was found that she had completely lost the power of the whole of the right side.

Sixteen months previous to admission, while cleaning a window, she fell to a distance of about 15 feet and injured the right leg, since which time she often complained of weakness in the limb. It was said she used to vomit her food, that she spat blood on several occasions, and that she had had a cough for two or three weeks before the attack commenced. She had

been married for ten years, had given birth to a healthy child, which is still alive, a year after her marriage, and had had two miscarriages, the first eighteen months after the birth of the child, and the second a year after the first. No further history could be obtained.

On examination it was found that there was complete paralysis of motion of the whole of the right side; sensation also—tested both as regards the sense of touch, of temperature, and of pain—was completely lost, and the reflex movements were in abeyance. The urine and fæces were passed involuntarily. She looked very intelligent and cheerful, understood everything which was said to her, but could only answer the simplest questions requiring the use of words such as “yes,” “no,” “better,” “Mary.” She could understand perfectly what she saw in a book, but could not read aloud. It was impossible to test her power of writing, because she had never been able to write with facility, and because her right hand was powerless. All the other organs of the body appeared to be healthy, with the exception of the heart, which was evidently enlarged, and at the apex a systolic murmur was audible. Her temperature was 98.5° , respirations natural, pulse 76, and otherwise normal, catamenia regular, and bowels costive.

A few days after admission internal strabismus of the left eye, which before was only suspected, became well marked; her power of speech was, however, improved, and there was slight return of sensation, both in the thigh and arm.

About ten days after this it was noted that she was much more intelligent, spoke better, and had a greater choice of words. The motor paralysis of the

limbs remained nearly stationary, but the paralysis of the bladder and rectum was passing off. Sensation was returning in the leg, and reflex movements were very distinct.

By degrees the improvement in all the symptoms became more marked, and she could move her leg with great freedom, and even attempted to move it in walking.

From this time onward her bowels, which all along were constipated, were regulated with castor oil, etc.; the paralysed limbs were exercised, and rubbed daily with camphorated oil, and five drops of liquor strychniæ three times a day were given.

About two and a half months after her admission it was found that her power of speech was nearly perfect; she could walk without assistance, although somewhat lame with the right leg, and could close the hand, though not firmly, and the squint was decidedly diminished.

Shortly after this she was dismissed at her own request, but was re-admitted five months afterwards, dropsical and helpless, as the result of the heart disease which had furnished the embolus, and in a few days she died.

On post-mortem examination it was found that the left middle cerebral artery, about an inch from its origin and just before its bifurcation, was occupied by a firm pale mass which distended the vessel to a marked extent. Elsewhere the vessels appeared healthy in every respect. The outer portion of the corpus striatum was very much softened, indeed quite diffuent, so much so that a sort of cavity existed, the contents of which were composed of a turbid fluid. The softened portion of brain substance, measuring

about one and a half to two inches from before backwards, involved to a slight extent the island of Reil, just outside the corpus striatum. No other convolution seemed to be affected, and all the other centres, though carefully examined, were found to be healthy.

The heart was much enlarged, all its cavities being dilated, and the walls of the right ventricle distinctly thickened. There was also extensive disease of the mitral orifice and valve. A ragged mass, about half an inch in length, and attached only by a narrow pedicle, hung almost loose from the anterior curtain. This mass felt gritty, and, on taking it between the fingers, a few small granules of calcareous matter separated. The curtains also presented polypoid excrescences, and the orifice was fringed with them. The aortic valves were somewhat rigid, and presented a few calcareous plates. The spleen was slightly enlarged, and there was a cicatrix at its upper part, while the kidneys were small and were the seats of several pretty deep cicatrices; and, in one or two of them, there were the remains of the yellow cheesy appearance seen in cases of embolic infarcta.

These cases, then, are good illustrations of the symptoms and post-mortem appearances usually met with in cases of embolism, the result of heart disease, but the following, which was kindly communicated to me by my former pupil and esteemed friend, Dr. Richard Williams, of Festiniog, North Wales, is worthy of record, as it is an example of an extremely rare, if not unique, form of disease, namely, embolism as the result of hydatid disease of the heart. I give the case nearly in his own words.

“On the morning of the 16th December, 1870, about half-past eight, I was hurriedly called to see a man

who had been taken ill in one of the quarries here. I requested the man who called to bring him to the hospital, and in a few minutes I had him laid in bed in one of the wards. The history of the case prior to this is that he took his breakfast that morning, and went to his work 'as cheerful as usual.' About the time mentioned he was seized in the quarry with pain in the abdomen, and also in the right arm and leg, with some loss of power in these limbs. From what I can gather he did not fall, but took his coat and laid himself down upon it.

"When brought into the hospital he seemed to be in great agony, complaining very much of his abdomen, and writhing and twisting his body in bed, but his lower extremities were almost motionless. He had, however, considerable power in his right arm. On feeling for the pulse, I was unable to detect the slightest trace of a beat in either arm, and the temperature of all the limbs was considerably below the normal, the left leg being colder than the right. On examining the heart it was found beating very feebly and rather slowly. The tongue, as far as I could judge, was protruded in the middle line, and I could trace no deviation in the features. The pupils were sensitive to light, and apparently otherwise normal. In addition to these he had vomiting, the matters ejected being chiefly mucus. During all this time he seemed to be quite conscious. Suspecting embolism of one of the arteries of the brain, I again examined the heart; but it acted so feebly, that did any cause of a murmur exist, it is likely that it would not have been produced. The age of the man (thirty-five) rendered disease of the artery and rupture improbable. A draught, containing 25m. of tr. opii., and as many of sp. am. arom., was given,

a hot bottle was ordered to the feet, and fomentations to the abdomen.

“At this time I was obliged to leave him, in order to see the out-patients. On my return, about two o’clock, I found him lying on his back in bed, moaning and semi-conscious, only answering curtly when spoken to in a loud voice. The right side of the face was now evidently paralysed. The right upper eyelid drooped, and the right corner of the mouth was seen to be lower than the left. When he attempted to put out his tongue, it was pulled to the left side. The right arm lay across the abdomen quite motionless, falling like a lifeless thing when raised and let down again. His pupils were now slightly contracted, but sensitive to light. Reaction had by this time set in, and his pulse could be felt, but the heart’s action was still weak. No murmur could be detected. His abdomen had become very tympanitic. An enema of turpentine and castor oil was administered, almost all of which, however, was rejected.

“From this time he continued to get worse, the pupils became more contracted and less sensitive to light, the tympanitis increased and the breathing became oppressed, and at about a quarter-past ten he died. The vomiting had early become of the coffee-ground character.

“Permission was obtained to make a post-mortem examination. Mr. Roberts, the surgeon to the hospital, with two assistants and myself, made the examination.

“Without going into details, I will mention what we found in the heart, brain, etc. On examining the base of the brain, we noticed in the mouth of the left internal carotid artery, where it had been cut in taking out the brain, a membranous substance, which on being picked out was found to be part of a cyst that

had been cut through with the artery. On looking at the base of the skull, we discovered the corresponding half of the cyst in the mouth of that part of the artery situated in the cavernous sinus. Previously, in taking out the bowels, we had accidentally cut the aorta near its bifurcation, and one or two of these cysts had come out of it, our attention being thus drawn to them. These, however, had burst. After finding the one in the brain, we were led to seek for more, and we succeeded in getting a few in the aorta and iliacs,—all of them being burst except one, which was about two or three times the size of an ordinary pea. One or two of the cysts were of the size of a pigeon's egg.

“We now examined the heart. Attached to the lower part of the septum ventriculi in the left ventricle we noticed a small clot, on removing which a small irregular slit was observed. This opened into a cavity in the septum. I could not better compare this cavity than to the inside of a gizzard, only it was corrugated. I should think it would be, if distended, about $1\frac{1}{2}$ inches in diameter. We at once concluded that this was a case of hydatids of the heart,—that the mother cyst had burst, letting loose the daughter cysts into the cavity of the left ventricle, and so into the circulation; the one in the carotid producing the hemiplegia. Whether our conclusion as to the case being one of hydatids is the right one is a question, as neither of us has ever seen one before. I cannot explain the gradual way in which the paralysis came on, unless it be that at first, in the shock of the bursting of the mother cyst, the action of the heart was not sufficiently strong to block up the artery entirely, and that this was more effectually done when reaction came on, thus cutting off the supply of blood and increasing the paralysis.”

LECTURE VII.

A CASE OF SUPPOSED DISEASE OF THE PONS VAROLII.

THE case which I have to bring under your notice to-day, although rare, is one which in its surroundings has much that is interesting in connection with every-day practice. The following is the history which was given by the patient at the date of her admission on August 7th, 1873:—"Her father died, at the age of forty-six, of typhus fever; her mother at forty-eight, of heart disease. She has one sister and two brothers alive and well, and another brother who has been ill for some years, although she cannot tell the nature of his complaint. She is twenty-three years of age, and by occupation a spinner.

"Prior to the commencement of her present illness she seems always to have enjoyed good health, although her bowels have been habitually costive, and her menstruation, which made its appearance at the age of seventeen years and a half, never very regular—six or eight weeks sometimes intervening between the periods. About two years ago she began to complain of headache, which was limited to the left side of the head, and which has continued ever since. The pain is spoken of as being of a 'beating' character.

It is more or less constantly present, but becomes aggravated at times, especially in the forenoon. It is particularly severe in the left supraorbital region. Within the last six weeks the headache has been accompanied by giddiness, especially when the pain is severe ; so that her gait at these times is unsteady, and she feels as if she is going to fall.

“ About seven weeks prior to admission she began to complain of a ‘prickling’ soreness along the left margin of the tongue, which was increased by eating, and she had great difficulty in pronouncing words. There was also impairment of the sense of taste to a certain extent ; for although she could distinguish between sweet things and bitter, etc., food tasted differently from what it had previously done, though in what the difference consisted she could not explain. In a day or two after the tongue became sore she says she felt a few hard lumps along its left edge, each being about the size of a pea, and very painful to the touch. They disappeared in about three days. As the symptoms referrible to the tongue began to abate, the vision of the left eye became somewhat impaired, and she often fancied that she saw things on the floor which were not present. At first the eyeball was bloodshot to a marked degree, but in a few days the congestion passed off and did not return. At the same time as the eye became affected—*i. e.*, five weeks before admission—the left cheek felt stiff, swollen, and painful, and gradually became paralysed, and she observed that she could not close her left eye, and that her mouth was drawn to the right side. The sense of hearing was not affected. About two weeks after this she experienced a feeling of ‘numbness and coldness’ in the left shoulder, which gradually spread

down the limb, and was followed by weakness, so that she was unable to hold anything in the hand. Immediately afterwards the left leg became similarly affected, and subsequently the right leg also. The paralysis of the lower extremities, too, was only partial, as she could walk, though her gait was unsteady and there was a tendency to dragging of the feet. Finally, five days prior to admission, whilst resting her head upon her right hand, a sharp pain was suddenly experienced in her right shoulder, and spread down the arm to the fingers, causing it to drop on the table. The pain passed off in about a minute, but was followed by a feeling of coldness and numbness and by partial loss of power. She has also had "prickling" pains in the arm at intervals, but no involuntary twitchings. About four months before she was admitted she received a violent blow upon the head over the left eyebrow, which caused her to have a strange sensation in the left side of the upper part of the head for eight or nine days, but from this she recovered perfectly."

On admission her general health was good; the affection of the tongue and left eye had disappeared, but the paralysis of the left side of the face and the semi-paralytic condition of the arms and legs continued. The sensation as to touch and temperature was unimpaired; but in the left leg the sense of pain was below par. The tongue was protruded in the middle line, but the uvula was distinctly carried to the right side. The left cheek was slightly swollen and without expression, the mouth was carried to the right side in laughing, and she was quite unable to whistle or to close her left eye.

Here, then, is a strange and unusual array of threatening and apparently unassociated symptoms, and in

connection with them it shall be our endeavour to make out, first, the seat of the disease, and, secondly, the nature of the disease.

1st. *The seat of the disease.*—A prominent feature in the case was paralysis of the left side of the face; indeed the seventh nerve was completely paralysed, and, as we so often see in cases of this kind, the paralysed muscles did not respond to Faradization. Now, paralysis of the seventh nerve may be due to either central or peripheral causes, and in the latter case, if not traumatic, it is generally due either to exposure to cold, or to disease of the middle ear. The following case is a good illustration, although a rare one, of paralysis of the portio dura nerve in connection with disease of the middle ear.

A woman, aged thirty-seven, of average general health, consulted me on the 8th April, 1863. She informed me that about a month previously (10th March) she went to witness the review on Glasgow Green in honour of the marriage of the Prince of Wales. She was stooping down to raise her child from the ground, when a cannon was fired about a hundred yards (she said) from her, the right ear being directed towards it. Immediately deafness supervened on that side, and she was sensible of tinnitus, which she described as being like "the rush of distant water," and which still continued when I saw her. About two weeks after the accident she observed that when she spoke her mouth was drawn to the left side, and she was unable to close the right eye.

On examination, I found that the paralysis of the right side of the face was complete, and that the tongue, when protruded, was drawn apparently towards the right side. The hearing on the left side was perfect;

on the right the watch was inaudible, either when placed on the temple or pressed against the ear. On inspecting the right ear the meatus was quite natural, but the drum was slightly milky-looking, and rather more concave than natural, although the triangular bright spot passing downwards and forwards from the point of the handle of the malleus, was well defined. On the posterior segment of the drum, parallel to the handle of the malleus, commencing on a level with the middle of it and extending a little way below it, a white ragged line was observed which had all the appearance of a cicatrix. The Eustachian tube was nearly impervious. The patient had experienced no pain in the ear at all, nor was the system apparently affected in any way. The prognosis which I noted down at the time was—Favourable as regards the paralysis; as regards the deafness, slight improvement to be expected; as regards complete recovery of the hearing, unfavourable; and, as regards the tinnitus, doubtful. She was ordered to apply two leeches to the orifice of the meatus, and to take three calomel-and-opium pills daily, each pill containing two grains of calomel and one third of a grain of opium.

On the 13th of April the following was the report:—Leeches bled well; gums unaffected; paralysis as before; watch heard on pressing it firmly against the ear, and distinctly audible when placed on the temple, though not so much so as on the left. The following ointment was now to be rubbed on the right cheek in front of the ear, morning and evening:—Croton oil, half a drachm; antimonial ointment, one ounce.

On the 20th the watch was still more distinctly audible on the temple, and was heard at the distance of one inch from the ear; the paralysis was slightly

improved, especially as regards the closing of the eye. The ointment was omitted. A fly blister, two and a half inches square, was applied immediately in front of the ear.

On the 29th the following report was made:— Watch nearly as audible on the right as on the left temple, and heard at a distance of three inches from the ear; paralysis decidedly less in every respect; tinnitus not quite so loud; drum less opaque. Gums never decidedly affected, though the right cheek was indented by the teeth and slightly ulcerated. The blister was repeated, and a tablespoonful of the following mixture was taken twice daily:—Iodide of potassium, half an ounce; infusion of quassia, twelve ounces. The pills were discontinued.

On the 6th May, a month from the date of her first visit, the paralysis was almost gone; the watch was heard six inches from the ear; the tinnitus remained as on the 29th April; and the drum, though less opaque than at the first visit, was still muddy.

She was recommended to continue the iodide of potassium mixture, and to return, which, however, she never did, so that I am unfortunately unacquainted with the ultimate issue of the case. I had intended to have endeavoured to overcome the obstruction of the Eustachian tube by means of the catheter, with the hope of thereby improving still further the hearing power and of diminishing the tinnitus.

This case is worthy of being recorded, because, as far as my experience and reading go, I have never met with a similar one. ~~That~~ cases of deafness suddenly produced by loud noises are of frequent occurrence no one can deny, and we are all conversant with the supervention of paralysis in consequence of inflamma-

** Rosen that gives similar case in*

tion of the tympanic cavity; but I know of no other case in which there was a combination of these two sets of symptoms. It will be useful, therefore, to inquire into the nature of the case. There can be no doubt that the shock produced by the report of the cannon caused an immediate injury to the ear; and one can have little hesitation, judging from what we know to be the usual cause of deafness from concussion, in affirming that some injury was done to the nervous apparatus in the internal ear. But, unfortunately, sufficient opportunity has not yet been afforded for ascertaining the exact form of injury which is produced in these cases. It is to be hoped, however, that, as the diseases of the ear come to be more carefully studied by the profession, this point may be satisfactorily elucidated.

But, in addition to the injury inflicted upon the internal ear, I have no doubt that a rupture of the drum took place at the moment of the discharge of the gun, for this is by no means a rare result of loud noises, and, besides, it would satisfactorily account for the very distinct cicatrix which was noted at the first visit of the patient on the posterior segment of the drum, and likewise for the subsequent symptoms. I have thus endeavoured to account for the sudden tinnitus and loss of hearing, and for the cicatricial appearance of the drum, but how can the paralysis be accounted for? The explanation I give of it is this:—The injury done to the drum and other structures in the middle ear excited a chronic inflammation of the mucous membrane of the cavity of the tympanum, unaccompanied, as is so often the case, by any appreciable pain. Hence the opaque appearance of the drum when the patient first came under ob-

servation, and the partial obstruction of the tympanic orifice of the Eustachian tube. As this inflammatory condition proceeded, it extended to the aqueduct of Fallopius, as we observe in many uncomplicated cases of tympanitis; and the portio dura nerve in this canal becoming implicated, paralysis of the right side of the face supervened.

The object of the treatment was to allay the inflammatory condition, and the result was as satisfactory as could have been expected under the circumstances.

In the case under discussion to-day there is reason to believe that the paralysis of the portio dura was due to central disease—first, on account of the absence of the usual causes of peripheral paralysis; and, secondly, on account of the accompanying paralysis of the limbs. Now cerebral disease associated with *well-marked* paralysis of the seventh nerve is usually seated in the pons varolii. The following case, reported by Dr. James Russell,¹ and which was marked by many of the symptoms present in our patient, illustrates this point.

A lady, aged forty-two, whom Dr. Russell saw on Oct. 22nd, 1868, along with Mr. Hickenbotham, became in May, 1867, suddenly insensible, and had convulsive movements of the left side. The left side of the face also was “drawn.” She perfectly regained consciousness, but remained with imperfect paralysis of the left limbs and of all the muscles supplied by the right portio dura, the tongue deviating to the left side. Three or four days after her seizure the right eye became much congested and swollen, and continued so for three days, there being neither prominence of the globe nor lachrymation, nor apparently

¹ *British Medical Journal*, October 24th and December 12th, 1868.

any alteration of the pupil. These attacks of congestion of the right eye frequently recurred, and once the left eye was similarly affected. In the first week of December Mr. Hickenbotham was suddenly summoned to her, and found her speechless, but quite conscious, earnestly endeavouring to form words. A few hours afterwards she was quite unconscious, and died within twenty-four hours of her seizure.

At the autopsy, "a narrow, irregular slit was found to exist at the upper part of the right side of the pons, about one-third of an inch in length. Close to it, possibly communicating with it, were two small passages, about half a line wide and twice that length, burrowing across the septum of the pons. There was a faint yellow staining in the surrounding tissue. The tissue of the pons was firm, and there did not appear any wasting of the right half. The medulla oblongata and the crura were healthy. The root of the seventh nerve was not lessened in bulk. The right cerebral ventricle contained about an ounce and a half of loose fresh coagulum. The outer half of the corpus striatum and thalamus and the central tissue enclosing the ventricle on the other side were broken down, converting the ventricle into a large irregular cavity. The septum lucidum was preserved, and the left ventricle contained only some clear colourless fluid. The arteries at the base of the brain were unusually stiff and patulous; both the trunks and the primary branches were spotted with thickened patches, very visible in their interior aspect. In all other respects the brain and its membranes were healthy."

In this instance the symptoms present in our patient were observed, with the exception of the affection of the tongue and of the paralysis of the extremities of

*both sides.*¹ How, then, can we account for the affection of the tongue? Let me, first of all, read you a case of facial paralysis, accompanied by implication of the tongue, reported by Dr. Bazire.²

W. M——, aged forty-eight, an instrument manufacturer, who works habitually in a cold damp place, applied as an out-patient to the hospital on March 25th, 1867. He stated that seventeen days previously he had noticed that the left side of his face was completely paralysed, and added that for two or three days before this he had a sensation, confined to the left half of his tongue, as if the organ had been scalded. Since the paralysis set in he had constantly had a metallic taste on that side. The common tactile sensibility of the parts was not affected. He had been hard of hearing of both ears for many years, but since his face had been paralysed he had been struck with the fact that he could hear better with his left ear than with the right, and decidedly better than before. When he was first seen by Dr. Bazire he presented the well-known appearances of facial palsy: the smooth forehead, and blank aspect of one-half of the face; inability to close the eye on the affected side, to whistle, to frown on that side, etc. The left half of the tongue and of the oral cavity were not dryer than the right, but the patient distinctly stated that he had a metallic taste in the left half of his tongue. His uvula was pendulous, but in a straight line, not inclined to either side; the left half of the velum palati was apparently depressed, and lower than the right half. Hearing was decidedly better on the left side (that of the paralysis) than on the right side.

¹ Only one side of the body was paralysed in Mr. Hickenbotham's case.

² *British Medical Journal*, September 21st, 1867, p. 249.

The perversion of taste present in this case, as well as in our own, is due, according to Claude Bernard, either to "a modification of the circulation of the part, or to deficient erection of the papillæ of the tongue preventing proper contact between them and the sapid substances."¹ This is the result of paralysis of the chorda tympani nerve—a branch of the facial, which joins the lingual branch of the fifth nerve—as is proved by the slightly metallic taste first noticed by Duchenne to result from Faradization of the membrane of the tympanum, which at the same time stimulates the chorda tympani.

When the disease is seated in the upper half of the lateral region of the pons, the facial paralysis and the paralysis of the limbs are situated on the opposite side of the body from the lesion, but, when the lower half is involved, the paralysis of the face is on the same, that of the limbs on the opposite side from the lesion; for, as has been pointed out by Gubler, in that case the facial is implicated after its decussation, while the motor channels for the limbs decussate below the pons.

But how can we account for the paralysis of the limbs on both sides of the body in our patient. In this way, no doubt. The paralysis of the left side of the face, the right arm, and the right leg, may be due to implication of the left side of the pons, while the extension of the disease beyond the middle line would account for the paralysis on the left side of the body.

Let me now refer briefly to the other point, namely—

2nd. *The nature of the disease.*—I think we may reasonably conclude that the symptoms are due either to hæmorrhage, softening, or tumour. In all probability

¹ See Dr. Bazire's paper before-mentioned.

they are not due to *hæmorrhage*. The history is quite different from that which we would expect in such cases—*e. g.*, pain of the head of two years' duration is never observed. Again, this condition is most frequently noticed in persons who are getting up in years, and in whom there is more or less evidence of degeneration of the coats of the superficial vessels—pointing to the probability of a similar degeneration of the cerebral vessels, such as usually precedes rupture; and often there is evidence of cirrhotic disease of the kidneys—as in a case which I shall refer to at length in a subsequent lecture—while our patient is young, the superficial vessels are natural, and the kidneys healthy.

Softening of the brain is usually dependent upon obstruction of a bloodvessel either by an embolus or a thrombus. For similar reasons to those mentioned with regard to hæmorrhage, we may discard the notion that softening from thrombus has produced the symptoms. Nor is it probable that embolism is at the root of the matter, for there is an absence of the usual history and concomitants of such a condition. For example, in such cases we often find a history of this kind:—A patient has an attack of rheumatic fever, which involves not only the joints, but likewise the endocardium. Fibrine is deposited upon the segments of the mitral valve, rendering it incompetent; and a systolic murmur is heard at the apex of the heart. Portions of this deposit are very apt to be washed away by the blood, and to give rise to symptoms of embolism in the brain, spleen, kidneys, etc. Nothing of this kind was present in our case; so that by a process of exclusion it is reasonable to suppose that the symptoms are due to the presence of a small tumour, and, if so, what is the probable nature of the tumour?

First. It may be *syphilitic*; but then we should expect to have a history of syphilis, and to find other manifestations of that disease—such as deep ulceration of one tonsil, nodes on the superficial bones, a tubercular eruption on the skin, or the like. We should also expect the pain of the head to be nocturnal in character. In connection with syphilis, too, the sixth and the third nerves are specially liable to be involved (paralysis of the former giving rise to inversion of the eyeball; of the latter, to dilatation of the pupil, ptosis, and divergent squint). If there was still any doubt, the result of an antisyphilitic treatment might decide the point.

So much for acquired syphilis; but the tumour may be the result of a taint hereditarily transmitted. In that case, however, we would probably have had a history of miscarriages in the mother, and of manifestations of syphilis in the infantile period; we would almost certainly have found other evidences of hereditary syphilis in addition to the cerebral symptoms—such as pallor of the skin, cicatrices upon the face and at the angles of the mouth, stunted growth, prominence of the brow, corneitis, sunken nose, and notched teeth.

Secondly. It may be *tubercular*; but tubercular tumours of the brain most frequently occur between the ages of three and seven years, and there is often a hereditary tendency to tubercular disease. Other manifestations of this diathesis are likewise frequently present, as in the following case reported by Sir Thomas Watson:¹ “I attended,” says he, “with Dr. Latham, a youth whose symptoms led us to believe that he had tubercular disease of the peritoneum. . . . We

¹ “Lectures on the Principles and Practice of Physic,” Fifth Edition, vol. I., p. 380.

thought it probable also, although there were no *physical signs* of pulmonary disease, that his lungs contained crude tubercles. After some time he went down to the coast, and was there attacked with a fit of general convulsions. Up to that period he had shown no symptoms whatever indicative of organic disease within the head. On being apprised of this seizure, we expressed in a letter to the physician then attending him that it had resulted from the presence of scrofulous tumours in the patient's brain. The convulsions returned a few days afterwards with great violence, and the boy died. It was as we had conjectured. The peritoneum was found studded with innumerable miliary tubercles; there were a few crude tubercles, of some size, around the root of the lungs, and two large masses of the same sort in the brain."

In connection with this point it may be well to bear in mind the rule, to which there are few exceptions, that after the age of puberty there is more or less evidence of tubercular disease in the lungs when other organs are attacked. Lastly, were the tumour tubercular, we should expect to find elevation of temperature, although not to so marked an extent as when other organs are involved.

Thirdly. The tumour may be *cancerous*; but cancerous disease generally occurs in persons over forty years of age, and is accompanied by a cachectic appearance, which is not present in our patient. In some cases, too, there is a hereditary tendency to cancer, or (exceptionally) cancer is detected elsewhere.

If tumour there is, then, it is probable it is neither syphilitic, tubercular, nor cancerous. What, then? All that we can say is, that in young adults, if we are able to exclude syphilis, a tumour of the brain

is generally benignant in character (glioma, sarcoma, etc.)

In the treatment of this case, therefore, no attempt has been made to cause the tumour to disappear. All we could do was to treat symptoms and complications. We gave her a course of strychnia, and, as the bowels were constipated, we combined it with sulphate of magnesia in the following form: Sulphate of magnesia, three ounces; dilute sulphuric acid, an ounce and a half; solution of strychnia, three drachms; syrup of ginger, four ounces; infusion of gentian, to twenty-four ounces. A tablespoonful in water to be taken three times a day.

The paralysed side of the face was also galvanized every second day, and a series of blisters were applied alternately in front and behind the ear. Soon after the commencement of the treatment the pain in the head and the paralysis of the extremities disappeared, while the paralysis of the side of the face was considerably modified. At the present time the patient is in the most perfect health, and the only symptom which remains is partial paralysis of the portio dura nerve.¹

[This case was brought under the notice of the Pathological and Clinical Society of Glasgow; and in the

¹ Dr. Thomas Reid examined the eyes of this patient with the ophthalmoscope, and with the following result: There was hypermetropia (one-twentieth) in both, and in both thinning of the choroid. The vision of the left was reduced one-half, but there was no special defect in any region of the field of vision. The papillæ in both were oval-shaped, and the vessels were accompanied in both by white streaks. The upper and inner aspect of the left disc was slightly cupped, and occupied by a network of cicatricial tissue continuous with the white streaks accompanying the vessels. Dr. Reid thought that the symmetrical character of the abnormal shape of the discs pointed to congenital or local rather than intracranial causes. The intraocular changes, viewed by themselves, might be accounted for by the hypermetropia; but, in the light of the other symptoms, it was also possible that they were due to some general cause, syphilitic or other.

discussion which followed, Dr. Alexander Robertson suggested that the symptoms might be due to some inflammatory lesion at the base of the brain; while Dr. Finlayson thought that the facial paralysis was of peripheral origin, and that no one lesion could satisfactorily account for all the paralytic phenomena. In view of the partial, transient, and multiform paralyses so completely recovered from, he was of opinion that a syphilitic or hysterical element was strongly suggested.]

LECTURE VIII.

THE TREATMENT OF ANEURISM OF THE ARCH OF THE AORTA
BY MEANS OF GALVANO-PUNCTURE.

IN the treatment of external aneurisms the surgeon is in the happy position of being able to make a selection from a great variety of surgical measures, but, in the case of deep seated aneurisms, the physician is extremely limited in his choice of remedies. In recent years, however, the scope of our therapeutic measures has been materially enlarged by the discovery of several new methods of treatment. It is to one of these that I intend directing your attention this morning—that of galvano-puncture—in connection with several cases of aneurism of the arch of the aorta, one of which has recently been under observation.

In the electrolytic treatment I have been in the habit of employing a Stöhrer's battery, and, for the most part, needles insulated to within about half an inch of their points, by being coated with vulcanite, as recommended by my friend Dr. John Duncan of Edinburgh. The operations were generally performed in this way:—The skin at the edge of the aneurismal swelling having been frozen with ether, with the aid of Dr. Richardson's spray-producing apparatus, the

needle, connected with the positive pole, was passed obliquely into the aneurismal sac. A zinc plate, connected with the negative pole, was then applied to the chest wall on the opposite side, and about three inches beyond the edge of the swelling, a sponge wrung out of warm salt water intervening between the plate and the skin. The cells of the battery were then raised in the usual way, and the traveller pushed up so as to bring four, six, or eight cells into use. When the operation was completed, the traveller was slowly pushed back, the zinc plate removed from the skin, and the needle extracted, a piece of plaster being applied over the puncture.

The first case which I have to bring under your notice was unsuccessfully treated in this way, and as the result was perhaps due, in part, to the non-observance of some of the precautions to which I shall direct your attention at the end of this lecture, it may prove as instructive as the others which were benefited by the treatment.

On the 11th of October, 1873, there was admitted into the Royal Infirmary a man who was about thirty-four years of age.

“His father died at the age of forty-five, of inflammation of the bowels, and four brothers and four sisters in infancy. His mother is sixty-one years of age, and he has one brother, aged twenty-five, and one sister, aged eighteen, in good health. For the last four years he has been a French polisher, but previous to that time he was a joiner, and has frequently required to lift heavy weights. His diet has always been good and his habits temperate. He has uniformly enjoyed good health, and has had neither rheumatism nor syphilis. About three years ago he began to complain

of palpitation, especially on exertion, and twenty-one months after this, while attending his wife, who was laid up with fever, he experienced a sharp pain in the left breast, which extended into the left shoulder and down the arm. On account of these symptoms he entered the Infirmary on January 11th, 1873, and was said then to be labouring under dilated hypertrophy of the left ventricle, with a double murmur at the base of the heart. Under the influence of rest, tincture of *veratrum viride* in five-drop doses, and syrup of the iodide of iron, he improved considerably, and was dismissed on March 27th. For four months after this he continued in tolerable health, although he suffered at intervals from the palpitation and pain; but about three months ago he observed that he was becoming hoarse, and since then, the hoarseness has gradually increased, although it has never amounted to aphonia. About this time, too, he commenced to complain of attacks of dyspnœa, coming on for the most part when speaking or walking rapidly, and giving rise to a feeling of suffocation, referred to the region of the larynx. For some months also he has had a short, dry, somewhat hollow cough, unaccompanied by expectoration. About five weeks prior to admission a pulsating tumour was detected by a medical man in the jugular fossa, but for a couple of weeks before this he felt 'a beating above the breast-bone.' When the tumour made its appearance the palpitation and pains in the chest subsided. When first discovered it formed a well-marked prominence at the root of the neck, was about the size of a hen's egg, and was tender to the touch. After the appearance of the tumour some difficulty of swallowing was experienced, and he had the feeling 'as if the food was going the wrong way.'

This symptom has latterly in great measure disappeared. He does not sleep well at night, which seems to be due to the pulsation in the tumour. He perspires freely, has been losing flesh rapidly, and frequently changes colour. Tongue moist and slightly coated; appetite variable; bowels uniformly costive; pulse 66, natural; temperature 98.4° ."

On uncovering this man's chest, and placing him upon his back, a distinct swelling was observed at the top of the sternum, and inclined a little to the left side—a swelling which was not very prominent, but which occupied an area about equal to that of a hen's egg. It was to the eye a distinctly pulsating swelling; and, on applying the hand, it was found to be very soft, and not only the seat of pulsation, but also, what is a very characteristic symptom, of expansion, and each time the ventricle contracted a distinct vibration was experienced—"purring tremor," as it is called. On percussion, there was marked dulness, not only over the tumour, but also over the upper part of the manubrium sterni, and extending a little into each subclavicular region. On applying the stethoscope, a loud, rasping, systolic murmur was heard over the tumour. It was also heard over the whole of the chest, in the vessels of the neck and arms, although more markedly in those of the right than in those of the left side, and in the thoracic and abdominal aorta; but it was inaudible in the femoral vessels. The history of this case and these physical signs pointed very conclusively to the existence of an aneurism of the arch of the aorta. But let me point out to you before passing further, that in cases of intrathoracic tumour you may have a somewhat similar history, and you may have likewise most of these physical signs, and therefore mistakes are apt

to be made. You may even have the physical signs of pulsation and of murmur: of pulsation, because the tumour may be lying upon the aorta, or one of the large vessels from which it may be communicated; and of murmur, because it may be pressing on one of these vessels, and obstructing the flow of blood through it. There were, however, two physical signs in this case which are not observed in cases of tumour. One of these is "purring tremor," and the other the feeling of expansion in addition to pulsation. Then there were other features in the case which confirmed our diagnosis, if such confirmation was needed. On examining the superficial vessels—of the arm, for example—we observed that they pulsated very visibly; that they were tortuous, and felt like firm, hard, almost tendinous cords. In fact, we had here signs indicating a degeneration of the coats of the superficial vessels; and we know that when the superficial vessels are degenerated, the coats of the aorta are generally degenerated too, and that a degeneration of the coats of the aorta is the usual predisposing cause of aneurism. Then, on examining the heart, we found that the apex-beat was displaced. It was situated three and a half inches below and an inch and a half to the left of a vertical line drawn through the nipple. The impulse of the heart was heaving; it was observed over a preternaturally extensive area, and there was increased dulness on percussion in a downward direction, and to the left. That is to say, there were the usual symptoms of dilated hypertrophy of the left ventricle of the heart—a condition which is very usually, though not invariably, met with in connection with aneurism of the aorta, owing to the obstruction which it offers to the onward passage of the

blood. In cases of aneurism, too, and for a similar reason, we often find inequalities in the pulses on the two sides of the body. There was not much difference in the pulse at the wrists in this case, but in the right carotid the pulsation was very much stronger than in the left. Again, in non-aneurismal tumours, and particularly in cancerous tumours, which are those most frequently observed within the chest, there is very often a marked distention of the superficial veins. In aneurism this is not generally a marked feature, because the aneurismal tumour is soft and yielding, and does not compress the parts to the same extent as a solid, and therefore unyielding, tumour. In our patient there was no marked distention of the veins. And, lastly, the sex of the patient was just what we might expect in a case of aneurism, which is much more frequent in males than in females. There are, however, certain symptoms frequently observed in cases of aneurism of the aorta which were conspicuous for their absence in this one. Let me mention a few of these. Sometimes the thoracic duct is compressed, and then, owing to the system being deprived of its nutrient supplies, there is rapid emaciation. Our patient was not much emaciated. Again, in a case in Dr. Scott Orr's wards, in which I lately performed galvano-puncture, there was dilatation of the left pupil from pressure upon the sympathetic, which was absent in our patient. In a good many cases there is pressure upon the recurrent nerve; but in this one, although the patient was hoarse, there were none of the usual symptoms of pressure upon it: there was no paralysis of the vocal cords, and there were none of those attacks of suffocative dyspnoea which constitute such a distressing feature of many cases of aneurism of the aorta. And, finally, there was

no evidence of distinct pressure upon the bronchi, because there was no marked shortness of breath, and the air entered apparently with equal freedom into both lungs.

This patient was admitted on the 11th of October, and we thought it right, for a short time at all events, to watch him without carrying out any very energetic treatment. We kept him in a state of perfect repose in bed; we regulated his bowels with castor oil, in order to prevent any straining at stool; and, with the view of calming down the nervous and circulatory systems, we gave him five-and-twenty grains of chloral at bedtime. It soon became evident, however, that the tumour was progressing rapidly towards the surface, and the only hope for him therefore, in my opinion, lay in giving him the chance of the operation of galvanopuncture. This was performed seven times in all—namely, on October 22nd and 26th, on November 2nd, 7th, and 23rd, and on December 1st and 14th. In each operation a Stöhrer's battery with large cells was used; and, unless I state the contrary, you may take it for granted that only one needle was used and connected with the positive pole. The first operation, then, was on the 22nd of October, on which occasion eight cells were used, and the operation lasted half an hour. On October 26th the tumour was not in the least diminished, but, on the contrary, was becoming more prominent towards the left side, and the patient complained of a feeling of soreness across the root of the neck. On this day, therefore, the second operation was performed. Six cells were used for ten minutes, and then eight for fifty minutes—one hour in all; and during the whole of this time the patient complained of burning heat in the aneurism. On October 28th the

tumour was somewhat firmer, and a distinct hard line was observed along the track of the needle. The skin covering it was the seat of a slight inflammatory blush, and the patient complained of a feeling of stiffness across the root of the neck, and occasionally of "stounding" pains in the tumour itself; temperature 99.3° . On account of these symptoms of reaction we only allowed him light food—milk diet and soup. We gave him a draught of castor oil, and applied ice-cold cloths over the tumour for half an hour at a time. On October 30th the pain in the tumour had disappeared and the temperature had fallen to 98.4° , but the feeling of stiffness and soreness was even more marked, and there was some complaint of pressure upon the wind-pipe, of shortness of breath, and of weakness. On November 2nd the third operation was performed, the needle being introduced into the upper part of the tumour. Eight cells were employed on this occasion, and the operation continued for thirty minutes, during the whole of which time the patient complained of intense burning pain. This, however, was soon relieved, as on the former occasion, by the application of iced cloths. On the 3rd of November, as he complained a good deal of palpitation and of pulsation in the swelling, the tincture of *veratrum viride* was prescribed in doses of three drops, gradually increased to ten, three times a day. On the 6th of November the tumour felt firmer. There was no pain, and the patient felt comfortable. On the following day the fourth operation was performed. On this occasion two needles were made use of—one connected with the positive and one with the negative pole. They were introduced parallel to one another, and an inch and a quarter apart. The operation was continued for thirty minutes, four cells

being used for the first twenty, and six for the remaining ten minutes. During the whole time the patient complained of intense burning pain. Now mark what happened on withdrawing the needles. On withdrawing the needle connected with the positive pole not a drop of blood escaped; on extracting the needle connected with the negative pole, however, a jet of blood followed, which at first was dark, but soon became florid, and spouted in jerks as from an artery of moderate size. Nearly an ounce escaped in all, and the hæmorrhage was arrested by the pressure of a graduated compress of lint. I shall refer to this again. On the 23rd of November it was reported that the patient had had no pain since the last operation, and that the heart's action under the influence of the *veratrum viride* was calm. On examining the tumour on that day it was found to be less firm and more prominent, and in the centre there was distinct pointing, and the skin in this situation had a deep brownish-red tint. The fifth operation was performed on this day. One needle was used, which was introduced into the central part of the tumour, the point of the needle being immediately opposite the part which was pointing. Six cells were used, and the operation was continued thirty minutes. Burning heat was complained of, but this was relieved as before by the application of iced cloths. After the operation the pulse was 85, and the heart's action excited, but this was relieved by the administration of ten minims of the tincture of *veratrum viride*. On the 1st of December the tumour was observed to be much more prominent, and pointing most distinctly, and the discoloration of the skin had much extended. Galvano-puncture was performed for the sixth time, six cells being used for fifty minutes.

On the 10th December my assistant, Dr. Strother, being summoned to the patient, found that there was a slight oozing of bloody serum from the most prominent part of the tumour. It was arrested by the application of collodion. On the 14th December the seventh and last operation was performed. Three needles, which were not insulated, were used on this occasion, all in connection with the positive pole, the needles being inserted so that the points were opposite the most prominent part of the swelling. Six cells were used, and the operation was continued for an hour. During the operation there was a slight oozing of blood, owing to the displacement of the collodion. On the 15th December, at half-past four o'clock in the morning, a considerable stream of blood was observed to be flowing down the chest, having separated the collodion covering. The whole tumour was enveloped in narrow strips of lint, soaked in collodion. Over these strips of gutta-percha tissue were placed and sealed up with chloroform, which for the time completely arrested the bleeding. Next morning, at half-past seven, the patient became very weak and vomited. Dr. Strother placed his hand upon the tumour in order to give it support, and while the patient was retching something distinctly gave way, and he exclaimed, "There it is!" This was followed by a gush of blood from all sides, which quickly saturated the sheet and pillows, and for a time he was pulseless. The hæmorrhage was again arrested as before, and the vomiting ceased. After the administration of iced champagne the patient rallied a little, but from time to time the bleeding recurred, and he sank, exhausted and insensible, on the 18th December, at 10.30 a.m.

On post-mortem examination, the surface of the body

presented nothing remarkable, with the exception of a dark prominent mass, which protruded from the skin immediately above the supra-sternal notch, and inclined a little to the left side. It had an oval shape, and measured about three inches from above downwards, and two inches across. Its surface was very irregular, and it was evidently composed of coagulated blood. It was found to communicate, by an aperture in the skin, measuring two inches from above downwards, and one inch across, and about the level of the thyroid gland, with an aneurism of the aorta. The heart was very much enlarged, the left ventricle in particular being hypertrophied and dilated. Owing to the way in which it was thought right to remove the parts, its exact weight could not be ascertained, but it probably weighed from twenty to twenty-two ounces. Numerous calcareous plates were found in the aortic arch, which was somewhat wider than natural. A very large sacculated aneurism sprang from the upper surface of the transverse portion of the arch, with which it communicated by an aperture large enough to admit two fingers, and situated just before the giving off of the large vessels, none of which were directly involved in it. The aneurism was somewhat oval in shape, its long axis, directed from above downwards, measuring between five and six inches. It lay in front, and a little to the left of the larynx and trachea, which it forced slightly backwards and to the right, but it did not seem seriously to interfere with these parts. Although the large vessels were not at their origins involved in the aneurism, the left carotid and subclavian were found to be firmly adherent to, and in part imbedded in, the walls of the sac, while the innominate was only very slightly attached to it. The

sac was almost completely filled with old and recent clots, and at one place, almost in the middle of the sac, and in a line with one of the needle punctures, there was a very distinct stratified coagulum, which was much paler and firmer than the rest. The other organs of the body were healthy. [The preparation shown.]

There is nothing to be proud of in the treatment of this case, but I think it always right, when the opportunity occurs, to tell you of unsuccessful, as well as of successful, cases ; for often as much instruction is to be obtained from our failures as from our successes.

LECTURE IX.

THE TREATMENT OF ANEURISM OF THE ARCH OF THE AORTA
BY MEANS OF GALVANO-PUNCTURE, CONTINUED.

IN my last lecture I related to you the history of a case of aneurism of the arch of the aorta in which the treatment by means of electrolysis was unsuccessful, and now I propose giving you a short account of cases in which it yielded much more satisfactory results.

The first of these was a married woman, aged forty-six, a millworker, who was admitted under my care in the Royal Infirmary on the 8th of November, 1871. She appears to have enjoyed good health until about two years and a half before this time, when, without any obvious cause, she began to complain of a "violent beating at her breast" and of hoarseness. About four months after the onset of the palpitation she first experienced a sensation as if a heavy weight were pressing upon her chest, and complained of lancinating pains between the shoulders, which extended down the left arm, and which gradually increased in severity. About eighteen months previous to admission she observed a swelling in the front of the chest, which was then about the size of a small hen's egg; it extended gradually at first, but much more rapidly

during the last six months of this time. From the time of appearance of the tumour the palpitation became more marked, being also aggravated by movement; and dyspnœa set in so as to prevent her from lying with any degree of comfort save on her left side.

On examination her general health seemed to be good, although she was rather pale and had an anxious, suffering expression of countenance. On inspection of the chest the swelling above referred to was seen at the lower and inner part of the left infra clavicular space, and implicating also the upper sternal region. It was about three and a half inches in diameter, and its apex—for it was somewhat conical—was about an inch and a half above the surface. Pulsation and expansion could be distinctly seen and felt, and palpitation elicited well-marked purring tremor over it. There was decided dulness, and percussion required to be done very gently, as the part was exceedingly tender. On auscultation, a well-marked systolic murmur was discovered, which was audible over a pretty extensive area, but was most distinct over the tumour. The left ventricle was the seat of dilated hypertrophy, the apex-beat being too extensive, and decidedly lowered and carried to the left, the impulse of the heart being strong and heaving, and the area of præcordial dulness increased in a downward and outward direction. There was no evidence of pulmonary complication, and, although there was considerable dyspnœa, the air entered both lungs pretty freely. The pulse was regular, but rather soft; it lagged preternaturally behind the ventricular systole; and the left pulse was rather weaker than the right both in the radial and carotid arteries. The pupils were not affected, and she had no difficulty of swallowing; nor was there any

evidence of emaciation or trace of spasm of the glottis, although the voice was hoarse. Her appetite was fair, and her bowels regular; she had no fever, but she slept badly.

She was kept in bed, absolute repose, both mental and physical, being enjoined, but not very successfully enforced; and twenty-five grains of chloral every night, and ten grains of the iodide of potassium three times a day, were prescribed. Her diet was plain but nourishing, her bowels were carefully regulated, and stimulants were forbidden.

Within a fortnight from the commencement of the treatment the pains in the shoulders had in great measure disappeared, and she was sleeping well. The chloral was accordingly stopped, but the iodide of potassium continued.

On the 22nd of December, notwithstanding the pushing of this medicine, the tumour was evidently getting larger and softer. Accordingly, a bladder filled with a mixture of pounded ice and salt was ordered to be applied over the swelling for half an hour twice a day, dusting powder, composed of oxide of zinc, lycopodium, and camphor, being employed in the intervals to prevent irritation of the skin.

The freezing mixture promised well at first, for on the 31st January, 1872, it was noted that all pain had disappeared, except when a deep inspiration was taken, and she could lie in any posture. The patient thought the tumour decidedly smaller: it was certainly firmer and much less tender, and purring tremor could no longer be felt over it, but otherwise there was little change.

Matters continued much in this state for some time, but during the month of March it was observed that

the swelling was becoming gradually more prominent and softer, and by the end of the month it was evidently a question of days only when the red blush would appear upon the skin as a prelude to the fatal rupture. It was therefore determined, as a last resource, to try the effect of galvano-puncture.

On the 4th of April, all other treatment having been stopped, and with the kind co-operation of Drs. Perry and Finlayson, the operation was performed for the first time. It was continued for half an hour, four cells being employed for the first quarter of an hour, six for the second. For a short time after it there was slight expectoration which was tinged with blood, but the patient did not keep quiet as she had been told to do. Two days afterwards the swelling was found to be firmer, and she could take a deep inspiration almost without any pain.

On the 9th of April galvano-puncture was employed for the second time, and was unattended by hæmorrhage or complication of any kind.

On the 26th of April the following note was taken :—“The result of the two operations has been satisfactory. The patient now complains of no pain, and she can take a deep inspiration without any uneasiness. The tumour is decidedly smaller, and for the most part firm and solid. It still pulsates however; and the systolic murmur, though not nearly so pronounced, is still present. At its middle and lower part, there is a decided want of solidity, and here the pulsation is most distinct.”

The operation was, therefore, repeated, the needle being passed into the soft part of the swelling.

On June 11th the following report was taken :—“Since last operation the improvement has been very

marked. The tumour is now firmer at the lower part, is diminishing in size, and the pulsation is becoming less distinct. The murmur continues as before the last operation."

About this time she caught cold, and the cough, which lasted a couple of weeks, and was pretty severe, was accompanied at first by hæmoptysis, about a wine glassful of dark red blood having been expectorated in all.

On the 8th August the aneurismal symptoms remained unaltered, but the patient complained a good deal of palpitation and of irregular action of the heart. On this account tincture of veratrum viride was tried, at first in three, and latterly in ten-drop doses thrice daily, which moderated somewhat the violence of the cardiac action, while the feeling of irregularity vanished.

On the 27th August galvano-puncture was again made use of, six cells being employed for the first quarter of an hour, eight for the following five minutes, and six for the last ten minutes. The battery, having been recently reamalgamated, acted more powerfully than formerly, so much so that when eight cells were used she complained of decided uneasiness. She felt as if the needle was very large and the left arm swollen and very tight; she also felt very oppressed, complained of a burning heat in the chest, and had the feeling as if she could not survive if the current was not moderated. These symptoms passed off whenever the number of cells in use was reduced from eight to six.

The result of this operation was, that the swelling was further reduced in size and rendered firmer.

On the 26th October, 1872, before she left the hos-

pital, the following report was taken :—"The symptoms of dilated hypertrophy of the left ventricle remain as at the period of admission into the infirmary, but for some time an apex systolic murmur has been audible, distinct from the basic one, and which was either not present at an earlier date or was obscured by the aneurismal one. The tumour is now only about one quarter of its size before galvano-puncture was resorted to ; and it is for the most part very solid, much more so than the surrounding healthy parts of the chest. There is no trace of purring tremor, and its pulsation is much diminished, though still distinct, especially in the central, softest part of the swelling. The systolic murmur, too, is still present, although it is much softer than formerly. There is no change in the pulse. Patient feels in the most perfect health, and her only complaint is of a feeling of pulsation within the chest."

On the 20th November, 1873, she was readmitted. Before leaving the hospital she was warned that it was absolutely necessary for her to avoid everything in the shape of mental excitement or bodily exertion ; in fact, that she must look upon herself for the rest of her life as an invalid—that she must lead the life of a chrysalis. Now this is the way in which she carried out these instructions. On the 5th March of this year, more than six months after the last operation, she resumed her work at a bleach-field, where her principal occupation consisted in carrying heavy loads of goods upon her shoulders. She continued this for four and a half months, during which time she not only worked all day, but also engaged in arduous household work at night. She left the bleach-field towards the end of July, on account of a feeling of weakness and of breathlessness, and because she noticed that her

abdomen was much distended, and she feared that she was becoming dropsical. She soon partially recovered, and remained in tolerable health until nine weeks prior to her readmission, when, most of her under-clothing having been stolen, and having exposed herself in consequence without those garments, she caught cold, and was seized with a hard dry cough, accompanied by increase of weakness and anorexia. In a few weeks to these symptoms was superadded, what is a most serious complication in such a case, constant retching, which she encouraged by putting her finger into her throat, in the hope of getting relief. This increased the feeling of pulsation within the tumour. Well, you had the opportunity of examining this patient, and of making along with me an examination of her chest; and what did we find? We found that over the seat of the previous swelling there was only slight fulness to be observed. On looking at the chest-walls pulsation could be only indistinctly seen. It was somewhat more appreciable, however, on the application of the hand. There was no trace of purring tremor. The dulness on percussion, however, remained, as was to be expected, just as when she was first admitted into the hospital. The systolic murmur was heard over the whole præcordial region, but most distinctly at the apex. It was only faintly audible over the tumour, sometimes not audible at all, and seemed to be a communicated apex murmur. The right carotid pulsated more strongly than the left. She had slight cough, and the breathing was more distinct over the right than over the left lung. There was some lividity of the face and lips. The abdomen was distended, but there was no evidence of accumulation of fluid in the cavity of the peritoneum. The retching still continued;

and she had no appetite, and complained of great weakness. Shortly after admission her bronchitic symptoms became much aggravated. Bronchitic *râles* were heard over the whole of the chest, which were moist at the bases and especially marked over the left base. To these symptoms were soon superadded symptoms of passive congestion of the system—symptoms indicating an impediment to the free return of blood to the heart. The jugular veins became very prominent; the lividity of the face increased; there was well-marked anasarca; and the urine became scanty (from sixteen to twenty-four ounces in the twenty-four hours), high-coloured, and deposited lithates abundantly. Its specific gravity was normal. It contained a good deal of albumen, but no casts could be discovered. On the 24th December, at 6 p.m., the patient fell into a state of collapse. She became extremely livid; her skin was cold, and covered with a clammy perspiration; there was great sickness; and she was all but pulseless. From this state of collapse, however, she rallied. On the 5th January, 1874, she had a similar attack. From this also she partially rallied; but finally sank on the evening of the 7th January—that is, 498 days after the last operation.

On making a post-mortem examination, considerable fulness was observed at the upper part of the chest in front, especially to the left of the middle line. On removing the sternum, its inner surface was found to be much eroded on a level with the second and third ribs, these, especially the last, being similarly involved. The upper part of the cavity of the thorax, especially on the left side, was occupied by a very large tumour, measuring $4\frac{1}{2}$ in. from before backwards, $5\frac{1}{2}$ in. ver-

tically, and $6\frac{1}{2}$ in. transversely. Its upper border was on a level with the top of the sternum. It lay in front of the trachea, which, as well as the right bronchus, was in no way involved; the left bronchus passed beneath the lowest part of the tumour, and was not much compressed. The right lung was rather firmer than natural and somewhat oedematous, and at its upper part a few patches of condensation were discovered. The left lung, which was partly adherent to the tumour, was completely carnified and flattened out against the posterior wall of the chest. The pericardium was completely adherent. On opening the aorta, and making a section of the tumour from before backwards, the latter was found to be an aneurism formed by a dilatation of the aorta, implicating the whole of the transverse and descending portions of the arch, and projecting forward. The great vessels sprang from the walls of the tumour. The aneurismal dilatation was completely filled with firm, pale, fibrinous, and stratified clots (see frontispiece), but at the lowest part of the tumour the blood had partially separated the stratified clots from the walls of the aneurism, and penetrated the walls of the sac and the left pleura on a level with the middle of the anterior edge of the compressed lung. The left pleura contained a considerable quantity of bloody serum and recent blood-clots. The other organs of the body were healthy.

Although this patient has finally succumbed, I think it must be admitted that her case is an illustration of the most perfect cure of an aneurism which it is possible to expect. For if she had been in another rank of life, and had been in a position to obtain bodily repose, she would undoubtedly have been living now,

and might have continued in comparative comfort for an indefinite period of time.

The beneficial results of the treatment were likewise well marked in the following case, in which I was requested to operate by my colleague Dr. Scott Orr, under whose care in the Royal Infirmary the patient was. This man was a clothlapper, thirty-six years of age, and was admitted on the 19th of December, 1873, complaining of cough, pains in the shoulders and nape of the neck, and inability to swallow food. He had led a very irregular life, admitted having had gonorrhœa several times, and for the last six years had been very intemperate in his habits. For three or four years he had been more or less troubled with cough; and for two years he had complained of pain in the region of the heart and of gradually increasing dyspnoea, but he never spat blood. About eight weeks prior to admission, as the result of a wetting he thought, the cough became more severe, and was accompanied by sore throat and pains in the shoulders and nape, especially on the left side. This was soon followed by gradually-increasing difficulty in swallowing solid food, which was sure to return into his mouth unless it was thoroughly masticated: the seat of the obstruction he referred to the top of the sternum.

On admission he was found to be a well-formed and well-nourished man, but in his face were mirrored the ravages of his favourite vice. His tongue was coated with a white fur, his appetite was good, and his bowels regular, but he had great difficulty in swallowing solid food. The urine was normal. He was much troubled with cough, and bronchitic *râles* were audible throughout the chest, especially at the bases of the lungs. The air entered both lungs with equal freedom, and

the respirations were natural; his voice was unaffected, and the pupils natural.

On examination of the circulatory system, the heart was found to be somewhat depressed, and the left ventricle the seat of dilated hypertrophy; while a soft systolic, probably communicated, murmur was heard at the apex. At the upper part of the front of the chest there was dulness on percussion, measuring three inches from above downwards, and extending from one inch to the right to one inch and a half to the left of the sternum. In the second left intercostal space close to the sternum there were some fulness and pulsation, and, on auscultation, a soft systolic murmur was heard. There were also fulness and pulsation in the supra-sternal notch, but no murmur was audible in that situation. The pulse was 74, regular, and of fair strength, and the pulses at the wrist and in the carotids were not unequal.

Shortly after admission the symptoms became much more alarming, the fulness and pulsation in the second intercostal space became much more pronounced, and the dysphagia so great that he could not even swallow solid food, and required to be supported by means of nutritive enemata. This was on January 2nd, 1874. On the 20th it was noted that the difficulty of swallowing was not nearly so great, and he could then take fluid food as on admission. The fulness in the intercostal space, however, had so much increased that there was a distinct appearance of tumour a couple of inches in breadth, and projecting three-quarters of an inch above the level of the surrounding chest-walls. This swelling was very soft, almost fluctuating indeed, and was the seat of expansion as well as pulsation; the murmur remained as on admission.

On January 12th, at the request of Dr. Scott Orr, I performed galvano-puncture, an insulated needle connected with the positive pole of the battery being inserted into the most prominent part of the aneurism after the skin had been frozen with ether-spray, and a zinc plate connected with the negative being applied to the chest-wall in the vicinity of the tumour, a large piece of sponge moistened with salt water intervening, however, between the plate and the skin. The operation was continued for an hour, four cells of the battery being employed for the first half hour, and six for the second. The patient felt no inconvenience or pain during the operation, and on removing the needle there was no hæmorrhage. After the operation, however, there was pain in the tumour, and increased uneasiness in the nape of the neck and left shoulder; this was speedily relieved by the application of iced cloths. On January 20th the swelling was thought to be smaller and firmer, and the patient could swallow better.

On January 23rd the operation was repeated as before, the needle being inserted a little higher up and nearer the sternum than on the first occasion, and again upon February 8th; but this time six cells were employed for the first half hour, and eight for the second, and on removing the needle there was a considerable jet of blood. No report seems to have been taken after the third operation until March 13th, when the swelling was stated to be much firmer; but the patient had been a little hoarse, and had been spitting a little blood.

On April 16th galvano-puncture was repeated for the fourth and last time, and in the beginning of May, being weary of the confinement and feeling pretty

well, he insisted upon leaving the hospital, although strongly urged to remain. Before leaving, an examination showed that the aneurismal swelling, which was firm and hard, had fallen almost to the level of the surrounding surface. It still pulsated, but no murmur could be heard over it. He continued occasionally to spit a little blood, and still complained of pain in the shoulder and nape of the neck. The difficulty of swallowing had varied much latterly; sometimes he had a good deal of dysphagia, while at other times he could swallow almost anything.

From the history I have given it will be seen that this was by no means a promising case for operation, and the improvement was all the more remarkable if we take into account his dissipated habits, and the fact that during the treatment, through inadvertence, as I afterwards ascertained, he frequently got up and walked about the ward for several hours.

As far as I am aware, these are the first two cases in which this operation has been successfully performed in Scotland. Previous to this it was tried on two patients by Dr. John Duncan, but in neither did the operation yield satisfactory results. In each of these cases it was performed twice. In the first the treatment was apparently commenced too late, for external hæmorrhage had set in, and the patient died of exhaustion eight days afterwards. In the second the patient died of external hæmorrhage two months after the first operation, but in this case the treatment did not get fair play, owing to the distance from Edinburgh at which the patient resided.

In conclusion, let me refer shortly to the rules which, as far as my reading and experience go, it is

desirable to observe in the treatment of aneurism by electrolysis.

1. *The kind of Electricity.*—The induced, as well as the continuous current, has been employed. A successful case of this kind has been recorded by Mr. Eyre (*Lancet*, July 30th, 1853, p. 94). The patient, a soldier, in the prime of life, had an aneurism of the left external iliac artery, about the size of a fowl's egg, which pulsated strongly, and was the seat of a murmur. There was œdema and much pain in the limb. Two long, fine needles were introduced an inch within the sac, each being connected with the wires of a galvanomagnetic machine. The operation, which was accompanied by pain in the groin and violent agitation of the whole body, was continued for twenty minutes. It was followed by severe inflammation, which threatened the patient's life; but, in three weeks, the threatening symptoms subsided, and the patient was cured. The successful result in this case was due to the setting up of adhesive inflammation, which filled the sac with lymph, and was fraught with much danger. Now, it is infinitely safer to attempt a cure by means of chemical than by means of inflammatory action; and, therefore, in every case, the continuous current battery should be employed; although, even then, unless we are careful, the same result may follow.

2. *As to the kind of battery*, this is of less consequence, provided it is in good working order, and has large cells, so as to increase the chemical effects. I have always employed one of Stöhrer's large-celled batteries; and, in using it, it may be as well, with the view of intensifying the chemical effect, to add to the fluid in each cell, as recommended by Althaus, two drachms of a solution of chromic acid, sufficiently con-

centrated to impart to it the colour of claret (*A Treatise on Medical Electricity*, by Julius Althaus, M.D., 3rd ed., p. 294).

3. *The needles* should not be very thick, but very sharp and angular, and should be oiled before being introduced; and, what is of the utmost importance, they should be insulated to within about half an inch of the point: for we must aim at acting upon the blood in the aneurism only, and not upon the walls of the sac, skin, and intervening tissues. This can be done, as recommended by Dr. John Duncan, a gentleman who has laboured earnestly and successfully to improve our knowledge of electrolysis as a means of treatment, by coating them with vulcanite. The unsuccessful result of the first case which I have related, I attribute in part to the use of needles which were not insulated. These were sent to me along with a Stöhrer's hospital battery; and, therefore, it is all the more important to give a warning against their employment. I have generally only used one needle; but there can be no harm in the introduction of two or more, especially if the aneurismal tumour be extensive.

A point of much moment, and with regard to which there is at present great difference of opinion, is:—

4. *Whether the Needles should be connected with the Positive or Negative, or both Poles.*—The balance of opinion seems to be in favour of connecting them with both poles. "I have no doubt, whatever," says Althaus (*op. cit.*, p. 651), "that the most effective application of the current is that where both poles are inserted into the sac. This mode of application is also that one employed by Ciniselli and Dr. Duncan. Both poles are useful in different ways; the positive

produces a small firm clot, and the negative a large soft one. Where only one pole is in the sac, the resistance encountered by the electricity is so great that a much larger galvanic power has to be used to produce any effect at all; and, even then, the effect of that pole which remains outside is lost." And yet one of the most successful cases reported by Althaus in the volume from which I have quoted was one of the cases operated upon by me, in which the needle was connected with the positive pole, and in which a weak current was employed. For my part, I prefer connecting the needles with the positive pole only, because I have found it efficient in practice; because the clot which forms at the positive pole, though small, is firm and hard, while that which forms at the negative is soft and bulky: and because, on withdrawing the needles, hæmorrhage is much more apt to occur, thus showing that the clot is not of a satisfactory character. Hæmorrhage, too, is a disagreeable complication; it frightens the patient, and excites the circulation; and, besides, serious injury to the aneurism may result from the manipulations carried out with the view of arresting it.

5. There is much difference of opinion, also, *as to the strength and duration of the current*. For my part, I am clearly of opinion that it is often used far too strong. Thus, in a case operated upon by Althaus, and many equally striking ones have been published, he says: "I applied the current of from ten to twenty-five cells of Smee's battery; so that the positive and negative pole were alternately in contact with each needle, the changes being made every five minutes, so that the whole process lasted twenty-five minutes. The patient complained much of pain, particularly

when the changes were made. For the first two days, the tumour decreased considerably in size, but afterwards it increased both in size and pulsation; redness and œdema extended around it in all directions, and the patient died. At the autopsy, the whole of the cellular tissue around the tumour was found loaded with lymph, and much indurated. This diffuse inflammation extended the whole way up the neck, rendering the dissection extremely difficult" (*Op. cit.*, p. 642). I prefer, then, to use a weak current, and one which gives rise to little or no pain, and which does not excite serious inflammation; and, in the two cases just reported, I never employed more than eight cells of Stöhrer's large battery as a maximum, and never continued the operation for longer than an hour at a time. Now, it must not be forgotten that, in using a weak current, at all events, we do not aim at suddenly coagulating the whole of the blood in the sac, but desire the formation of a small firm clot, from which, as a centre, we hope to ensure the gradual deposition of successive layers of fibrin from the blood; so that, for the first few days after galvanopuncture is practised, those who are not alive to this circumstance may fancy that the operation has failed.

Lastly, the number of operations, and the length of the intervals between each, must depend upon the effect of those which preceded them.

The rules which I have ventured to suggest as applicable to the electrolytic treatment of aneurism are, of course, likely to require modification as our experience of it increases; but this, at all events, may be affirmed, that the dangers of the treatment are by no means serious if they are adhered to. Thus violent inflammation is not likely to occur if a weak continuous

current of electricity be employed for a moderate space of time ; while slight irritation is not an unmixed evil, and may be allayed by the application of iced cloths. It naturally occurs to one that clots produced by galvano-puncture, and which at first are soft and presumably easily detached, are likely to be swept into the general circulation, and to give rise to embolism ; but, as far as our experience has hitherto gone, this happily seems to be rather a theoretical than a practical difficulty, and one which appears to me all the less likely to occur if the needles are connected with the positive pole alone.¹ The gas which is generated during the operation, no doubt in part, finds its way into the circulation ; but this takes place so slowly and in such small quantity, that no danger is to be apprehended from it. The operation, then, need not cause us much anxiety from the above points of view ; but it comes to be a question—and to this the attention of medical men practising galvano-puncture should be specially directed in the future—whether the consolidation of that portion of the aneurism in particular which approaches the surface may not, in some cases at least, favour the extension of the disease in other directions, and lead to internal pressure-symptoms, and to rupture into internal organs.

¹ At the meeting of the British Medical Association in Edinburgh in 1875, Dr. Clifford Allbutt, in criticising a paper of mine on this subject, mentioned a case in which the accident actually did occur, but in that case the needles were connected with both poles of the battery.

LECTURE X.

ANEURISM OF THE ABDOMINAL AORTA.

IN my last lecture I directed your attention to the subject of aneurism of the thoracic aorta, with special reference to its treatment by means of electrolysis; this morning I propose dwelling for a little upon the subject of aneurism of the abdominal aorta, in connection with the case of a patient who at present lies in Bed 3 of Ward 2.

This man¹ is twenty-two years of age, an iron moulder, and was admitted on the 23rd of October, 1874, complaining of pain and swelling of the abdomen of three months' duration. His father died at the age of forty of an obscure tumour in the stomach, and his mother at thirty, of fever, while his only brother is twenty-one years old, and enjoys good health.

He has followed his present occupation for twelve years, and, with the exception of an attack of rheumatic fever four years ago, has never ailed at all. His diet has always been fair, but for the last six years he has indulged largely in stimulants.

Three months prior to admission he began to complain of a dull aching pain in the epigastric region on

¹ Reported by Dr. Charles J. Plumer.

rising in the morning and on lying down at night, which disappeared, however, if he lay upon his right side, and was always relieved by stooping. A month after this it disappeared altogether for a couple of weeks, but then returned with redoubled vigour. Contrary to expectation he found the pain relieved by exercise, but it was worse at night after a hard day's work than after a day of rest. About five weeks before admission, the pain, which he attributed to flatulence, became worse, and in addition to the dull aching, he suffered from sharp pain shooting through from the epigastrium to the back and upwards between the shoulders. His appetite also began to fail, and a full meal sometimes caused vomiting, while on one occasion, six weeks before he came to the hospital, he vomited about two tablespoonfuls of blood. He had been drinking freely at the time, and thought that the hæmorrhage was due to his stomach being upset.

Since the commencement of his illness his bowels have been very costive. There has been no fever. He was treated for worms, for flatulence, for enlargement of the liver, &c., but without any benefit.

These errors of diagnosis must have arisen from carelessness or from the omission of a physical examination of the abdomen. This we made together the other day, and, if you remember, with the following result:—On placing the patient upon his back and exposing the abdomen, no alteration in its shape could be detected, but distinct pulsation in the epigastric region was observed. On applying the hand this pulsation was very distinctly felt, and was heaving in character. In this situation a tumour was detected, which was about the size of an orange, but more oval in shape, and on placing one hand upon each side of it, it was found to

be the seat of expansion as well as of pulsation. On percussion, dulness was experienced, which corresponded with the situation of the tumour in the epigastric region, and which extended a little to the left of the middle line, while around it the percussion was everywhere tympanitic. On placing the stethoscope on the ensiform cartilage, the normal sounds of the heart were audible; at the umbilicus a single systolic sound was heard, but over the tumour a distinct systolic murmur. Here let me warn you, in passing, not to press the stethoscope too firmly against the abdominal walls, as the compression of the aorta in a state of health may call forth a murmur which may be mistaken for a morbid sound. These symptoms and physical signs which have just been enumerated point to the conclusion that there is an aneurism of the abdominal aorta shortly after its passage through the diaphragm. In many of the cases of aneurism of the arch of the aorta, which you may have seen, valvular murmurs are heard resulting from atheromatous degeneration of the valves, and similar degeneration is frequently detected in the coats of the superficial arteries; but in our patient the valves and the coats of the vessels are apparently healthy. This, however, does not alter my opinion of the nature of the case, and for this reason, that aneurism of the arch of the aorta generally occurs in persons who are getting up in years, who are generally nearly forty years of age or upwards, and as a consequence of degeneration of the arterial walls, whereas aneurism of the abdominal aorta is very apt to occur in young persons as the result of violent exertion, such as young adults are prone to indulge in, or of injury, and in whom the arterial coats are perfectly sound.

So much for the symptoms which have special refer-

ence to the tumour itself, and which are often termed the *direct symptoms*; but others are usually present, which are dependent for the most part upon the pressure of the tumour upon neighbouring parts, and which are often termed the *indirect or pressure symptoms*. Let us dwell for a little upon these. In some cases of aneurism of the abdominal aorta there is, as you can readily understand, a retardation of the pulses in the lower extremities, but this symptom was not present in our patient, for the pulses in the radial and femoral arteries beat simultaneously. In aneurism in the epigastric region the heart is often displaced, a feature which was noted in this case, as the apex of the heart was found to be somewhat elevated and beating to the left of the nipple. It was also observed that the patient was flatulent and that his bowels were very costive, conditions which often characterize cases of aneurism, and which are due to pressure upon, and interference with, the functions of the colon. It occasionally happens that the spermatic artery is pressed upon, thus diminishing the supply of blood to one testicle and leading to atrophy of that part, or that the renal vein is compressed, inducing passive congestion of the kidney with its results, scanty, high-coloured, albuminous urine; but in our patient the testicles were normal, and the urine quite healthy. Sometimes the aneurism presses upon the vena cava, and interferes with the free return of blood from the lower extremities, producing œdema of these parts, or upon one of the iliac veins, thus limiting the œdema to one lower extremity. In this case there was no evidence whatever of interruption to the return of venous blood from the lower extremities. But the most constant of all the indirect symptoms is pain from pressure upon the

nerves. The pain, which is oftenest complained of in the back and loins, and shoots downwards in the direction of the nerves pressed upon, is usually dull and persistent, with paroxysmal exacerbations. It is generally aggravated by anything which excites the circulation, but is frequently relieved by change of posture, especially by standing erect or lying upon the belly, so as to alter the position of the tumour, and thereby remove the pressure from the nerves implicated. In our case there was pain at the seat of the aneurism shooting through from the epigastrium to the back and upwards between the shoulders. Though not aggravated during the day when hard at work, the pain was always worse on the nights preceded by a day of labour. It was generally relieved by lying on his right side or by stooping.

Bear in mind, then, that pain is the most constant indirect symptom of aneurism of the abdominal aorta ; and further, that it is sometimes the only one present. Bantock¹ has recorded a case of abdominal aneurism where the only symptoms were severe lumbar pain, attended with nausea. Death occurred suddenly, and on post-mortem examination an aneurism was found at the upper part of the abdominal aorta, which had eroded the bodies of the last dorsal and two upper lumbar vertebræ. Between two and three pounds of blood were effused into the abdominal cavity. I have myself met with two cases in which the only symptom noted during life was severe pain in the left iliac region. Let me give you the report of one of these in illustration.

A man, aged forty, a shoemaker by trade, unmarried,

¹ *Edinburgh Medical Journal*, Aug., 1862. Quoted from "A Year Book of Medicine and Surgery (Syd. Soc.), for 1862," p. 108.

was admitted into the Glasgow Royal Infirmary on 15th June, 1872. His family's history was not bad, and his diet had always been good, but his habits from time to time irregular.

When a young man he suffered from palpitation, which was ascribed by his medical adviser to bathing too often in the sea. He enlisted in the 42nd Highlanders, and joined his regiment in the West Indies, where he had repeated attacks of "liver complaint" and dysentery, and one attack of Asiatic cholera. He also suffered from ophthalmia, which was very rife in the regiment (420 men having been attacked).

For four and a half years he was quartered at Bermuda, and after that at Halifax, where he enjoyed excellent health. During the Crimean campaign, however, he had repeated attacks of dysentery. He was afterwards in India during the Indian Mutiny, when, with the exception of slight attacks of ague, he remained in good health, and in 1870 he was discharged on full service pension, and became a shoemaker.

In the middle of April, 1872, he began to complain of severe pains in the left side, below the floating ribs, which confined him to bed for fifteen days, and from which he partially recovered under medical treatment. On the 4th June, however, it became as bad as ever, so that he was obliged again to take his bed.

On admission into the hospital on the 15th, his only complaint was of severe pain in the left lumbar and iliac regions, extending over the hip and shooting down the leg. Owing to the pain, he had great difficulty in turning or moving, and inclined to sit up in bed unsupported by pillows, as this posture gave him most relief. My assistant, who examined him in my

absence, reported that the internal organs were healthy. He derived some relief from the use of fomentations and from the subcutaneous injection of morphia.

On the 29th June, after partaking of his evening meal, he fell asleep, and at 9.30 p.m. was found dead by the nurse.

The post-mortem examination was made by Dr. Coats on the 2nd July. The surface of the body was extremely pallid. The internal organs were pale, and the heart, which seemed to be quite healthy, was devoid of blood. The aorta, throughout its whole length, was extremely atheromatous, and, on a level with the diaphragm, a large aneurism was detected, which was partly within the thorax, but principally in the abdomen, and which communicated with the aorta by an elongated aperture in its posterior wall, $2\frac{1}{2}$ inches long and about half an inch broad, its margin being very irregular. It projected about an inch to the right of the middle line, and three or four inches to the left.

At the upper part of the aneurism, which projected into the thorax, an aperture about the size of a four-penny piece, obstructed by a clot of blood, and communicating with the left pleural cavity, was discovered. This cavity contained an immense quantity of blood, the solid clot, apart from serum, weighing 1 lb. 12 ounces. The left lung was much compressed, but otherwise normal. The right lung was healthy, but firmly adherent.

At the lower part of the aneurism, at the left side posteriorly and below the diaphragm, another orifice was detected, which communicated with a large quantity of coagulated blood situated between the peri-

toneum and the abdominal walls. This coagulum stretched from the diaphragm to Poupart's ligament, and spread behind the kidney, where it formed a thick layer. The anterior surface of three or four of the upper lumbar vertebræ was markedly eroded. The liver was fatty, the kidneys anæmic, and the spleen rather larger than usual.

The other patient referred to presented very similar symptoms, and from those and other cases I can thoroughly endorse what has been so well stated by Walshe,¹ that "wherever obstinate abdominal neuralgic pains exist, especially in a male, and where the ordinary signs of visceral disease cannot be established, aneurism should be held in view as very probably present, even though there be no physical sign to warrant such an opinion. Let the examination never be complete, however, without careful auscultation in the left vertebral groove." One qualification to this statement, however, requires to be made, and it is this, that the pain, in order to justify of itself a strong suspicion of aneurism, must be LEFT-SIDED (the aorta being situated to the left of the middle line), for obscure pain in the right side is generally due to other causes, illustrations of which I gave you in a former lecture. (See Lecture II, p. 27.)

While, therefore, in cases of obscure abdominal pain of a neuralgic character, we should suspect the existence of aneurism when the pain is in the left lumbar and iliac regions, when it is on the right side we should rather suspect the existence of some other lesion such as obstruction of the bowel.

¹ "A Practical Treatise on Diseases of the Heart and Great Vessels." By Walter Hayle Walshe, M.D. London: Smith, Elder & Co., 1873. 4th ed., p. 525.

Before passing on to the diagnosis of abdominal aortic aneurism, let me say that while difficulty of swallowing and implication of the pupil are common symptoms of thoracic aneurism, they are very rare in aneurism of the abdominal aorta. When dysphagia does occur it must be due to reflex irritation, and when implication of the pupil is observed, Seaton Reid thinks it may be dependent upon traction of the great splanchnic nerve. He has recorded an interesting case in which an aneurism, springing from the coeliac axis, separated the diaphragm from the pleura, and gave rise apparently to contraction of the right pupil.

There are several diseases which may be mistaken for Abdominal Aortic Aneurism. Let us, in the first place, take simple (1) *Aortic pulsation*. Now, you might very naturally suppose, as I myself once did, that nothing could be easier than to distinguish it from Aneurism. The following cases, however, will dispel that illusion. "A man, aged about thirty," says Walshe,¹ "was sent to University College Hospital by Siordet, for an opinion on the nature of the epigastric pulsation under which he suffered. So nearly balanced was the evidence, that I did not venture to pronounce an opinion in one direction or the other. Now the inclination of that evidence, such as it was, told rather for dynamical than structural disease; yet, in about eighteen months later, the patient came under my notice within a week or so of his death from one of the largest aneurismal sacs I have seen. *Per contra*, there is a case in the hospital books, in which, after very careful and repeated examinations, the diagnosis

¹ "A Practical Treatise on Diseases of the Heart and Great Vessels." By Walter Hayle Walshe, M.D. Fourth Edition, p. 467. Smith, Elder & Co., London, 1873.

of incipient aneurism of the vessel was set down in dubitative fashion, with a note of interrogation; and though the symptoms greatly improved under the rest and medical appliances of the hospital, they never did so in a sufficiently positive manner to induce me to modify the diagnosis into one of simple pulsation. Now, this woman was killed by a street accident two years later; and her aorta, though somewhat thin and atheromatous, proved to be wholly free from dilatation." I have myself met with several cases in which the diagnosis was doubtful, and have at present under observation a patient with regard to whom there is much difference of opinion, although I am in favour of the aneurismal view, principally because the temperature of the left lower extremity is felt by the patient, and found by the thermometer to be somewhat lower than that of the right.

This lowering of the temperature, which may or may not be associated with retardation of the pulse, or with œdema, and which may involve one or both lower extremities (though absent in our patient), is common in aneurism, but never occurs in aortic pulsation, and may therefore be of great service in clearing up the diagnosis. When the aneurism is situated in the epigastric region it may cause some displacement of the heart, as in the present case, whereas aortic pulsation cannot possibly do so. The sex of our patient, too, is of some assistance, aneurism being most common in males, aortic pulsation in females, although the exceptions to this rule are not uncommon. Again, in this patient the pulsation is slow, heaving, and laboured, while in aortic pulsation it is more active and bounding. There is also a distinct tumour to be felt, with dulness upon percussion over it, and it is the seat of expansion

as well as pulsation; whereas in simple aortic pulsation there is no dulness upon percussion and no tumour, although often a deceptive feeling of swelling, which, however, disappears if the patient is put under the influence of chloroform; and there is either no expansive movement or only to a trifling degree. The presence of atrophy of a testicle, or of symptoms of passive congestion of the kidney, due to causes already mentioned, point very distinctly to aneurism, but their absence gives us no information at all. And lastly, our patient complained much of pain, which is one of the most striking symptoms of aneurism in many cases, and is often terribly severe, whereas in aortic pulsation there is often uneasiness, but never severe pain.

(2) It sometimes happens that *aortic pulsation is complicated with the presence of a tumour lying upon and compressing the vessel* more or less. In that case most of the direct symptoms of aneurism are present, for in addition to the presence of a swelling in the situation of the aorta, there is pulsation communicated to the tumour from the artery, and the former, by compressing the latter and diminishing its calibre, is apt to lead to the production of a murmur. It is said that in cases of aortic pulsation with tumour the pulsation and murmur cease by such a change of posture as removes the tumour for the time being from the aorta, but this test is not always reliable, because it often happens that in aneurism a murmur is heard when the patient is recumbent, which disappears when he sits up or stands, and not unfrequently there is no murmur to be heard in any posture whatever. Nor can we place much confidence in the presence of expansion as a sign of aneurism, because, although when very well marked

it probably points to that disease, it is a deceptive symptom, and one which may be present to some extent in cases of tumour lying upon the aorta. An aneurismal tumour is usually oval or rounded, and is immoveably fixed to the spine, whereas tumours lying upon the aorta are generally of an irregular shape, and are more moveable, in the early stages at all events. Then the indirect or pressure symptoms, which need not be recapitulated, constitute, as a rule, much more marked features of aneurism than of tumour lying upon the aorta. But in many cases it is only by a careful study of the history of the case, and of the order of occurrence of the symptoms, that an opinion can be formed, and in some instances a certain diagnosis is impossible. Before leaving this subject, it may be remarked that the majority of such tumours are malignant, in which case the cachexia characteristic of malignant disease may be detected, or other tumours of a cancerous nature may be discovered elsewhere; just as in cases of aneurism of the abdominal aorta, aneurisms may be detected in the chest or in the superficial vessels, and throw great light upon the diagnosis.

(3) The only other disease which is likely to be mistaken for aneurism is *Psoas abscess* in its early stage. But aneurism usually occurs in healthy males, while abscess attacks delicate persons, and both sexes alike, and rigors and constitutional disturbance mark its course. An aneurism of the abdominal aorta may be complicated with aneurism elsewhere, while psoas abscess is often associated with pulmonary consumption or some other form of strumous disease. An aneurism is firm and oval or rounded in shape, abscess is soft and elongated from above downwards. In the

former there is pulsation, and expansion, and often murmur; in the latter these symptoms are wanting. In aneurism pain is one of the most constant and striking symptoms, while in abscess, contrary, perhaps, to what you might expect, there is little pain experienced as a rule. And, finally, tenderness, and even prominence of a portion of the spine, and paralysis of the lower extremities, owing to implication of the spinal cord, are not uncommon in abscess, while in aneurism they are rare, although not invariably absent.

In the TREATMENT of our patient, the first and paramount indication is to secure absolute and uninterrupted repose in bed, as our aim is to calm down the circulation, and to favour the deposit upon the walls of the sac of successive layers of fibrine. The fulfilling of this indication may appear a very simple matter, and so it is for a short time after admission, but after a while it is felt to be irksome, and as the pain subsides the patient does not see the necessity for continuing to observe it rigidly. It is therefore advisable at the outset to take the patient into our confidence, and to explain to him the uselessness of our attempting to cure him unless he is prepared to maintain the recumbent posture uninterruptedly for two or three months. He must not be permitted to sit up at all, although he may be allowed from time to time to roll gently over from his back to one or other side. His bowels require to be carefully attended to, not only with the view of preventing digestive derangement, which is so apt to ensue when a patient, accustomed to active exercise, is kept in bed, but also to prevent the slightest degree of straining at stool which is apt to excite the circulation. In addition to

this we are administering iodide of potassium, in doses of half a drachm, three times a day, a remedy which has acquired a great reputation for the cure of aneurism of late years, although no satisfactory explanation of its *modus operandi* has yet been given. Its beneficial influence may, however, be due in part to its powerful diuretic action, thus diminishing the amount of water in the blood. For the first few nights we gave him a full opiate, as recommended by Dr. Balfour, with the view of preventing the occurrence of coryza. When we examined him together the other day I pointed out to you an eruption upon his back of an acne-like character, this and coryza being very usual results of the administration of iodide of potassium, and constituting the phenomena of iodism.

If, after a fair trial of this treatment, no decided improvement takes place, we may perhaps resort to the method recommended by Mr. Jolliffe Tufnell, and which, in his hands, has yielded very excellent results.¹ This consists in the combination of absolute rest with a very restricted diet. The diet recommended by Mr. Tufnell is as follows:—"For breakfast, two ounces of white bread and butter, with two ounces of cocoa or milk. For dinner, three ounces of broiled or boiled meat, with three ounces of potatoes or bread, and four ounces of water or light claret. For supper, two ounces of bread and butter, and two ounces of milk or tea, making in the aggregate ten ounces of solid and eight ounces of fluid in the 24 hours, and *no more*." If thirst is urgent it may be relieved by holding a pebble in the mouth to favour the flow of saliva, or a plumstone, as was done lately by a patient of mine

¹ "The Successful Treatment of Internal Aneurism by Consolidation of the Contents of the Sac." Sec. Ed., 1875. J. & A. Churchill, London.

labouring under diabetes, which afforded him much relief, or by sucking a small piece of ice from time to time. The object of this dietary is to diminish the amount of water and of red corpuscles in the blood, and to produce a proportionate increase of the coagulable fibrine. The cases which are recorded in Mr. Tufnell's pamphlet are very encouraging indeed, and I can cordially recommend you to peruse them for yourselves.

Or, instead of this, we may resort to the treatment by pressure, which acts in the same manner as the ligature in aneurisms of superficial vessels—namely, by causing stagnation, and consequent coagulation of the blood contained in the sac. This treatment, as applied to internal aneurisms, was first successfully carried into practice by my friend Dr. Wm. Murray, of Newcastle. The following is a short outline of the case:—"The patient was a spare man, twenty-six years of age, who frequently, in using a large wooden rammer for driving paving stones into the ground, overreached himself, and subjected the trunk of his body to severe straining. Eleven months before admission, after a hard day's work, he was seized somewhat suddenly with severe pain in the back of a gnawing character, and preventing movement. Two months later the same pain began to be felt very severely in the abdomen, catching his breath during inspiration. Seven months after that he began to feel a slight pulsation in the belly; two months later he was admitted into the Newcastle Dispensary under the care of Dr. Murray. An aneurismal tumour, the size of a very large orange, was then discovered, extending from about two inches to the left to about one inch to the right of the umbilicus, and upwards to

within three inches of the margin of the left lower ribs. When pressure was made on the aorta above it all pulsation ceased, and when the pressure was removed a distinct thrill was felt to accompany the rush of blood into the tumour. All palliative treatment having failed to relieve him, he was put under chloroform, and a tourniquet applied for two hours above the aneurism, which completely arrested the pulsation in the aneurism and in the vessels of the lower extremities, except during momentary displacements of the instrument, but on removing the pressure no visible effect had been produced. Three days later the operation was repeated and continued for five hours, and during the last hour all movement and pulsation were completely arrested. On removing the pressure only very slight pulsation was felt, and by the evening it had quite disappeared. Six years afterwards the patient died suddenly from rupture of an aneurismal dilatation situated higher up than the original one. The aorta below it was completely occluded, and its walls atrophied.¹ Encouraged by the success of the treatment in this case, numerous trials have been made of the pressure treatment by other observers, and successful cases have been reported by Moxon, Mapother, Heath, Holden, Lawson, Russell, and others.

In our case the aneurism springs from the upper part of the abdominal aorta, so that pressure upon the proximal side of the vessel is impossible. The tourniquet would require, therefore, to be applied to the aorta upon the distal side of the aneurism, by which means consolidation of the contents of the sac may also

¹ Abridged from Dr. Wm. Murray's pamphlet on "The Rapid Cure of Aneurism by Pressure." J. & A. Churchill, London, 1871.

be produced, as in a case recorded by Bryant, although in it, unfortunately, the patient died from injury to the intestine. The patient was thirty years of age. The tourniquet was applied for twelve hours under chloroform, and the pressure was then discontinued for twelve hours, and afterwards repeated for four hours more. The patient died eleven hours afterwards, and at the post-mortem examination the aneurism was found to be consolidated, but the intestines had been damaged by the pressure, and peritonitis had been set up. Should the distal compression of the aorta be resorted to in the present case, I shall probably combine with it the use of tincture of *veratrum viride*, in doses of from five to fifteen minims three times a day, with the view of calming down the action of the heart, as I have found it of some service in the treatment of aneurism of the thoracic aorta, along with other measures.

LECTURE XI.

TUBERCULAR PERITONITIS.

FROM a therapeutical point of view, we may divide diseases into three classes: (1) those which will terminate in recovery without any treatment at all; (2) those which, do what we will, are certain to terminate in death, and in the treatment of which we must content ourselves with palliative measures for the temporary relief of urgent and distressing symptoms; and (3) those which can be cured by a carefully regulated course of treatment.

The old system of treatment, with its bleeding and purging, and mercurialisation, and which probably is too universally tabooed at the present day, was a dangerous weapon; for although it saved some patients, it undoubtedly did harm, if it did not actually prove fatal, to others who might have recovered without it; and in any case it was a very unpleasant experience for the poor sufferers themselves. Hence the origin and spread of homœopathy, with its pretty little globules, which the merest tyro can dispense, which has the advantage of doing no harm in those innumerable cases which come under the first group, and which is little worse than the old system as regards the

second, although it is utterly helpless as regards the third.

At the present day it is too much the fashion to decry the virtues of medicine; and it was with much surprise that I lately read the opening lecture of a distinguished surgeon, in which he stated that his students were to come to him, not so much for the purpose of learning treatment, as for the purpose of learning how to make a correct diagnosis; forgetful of the words of Broussais, who said: "The real physician is the one who cures; the observation which does not teach the art of healing is not that of a physician, it is that of a naturalist." Now I shall feel that I do not discharge the duty which I owe to you if I fail to bring prominently before you what I conceive to be the most correct principles of treatment, and if I make my wards mere schools for instruction in the diagnosis of disease.

There are certain diseases, amongst which must be classed those associated with the development of tubercle, which are generally regarded by the profession as necessarily fatal, and the treatment of which is therefore apt to be conducted in a half-hearted way, and, accordingly, with no prospect of success.

Although I do not wish to assert positively that all the cases which I am about to mention are undoubted illustrations of true tubercular disease, my principal object in bringing them under your notice is with the view of raising the question, whether true tubercle is really such a relentless foe as it is generally described to be, and whether persistent and energetic treatment, carried out with a hope and expectation of success, may not, in some cases at all events, arrest its progress, and remove the inflammation which is so apt to accompany it.

The first case that I have to bring before you is that of the little girl Helen G——, who is ten years of age, and who was admitted into bed 2 of Ward 5 on September 6th, 1875, complaining of swelling of the abdomen of three months' duration. Her family history presents no peculiarity, except that a brother died when young of "decline of the bowels." Her present illness began about three months prior to admission, with occasional pains in the epigastrium, to which by and by was added swelling of the abdomen; her appetite nevertheless continued fair, and her bowels regular. After the swelling had continued for about a month, a medical man was consulted, who ordered her removal to the country, where she remained about four weeks, her condition improving and the swelling fast diminishing under the use of "juniper drops." A month before her admission, however, the swelling reappeared; but her mother thought that, to some extent, it had "been kept under" by the use of cream of tartar. She has never had much cough, but her urine has frequently thrown down a reddish-yellow precipitate, and has been lately rather deficient in quantity.

On examination, we found that there was only slight fever, the temperature being usually from 99° to 100°; but there was decided perversion of the pulse-respiration ratio, the pulse being 104° (of fair strength) and the respirations 36 per minute. She was not emaciated; her tongue was slightly furred, her appetite fair, her bowels inclined to be loose, and she complained a great deal of pain and tenderness of the abdomen. There was distinct evidence of fluid in the peritoneal cavity, and that in considerable quantity, as, when she lay upon her back, the lateral dulness on percussion extended as far forwards as a line drawn down from

each nipple, while below it began at the junction of the middle with the lower third of the abdomen. The circumference at the umbilicus was twenty-six inches.

Now what has been the cause of the ascites? Manifestly not disease of the kidneys or heart, for both these organs were healthy; nor disease of the lungs, for although, as we shall see presently, these were not healthy, the condition is not such as to be likely to produce dropsy, and because dropsy dependent upon disease of any of these organs commences in the subcutaneous cellular tissue, and only secondarily involves the serous cavities. The accumulation of fluid must therefore have been due to an abdominal cause, and then, generally, it arises in consequence of obstruction to the portal circulation. But in this case there was no evidence whatever of disease of the liver or of other abdominal source of portal obstruction; and thus, by a process of exclusion, we arrived at the opinion that it probably resulted from inflammation of the peritoneum. Further, we were justified in suspecting that the inflammation was of a tubercular nature (although, in the majority of cases, this condition gives rise to adhesive inflammation with matting together of the abdominal contents, and not to fluid effusion), and for these reasons:—1st, The patient's brother died of "decline of the bowels." 2nd. She is only ten years of age—a time of life when tubercle of the peritoneum is common. 3rd. She had a slight dry cough; there was dulness on percussion at the left apex, and in the same situation there was "wavy" respiration with an occasional snoring r  le—that is to say, she had tubercular disease of the lung (using the term "tubercular" in its widest sense).

Our diagnosis, then, was "tubercular peritonitis with effusion." The treatment, as you saw, consisted at first in a careful regulation of the diet and of the bowels; to this was added, on September 15th, Savory and Moore's pancreatic emulsion, in doses of from half a drachm to two drachms, in milk, an hour after the two principal meals; and on September 21st half a drachm of syrup of iodide of iron three times a day, before food. On October 19th it was noted that her general state was tolerably satisfactory; but although the local symptoms had not become aggravated, it could not be said that there was any decided amendment, and the abdomen still measured twenty-six inches. Accordingly, to the previous treatment was superadded cod-liver oil in doses of a drachm, gradually increased to half an ounce, three times a day. Fifteen days thereafter (on November 4th), the abdomen measured twenty-four inches, and on the 16th twenty-three inches, by which time all pain had disappeared, and not a trace of fluid could be discovered in the peritoneal cavity, even when the patient rested upon her elbows and knees—an attitude in which a very trifling quantity of fluid can be detected. Towards the end of the month she was dismissed well, although there was still slight dulness at the apex of the left lung, and she was warned to persevere steadily with the treatment which has just been indicated.

If we were to be guided by the opinion of the profession generally, and even by the writings of some of our best authorities, we should have to take a very gloomy view of such cases. Thus, Sir Thomas Watson says, "These are very unpromising forms of disease, and it is seldom that we can do more than mitigate

the most distressing of the symptoms, or retard, perhaps, the march of the disorder." And again, "Do what we may, in nine cases out of ten our best-directed efforts will be disappointed."¹ I am far from denying that in a certain proportion of them the disease will terminate in death, do what we will; but I would have you enter upon their treatment with a hope that your efforts may be crowned with success, especially where the inflammation is accompanied by fluid effusion. The case which I have just narrated is by no means a solitary one in my experience. I am at present seeing a lad, twelve years of age, who is just convalescent from a most violent attack of tubercular peritonitis, of which I may perhaps give you full details on some other occasion. Suffice it to say, in the meantime, that he is a member of one of the most unhealthy families I have ever encountered. His father is dying of cancerous disease of the glands of the neck; his mother had pleurisy last year, and now is phthisical; two of his brothers are at present abroad on account of phthisis; and a brother died of tubercular disease of the bowels. His illness commenced on the 1st January with fever, after exposure to cold, pain and fulness in the hypogastric region, and tympanitic distention of the abdomen; was accompanied by high temperature, great emaciation, diarrhoea, occasional vomiting, but without effusion into the peritoneal cavity; and during the progress of the attack, which lasted about five weeks in all, a large abscess formed in the neck, and discharged about a cupful of pus. He was assiduously nursed, and fed and stimulated;

¹ "The Principles and Practice of Physic," by Sir Thomas Watson, Bart., M.D. Fifth Edition. Vol. II., p. 438. London: Longmans Green, & Co. 1871.

had iced cloths applied to the abdomen for half an hour every second hour—a method of treatment of which I shall have more to say in my lecture on the treatment of galloping consumption; and opium was administered in full doses (a quarter to a half grain every four hours), with a grain of quinine in each dose. His case appeared, as the disease advanced, an almost hopeless one; and yet he is now sitting up in his arm-chair cheerful and well, and rapidly fattening under the influence of generous diet, syrup of the iodide of iron, and Mackenzie's compound cod-liver oil emulsion.¹

No sooner was he convalescent than his youngest sister, aged eight, was seized with similar symptoms, fever (pulse 120, temp. 101·2°), sickness, tenderness and fulness to the right of the umbilicus, pain so severe that she often screamed out, and diarrhœa, the motions being of a pale yellow colour. To these symptoms was added, on the second day of the illness, severe pain in the right ankle, where, however, nothing could be detected, and which subsided in a couple of days.

It may be remarked, in passing, that M. Laveran² has drawn attention to the occurrence of arthritis as the first symptom of a general tuberculosis, and he believes that the articular pains frequently complained of by the subjects of acute tuberculosis are probably indicative of the implication of the synovial membranes in the disease.

She was treated by means of morphia in full doses (8 to 10 minims every six hours), and the application of iced cloths to the abdomen: she was fed exclusively

¹ Contains cod-liver oil, pepsine, and hypophosphite of lime.

² *Le Progrès Medical*, October 25th, 1876.

upon iced milk, and in ten days she was convalescent. Here, then, is another undoubted case of localized peritonitis, probably of tubercular nature; but I mention it, not so much as an illustration of the curability of this disease, but as a further proof of the extreme delicacy of the family.

Finally, I call to recollection the case of a little girl who was treated by me in the Royal Infirmary a couple of years ago. Her symptoms were very similar to those of the first patient, including the presence of fluid in the peritoneal cavity and consolidation of one apex. She was treated with cod-liver oil and syrup of the iodide of iron, and was tapped twice, a large quantity of fluid being removed on each occasion, which a microscopical examination showed to be inflammatory exudation. This girl made a perfect recovery.

But some may say, I do not believe that tuberculous peritonitis can be recovered from, and in these cases there must have been an error of diagnosis. In answer to this it is sufficient to refer to a case reported by Spencer Wells in his work on *Diseases of the Ovaries*.¹ This was the case of a young lady, aged twenty-two, who had an enlargement of the abdomen which it was supposed might be due to "a thin non-adherent unilocular ovarian cyst." Accordingly a small incision was made below the umbilicus, and the peritoneum opened. "A large quantity of opalescent fluid escaped, and then the whole of the peritoneum was seen to be studded with myriads of tubercles. Some coils of small intestine were floating, but the great mass was bound down with the colon and omentum, all nodulated by tubercle, towards the back and upper part of the

¹ J. & A. Churchill, London, 1872, p. 135.

abdomen. The uterus and ovaries were felt to be of the normal size, but their peritoneal coat was very rough." This patient made a good recovery, and has since married, and her case not only illustrates the fact that tubercular peritonitis may be recovered from, but also, as in my last case, that the removal of the effused fluid may contribute to that result.

LECTURE XII.

ACUTE PHTHISIS (GALLOPING CONSUMPTION).

I PROPOSE bringing under your notice this morning a few cases illustrative of the curability of acute phthisis, or galloping consumption; by which I mean, not ordinary cases of phthisis associated with fever, but those rare forms in which there is high and continuous fever, generally of the typhoid type, so that the disease bears some superficial resemblance to typhus, or to a severe attack of enteric fever; which tends to run its course in a few weeks, and to terminate fatally, unless grappled with energetically, and before the lungs are irremediably damaged. Before doing so, however, it may be well that you should have some idea of the symptoms which, according to some of our leading authorities, are supposed to indicate the presence of galloping consumption, and what views they hold as to the prospects of recovery.

Dr. Walshe¹ thus refers to the symptoms of acute miliary tuberculisation:—"The symptoms are those of a febrile affection, with more or less positive functional implication of the lungs. The invasion, sometimes

¹ "Practical Treatise on the Diseases of the Lungs." Fourth edition. London: James Walton. 1871.

occurring in a state of apparent health, or preceded remotely by various depressing influences and immediately by exposure to cold and wet, is marked by rigors, followed by acrid heat of the skin; the rigors may recur on several successive days, and there may subsequently be perspiration with abundant crops of sudamina. . . . Prostration sets in early; in a few days the patient may be unable to stand. Thirst, total anorexia, epigastric tenderness, dry lips and tongue, dental sordes, all signify digestive disturbance; but the form of the abdomen is natural, there is no gurgling in the iliac fossa, diarrhoea is rare, and constipation may be extreme. Restlessness, insomnia, cephalalgia, vertigo, tinnitus aurium, diurnal wandering, and nocturnal delirium, bespeak cerebral sympathy. Pain in the chest, variable in seat and never intense; cough (sometimes preceding, sometimes following, the fever in order of development), paroxysmal or not, and either absolutely dry or accompanied with expectoration of clear or yellowish and opalescent mucus, or in rare instances of viscid sputa, slightly tinged with blood, without actual hæmoptysis; dyspnœa of considerable amount, indicated not only by the absolute frequency of breathing, but by perversion of its ratio to the circulation, and lividity of the face,—constitute the chief of the thoracic symptoms. The relationship of the pulse to the respiration, however, varies; the average in my cases has proved 3 : 1."

The late Professor J. Hughes Bennett¹ has described it as follows:—"This form of disease, commonly called 'galloping consumption,' is generally distinguished not only by its rapid progress, but by the febrile symptoms

¹ Reynold's "System of Medicine," Vol. III. London: Macmillan and Co. 1871.

which accompany it. There are frequent chills, followed by great heat and sweating, red tongue, nausea, loathing of food, vomiting, diarrhœa. There is a rapid pulse, at first of good strength, but soon becoming feeble; dyspnœa on slight exertion; cough, profuse expectoration, sometimes tinged with rusty-coloured blood. Occasionally the expectoration is trifling. There is great exhaustion, rapid emaciation, restlessness, and, before death, wandering of the mind and delirium. On percussion, one or both lungs exhibit unusual dulness, which rapidly extends and becomes more intensified. It is sometimes most marked at the base. On auscultation, there are at the first dry bronchial sounds, and prolonged expiration, which soon passes into moist rattles, loudest with inspiration. The crepitations are now transformed into mucous râles more or less coarse, frequently accompanied with dry bronchial murmurs and pleuritic frictions. . . . Such cases may prove fatal in a period varying from two or three weeks to a few months."

Sir Thomas Watson, in his classical work on the "Principles and Practice of Physic,"¹ thus expresses himself: "The acute form is of this kind: the patient, who may or may not have seemed previously to be in good health, is suddenly attacked perhaps with copious hæmoptysis; or he catches a severe cold; and almost immediately afterwards intense fever is set up of a hectic character, the physical signs of pulmonary phthisis, especially of cavities, rapidly develop themselves, and death ensues within a few weeks. The case has been one of what is called *galloping* consumption. After death the lungs are found hollowed by numerous vomicæ. Under Laenec's view, tubercular matter has

¹ Vol. II., fifth edition. London: Longmans, Green, and Co. 1871.

been widely distributed, and has quickly softened. According to Niemeyer's, there has been catarrhal pneumonia in various lobules of the lungs; the pneumonic products have fast degenerated into cheesy matter, which has as rapidly broken down; any crude tubercles that might also be in the lungs he would regard as secondary, but by no means necessary, results of the inflammation and its products. To my mind, what seems certain in this form is that *scrofulous* inflammation, scattered broadly through the pulmonary substance, causes its rapid and extensive disorganization. . . . There is another form of acute consumption, or, as it is usually, and I think more fitly called, *acute tuberculosis*. It is a striking but not very common disorder, and is sure to arrest the attention of the observer when it does occur. I have met with some half-dozen examples of it. The following are its main features. The patient becomes suddenly very ill, has frequent rigors, difficulty of breathing, cough, a very rapid pulse, night-sweats, and high fever. You listen at his chest, but you do not hear the sounds that are proper to phthisis. You do not find dulness confined to the upper lobes, nor pectoriloquy, nor gurgling respiration; but what you do find are rather the sounds which belong to acute capillary bronchitis, small crepitation diffused all over the chest, and succeeded by absence or deficiency of the natural breath-sounds everywhere, without any defined consolidation of the lung. Meanwhile there is none of the expectoration which is characteristic of phthisis. In short, you would not suppose that the disorder was phthisis at all. It resembles more the onset of one of the specific fevers. The disease runs a short and distressful course; the countenance and lips of the

patient become livid; often he cannot lie down; and within a few days, or at least in a week or two, he is dead; and after death you find his lungs bestrewed from top to bottom with miliary tubercules—the granulations of Bayle,—myriads of them grey, glistening, and minute. The granules are thickly and uniformly spread over the whole of the air-passages or throughout the entire extent of the lungs; and their sudden pressure there in such abundance excites inflammation, which masks and conceals the actual mischief; and the true nature of the case is not often suspected until the body is examined after death. Such, and not the reverse sequence, appears to me to be the *ordo rerum*. The tubercles are the cause of the inflammation, and not the inflammation the cause of the tubercles.”

Dr. Williams¹ writes as follows: “Let us briefly sketch the two most terrible forms of the disease. A man of middle age is attacked with fever, with pungent heat of the body, cough, viscid expectoration, extreme oppression, and overwhelming weakness, resembling that of continued fever, and the likeness sometimes appears also in a coated or dry-brown tongue, sordes on the teeth, and occasional delirium. The vesicular breath-sound is superseded everywhere by bronchial rhonchi and mixed crepitation. On percussion, the chest is dull nowhere, but less clear in the posterior than in the front parts. This case might be supposed to be one of universal capillary bronchitis, with general pulmonary congestion. So it is; but this is not all. In spite of blisters and other remedies, the breathing remains short and difficult; the pulse becomes more rapid and feeble; the lips, cheeks, and nails become livid; clammy sweats break out, and the patient dies in the

¹ “Pulmonary Consumption.” London: Longmans and Co. 1871.

third or fourth week from his first attack. The lungs are found congested, and the bronchi loaded with viscid mucus; but more than this, innumerable miliary tubercles are scattered throughout the pulmonary tissue, and these are the obvious cause of the intractability of the case. They break out simultaneously, like the eruption of an exanthem, and by their numbers and bulk induce such an amount of obstruction and congestion in the lungs as to destroy life before there is time for any considerable degeneration or softening to take place. This *acute tuberculosis* is the worst and most surely and rapidly fatal form of consumption. The second form of acute consumption begins with pneumonia in one or both lungs. The patient, generally a young subject, is of consumptive family, and may have previously had cough and occasional hæmoptysis. The fever attendant on the inflammation may not be very high at first, and the expectoration by no means so viscid and rusty, nor the crepitation so fine and even, as in simple inflammation of the lungs. But the symptoms are more persistent. The pulse and respiration remain frequent. The heat of the body, particularly the chest, continues remarkably high, almost burning the ear of the auscultator, as he examines the back. But this intense heat is alternated with occasional chills and profuse sweats at night. The cough continues distressing, and the expectoration becomes opaque, purulent and clotty; the flesh wastes, and the strength ebbs away; and if the appetite does not return, the progress of consumption and decay is rapid. Auscultation reveals the steps of the destructive process in the lung. The affected part, or the whole side, or part of both sides, becomes dull on percussion, only varied with the

cracked-pot note from the gurgling within; the loud tubular sounds are replaced by coarse crepitation, in parts amounting to gurgling; and the diffused bronchophony is modified into detached islands of voice, loud and pectoriloquous, or into the snuffling or whispering sounds equally characteristic of a cavity. This form of *galloping consumption* may also prove fatal in a few weeks; and the lungs are found after death in a state of consolidation little more dense than the hepatisation of pneumonia, but their red is mottled with grey and yellow patches of tuberculous or aplastic matter, and excavated in various parts into numerous small cavities communicating with the bronchial tubes, and containing more or less of the same compound matter which was expectorated during life, consisting of mucus, pus, degenerating epithelium and exudation-matter, with disintegrated fragments of lung-tissue."

These descriptions, although varying a good deal in details, because the symptoms necessarily differ materially in different cases, and because patients die in different stages of the disease, are very similar in their main features, and if we put them together, we get a very good picture of the disease, and one which should enable us to distinguish it when we encounter it at the bedside.

Such, then, being the clinical features of acute phthisis, let us see what view is generally taken of the prospects of recovery.

"In reference," says Bennett,¹ "to the prognosis of individual forms or cases of phthisis, we must regard acute phthisis as generally fatal. The difficulty here lies in the diagnosis. Once recognized, however, the

¹ Reynold's "System of Medicine," Vol. III. London: Macmillan and Co. 1871.

persistency of intense fever, with rapid emaciation and formation of cavities, give us little hope of a favourable termination."

Walshe¹ has observed that "the treatment of acute phthisis is far from being well understood; the rarity with which the disease is diagnosticated explains this. Leudet, as matter of experience, lauds the expectant method: better trust to the efforts of Nature than run the risk of doing harm by purely tentative interference. Perhaps he is right. Still it is painful to look on, a mere spectator."

Sir Thomas Watson,² speaking of the first form of acute phthisis which I have already described in his own words, says: "Over cases of this acute nature medicine can have very little effective control;" and with reference to the second: "I can offer you no counsel as to the treatment of these sad cases; they baffle our art, and they are always, so far as I know, fatal. All that can be attempted is to assuage the severity of the most distressing symptoms."

Finally, Trousseau³ gives his opinion in the following words: "In galloping phthisis, the prognosis is death. Death sooner or later is invariably the termination. Hitherto art has unfortunately proved unable to contend against this redoubtable malady; it is still more distressing to know that we have not the power even to alleviate the condition of sufferers by whom we may be consulted."

With these preliminary remarks I now proceed to

¹ "Practical Treatise on Diseases of the Lungs." Fourth edition. London: James Walton. 1871.

² Watson's "Principles and Practice of Physic." Vol. II. Fifth edition. London: Longmans, Green, and Co. 1871.

³ Trousseau's "Clinical Medicine." Vol. III. The New Sydenham Society. London. 1870.

give you three illustrations of this terrible complaint, all of which were under observation within the space of twelve months.

CASE I.—On November 1st, 1875, there was admitted into bed 8 of Ward 2 a lad—David G——, aged seventeen, an apprentice grocer—complaining of cough, expectoration, and great debility, of two weeks' duration. His parents, one brother, and one sister, are alive and well, but he has lost a brother and a sister, although he does not know at what ages or of what they died. With the exception of scarlet fever at the age of six, and small-pox at ten, he always enjoyed pretty fair health. But about a fortnight prior to his admission he got wet while on his way home from work; next morning he felt out of sorts and giddy, and while in the act of dressing fainted. Since then he has been confined to bed, his principal complaint being of weakness, fever with occasional sweatings at night, cough with some pain in the right side of the chest, and a tendency to diarrhœa. When admitted he was in a state of high fever. His pulse was 132 and wiry, his skin dry and hot, temperature 101° to 104° (see chart), tongue dry and coated in the centre; he was thirsty, but his appetite was not gone, and his bowels were regular; his eyes were glazed and congested, and his face flushed and swollen, and on coughing almost cyanotic. There was evident disease of the lungs; his breathing was accelerated, twenty-eight per minute; there was frequent soft cough, especially in the morning, and expectoration was abundant and muco-purulent. On examination of the chest, both sides seemed to expand equally; there was no comparative dulness, but the percussion note all over was less clear than natural, although I do not wish to speak too positively

upon this point, as we know that the normal sound varies considerably in different persons. On auscultation abundant moist râles were heard with equal distinctness *all over* both sides of the chest.

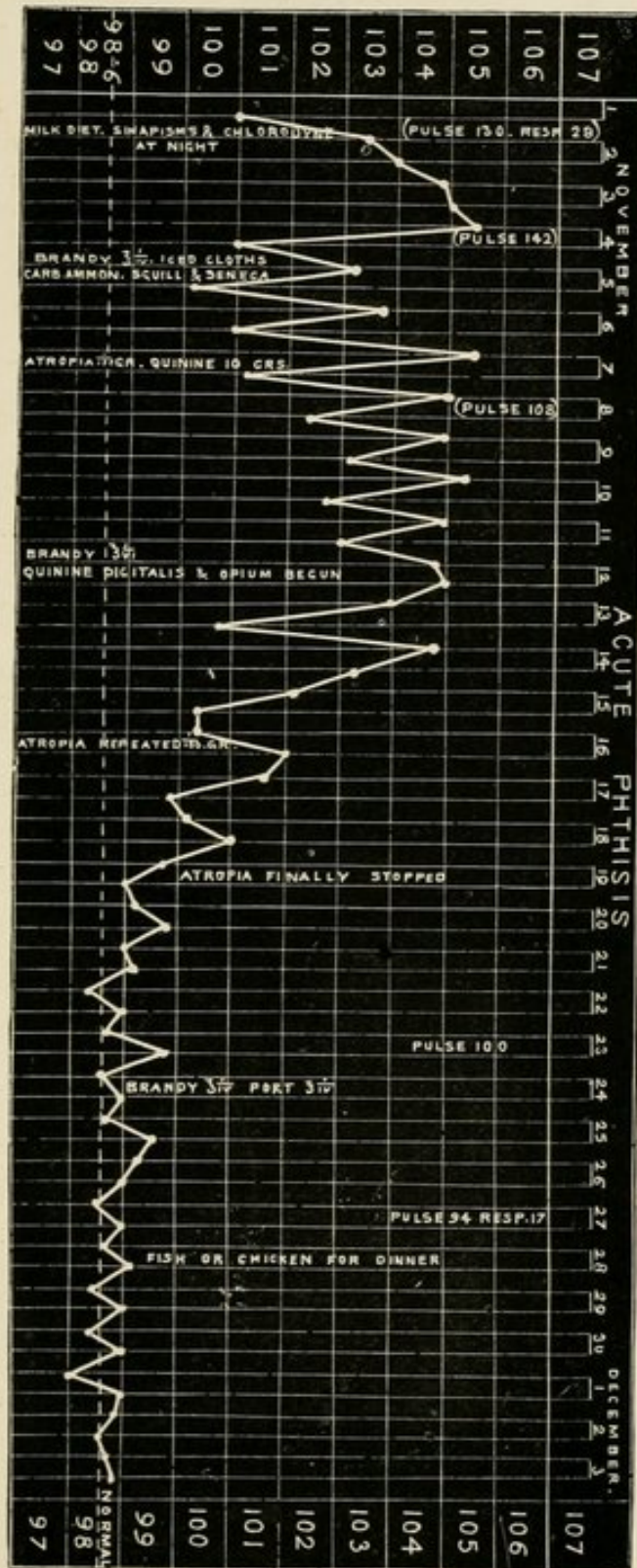
On November 4th, three days after admission, it was noted that the fever had assumed the typhoid type. He was in a state of great debility, and was bathed in perspiration. His pulse was 142, very weak and compressible; his temperature 105.6° during the previous night. The râles were more abundant than ever, and now some dulness was discovered for the first time at the left apex. The following was the treatment adopted: He was fed every hour with milk, soup, or other light nourishment of this kind; and he was ordered four ounces of brandy, and a stimulating mixture composed of a drachm of carbonate of ammonia, three drachms of syrup of squills, and six ounces of infusion of senega, a tablespoonful to be taken three times a day. The application to the abdomen of folded pieces of flannel wrung out of iced water for half an hour from time to time, temporarily lowered the temperature about one degree; but I have since had reason to suspect that this treatment was not very efficiently carried out.¹

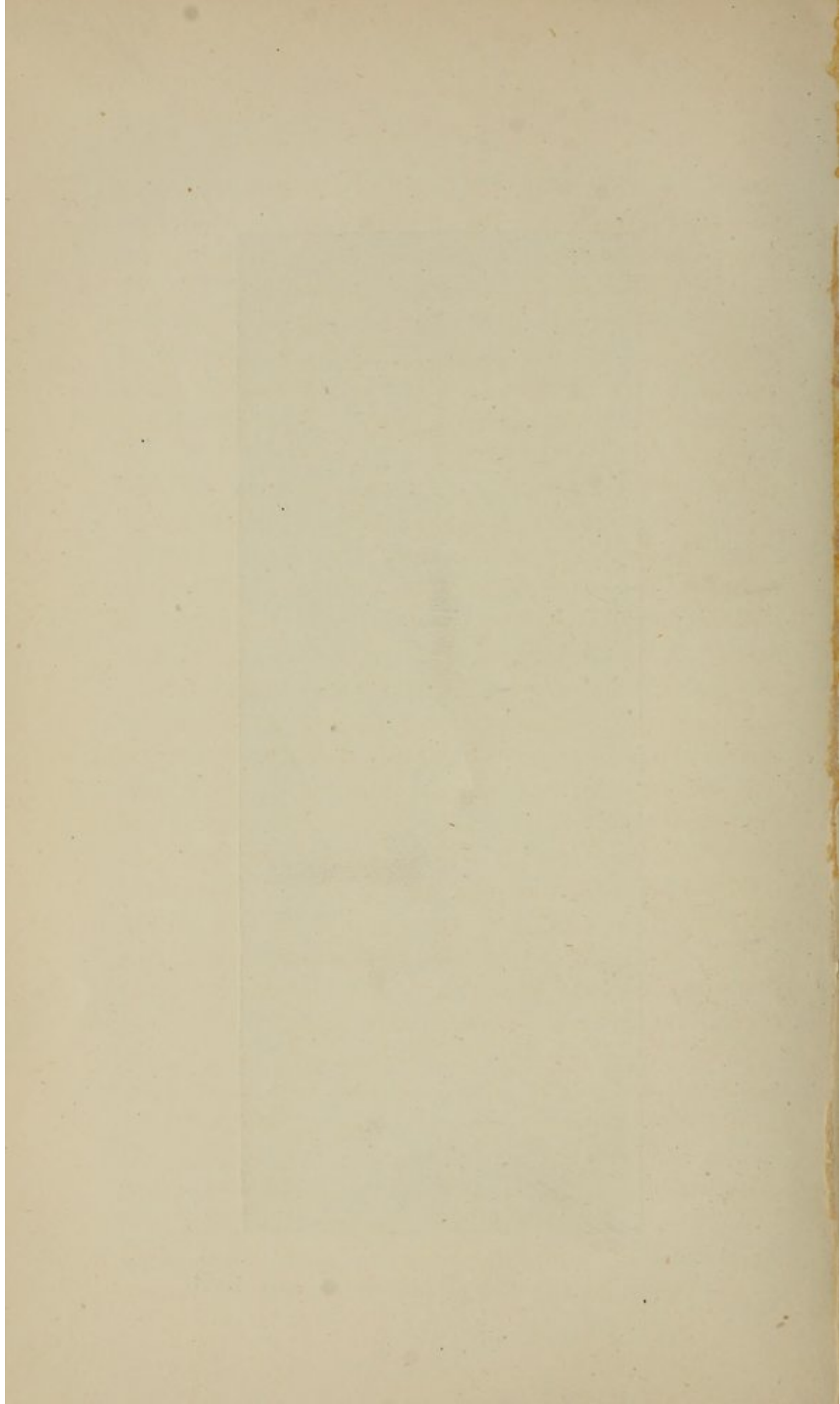
¹ The application of iced cloths is made in this way. The night dress is pulled well up over the chest so as to avoid any possibility of its being wet, and, for a similar reason, a folded blanket is placed across the bed under the patient's body. The usual bed-clothes are arranged so that they reach up to the lower part of the chest only, which latter is covered with a separate blanket in order to prevent unnecessary exposure while the iced cloths are being changed. Two pieces of flannel are employed in the process, each being sufficiently large, when folded into four layers, to cover the whole of the front and sides of the abdomen. One of these, wrung out of iced water, and covered with a piece of dry flannel, to prevent the bed-clothes from being wet, is applied, while the other is left in a large basin filled with iced water at the side of the bed. The pieces of flannel are changed every

For the next eight days he was getting worse instead of better : his temperature kept very high (a dose of ten grains of quinine on the 7th having had little influence upon it), he was emaciating rapidly, and the perspiration was most profuse. For the relief of this last symptom, subcutaneous injections of the 100th of a grain of sulphate of atropia were given at night, with the happiest effect; and that it was really controlled by the atropia is apparent from the following statement. On the first night it was partially checked, on the second it entirely ceased, and then the atropia was omitted. Two days thereafter it began again, but was again arrested by a third injection. Being once more omitted, the sweating returned, so that we had recourse to it for the fourth time, and continued the injections for several successive nights, after which it returned no more.

On November 12th it was recorded that, although the perspiration was absent, there was no improvement in the other symptoms, and the emaciation was rapidly on the increase, while the temperature reached 105° every night (see chart). What, then, was to be done?

minute, or so often that they still feel cold when they are removed. The changing of the flannel, especially if two persons are in attendance, one to remove the bed-clothes and the flannel, the other to apply the piece which is freshly iced, can be effected with great ease and rapidity, and without exposing the patient to any injurious extent, if the preliminary arrangement of the bed-clothes is made in the way I have indicated. I have thought it right to mention these apparently trivial details because I have often seen the process carried out in such a way as to be perfectly futile, and because I have frequently been interrogated on the subject. But I think it right to add that, in the treatment of acute phthisis, I do not wish to lay too much stress upon the value of iced cloths by themselves, but to attribute the success of the treatment to the combination of measures employed. Of course the same precautions must be taken in the use of iced cloths as in the employment of the cold bath, and the cloths must be at once removed if there is any tendency to coldness or collapse.





Before resorting to the cold bath, we decided upon the following treatment: In the first place, we fed him every half-hour instead of every hour; secondly, we increased his brandy from four ounces to six; and thirdly, we gave him the following antipyretic powder, a favourite combination of Niemeyer's:—Sulphate of quinine and digitalis, of each twelve grains; opium six grains; divide into twelve powders: one to be taken every four hours.

Within twenty-four hours there was a fall of temperature; in a week it had subsided to 99°, and he was much better in every respect. The cough was quite moderate, the acceleration of breathing and the expectoration had ceased, and the râles were almost gone, except at the right base, where, as well as at the left apex, there was some dulness on percussion. From this time he rapidly gained flesh, and became quite corpulent; his tongue cleaned, his appetite was voracious, and he was constantly crying out for food, and his temperature became and remained normal. After convalescence was fully established he was put upon cod-liver oil, and when he was dismissed, some weeks afterwards, he looked as healthy a lad as one could wish to see. The accompanying chart shows the temperature from day to day, and its relation, in time, to the treatment which was adopted.

CASE II.—Mary F——, aged sixteen, weaver, was admitted into bed 3 of Ward 5 on November 16th, 1876. She complained principally of weakness of three weeks' duration. Her mother and only sister are in good health, but her father and brothers—she does not know how many—all died of consumption. She herself seems to have enjoyed good health until three weeks before admission; at that time, when returning

from her work, she began to shiver and to feel stiffness in the back of her neck and pain in the left shoulder. On reaching home the pain and stiffness were gone, but she felt feverish, had a slight occasional tickling cough, and perspired freely during the night. At the end of a week she was said to have improved somewhat, and to have been able to go about, but soon increasing weakness, which was accompanied by complete loss of appetite, sleeplessness, and profuse nocturnal perspirations, obliged her to take to bed again.

On admission, all the above symptoms, including the short tickling cough, were present, and her weakness was so marked that her legs shook very much when she attempted to stand, and her hands when she took food. Her tongue was dry and coated in the centre with a broad white thick fur stopping short at the tip, which, with the edges, was red. She felt sickish, and had a great repugnance to taking even fluid food, although her thirst was great. Her bowels were very costive, and had been so ever since the commencement of her illness. Her menstruation began two years prior to admission, and had always been regular. Her skin was dry and pungent. Temperature 103.4° , the following morning 103.8° , and in the evening 105° ; pulse 120, of fair strength; respirations 22. On examination of the chest, which measured thirty inches (and thirty inches and a half on forced inspiration) on a level with the nipples, musical râles were heard all over both sides both before and behind, and just as abundant at the apices as at the bases, while at the right apex there was some dulness and increased resistance on percussion. Urine about thirty ounces, clear, high-coloured, sp. gr. 1020, depositing urates on cooling, and containing a small quantity of albumen, which,

however, soon disappeared; no tube-casts were discovered in the deposit.

Treatment.—On November 17th: castor oil, two drachms; ice to suck, iced milk, and soup, frequently. On the 18th, a pill, composed of one grain of quinine, half a grain of digitalis, and half a grain of opium, was prescribed, to be taken every four hours. The next day (19th), being much in the same state, the digitalis was increased to one grain in each pill.

Notwithstanding the above treatment, she was progressing from bad to worse; her fever continued persistently very high (as may be seen from the accompanying chart), and at 5 p.m. on the 20th reached 105.6° . Her face and eyes were flushed; she had the dull, heavy, stupid expression of a typhus patient, and was very drowsy; her lips were dry and cracked; her tongue very dry, and thickly coated with a deep-brown fur. There was great difficulty in getting her to take food, and she objected to everything but iced milk, which she took to the extent of a tablespoonful every quarter of an hour. Her pulse was 128, soft and regular. On this day (20th) a teaspoonful of brandy in iced water was prescribed every hour.

On November 21st she began to pass all her water in bed, and continued to do so on the two following days. Her bowels were moved without medicine. Her breathing was very laboured and 36 per minute, while her pulse was 128 and weak; temperature 104.4° . She now began to expectorate slightly for the first time, her sputa being slightly rusty. The râles over the whole chest were much more abundant, and now partly musical, partly moist; while at the right apex the dulness on percussion was more decided, and abundant coarse moist râles were there heard. On

this day iced cloths were applied to the abdomen for half an hour every two hours. The following morning the temperature had fallen steadily from 104.4° to 97.2° , while the respiration and pulse remained as before. The iced cloths were therefore omitted, but were resumed in the evening because the temperature had risen to 102.2° . From this date onwards the temperature was never allowed to rise higher than 102.6° , which it only reached on one occasion—viz., on the evening of the 24th, and there was not the slightest difficulty in completely controlling it by means of the cloths.¹

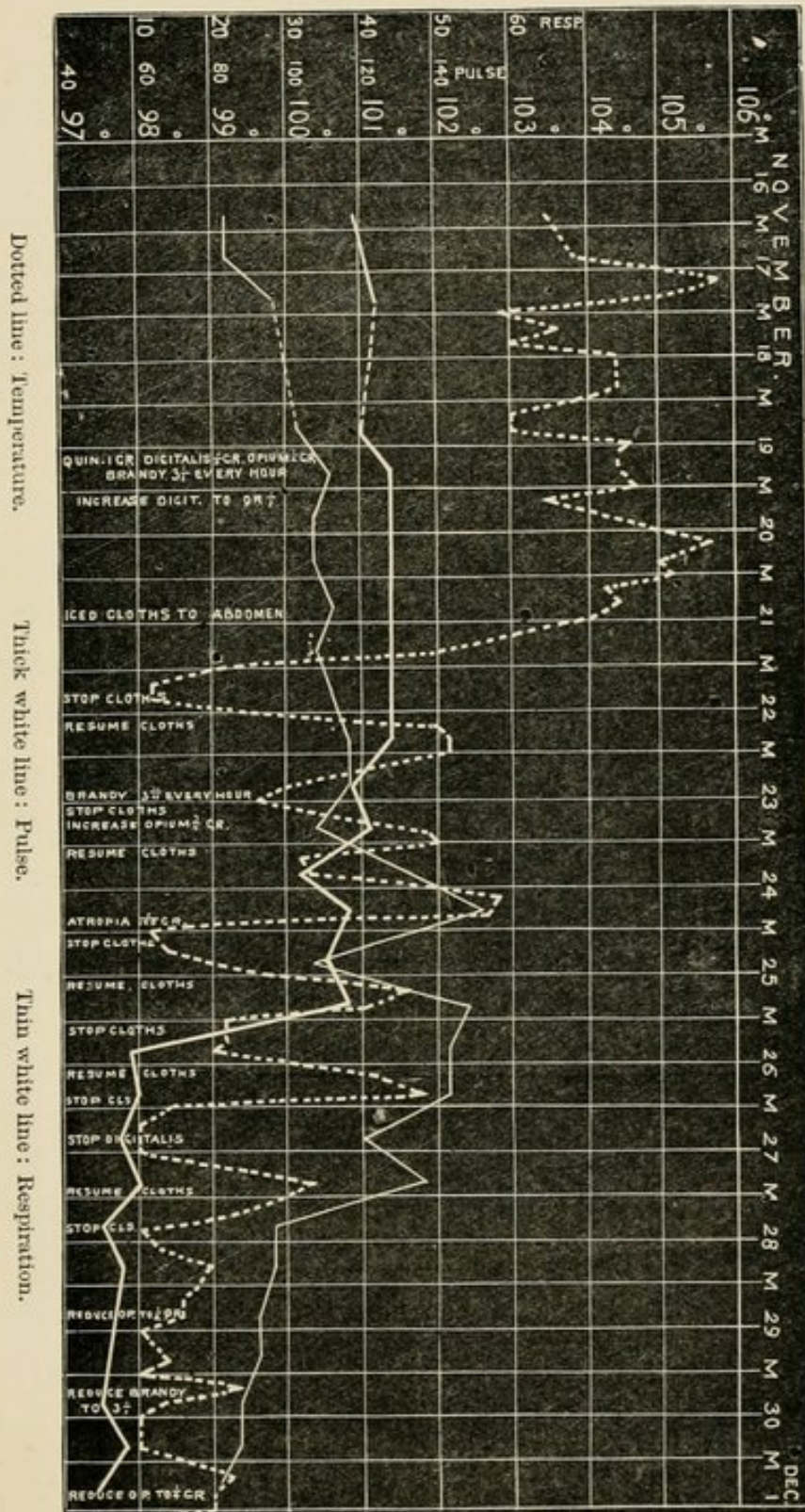
On the 22nd the state of the chest was much as on the previous day, except that there was a suspicion of dulness at the left apex. The expectoration continued tinged with blood.

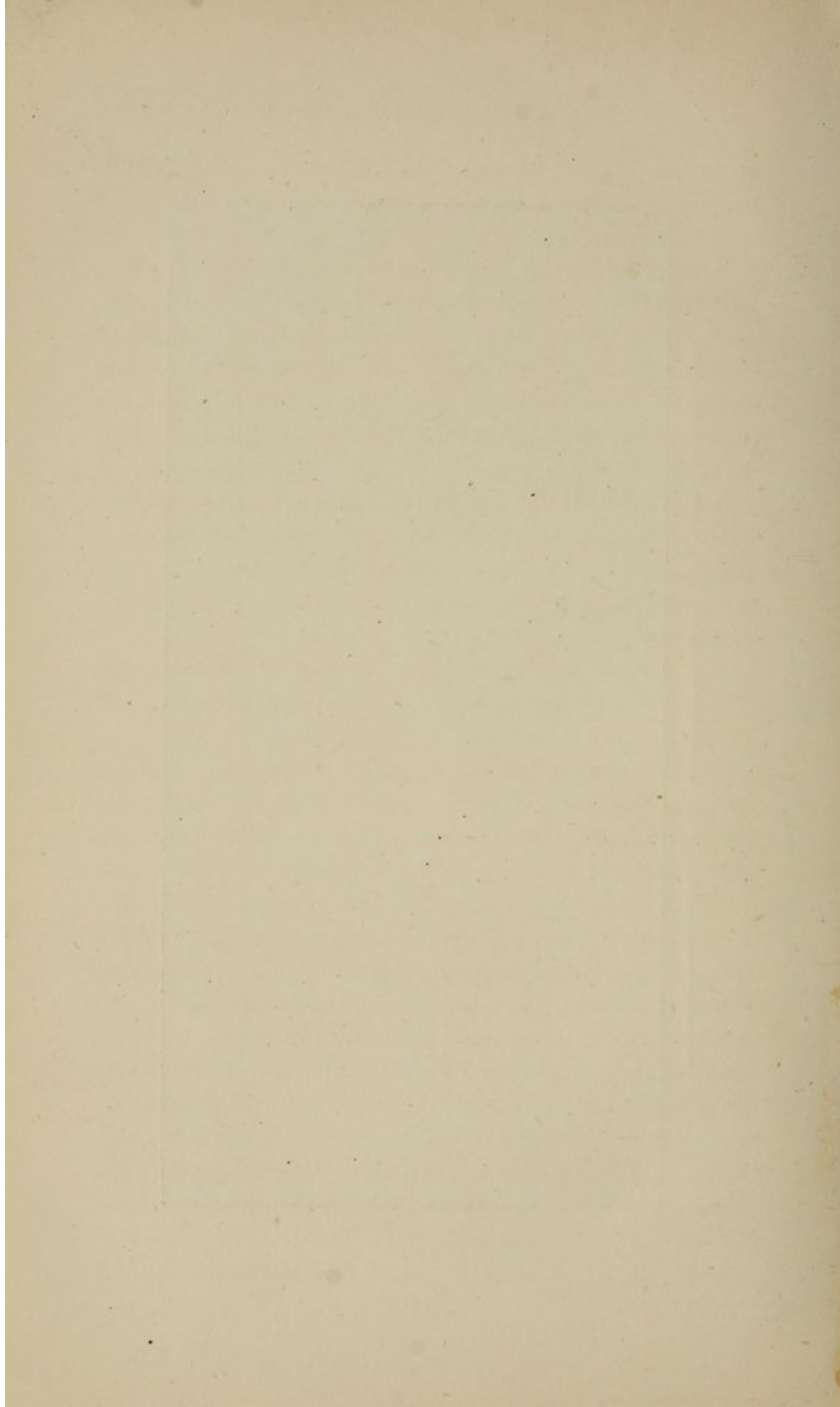
On the 23rd, the brandy was increased from one to two drachms every hour, and the opium from half to three quarters of a grain in each pill.

Between the 23d and the 24th the respiration rose steadily from 34 on the evening of the 23rd, to 56 on the evening of the 24th. On the morning of the 25th it fell to 34, rising again in the evening to 54, and keeping above 50 until the evening of the 26th. On the morning of the 27th, it had fallen to 40, in the evening it had risen to 48. On the morning of the 28th it had fallen to 28; on the 29th to 26; on the 30th to 24; and on December 1 to 20 (see chart).

On the evening on the 24th, the hundredth of a

¹ The influence of the other remedies mentioned, and used simultaneously with the iced cloths, must not be lost sight of, for no doubt they contributed to the result: if proof of this is required, it is to be found in the last case in which the iced cloths, atropine injections, etc., failed to give relief, but when the antipyretic powders were added there was an immediate fall of temperature.





grain of atropia was injected subcutaneously, and repeated every night till the 29th.

The pulse, from the commencement of the illness, was persistently high and weak, and on the night of the 25th, although somewhat lowered, stood at 116. The following morning it had fallen to 58. It never rose again above 60, and on one or two occasions was as low as 48, while on the morning of the 26th, and for ten days thereafter, it was decidedly irregular both as to force and time.

The digitalis in the pills was omitted on the morning of the 27th; on the 29th the opium was reduced from three quarters to half a grain; on December 1st, to a quarter of a grain; and a few days afterwards it was stopped altogether.

To make a long story short, I content myself with two more reports, taken on November 25th and on December 1st.

On the afternoon of November 25th the following was her state:—The countenance is more intelligent, and there is no lividity. She answers questions readily, says she feels much better, and takes food with much less reluctance; her tongue is much moister, and cleaning at the tip; bowels opened by enema. The pulse is 116, of fair strength; the respiration 54 per minute. The pulmonary physical signs are pretty much the same as at last report, but the cough is softer, and the expectoration, which is very moderate in quantity, and mucous in character, has lost the rusty appearance.

December 1st.—Patient is perfectly intelligent, though pale, and asked for food for the first time yesterday. Her tongue is moist, though coated with a thick white fur, and her bowels have not been moved for two days. Her pulse is of fair strength, and 48

per minute. Temperature normal. No abnormality can now be discovered in the chest, with the exception of some dulness at the right apex, and slighter and more limited dulness at the left, although decidedly less than before the arrest of the symptoms. The râles have entirely subsided.

This girl remained for about two months longer in the hospital, took cod-liver oil in full doses, and left in the most perfect health, the pulmonary physical signs having quite disappeared.

CASE III.—In the beginning of November, 1876, a gentleman, Mr. B——, aged thirty-one, consulted Dr. Brodie on account of a neuralgic affection of the head, for which he prescribed successfully, and a couple of weeks thereafter he sent him to a hydropathic establishment for change of air. He remained there for a week, and, having caught cold, returned home.

I was then requested to see him along with Dr. Brodie. We found him in a state of high fever, his temperature being 103.5° . He had a dry cough, had lost his appetite, was emaciating rapidly, was sleepless, perspiring freely, and very weak. His breathing was rapid, and there was decided dulness at the left apex. Fluid food was prescribed, with a dessert-spoonful of brandy every three hours; and a pill, composed of a grain of quinine, a grain of digitalis, and half a grain of opium, every four hours.

I saw him next three days after, on the 1st December. He had risen from his bed two nights before, had fallen, and lay exposed on the floor of his room for some time before he was discovered. We found him in a more alarming state than at the time of our previous visit. He was in a high fever, exceedingly weak, and bathed in perspiration; the dulness

at the left apex was still more pronounced, and musical râles were heard abundantly over the whole chest. A thoroughly-trained nurse was now got for him; he was fed every hour; his brandy was increased to a dessert-spoonful every hour and a half; the pills were continued, and a subcutaneous injection of one-hundredth of a grain of atropia was prescribed at bedtime. He was very delirious, had much the appearance of a patient in the advanced stage of typhus fever, and seemed so ill that his friends quite despaired of his recovery. Experience of previous cases, however, led me to say that, although in a critical state, we had still hope of amendment.

On the next day he was a little better, but the soup made him sick. He was therefore confined to milk, and champagne was substituted for the brandy for a day or two. The temperature had fallen by this time to 101° in the morning, and to 99.6° in the evening.

On December 5th the temperature was 100° at 4 o'clock a.m., 99.6° at 8 a.m., and 99° at night. He was much improved, and the râles throughout the chest were much less distinct. The breathing was also much quieter, and the bowels had been opened by means of an enema. His pulse was 76 and stronger, but, as the urine was scanty, and the pulse had been slow, weak, and irregular during the night, the pills containing digitalis were omitted. The brandy was increased to a dessert-spoonful every hour, and as he was still sweating a little, the atropia was increased to the eightieth of a grain.

On the 6th the râles had quite disappeared, although there was still dulness in a more moderate degree, and harsh breathing at the left apex. The respiration was about 22 per minute. His temperature was 99° at

4 a.m., 97.6° at 8 a.m., and the same at night; and from this day onward it never rose above 98.6° . His pulse, however, was 80, and weak. He was still delirious, and his urine was very scanty—twenty-four ounces. He was therefore fed even more assiduously; the brandy was increased to eight ounces; three drachms of cream of tartar, in the shape of imperial, was prescribed; and the atropia injections were continued.

On the 9th the improvement was very marked; the delirium was quite gone; the temperature 98° ; the pulse 60, of fair strength, but rather irregular; the urine in fair amount; the respirations 20 per minute; the râles throughout the chest had entirely disappeared; there was no longer harsh breathing at the left apex, and the dulness on percussion was very indistinct; he had not coughed once since the previous day; his bowels had been moved twice without medicine; his tongue was cleaning, and was more moist; he was calling out for food, and suggested the propriety of getting a piece of brandered steak. He was still perspiring slightly, and therefore the atropia was continued, and five grains of the hypophosphite of lime thrice daily was prescribed, the cream of tartar being omitted, as he was making water freely. His food was to be given rather less frequently, and the dietary was to be gradually and cautiously relaxed. This patient made a perfect recovery, and felt so well that it was with difficulty that we persuaded him to leave home during the trying months of spring.

In conclusion, let me ask the question, Under what disease were our patients labouring? I think no one who has had experience of such cases, and who saw them while the complaint was progressing, could doubt

that they were suffering from acute phthisis. This was the conclusion to which my friend Surgeon-Major Jameson came with regard to the first case—a gentleman who has seen a great deal of that complaint among the negroes in the West Indies, and who saw the patient when visiting the hospital.

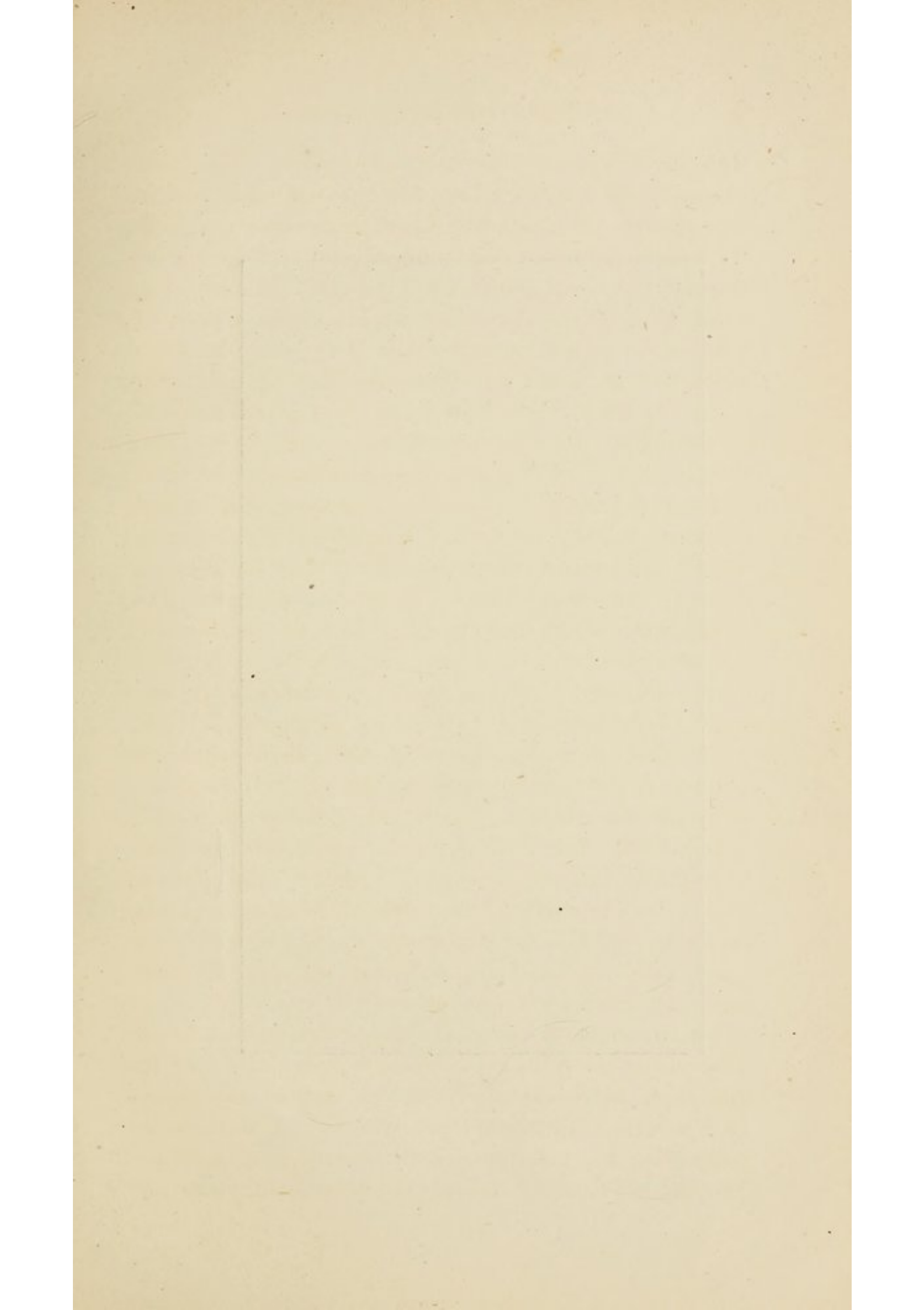
Of course I do not pretend to say whether they were cases of non-tubercular or of tubercular phthisis, although the symptoms in the first and second cases at all events seem to harmonize more closely with the descriptions which have been quoted of the latter form; nothing short of a post-mortem examination, which fortunately we were not called upon to make, could settle that point. But some may be disposed to deny that they were cases of acute phthisis at all, because they may say acute phthisis invariably terminates in death. This, however, is begging the question, and, besides, it is surely just as likely that it may end favourably as that tubercular peritonitis should terminate in recovery, illustrations of which I have given you in a former lecture.

Moreover some corroboration of the diagnosis was afforded lately by a patient who was admitted into Ward 2. His symptoms were almost identical with those which have just been described, and the diagnosis was verified by post-mortem examination; and although there was hopeless disorganization of the lungs, several of the symptoms yielded almost immediately to treatment such as I have already detailed. This man was twenty-five years of age, and came under observation on the 18th of May, complaining of severe cough of thirteen weeks', and of debility of ten weeks' duration. He was so ill as to be unable to give an account of his family or personal history, and it was with difficulty

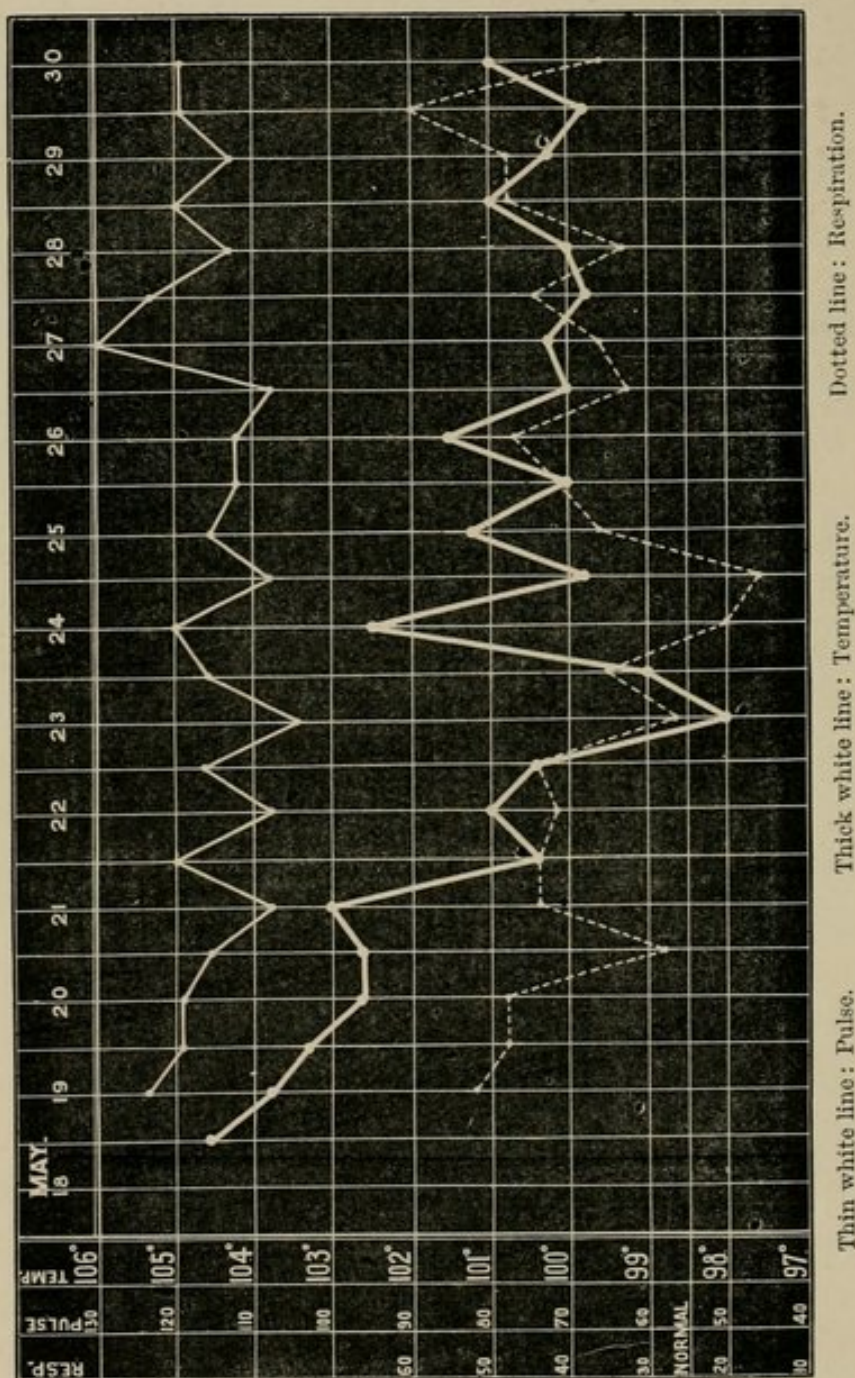
that the following facts were ascertained. He was a moulder, and much exposed to heats and colds, and in consequence, he thought, severe cough set in about thirteen weeks before admission, which did not however prevent him from continuing his work. But one day, about three weeks thereafter, while carrying a piece of hot iron, a severe rigor set in, and his legs shook so much that he feared that he would fall. On returning home his limbs were said to have been found swollen. A fortnight after this he returned to work, but was obliged to give it up in a couple of weeks owing to increasing debility. To these symptoms were added anorexia, thirst, emaciation, hoarseness, and about a month before admission, deafness, which steadily increased. He was a very intemperate man, and his cough was aggravated by lying out at night while intoxicated.

On admission he was in a state of great debility, was much emaciated, and bathed in perspiration. His pulse was 120, soft and compressible, his temperature 105° , and the respirations 44, the pulse respiration-ratio therefore being $2\frac{3}{4}$ to 1. His tongue was coated with a thick white creamy fur; he was thirsty, and had no appetite, but his bowels were regular. His intellect was rather obscured, his face flushed, his lips and nails rather livid. His decubitus was upon the back; his cough was frequent and soft, and the expectoration purulent, and he was very hoarse.

On examination of the chest moist râles were heard over almost the whole of both lungs, especially the left, and more markedly at the apices than at the bases. In the former situation there was decided dulness on percussion, and an approach to cavernous respiration. The day after his admission—the 19th of May—treat-



To face page 177.



ment was commenced. A dessert-spoonful of brandy was given every two hours, and half a glass of milk or soup every half hour, 100th of a grain of sulphate of atropia, gradually increased to the 75th of a grain, was injected subcutaneously every night, and iced cloths were applied to the abdomen for half an hour every two hours. On the following day the pills of quinine, digitalis, and opium, already referred to, were added.

The result of this treatment was striking and immediate. In two or three days the perspirations had almost ceased, and within five days the pulse had fallen from 124 to 108, the respirations from 52 to 16, and the temperature from 105° to 98° (see chart).

Considering the duration of the disease before the patient came under observation, and the extent to which the lungs were evidently disorganized, this partial result excited much surprise, and led us to believe that, had we seen the case in an earlier stage, and before the lungs had become hopelessly damaged, a successful issue might, with much probability, have been anticipated.

After the 23rd, all hope of a favourable result having been abandoned, the treatment was no longer persevered with, and the patient died on the 30th of the month.

The post-mortem examination was made by Dr. Coats. The lungs were moderately adherent, especially the left. At the apex of this lung several large cavities were observed, while the remainder was extensively consolidated, having generally that dark mottled appearance which has suggested the name of frog-spawn condensation. The right lung was similarly, though not quite so extensively, affected.

The larynx was much ulcerated, the ulceration being

deep, with ragged edges, and the left vocal cord, in its vicinity, was highly œdematous, so much so indeed as completely to occlude the ventricle of Morgagni. The mucous membrane of the epiglottis and of the ary-epiglottic folds was much thickened but not ulcerated. The mucous membrane of the trachea, like that of the bronchi, was intensely hyperæmic. The right ventricle of the heart was greatly enlarged, and numerous pale globular vegetations—one or two about half the size of a hazel-nut—sprang from the inside of the apex. In the left ventricle none of these were observed. The liver was enlarged, weighing 4 lbs. 2 oz., and was slightly fatty.

Dr. Coats kindly made sections of the lung, and the following is his report of the examination: "The lesion is not primarily and essentially of the nature which I would call tubercular. The essential pathological condition seems to be a filling up of the air-vesicles and smaller bronchi with an exudation, which rapidly becomes cheesy. The exudation when fresh is composed for the most part of cells smaller than the usual large epithelioid cells of chronic phthisis, reminding one of those found in acute pneumonia. There is also an occasional occurrence of a more homogeneous exudation in the air-vesicles, which may, perhaps, consist of fibrine. These two conditions are, to my mind, to a certain extent, an index of the acuteness of the process.

"As to the larynx, though I have not examined it microscopically, I have little doubt that the lesion is tubercular. I do not deny that a careful search through the lung might have enabled me to detect tubercles, but as the primary lesion is such as I have described, such tubercles I would have regarded as secondary, and I would take a similar view of those in the larynx."

After the publication of the first three cases which I have mentioned, it was curious to note the great difference of opinion amongst eminent physicians as to their nature and the influence of the treatment adopted. Thus Dr. Hilton Fagge thinks that they were cases of acute pneumonia of the apex of the lung, and he believes that we may confidently diagnose such a disease from phthisis by its sudden and definite invasion, often with shivering. Dr. Clifford Allbutt, on the other hand, admits the accuracy of the diagnosis, but thinks the arrests were part of the natural, but occasional, course of the disease. Dr. James B. Russell, medical officer of health for Glasgow, and formerly physician to the Fever Hospital, says, "They raise the question in the practitioner's mind of the possibility of saving a patient now and then. This is, I think, done very satisfactorily. I have myself no doubt with reference to the possibility of recovery from acute miliary tubercle, from the fact that in fever post-mortems I have not infrequently found the lungs as if full of sand from the calcareous minute nodules of transformed tubercle, and this in persons having all the appearance of health, and sometimes with no recoverable history of illness."

Finally, Sir Robert Christison's opinion is summed up in the following words: "Sceptics will say there is no satisfactory evidence of the peculiar forms" of disease described "except their presence on dissection. But I can say that your histories exactly correspond with those of all the cases of galloping consumption which I have seen, and whose nature was demonstrated by examination after death. I used to see such cases not infrequently when I was hospital physician here, and was struck—paralysed in short—

by the utter hopelessness of accomplishing even any material palliation by any sort of treatment. Your success is therefore most remarkable."

But, waiving the question of exact diagnosis, I think it must be generally admitted that these patients were suffering from acute pulmonary affections which were hurrying them to their graves, and that, without doubt, it was the treatment which saved them; for you must have observed that each of the remedies was given with a very specific aim, and fulfilled the object for which it was administered. Thus, in the first case, the atropia was injected with the view of checking the perspiration, which it entirely arrested, while the quinine, digitalis, and opium, were conjoined with the use of iced cloths, with the view of bringing down the fever, and there followed an immediate and steady fall of temperature; and in the second case, the quinine, digitalis, and opium having failed to counteract the fever, iced cloths to the abdomen were superadded, upon which the temperature fell in less than twenty-four hours from 104° to 98.2° , and we had no difficulty thereafter in completely preventing any undue elevation of temperature.

Such, then, are the kind of cases which should be brought under the notice of those who, in these days of scepticism, are inclined to sneer at the efficacy of drugs.

LECTURE XIII.

CASES ILLUSTRATIVE OF MEDIASTINAL TUMOURS.

THE cases which are to form the subject of a few remarks this morning are comparatively rarely met with, but I have no hesitation in directing your attention to them, seeing that in their surroundings they are calculated to afford instruction which may be of use in every-day practice. The first case is that of a patient,¹ who is at present under observation. He is a married man, an iron-moulder—forty-four years of age, and was admitted into the Western Infirmary (Ward II., bed 6), on the recommendation of Professor Simpson, on the 11th Nov., 1874, suffering from cough and expectoration of twelve months', spitting of blood of five months', and swelling of the neck with dyspnœa on exertion, of three months' duration. His father died at the age of forty-eight of "inflammation of the lungs," and his mother at seventy. He has two brothers and one sister alive and well. From the age of fourteen to twenty-four he worked as an iron-moulder; after that he was in the army for twelve years, and was stationed at different times in the West Indies, Gibraltar, and Corfu; during the whole of that

¹ Case reported by Dr. Charles J. Plumer.

time he enjoyed excellent health. At the age of thirty-six he left the army and resumed his former occupation. His work was very laborious, and entailed much exposure to heat and cold, but his health did not suffer in consequence, as far as he knows. About twelve months ago a slight dry cough set in, accompanied, in a few weeks, by expectoration, which gradually increased in amount, and five months ago, having caught a severe cold, the cough became violent and the sputa streaked with blood, and since that time he has frequently brought up small quantities of blood. About three months prior to admission he began to experience giddiness, oppression, and a sense of suffocation on making violent muscular exertion, especially on stooping, lifting heavy weights, &c., but these symptoms passed off on assuming the erect posture, or after resting a while. About the same time slight puffiness of the neck was observed, and three weeks ago all his symptoms being aggravated, he was obliged to give up work. He has never complained of headache, but on stooping or coughing, his sight becomes dim; everything appearing as if in a mist. For a year past he has occasionally felt a dull aching pain, sometimes of a burning character, shooting through from the right breast to the scapula, which is aggravated by hard work; and for the last six weeks, on carrying his hand backwards towards his shoulder, a pain seizes him in the front of the upper arm below the shoulder, and prevents him from completing the act. His general health seems to have been above the average, although he has taken stimulants pretty freely."

Our patient is a fine, healthy-looking man, and yet he is labouring under a very serious disease. Let us, therefore, analyse his ailments.

In the first place, there are well-marked symptoms of pulmonary disorder. He has cough, expectoration, which is frothy and muco-purulent, and sometimes bloody, and when he coughs, stoops, or undergoes exertion of any kind, he complains of shortness of breath. On placing him upon his back, and exposing the front of the chest, it is observed that the movements of respiration are not so free at the upper part of the right side as they are at the left. In that situation there is marked dulness upon percussion, diminishing, however, in intensity from the apex downwards. The vesicular murmur is absent, and is replaced by tubular breathing at the apex of the lung, and there the vocal resonance is increased. The same physical signs are present, though in a less degree, at the upper part of the lung posteriorly. These physical signs lead to the conclusion that the top of the lung is in a state of consolidation. Now, consolidation at the apex of the lung in the majority of instances leads one to suspect phthisis, especially when combined with hæmoptysis, but our patient is neither weakly nor scrofulous, nor does he present the general symptoms of phthisis. There are, moreover, certain peculiarities in his case, pointing to a very different conclusion. In the first place, the dulness is not limited to the area of the lung; it extends across the sternum, and a little to the left of that bone, whereas in simple consolidation of the lung this never occurs.

When fluid is effused into the cavity of the pleura, that membrane is put upon the stretch, and as a consequence, the dulness, which is one of the most marked of its physical signs, often extends beyond the middle line; but the theory of pleuritic effusion is untenable in this case, because then we should probably have no

bloody expectoration, and diminished, instead of increased, vocal resonance, and because an effusion of fluid, limited to the upper part of the chest, is rarely observed.

In the second place, on listening to the respiratory murmur at the bases of the lungs, it is found to be normal at the left base, but very feeble at the right, and as there is no dulness in the latter situation, we are led to suspect that there is some interference with the free entrance of air into the right lung.

Thirdly, there is marked dilatation of the superficial veins of the arms, head, neck, and top of the chest, especially upon the right side, which leads to the conclusion that there is some impediment within the chest to the free return of venous blood to the right side of the heart, and, doubtless, the giddiness and dimness of vision on stooping, &c., is due to the increased obstruction thereby produced. In addition to the varicosity of the veins, there is distinct swelling of the neck, which pits upon pressure, thus proving the presence of œdema, which is evidently consequent upon the venous engorgement, just as we often meet with œdema of the lower extremities, resulting from a varicose condition of the veins of these parts.

Lastly, on applying the fingers over the radial arteries, it is found that the pulse at the right wrist is much more feeble than that at the left, thus showing that there is some impediment to the passage of arterial blood to the right arm.

Putting all these circumstances together, we are led to the conclusion, that, in all probability, there is a tumour in the anterior mediastinum which has compressed and irritated the upper portion of the right lung, and induced the consolidation already indicated.

This tumour must press upon the right bronchus, thus accounting for the feeble breathing on that side; upon the subclavian artery, thus accounting for the feeble pulse at the right wrist; and upon the vena cava superior or innominate veins, thus leading to the dilatation of the superficial veins and to the œdema.

It may be interesting to compare this case with the following which occurred¹ in the practice of the late Dr. Graves:—

“James Byrne was admitted into the hospital on the 23rd of October, 1834, and had been in the hospital before for a considerable time. He states that, eighteen months previous to his last admission, he was exposed to wet and cold, which produced a feverish attack, with symptoms of local inflammation in the lung, manifested by cough and difficulty of breathing. These were soon afterwards followed by dropsical swelling, and he applied at this hospital for relief. After remaining under treatment for about two months he began to improve, and left the hospital, as he states, quite relieved. He enjoyed tolerably good health, and continued to work at his trade, as a bricklayer, until about five weeks before his last admission, when he was again attacked with cough and difficulty of breathing, accompanied by œdema of the left side, of the chest, and left arm. On examining him after his admission, the following phenomena were observed:—The left side of the face and neck was slightly œdematous; the left external jugular vein, with its immediate branches, engorged and very prominent; the left arm and left side of the chest œdematous, and pitting on pressure; no affection of the bronchial

¹ “Clinical Lectures on the Practice of Medicine,” by R. J. Graves, M.D. Fourth edition, vol. II., p. 184. Fannin and Co., Dublin.

mucous membrane or parenchyma of the lungs, sufficient to account for the cough, could be detected by auscultation. Considerable dulness over the situation of the heart, and extending upwards over the sternal region on the left side; the right sternal region sounded clear and natural. The heart had not been removed from its normal situation; its pulsations could be felt over the ordinary extent and no more, and they communicated a natural impulse to the finger. On applying the stethoscope over the heart, its sounds were found to be regular and natural, but on placing it higher up, over that part of the sternal region which was dull on percussion, a loud *bruit de rape* was heard."

Dr. Graves was inclined to think that the symptoms here present might be attributed to the presence of a solid tumour developed in the chest, the nature of which he could only guess at, and that it was situated in the anterior mediastinum, close to the region of the aorta.

Some years ago, on the 28th November, 1871, a ship-carpenter, aged thirty-two, was admitted into the Royal Infirmary under my care. In the month of February, while at sea, he was a good deal exposed, sometimes having his clothes wet for a whole week. About this time he began to cough a little, and the cough never left him, although he improved a good deal under treatment during the summer months. In April, shortness of breath set in, with general pain over the front of the chest, shooting through to the back between the shoulders. At this time, too, the veins of the right side of the neck and chest became distended, and the face gradually assumed a swelled and dusky appearance. During the spring he fainted

three times at intervals of some weeks, on each occasion after drinking a teacupful of cold water. All the above symptoms had been on the increase for three months preceding his admission. He was unable to lie upon his back, but breathed pretty freely sitting up, or upon either side, especially the left. His tongue was clean, his appetite fair, his bowels regular, and his temperature 98·3. His father was alive at the age of 72, his mother at 65, two brothers at 44 and 40, and four sisters at 43, 35, 30, and 26, all of them apparently enjoying good health. Two brothers died in infancy, and one at the age of 35 of hip-joint disease.

Now, let me refer shortly to a few of the more prominent symptoms stated in this report, or observed on examination of the patient. In the first place I have to remark, and I need not dwell upon this, that there were symptoms of catarrh of the bronchial tubes. The patient had cough and muco-purulent expectoration, and on applying the stethoscope to the chest-walls in the upper part there were dry musical râles, while over the bases of the lungs coarse moist râles were detected. There were then evident indications of bronchitis; but on examining his chest there were a great many very striking symptoms besides. For we found, on listening to the breathing on the two sides, that it was decidedly louder and more marked upon the right side than upon the left. On inspecting the front of his chest, too, the movements of respiration, particularly at the upper part, were found to be defective. There was marked dulness and increased resistance upon percussion over the whole of the sternum, more marked above; and not only over the sternum, but to a considerable extent on each side of it, especially to the left, in which direction it extended at least two inches. We noticed, like-

wise, that the upper part of the sternum was somewhat prominent. On placing the hand upon the chest over the dull area, and making the patient speak, the vocal fremitus was observed to be almost entirely absent, and on applying the stethoscope the respiratory sounds could hardly be heard. Then we endeavoured to find out the situation of the apex beat, but failed to discover any at all. On applying the stethoscope, however, over the præcordial region, the sounds of the heart were clear and pure. They were most distinct over this region, which led to the supposition that there was no very great dislocation of the heart. On feeling the pulses at the wrists, it was noted that the left was weaker than the right. But the most remarkable symptom having reference to the organs of circulation was the enlargement of the superficial veins of the face, neck, chest, and abdomen, particularly of the front of the chest and abdomen, and which was more marked upon the right side than upon the left.

The most distressing symptom in this case was dyspnœa. The patient could breathe best when he was sitting up in bed. He could breathe pretty freely when lying upon either side, especially upon the left, but it was quite impossible for him for any length of time to lie upon his back with his head low, the dyspnœa became so urgent. Another feature was hoarseness, which had been observed for about three months, and there was this peculiarity about it, that if we made him turn his head to the right shoulder his voice was comparatively clear, but if towards the left, then the hoarseness became decided; and if we made him lie upon his back with his head low, his voice became extremely husky. He likewise complained of pain occasionally, but this was not an urgent symptom.

It was not constantly present, and he described it as sometimes being of a shooting character—shooting through from the front of the chest to the back.

In the diagnosis of difficult cases, it is necessary for us to take into account two sets of symptoms—symptoms which are present, and others which are conspicuous by their absence; positive symptoms, that is to say, and negative symptoms. What, then, were the negative symptoms in this case? On applying the hand over the seat of the dulness, we could detect no peculiar vibration such as we observed in some of the cases recently under observation,—no purring tremor; nor could we feel anything in the shape of pulsation; nor on applying the stethoscope could we detect the slightest trace of a murmur. There was no evidence of pressure upon, or irritation of, the sympathetic nerve, for the pupils were natural. There was manifestly no pressure upon the œsophagus, for the patient could swallow perfectly well; nor was there any trace of dropsy, although I am sorry to say it is not improbable that at a future time it may make its appearance. And lastly, there was a total absence of fever.

These, then, were the positive and the negative symptoms in this case, and the question comes to be, What was its nature? I have very little doubt that we had here also to deal with a tumour in the anterior mediastinum, for most of the symptoms I have described correspond to this condition. There was in front of the chest dulness and increased resistance on percussion; there were the defective movements in the same situation; there was the deficiency or almost total extinction of the respiratory sounds; there was the almost total absence of vocal fremitus, and there was slight prominence of the sternum, which is sometimes

noticed in these cases. But how can we account for the dyspnœa, and the weaker breathing upon the left side? If there is a tumour in the anterior mediastinum, it is likely to press upon the large bronchial tubes—to interfere with the free entrance of air into the lungs, and it is not improbable that it should press more upon the left bronchus than upon the right, and hence a smaller quantity of air would enter the left lung than the right, and the breathing, as we found, would be weaker upon that side. But how can we account for the hoarseness? A laryngoscopic examination showed that there was congestion of the vocal cords, and nothing is more likely to occur than congestion of these parts when there is a tumour within the thorax interfering very seriously with the circulation. The variability of the hoarseness previously noted might, however, lead one to suspect that it was not entirely due to congestion—that it might be due in part to pressure of the tumour upon the recurrent nerve, else why should we find this alteration in its degree according to the posture of the patient. For you can easily understand how in certain postures a tumour in the chest would be likely to press upon and more decidedly to irritate the recurrent nerve. At the same time it must be admitted that the congestion theory may be the true one after all; for it is quite conceivable that, in certain postures, the circulation may be more affected than in others, and a temporary increase of congestion of the vocal cords, and therefore of hoarseness, produced.

Three other sets of symptoms remain to be considered. One of these is the symptom of bronchitis; the second, the dilatation of the veins; and the third, the weakness of the left pulse. How can we account

for the occurrence of bronchitis when a mediastinal tumour is present? It can be accounted for in this way. As we have seen, the tumour was in all probability pressing upon the large bronchial tubes and interfering with the entrance of air into the lungs. There being a deficient supply of air to the air vesicles, the blood is not aerated, and when the blood is not aerated, just as we see in cases of asphyxia, it stagnates. The lungs become engorged, and the natural consequence of this is the development of symptoms of bronchitis. Then the enlargement of the veins was in all probability due to the pressure of the tumour upon the vena cava superior interfering with the free return of blood from the upper part of the body to the right side of the heart, so that it required to take a circuitous course in order to reach it. There was weakness of the left pulse, too, but it was not very marked. This may be accounted for in part by the circumstance that in general the left pulse is somewhat weaker than the right, but you will observe that there is nothing to prevent a tumour in the anterior mediastinum from pressing upon the subclavian artery of the left side, or so altering its position as to interfere with the free passage of arterial blood into the left arm. Then how can we account for the absence of the apex beat? That can be explained on the principle that the tumour not only compressed the parts within the thorax, but also displaced them, and that the heart was probably carried away from the chest wall. The pain which was felt may have had its origin in the tumour itself, but it is more likely to have been due to pressure of the tumour upon the nerves within the chest.

It is impossible to say with certainty what the nature of this mediastinal tumour may be; but I am

inclined to the belief that we had here to deal with a cancerous tumour; and for these two reasons—(1) that cancerous are more frequently observed than any other form of tumours within the chest, and (2) that its growth has been very rapid, for it is not many months since the symptoms first made their appearance. You may naturally say, does a patient labouring under cancerous disease not always exhibit a peculiar cachectic and sallow appearance? It is no doubt generally so, but you must remember that this feature usually becomes most marked when the disease is far advanced; and it may not have lasted sufficiently long in this case. And, moreover, the cachectic appearance may be there, if we could only see it, but may be hid by the turgescence of the face.

A short time ago I saw a somewhat similar case in consultation with Dr. Wm. Pearson. This patient, a female, aged forty-nine, began to complain of pain to the right of the middle of the sternum, which, about nine months prior to my visit, extended up to the right shoulder. This was followed by a hard irritative cough, which was soon accompanied by slight frothy and occasionally tough mucous expectoration. To these symptoms were added distention of the superficial veins of the right side of the neck and face and right arm, and œdema, which was aggravated by exertion. At the time of my seeing her, the cough and expectoration and pain of chest continued, and she had dyspnœa to such an extent that she could not lie down with comfort. The breathing over the whole chest was harsh, but air entered both lungs with equal freedom. There was distinct prominence, associated with dulness on percussion, of the upper part of the sternum, and at the right supra-scapular region the

percussion was less clear than at the left. The voice was hoarse, but the pulses were equal on the two sides, and the pupils were unaffected. Further corroboration of the view taken with regard to the nature of these cases is afforded by the following case reported by Dr. Clarke,¹ and in which a post-mortem examination was made.

A mason, aged thirty, had been pretty well up to six weeks before his admission into hospital; at that time, after lifting a heavy stone, he noticed a swelling in his neck, and complained of dull, aching pain down the right arm, dyspnœa, dysphagia, and partial aphonia. The chest and arms, especially the right, were very œdematous, and the superficial veins were much enlarged; there was some flattening below the left clavicle; deficient movement and dulness of whole of left side, back and front; and on right side, below clavicle to fifth rib. The patient died of exhaustion a fortnight later. At the autopsy "a large solid mass of a carcinomatous nature" extended over the whole of the upper part of the thorax, closely connected with the left lung, and adherent to the right pleura; the left lung was contracted and adherent to the growth. The mediastinal glands were much enlarged; several masses of cancer were present in the liver and pancreas.

Riegel² has collected thirty-six cases of mediastinal tumours recorded by different authors. He finds carcinoma and sarcoma most frequent. The growth of the tumours was variable, very frequently sudden and rapid; most commonly they invaded neighbouring

¹ *Lancet*, 1872; ii. 10.

² "Zur Pathologie und Diagnose der Mediastinal Tumoren." Virchow's *Arch.*, XLIX. 193. Extracted from the *Biennial Retrospect of Medicine and Surgery* for 1869-70, p. 134.

organs, seldom only displaced them. They were more frequent in males than females, in the proportion of 2·4:1. The majority occurred between the ages of twenty and thirty. Special symptoms were—absence of pyrexia, more or less bulging of the sternum, asymmetry of the two sides of the thorax, displacement of the heart, &c., cyanosis and œdema of the face and upper extremities from compressed vessels, and difference of pulse on the two sides; sometimes enlarged thyroid, with more or less exophthalmos; symptoms caused by pressure on the trachea or œsophagus; in the majority of cases enlargement of the neighbouring glands. To these were added pains of various degrees in the affected region, dyspnœa increased to true orthopnœa, and a cough, at first dry, later with purulent and sometimes blood-streaked expectoration.

The foregoing cases—which it is unnecessary further to multiply, and the statistics just mentioned—point to the conclusion that the patient with whose case we commenced, is suffering from a mediastinal tumour: indeed there is only one other disease which it could be, and that is *aneurism*. But an aneurism, which has approached the surface, as this tumour has, would yield pulsation, although that sign may be absent if it is small and deep-seated. On the other hand, you may have pulsation when there is no aneurism, for a tumour lying upon the aorta, or one of the great vessels, may have the pulsation of that vessel communicated to it. If, however, it is the seat of expansion, as well as pulsation, it may be concluded that there is an aneurism. Again, if on applying the hand over the part, that peculiar vibration to which the term “purring tremor” has been given, is experienced,

and which was absent in this case, aneurism is pretty certainly present, but it is often absent in that complaint, and as a negative symptom is of little value in diagnosis. In our patient no murmur can be heard, as is generally the case in mediastinal tumour, but it must not be forgotten that aneurisms are often met with, and I have shown you illustrations of the fact, in which no murmur is audible, and on the other hand, the tumour may be non-aneurismal and yet there may be a murmur, if it lies upon and compresses and diminishes the calibre of a great vessel. Lastly, dilatation of the superficial veins and œdema were noted, symptoms which are usual in mediastinal tumour, but comparatively uncommon in aneurism—to any extent, at least—because an aneurism is more soft and yielding, and is generally more or less moveable, so as not to exercise serious and constant pressure upon the veins within the chest. The difference in the pulses at the wrists, present in our case, is more frequently met with in aneurism than in tumour, although it is often present in the latter; but, on the whole, it must be admitted that the balance of evidence is decidedly against the aneurismal view.

Finally let us see if there is anything in the surroundings of this case which afford us information as to the nature of the tumour. On careful examination of the patient we found a swelling over the right tibia, a node, as it is termed, which was painful, especially at night, as we so often find in cases of syphilis, and therefore there was a suspicion that the intra-thoracic disease might be of syphilitic origin; but there were no other signs of syphilis. There was no history of that disease having been contracted; and, moreover, full doses of iodide of potassium, while it relieved the pain,

had no further influence over the node, nor were the chest symptoms altered by it. Indeed, even while the iodide was being used the swelling of the tibia became firmer and larger, which led us to suspect that it was malignant.

At our Ward meeting I further directed your attention to a little swelling over the front of the sternum, smaller than a hen's egg, which was of a pink hue, and sent out little processes or roots in all directions. This swelling is due to excessive development of the white fibrous tissue of the skin; it is an illustration of that rare disease to which the name of keloid has been given, and is in my experience unique, in so far as it seems to have been congenital, whereas such tumours almost invariably make their appearance in adult life. There are two forms of keloid—the true, and the false or spurious. The true differs from the false in several respects. The former appears spontaneously, the latter as the result of some lesion of the skin, such as that resulting from a burn, so that it would be quite appropriate to call the true, *idiopathic*, and the spurious, *traumatic* keloid. Again, the true is generally of small size, while the area of the false is variable, depending upon the extent of the preceding lesion; and finally, the true has a special tendency to occur upon the front of the chest, although not limited to that part, while the false may appear in any situation, because any part of the skin may suffer a solution of continuity. Our patient then is affected with true keloid; but what, you may naturally ask, has that to do with the question at issue. Simply this, that there seems to be some connection between the true keloid and cancerous affections—indeed, Alibert applied to it the term *cancroid*. Certain it is, at all events, that

extirpation of the true keloid is about as certain to be followed by a return of the disease as in the case of true cancer.

More valuable support to the cancerous theory is to be found in the fact that our patient has hæmoptysis, a symptom which, though met with in connection with other kinds of tumour, is much more frequently associated with cancer. And lastly, cancerous tumours are more frequently met with within the chest than any other kind, as the statistics of Riegel show.

I need not dwell upon the probable result in this case, for if our view as to its nature be correct, the tumour will in all probability go on increasing, deteriorating the general health, invading and further interfering with the functions of neighbouring organs and tissues, and will lead at no very remote period to the death of the patient. The treatment must be of the simplest kind; absolute rest is indispensable, the diet must be simple and nourishing; the cough and irritation may be relieved by a dose of Savory and Moore's etherodine at night, and it may come to be a question by-and-by whether the local abstraction of blood may not be advisable, if the dyspnœa increases, and if the pain, which is not at present an urgent symptom, becomes marked. It is often wonderful the amount of temporary relief which is given in cases of this kind by the local abstraction of blood; but I am sorry to say that however successful we may be for a time in relieving distressing symptoms, a fatal issue is sooner or later to be expected.

LECTURE XIV.

ON A CASE ILLUSTRATIVE OF THE CIRRHOTIC FORM OF
BRIGHT'S DISEASE.

IN the investigation and in the treatment of patients it is of the utmost importance that we should carefully discriminate between the affection and the disease. The difference between the two will be at once apparent if I give you an illustration. Two patients are labouring under painful affections of the joints; but in one case the pains are due to the presence of an excess of uric acid in the blood, while in the other they are dependent upon a syphilitic taint. In each the lesion of the joints is the affection; while in the one the disease is gout, and in the other syphilis.

The patient whose case is the subject of to-day's lecture was labouring under a variety of affections; but we shall see how beautifully they all fit into and harmonize with one another, and are dependent upon one and the same disease. He was forty-one years of age, a shoemaker, unmarried, and was admitted into Ward 2, bed 2, on January 5th, 1876, complaining of palpitation with pain in the præcordial region of eighteen months'; of loss of flesh, irritability of stomach, giddiness, pain in the head, and dimness of vision, of

eleven weeks'; and of cough, with expectoration, of two weeks' duration.

The family history could not be satisfactorily ascertained; but his father died at the age of seventy-seven, and his mother at sixty; while, of eight brothers and sisters, only two survived.

At the age of fourteen, he had scarlet fever; at seventeen, gastric fever; at nineteen, typhus; and at twenty, rheumatic fever. About fifteen years prior to admission he had a gonorrhœa, which soon disappeared; and he seems never to have had any other form of venereal disease. He was a man of extremely irregular habits, sometimes drinking for a week at a time; but more recently he limited himself to a "break out" on Saturdays. He also smoked to great excess, sometimes using more than a quarter of a pound of tobacco in a week; but of late he had been more moderate in his dissipations.

About eighteen months before admission he began to complain of palpitation, associated with uneasiness in the præcordial region, especially on exertion; and, some months afterwards, to these symptoms was added dyspnœa. About thirteen months before I first saw him, while undressing at night, he had a severe attack of vomiting; and a few minutes afterwards, having gone to bed, his breathing became stertorous, and he could not be roused. Along with the insensibility, which continued until six o'clock the following evening, the whole of the left side became completely paralysed. The paralysis was decidedly less by the following evening, and, on his admission, had in great measure disappeared. About the same time he first noticed that he was passing a great deal of urine; and several weeks afterwards slight dimness of vision set in, which in a

day or two suddenly increased, so much so that he was unable to recognise faces, although he could count the number of fingers held up before him. From that time his vision did not further deteriorate. Along with the impairment of sight, irritability of the stomach came on to such an extent that he could seldom retain food for any length of time, especially if he got up and walked after a meal. About an hour after food he complained of heartburn and brought up sour mouthfuls; and this terminated in vomiting the contents of the stomach. Latterly he suffered from pain in the head during the day, particularly in the occipital region; and from giddiness. To these symptoms must be added pallor, increasing emaciation, and debility.

In this case there was hardly a single organ of the body whose functions were not more or less interfered with; and this, as we shall see, was the result of a wide-spread tendency to alteration or degeneration of tissue.

Let me first of all direct your attention to the eye affection, which began three months before we saw him, with, as the report says, slight dimness of vision, which in a day or two suddenly increased, so much so that he was unable to recognise faces, although he could count the number of fingers held up before him. On his admission into the Eye Infirmary he was barely able to read No. 20 (Jäger), the right eye being, however, a little better than the left. Dr. Thomas Reid, under whose care he then was, made the following report:—"Pupils dilate only partially, though regularly, with atropine. Ophthalmoscopic examination: Fundus of each eye occupied by the characteristic white deposit of albuminuric retinitis, interfering with the definition of the optic disc, which appeared to be

somewhat atrophied. Retinal vessels greatly reduced in calibre. In the left eye, a considerable portion of the choroid below and outside the disc had an atrophied look, and scattered pigment granules were seen in this situation." In a letter which Dr. Reid kindly sent me, he thus faithfully describes the characters of retinitis albuminurica.

1. Almost all cases of this disease are chronic, dimness of vision being generally the first symptom complained of.

2. The essential cause of the dimness of vision is fatty degeneration of the retina in the neighbourhood of the optic nerve entrance and macula lutea—parts of the retina most used in direct vision.

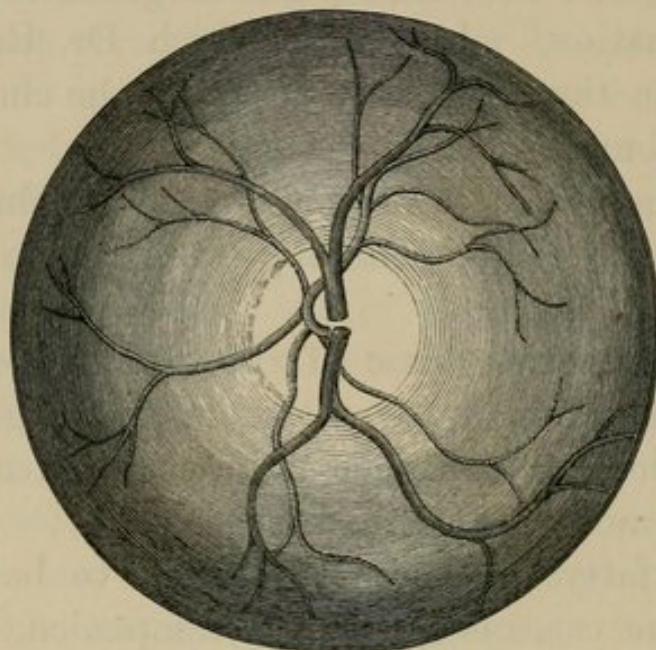
3. The fatty degeneration is said to be preceded, and in some cases is certainly accompanied, by congestion and hæmorrhage from rupture of the arterioles of the retina. When the congestion and extravasation are considerable, there may be loss of vision from this cause in the early stages of the disease; but the vision improves as the congestion diminishes and the blood is absorbed. The sight is never perfectly restored in chronic cases, but the amount retained is determined by the extent and position of the fatty deposit. In no case is the vision entirely lost.

4. In the advanced stages of the disease, and probably also during the whole course of the more chronic forms, congestion and hæmorrhage are never present. The fatty deposit occurs primarily in the retina, but may also involve the choroid, as would appear from the thinning of this membrane observed when it is partially absorbed.

5. The origin and course of the disease are obscure, but are evidently connected with the blood-vessels,

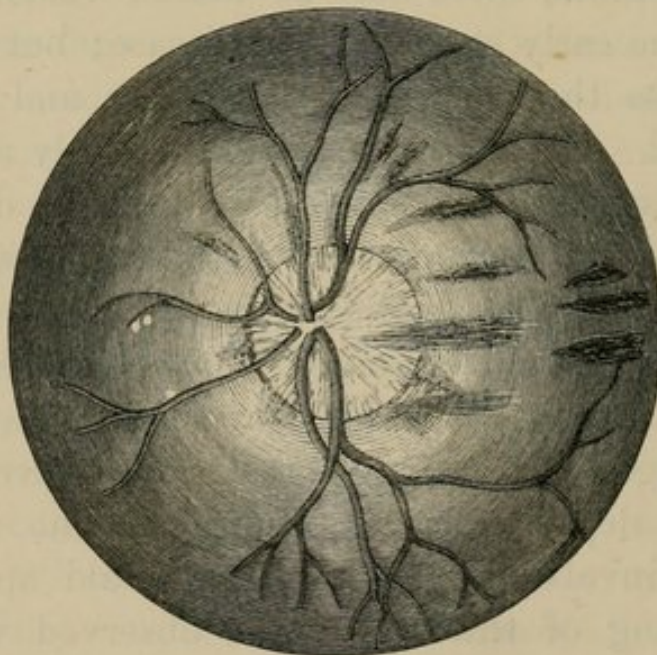
being due either to some condition of the system affecting the retina and kidneys equally, or to the

Fig. 1.



Normal appearance of the Fundus of the Eye, as seen with the Ophthalmoscope.

Fig. 2.



Fundus of the Eye in the early stage of Retinitis Albuminurica, showing hæmorrhagic spots and a few spots of fatty exudation.

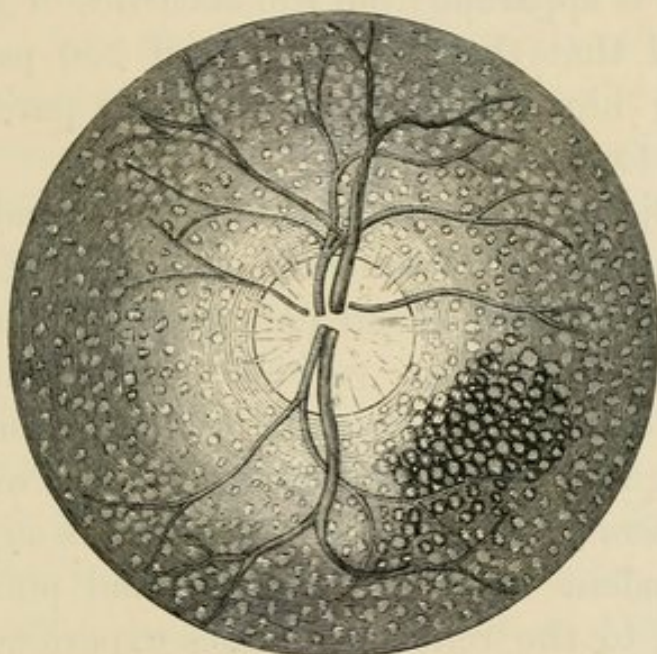
diseased condition of the kidneys, which, by altering

the character of the humours, initiates the pathological changes observed in the blood-vessels.

6. The patients in the chronic cases never recover, but may live for a year or two after the first symptoms have been recognised.

(See Figs. 1, 2, and 3, showing (1) the healthy retina; (2) the disease in its early stage, from the case of a patient who, at the time, was in the Infirmary;

Fig. 3.



Fundus of the Eye in the advanced stage of Retinitis Albuminurica, showing well marked diffused fatty degeneration.

and (3) in its advanced stage, from the case under consideration.)

The state of the eyes, then, as a matter of course, led us carefully to investigate the condition of the kidneys. As you are aware, there are three forms of chronic Bright's disease: (1.) The chronic inflammatory form, that which specially affects the uriniferous tubules; (2.) The amyloid, which, in the first instance, attacks the blood-vessels; and (3.) The contracted, granular, cirrhotic, or gouty form, which specially

involves the interstitial tissue. Any one of these may be complicated with albuminuric retinitis, but the last with much greater frequency than the others. Let us, therefore, run over the main features of it, and see whether they correspond with those observed in our patient.

It is for the most part a disease of adult males. It is not uncommon between twenty and thirty (Grainger Stewart), but is more frequently met with in older persons, as is apparent from the statistics of Dickinson, who found that the average age of 250 patients examined by him was 50·2 years. Our patient was a male aged forty-one.

The subjects of it gradually lose flesh and strength, become pallid, and frequently complain of headache and of giddiness just as our patient did. The cause of the headache has been variously stated: many hold that it is due to defective elimination by the kidneys, and consequent accumulation of poisonous excrementitious matters in the blood; while others suppose that it is dependent upon the anæmia, and point, in corroboration, to the relief sometimes experienced by the administration of ferruginous preparations. In all probability, sometimes the one condition, sometimes the other, gives rise to it. For similar reasons, they are very liable to catch cold, and more or less bronchitis is a pretty uniform accompaniment; so that it was not surprising to note, in the case under consideration, the presence of cough with mucous expectoration and slight bronchitic râles, especially at the base of the lungs. You have learned, no doubt, that one of the most striking symptoms to look for in cases of Bright's disease is dropsy, but in the contracted form it is absent in from one-quarter to one-half of the cases,

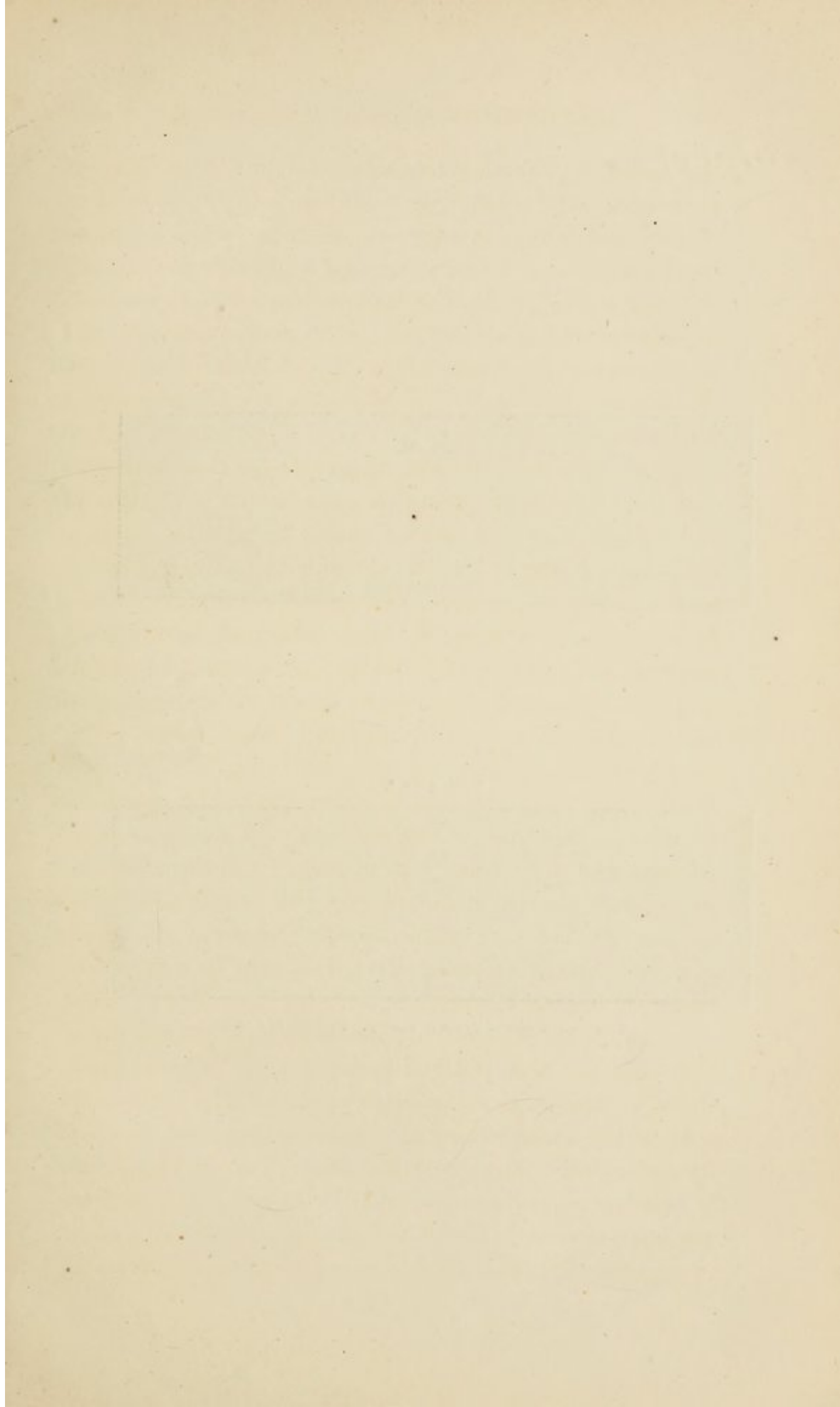
and, when present, it is slight and usually transient; so true is this, that if you meet with a patient labouring under the cirrhotic kidney who is markedly dropsical, you may be pretty sure that it results from some complication. Our patient has had no dropsy at all, and his urine presented the characters which we might have expected. It was passed in large quantity (over one hundred ounces in twenty-four hours), the polyuria being due, as pointed out by Dr. George Johnson, to the diuretic influence upon the kidney of the abnormal products in the circulation, analogous to the influence of sugar in cases of diabetes. It was pale, its specific gravity was low (1009), and it contained a fair amount of albumen (one-third). On leaving it to stand, a scanty deposit was thrown down, in which the microscope detected a few structureless and finely-granular tube-casts.

Again, he had stomach-symptoms such as frequently occur in connection with the contracted kidney. On referring to the history of the case, we find it stated that, "along with the impairment of sight, irritability of the stomach came on, and to such an extent that he could seldom retain food for any length of time, especially if he got up and walked after a meal. About an hour after food he complained of heartburn, and brought up sour mouthfuls, and this terminated in vomiting the contents of his stomach." This irritability of the stomach is sometimes indicative, as post-mortem examinations have proved, of chronic gastritis, but it often, I believe, results solely from defective excretion by the kidneys, and consequent retention of poisonous ingredients in the blood—is, in fact, uræmic; and it is right you should know that for long it may be the most striking symptom called forth by the disease of

the kidneys. Some years ago, a medical man, himself a distinguished teacher of medicine, began to complain of sickness which always set in if he fasted for more than two hours. This symptom continued for months without either himself or his medical advisers suspecting its cause, but at last his urine was examined and found to be albuminous, and about two years afterwards he died with all the symptoms of uræmic poisoning.

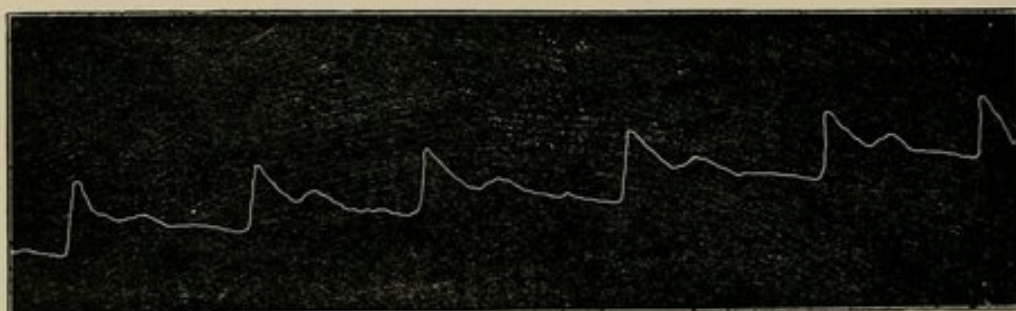
There can be no doubt, then, that our patient was suffering from the effects of granular degeneration of the kidneys; but, if further proof be wanting, it is to be found in the discovery of lesions of the circulatory and nervous systems. On reference again to the history of his illness, we note that "about eighteen months before admission he began to complain of palpitation associated with uneasiness in the præcordial region, especially on exertion, and some months afterwards to these symptoms was added dyspnœa."

On making a physical examination of the heart, we found that there was slight dulness in the præcordial region; the apex-beat was displaced somewhat downwards, and carried decidedly to the left (half an inch to the left of the nipple-line); its area of visible impulse was preternaturally great, and it was strong and heaving in character. On percussion, too, there was an increased area of dulness in a downward direction and to the left, and the sounds of the heart, though pure, were unusually loud and strong. All this shows that the left ventricle was the seat of hypertrophy. Now, why should such a condition arise in connection with the granular kidney? The explanation is obvious. The blood being poisoned by the excrementitious matter which ought to be excreted by



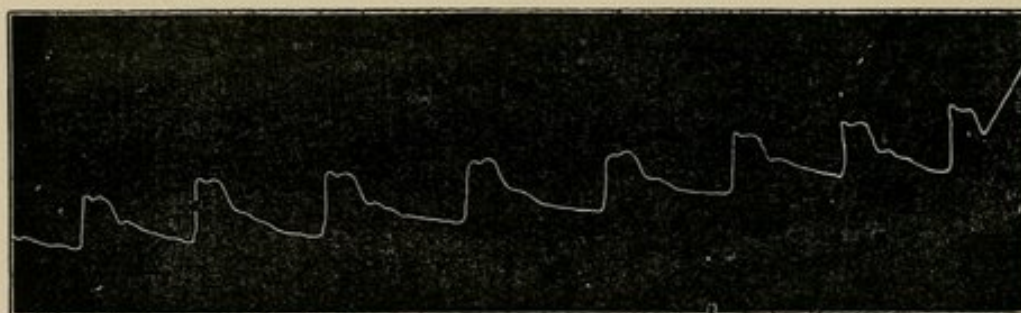
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Tracing No. 1.



Normal Pulse tracing. Pressure of 4 oz.

Tracing No. 2.



Tracing from case of Granular Kidney. Pressure of 6 oz.

the kidneys, the minute arteries throughout the system—arterioles, as they are termed—are irritated and contract, and their muscular coat, as pointed out by Dr. Johnson, becomes hypertrophied. There is thus an obstacle to the onward flow of arterial blood to the capillaries, to overcome which the left ventricle contracts with unusual vigour, and, as a consequence, it becomes hypertrophied. This excessive action of the heart on the one hand, and the state of contraction of the arterioles on the other, produces, as was noted in this case, a full, hard, prolonged pulse—a pulse of high arterial tension. This is well shown by the sphygmographic tracings which were kindly taken by Dr. McVail; the first being the normal tracing from the radial artery of our esteemed resident medical officer Dr. Sewell, the second from the patient whose case we are considering.

Another feature in this case—a very common one it is, and one which in part explains the attack to which I shall immediately refer—was, that the superficial arteries pulsated very visibly, were tortuous, and felt like firm cords; that is to say, their coats had undergone structural changes and had become thickened and inelastic, leading one to infer that, in all probability, the delicate vessels of the brain had become atheromatous and brittle too. This degeneration is probably the result of the irritation of the coats of the vessels by the impure blood circulating through them, but it may in part be due, as pointed out by Dr. Johnson, to “the excessive strain to which they are subjected under the influence of the high tension resulting from the antagonism between the resisting arterioles and the hypertrophied ventricle.”¹ And now let me refer once more

¹ The Lumleian Lectures on the Muscular Arterioles.

to that part of the history wherein it states that one night, while undressing, "he had a severe attack of vomiting, and a few minutes afterwards, having gone to bed, his breathing became stertorous, and he could not be roused. Along with the insensibility, which continued until six o'clock the following evening, the whole of the left side became completely paralysed. The paralysis was decidedly less by the following evening, and on his admission had in great measure disappeared." The paralysis was supposed to result from the rupture of a cerebral vessel in the neighbourhood of the right corpus striatum, for there was everything to favour such a lesion. This will be apparent when I remind you that, on the one hand, the hypertrophied ventricle was driving the blood with violence into the cerebral vessels, while, on the other, the arterioles were in a state of contraction, and obstructed the onward flow of the blood; an extra strain was thus put upon the larger cerebral vessels, which we suspected to be brittle and atheromatous, and nothing could be more likely than that one of them should give way.

These cases of contracted kidney are very insidious in their onset and course, and are extremely apt to be overlooked both by the patient and medical attendant, because often there is no very prominent symptom for a long time—only a gradual loss of flesh and strength, with more or less pallor. On this account, medical advice may not be sought until the disease is far advanced, and when some striking disturbance of function has supervened, such as obstinate irritability of the stomach, failure of vision, an attack of convulsions, or a paralytic seizure. In our patient's case, advice was only asked for when the eyesight became impaired,

and yet the disease must have been going on for long, because albuminuric retinitis only occurs in an advanced stage of the disease, and because the history points to the existence of hypertrophy of the left ventricle eighteen months before the vision became dim, and hypertrophy itself does not ensue until the disease has made some progress, and has induced long-continued contraction of the arterioles from the poisoned blood passing through them.

This patient was sure to die, and that at no very distant period. I need not therefore dwell upon the treatment, further than to say that we gave him whatever light nourishment he could take, and, along with it, a course of iron in effervescence,¹ as it is then more readily tolerated, and, in combination with hydrocyanic acid and bismuth, to soothe, if possible, the irritability of the stomach.

For some days there was some improvement, but soon the irritability of the stomach reappeared, and became uncontrollable. Suppression of urine gradually set in, followed by coma and death, on January 20th, fifteen days after admission.

The post-mortem examination was made by Dr. Joseph Coats, pathologist to the Infirmary, and the microscopic examination of the eyes and kidneys by Dr. Thomas Reid, with the following result:—

Brain.—There was considerable œdema of the pia mater all over the convexity, the sulci being filled up with a clear fluid. The ventricles did not contain an excess of fluid. In the left occipital lobe there was a

¹ R. Ferri citratis ℥iss; acidi citrici ℥vj; aquæ dest. ad ℥vj.—R. Acidi hydrocyanici dil. ℥lxxii; potassæ bicarbonatis ℥vi; liquoris bismuthi, syrupi aurantii, sing. ℥iij.—M. *Sig.* A dessertspoonful of the contents of each bottle in a glass of water thrice daily.

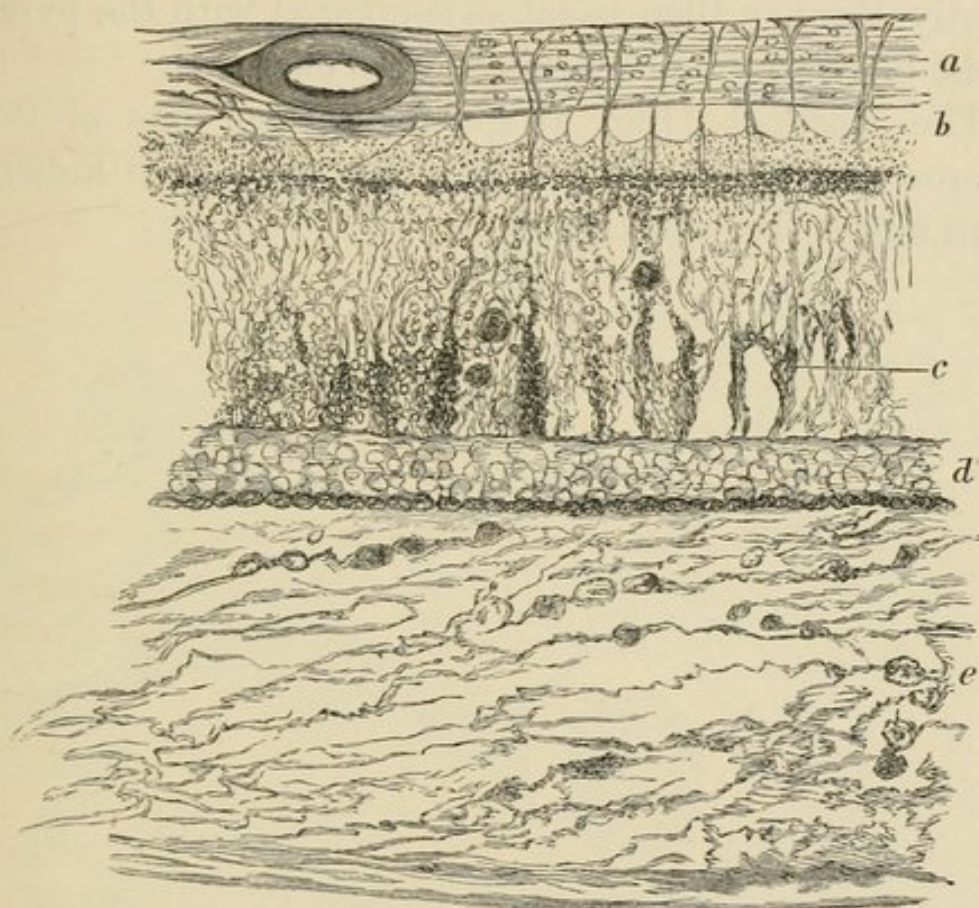
pretty extensive softening of the brain-substance, involving almost the entire bulk of three or four convolutions, the cavity caused by the softening being covered almost directly by the pia mater of the surface. The convolutions involved were situated on the external aspect, and at the extreme posterior portion of the hemisphere. The cavity contained a turbid fluid of a brownish-yellow colour, and the wall of the cavity had a yellow colour, and was composed of softened brain-substance. In the right corpus striatum there was a distinct cyst as large as a hazel-nut. This was situated in the most external part of the corpus striatum, involving a portion of the most external part of the nucleus lenticularis, the external capsule, and nucleus tæniæformis. The cyst was pretty far back, its anterior margin nearly corresponding to the anterior margin of the thalamus opticus. The cyst was lined by a distinct vascular membrane, and had one or two septa running through it. It was separated from the neighbouring brain-substance by the membrane mentioned. The larger arteries of the brain were the seat of numerous patches of atheroma, this condition extending to vessels of the third or fourth order. On microscopic examination of the wall of the cyst of the corpus striatum, and of the cavity in the occipital lobe, there were found multitudes of compound granular corpuscles, as well as a few blood-crystals and granular pigment. The blood-pigment was not abundant, but still present in every part; otherwise the brain-substance appeared normal.

The woodcut (Fig. 4) shows the microscopical appearances of a section of the retina and choroid.

Chest.—The pericardium contained several ounces of a straw-coloured fluid. The heart was enormously

enlarged, weighing twenty-three ounces. The enlargement involved chiefly the left ventricle, whose walls were very thick; the muscular tissue was rather pale. There was no thickening of the valves. The mitral

Fig. 4.



Section of the Retina and Choroid near the Macula Lutea. (a.) Nerve fibre layer undergoing fatty degeneration, with transverse section of an hypertrophied artery. (b.) Ganglionic Cell Layer, the empty spaces representing cavities filled with hyaline substance. (c.) Outer Granular Layer, containing granular cells of a brownish tint, as in b. (d.) Layer of Rods and Cones replaced by granular exudation. (e.) Hypertrophied Choroid, with diminution of pigment.

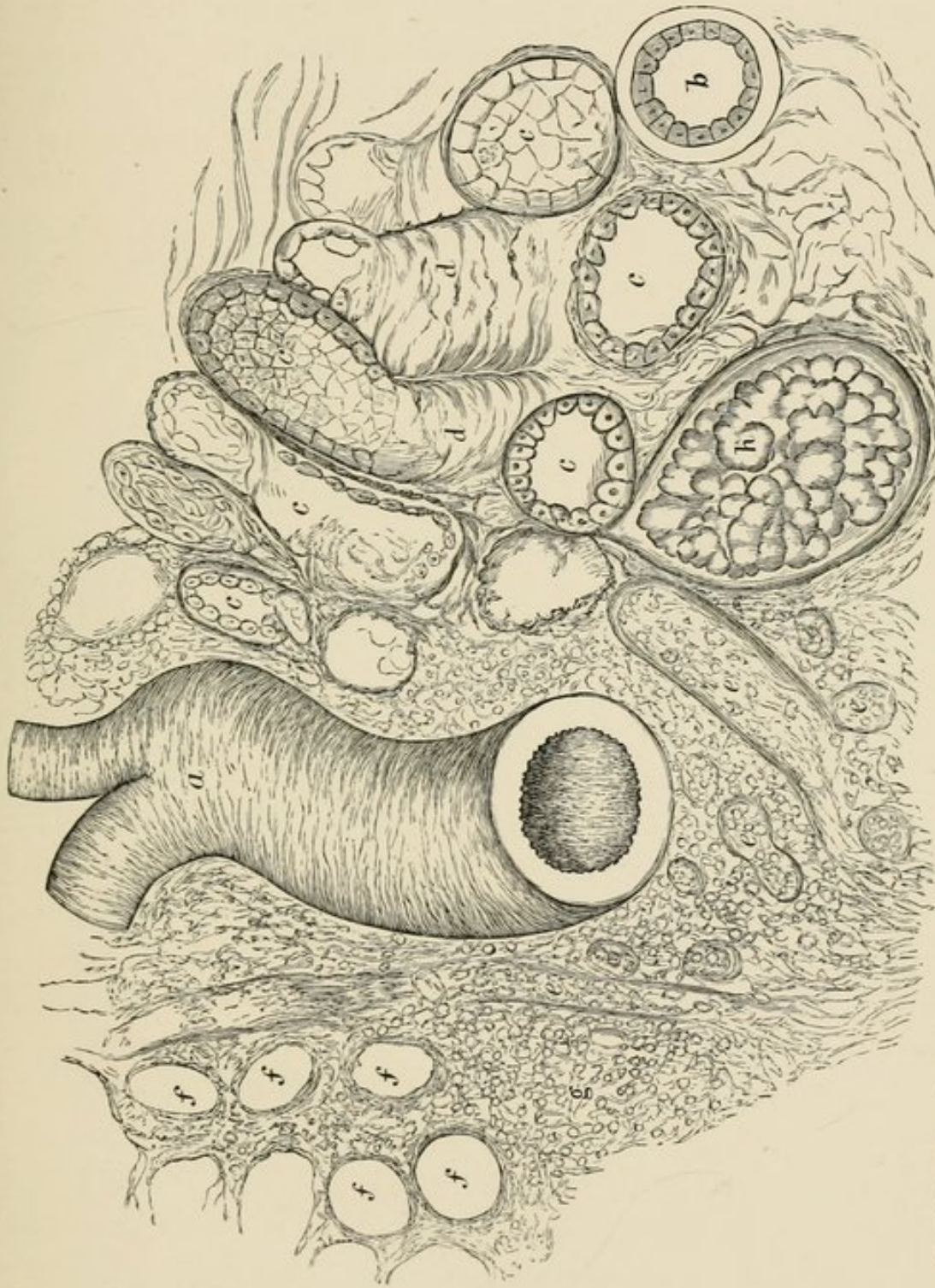
orifice was slightly dilated, admitting three fingers. The lungs were slightly œdematous, and their margins were emphysematous.

Abdomen.—The liver was enlarged, and showed evidences of chronic congestion, viz., nutmeg markings. The spleen was also enlarged, being about double its usual size. The mucous membrane of the stomach was slightly thickened and irregular. The left kidney

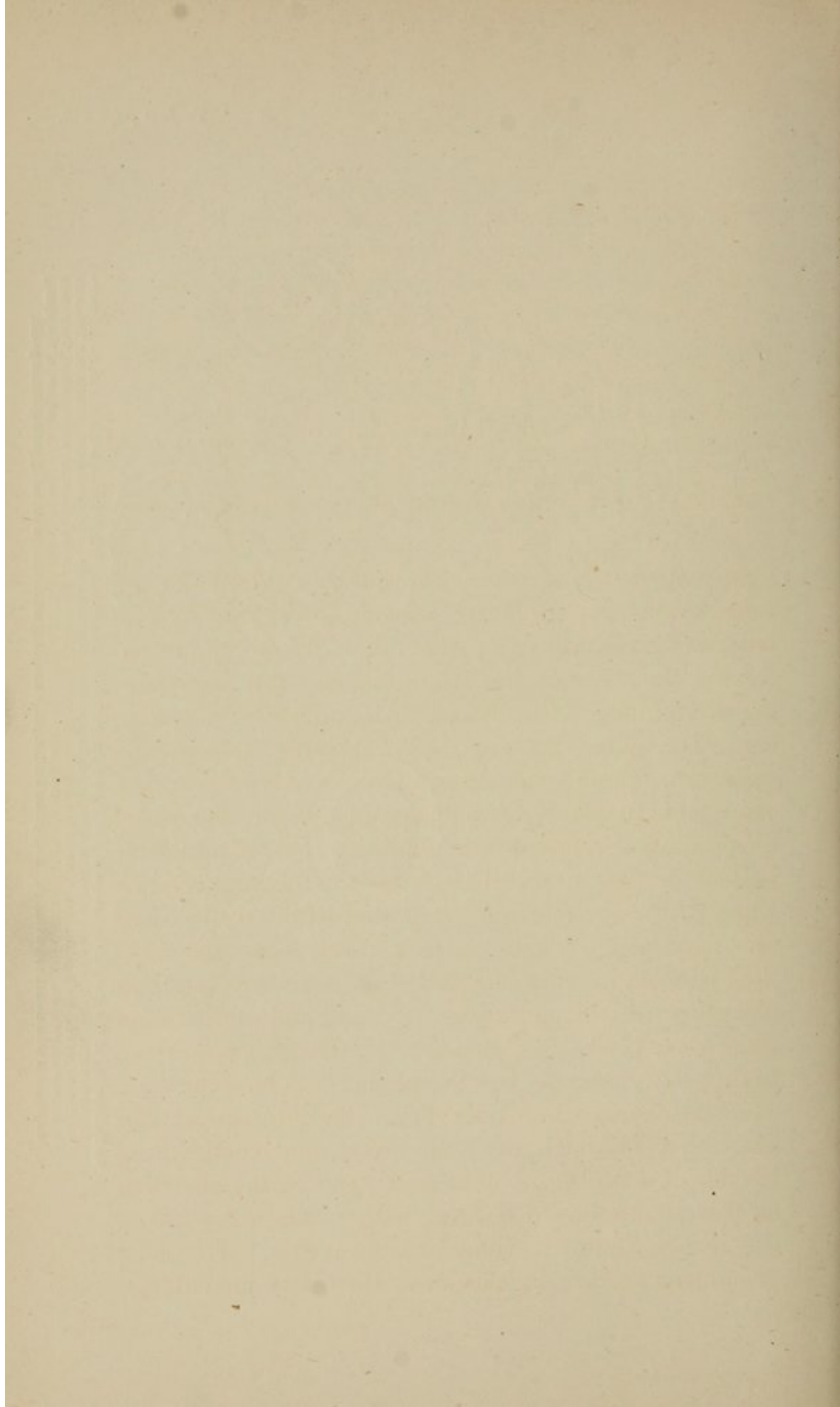
weighed two ounces and a quarter. The capsule was firmly adherent. The surface was finely granular, but there were no deep cicatrices. On section, the tissue was seen to have a generally red tint, but not dark red. The tissue was firm. The cortex was not distinctly thinner than usual as compared with the pyramids, but its normal markings were obscured.

The woodcut (Fig. 5) gives a better idea of the microscopical appearances of a section of the kidney than any verbal description can convey.

Fig. 5.



Vertical section of the Cortical Substance of the Kidney (magnified 150 diameters). (a.) Artery of medium size, with hypertrophied walls. (b.) Transverse section of Uriniferous Tube, showing thickened wall. (c.) Sections of Uriniferous Tubes in various stages of degeneration. (d.) View of the Internal Surface of Uriniferous Tubules, showing conversion of their walls into connective tissue. (e.) Sections of Atrophied Uriniferous Tubes containing granules, &c. (f.) Sections of the same, empty, and with no defined wall. (h.) Malpighian Tuft, slightly atrophied, and enveloped in an hypertrophied capsule.



LECTURE XV.

MULTIPLE FATTY TUMOURS COMPLICATED WITH ANEURISM.

THE patient, whose case is the subject of the following remarks, lies in bed 20. His name is William M'Farlane, and he is fifty-two years of age. He was admitted for the first time on the 6th of January last, complaining of swelling of the abdomen and difficulty of breathing. He stated that he had "inflammation of the right side" three years ago, and two a half years thereafter pain in his right side, accompanied by increased dyspnœa, which lasted for eight days. One month later he had another attack of the same kind, brought on, he thinks, by travelling too much, and between three and four months ago a fourth attack. The measurement of the abdomen on a level with the ensiform cartilage was 33 inches; at the umbilicus, $34\frac{1}{4}$; and midway between these two points, $33\frac{3}{4}$ inches. His tongue was clean, his appetite good, his bowels regular, and he slept well. He was dismissed on 4th April. He returned on 2nd December in much the same state, and complaining besides of debility. The measurement of the abdomen at this time was, on a level with ensiform cartilage, $34\frac{1}{2}$ inches, and at the umbilicus 36 inches. The most prominent feature in this case, then, was an enlarge-

ment of the abdomen. Whenever we meet with enlargement of the abdomen, it naturally occurs to us that it may be due to escape of the serum of the blood into the cavity of the peritoneum, *i.e.*, to ascites; but, on examination, we found that there was an absence of all the usual symptoms of ascites. There was no prominence or dulness on percussion at the sides of the abdomen, and no fluctuation; nor could we discover any evidence of disease of the liver, or of other internal organs, such as is apt to be associated with ascites; nor could we detect the presence of any tumour, or of any enlargement of any internal organ, such as would account for the condition; but on examining the abdominal parietes we found that they were enormously hypertrophied, and we came to the conclusion that this increased size around the waist was the result purely of the deposit of fat. You may naturally say there is nothing the least extraordinary or unusual in this, for very many persons have large deposits of fatty matter in the cellular tissues; but you will observe that the patient is not a corpulent man—that this is the only place in which a copious deposit of fat has taken place, so that, in all probability, we have here to deal with that comparatively rare form of fatty disease—diffused fatty tumour—that form described by Lebert under the name of *lipoma diffusum*, to distinguish it from the other form described by him, under the name of *lipoma circumscriptum*, the circumscribed form of fatty tumour.

Well, we examined this patient a little more carefully, and we found in the subcutaneous cellular tissue of his extremities a number of little tumours varying in size from a bean to a large hazel nut. These tumours were perfectly painless; the skin moved freely over them, and was not discoloured, while on pinching one of them

up we found that it was distinctly lobulated ; in fact, these little tumours had all the characters of lipoma circumscriptum. When he was in the house on the first occasion one of them was removed, and found to be what was suspected, a circumscribed fatty tumour. And thus you see the detection of the little fatty tumours in the subcutaneous cellular tissue of the extremities lends support to the view that the enlargement of the abdomen is due to lipoma diffusum.

But this was not all, for, on making a careful examination of the patient, we discovered other evidences of disease. On applying the stethoscope over the apex of the heart, which was pretty much in its normal position, the sounds were found to be perfectly clear and pure, but on shifting the instrument to mid-sternum, that is to say, over the aortic valves, we detected a distinct murmur replacing the first sound of the heart. On carrying the stethoscope upwards along the course of the aorta, we found that the farther we went the more distinct the murmur became, showing that it had its seat not in the aortic valves but in the aorta. It was difficult to say whether the murmur was loudest at the right side or over the upper part of the sternum, or to the left of that bone. When we discovered this murmur, we naturally looked for other physical signs such as we have found in other cases in which a murmur was detected in the upper part of the chest, as dulness and increased resistance on percussion, purring tremor, pulsation, and so on, but no such symptoms could be detected. The murmur along the course of the aorta was all that we could find. Then we examined the carotids. On putting the finger on the right carotid the pulsation was quite distinct ; on putting it on the left it was very much weaker. On

putting the finger on the pulse at the right wrist it was quite distinct; on putting it in the situation of the pulse of the left wrist we could not detect the slightest trace of pulsation. The only other symptom that we noted in this case was dyspnœa, or shortness of breath—not, however, being nearly so striking as in a case I formerly alluded to. Now, the question comes to be, whether there is any connection subsisting between these fatty tumours and the disorder of the circulation. I think it very probable that there is no connection between them at all, that the two sets of symptoms occurring in the same patient was a mere coincidence, unless it be that the same constitutional state which led to the fatty deposit in the subcutaneous cellular tissue favoured the occurrence of atheromatous degeneration of the coats of the vessels. The second question is, to what are these circulatory symptoms due? Let me read you a case which is published by Sir Thomas Watson in his excellent lectures, and which may perhaps throw some light upon this question. “Some time ago a surgeon from the country came to my house, desirous, he said, to consult me, about a sense of discomfort in his head, and particularly about the state of his vision. When erect he saw things obscurely. At three yards’ distance he could see my face, but could not distinguish the separate features. What he thought very strange was that he could see very well when in the horizontal posture. On my proceeding to feel his pulse, he said, in a careless manner, ‘By-the-bye, that is another thing wrong with me; I have no pulse!’ Nor could I detect any in either arm. He then told me that, four or five years previously, a medical friend, intending to feel his pulse in the left wrist, could find none. He was confi-

dent that pulsation had existed a short time before that. After a while the movement of the radial artery returned in a very slight degree, and then finally ceased. Within nine or ten months of this discovery the right pulse, after growing less and less distinct by degrees, had vanished also. Though somewhat weak, and subject to faintness, this gentleman had not wasted, nor had the muscles of his arms lost either bulk or vigour. Their veins were full enough of blood. His hands were often cold, and he felt altogether worse during cold weather. Failing to detect any pulsation in the brachial and subclavian arteries, I next felt for the carotids, but I could perceive no beating in the track of their course. I had placed my finger for a few seconds only in front of the sterno-mastoid muscle, when I saw that his head drooped, his cheeks became white, and he was on the brink of fainting. But he recovered immediately. Then I made similar pressure for a moment on the right side of the neck, and the same phenomena were instantly repeated, with the addition of convulsive jerking movements of the head and arm. He rallied again directly upon my moving my finger, and was scarcely aware of what had happened. For a second or two he had been unconscious. His femoral arteries throbbed as usual. I next examined his chest. There was no external irregularity or want of symmetry. Percussion gave a clear resonant sound everywhere in front. The heart was heard beating with frequency, but without any bruit, over the greater part of the thorax. Its impulse in the præcordial region, below the nipple, was feeble, but a strong jarring impulse was communicated to the ear when the stethoscope was applied to the upper part of the sternum. The patient complained of pains affecting his shoulders,

clavicles, and the back of his neck, and of slight difficulty of swallowing. From the intelligent physician who had attended this gentleman in the country I learned the instructive fact, that, twenty months before, a loud rasping bruit had been audible, without impulse, at that part of the sternum where he, as well as I, now found no bruit at all, and a very considerable impulse. The patient continued to live on, incapable, however, of any exertion, for upwards of two years, when one evening, upon his raising himself from the sofa to cough, arterial blood suddenly poured from his mouth and nostrils, and he was presently dead." The following were results of the post-mortem examination:—"When the lungs had been removed, the whole arch became visible, enormously dilated, firm, inelastic, and adherent to the bodies of the second, third, and fourth dorsal vertebræ. . . . The bodies of the third and fourth vertebræ, and the left half of the body of the second were absorbed, the intervening cartilages remaining entire. . . . The aneurism communicated with the trachea by an aperture about as big as a quill." Here, then we have a case presenting some of the features of that just examined, and I think it very probable that our patient is likewise labouring under a deep-seated aneurism, either of the arch of the aorta, or of one of its primary branches. Cases such as this should remind you of the fact that often very few symptoms are to be observed, and you are apt to make light of them, until, all of a sudden, the patient exhibits some urgent symptom, such as a profuse discharge of blood, as the result of rupture of the aneurism, and a fatal issue may occur at a time when you do not know that there is anything materially wrong.

I need not dwell upon the treatment which was

intended to be carried out in this case, for the simple reason that the patient on the day after we examined him, for reasons only known to himself, left the hospital. But, I may say, in conclusion, that when he was in the Infirmary under my care in January last, full doses of liquor potassæ were tried with the view of removing or diminishing the fatty deposit in the walls of the abdomen, as suggested by Sir Benjamin Brodie ; but, I am bound to say that this treatment had not the slightest effect upon it.

LECTURE XVI.

LUPUS VERRUCOSUS—EPHIDROSIS CRUENTA—ELEPHANTIASIS
ARABUM.

HITHERTO I have spoken of morbid states, most of which involved internal organs, but to-day I propose confining our attention to diseases which manifest themselves specially in the skin, or subcutaneous cellular tissue.

There is a form of eruption with which I have long been familiar, but which does not seem to have arrested the attention of physicians, if one may judge from the fact of its never having been described, as far as I know, in our language. The cases which have come under my observation, although pretty numerous in all, are by no means sufficiently so to enable me to preclude all possibility of error in the present description; but I doubt not that a more extended experience will confirm the main features of the picture.

It always occurs in strumous subjects, and exhibits generally a warty formation on its surface; hence I have applied to it the name of *Lupus verrucosus*, or *Scrofuloderma verrucosum*. In some cases of *Lupus exedens* (or *Lupus vulgaris* in the stage of ulceration) we observe a warty formation developed after the

drying up of the granulations. This is the Scrofulide verruqueuse of Hardy,¹ is only a secondary formation, has no claim to a separate name, and is distinct from the disease in question.

Lupus verrucosus commences by the development of small, circumscribed, dusky-red or violet patches, often in the form of tubercles. In saying tubercles, I do not mean spots such as are seen in cases of *Lupus vulgaris*, which have no right to the name, and by speaking of which as a tubercular eruption much error has arisen, but genuine tubercles about the size of a split-pea or bean. Sometimes these are isolated, oftener confluent, so as to form patches, of irregular outline and of variable size, as large even, they may be, as the palm of the hand. I have observed the subsidence of some of these without undergoing a further development, while others have advanced to suppuration; but in the majority of instances they become covered with wart-like excrescences, and then these violet-coloured warty patches present an appearance which, once seen, can never be mistaken or forgotten. The warty formation can be readily picked off without any, or at all events without much pain; but a new excrescence gradually grows in the place of that which is removed. The patches beneath the excrescences are not ulcerated, as might be expected, but the papillæ are greatly hypertrophied, project in the form of filaments, which may even exceed a couple of lines in length, and bleed on the removal of the warty mass.

The latter is marked on its under surface by depres-

¹ "Leçons sur les Maladies de la Peau," 1^{re} partie (1860), p. 142. See also "Leçons sur la Scrofule et les Scrofulides," par le Docteur Hardy, p. 73. Adrien Delahaye, Paris, 1864.

sions corresponding to the elongated papillæ just referred to, and is composed entirely of epidermis.

This eruption is, like the other varieties of Lupus, very chronic in its course, and when left to itself may last a number of years. As the general health improves, however, either from natural causes or under the influence of treatment, the warty excrescences fall off, and are no longer reproduced; the elevation of the patches diminishes, the colour fades, and at last a white cicatrix is left in the site of the previous affection.

It is met with, in the great majority of instances, amongst the poor, and particularly amongst the half-starved and neglected children of the very lowest dregs of the population. While it is oftenest observed in children, I am not aware that any age is altogether exempt, and males and females seem equally liable to it. I presume that it may attack any part of the body, but I have noticed it oftenest on the extremities, and especially on, and in the neighbourhood of, the hands and feet; and I have lately seen a case in which a patch existed immediately behind the root of several of the finger-nails, and was accompanied by defective growth of those parts. I have been led to understand that similar appearances to the above have not uncommonly been observed in Paris on the hands of medical students: and that from a supposed connection between the eruption and the poison emanating from the dead bodies in the dissecting-room, the term "*Tuberculum anatomicum*" has been applied to it. It is very probable that the disease described by Hardy, under the title of "*Scrofulide cornée ou acnéique*," applies to this variety of Lupus; but he states that it is oftenest met with on the face, while I

have observed it on almost all parts of the body except the face; so that if it attacks that part at all, it must do so very exceptionally. And again, he speaks of it as a disease of the sebaceous glands, and of the warty excrescences as consisting of hardened sebaceous matter, while in my cases they were composed entirely of epidermic cells.

It seems strange that a disease so striking has been so completely disregarded; and for the same reason I think I am perfectly justified in elevating it to the rank of a distinct form of Lupus. I am quite aware that unnecessary multiplication of names and forms of disease, and especially of skin disease—in which department this has been such a frequent error of commission—is to be avoided. No one can be more keenly alive to the necessity of this than I am; indeed, all my efforts have been in exactly the opposite direction. In proof of this I may mention my endeavours to show that *Lepra* is but a stage of *Psoriasis*; *Impetigo* and *Lichen* forms of *Eczema*; true *Pityriasis* the second or scaly stage of *Erythema*; and *Sycosis parasitica*, *Herpes circinatus*, and *Herpes tonsurans*, forms of one and the same disease—Ringworm. But this can never be justified unless it is strictly in accordance with truth; and when disease assumes forms so peculiar as that to which I refer, new names are necessary for their future identification.

The term *Lupus verrucosus* is warranted from the circumstance that the warty appearance of the eruption strikes the eye at the first glance, while its general characters correspond, in almost all respects, with those of the other varieties of *Lupus*. In illustration of this, the peculiar colour of the eruption, its slow progress, the absence of pain or itching, the formation

of cicatrices, although there has been no previous ulceration, and the invariable occurrence of the disease in strumous subjects, may be cited as features common to it and to the other forms of Lupus.

The following, then, in my opinion, is the subdivision of the varieties of Lupus :—

1. Lupus erythematodes.
2. Lupus vulgaris { (a) non-exedens.
 { (b) exedens.
3. Lupus verrucosus.

Lupus verrucosus is a disease of comparatively rare occurrence, for amongst 5,174 cases of skin disease treated consecutively at the Dispensary for Skin Diseases, Glasgow, it occurred nine times only; and its frequency, as compared with the other varieties of Lupus, may be gathered from the fact that in the same number of cases the latter were met with in sixty-seven instances.

The prognosis of Lupus verrucosus is, in my experience, invariably favourable, although a cicatricial appearance of the skin is inevitably left; but this is of less consequence than in the other varieties of Lupus, seeing that it rarely, if ever, appears on the face. It is generally somewhat slow in disappearing, although it is by no means so obstinate as Lupus vulgaris. The treatment comprises the usual anti-strumous remedies, which it is unnecessary to discuss in detail; but cod-liver oil, phosphorus, and steel are especially indicated. In some cases an arsenical course may be pursued with advantage, either alone or combined with the above. The following cases are interesting, as illustrating the symptoms and treatment of the complaint.

Mary M——, aged eleven years, was admitted under

my care, June 5, 1865. She was a delicate, strumous girl, very thin, and with a tendency to glandular enlargements. About four years previous, two patches of eruption made their appearance, one on the left heel, which gradually subsided, leaving a slightly cicatricial appearance of the skin; the other above the left knee, which was in a typical state at her first visit, and corresponded exactly with the previous disease on the heel, to which, therefore, no further reference need be made.

The patch above the knee, when first detected, was a livid tubercle about the size of a bean. It gradually enlarged, and in about a year became covered with a warty-looking mass, which fell off about twelve months thereafter, and a new one gradually grew in its place, which still remained at the time of visit. The patch was then about an inch and a half in length, and one inch in breadth; was considerably elevated, of a vinous colour, and covered with a dark warty-looking mass, which was readily detached without pain. On its removal, the papillæ were seen to be much elongated, and the summits of some of them torn and bleeding slightly. There was no pain in the part unless it was pressed upon, no itching whatever, and there had never been either ulceration or discharge.

Cod-liver oil was ordered, but the patient could not take it; so that, on May 20th, syrup of the iodide of iron was substituted (in half-drachm doses thrice daily), while unguentum hydrargyri oxidi rubri was rubbed into the patch twice daily, after the removal of the warty excrescence.

The improvement was very rapid at first, and the warty appearance never returned. By the month of September the disease had entirely disappeared,

leaving the skin slightly congested and cicatrized. The steel was recommended to be continued, to prevent a return of the disease ; and in November, when last seen, she remained quite well.

Patrick B——, aged thirteen, was brought to me on June 5, 1865. He appeared to be in tolerable health, though he laboured under a bronchitic cough ; but he was in a state of the most abject poverty. He had a patch of eruption upon the left buttock, which, according to his mother's statement, was noticed at birth as a small red spot "even with the skin," and which gradually extended till it attained the size which it exhibited when he first came under observation. It was then irregularly triangular in shape, each side of the triangle being about two and a half inches long. It was evidently composed of a number of tubercles which had become confluent, and was considerably elevated above the level of the skin. The colour of the patch was a very dusky red, and it was covered with a dark warty mass, on picking off which the papillæ were seen to be much elongated, and some of their torn summits bled freely. The warty structure was examined with the microscope, and found to be composed exclusively of epidermic cells. The patient complained of no itching, nor of pain, even when he sat upon the part.

Cod-liver oil and syrup of the iodide of iron were prescribed, the former in doses of from one drachm to half an ounce, according to how it agreed, and the latter in doses of half a drachm, thrice daily. No local measures whatever were employed, so that the effects of the constitutional treatment were fairly tested.

On the 1st of July the report was that the patch

was getting smaller and less elevated; and on the 1st of November it had all but disappeared, leaving a cicatricial appearance of the surface.

This case was treated exclusively by means of constitutional remedies, but in the removal of the local manifestations, great advantage is derived from outward applications; and this leads me, in conclusion, to make a few remarks on the local treatment of the complaint.

After the removal of the warty mass, which must always be done in the first place, and which can be picked off with perfect ease, stimulating ointments may be used; such as the Unguentum hydrargyri ammoniati, Unguentum hydrargyri iodidi rubri, Unguentum hydrargyri nitratis, Unguentum iodi compositum of the British Pharmacopœia, or either of the following:—

R Unguenti cantharidis; Ung. hydr. iodidi rubri, aa ʒss. M.

R Amyli, ʒij.; Glycerini puri, ʒj.; coque et adde Olei Rusci purificati, ʒij.; Unguenti hydrargyri nitratis, ʒiij. M.

Whichever ointment is used must be rubbed very firmly into the part night and morning, but short of causing pain; and if one of them, such as the above mixture of cantharides and red iodide of mercury ointments, should prove too stimulating, it must be used in a diluted form, or a milder preparation substituted. Very often rapid improvement takes place for a time under the use of one of these, after which the eruption remains stationary. Change of application, under these circumstances, may then be tried, and often with the happiest effect.

Sometimes stronger applications are more rapidly effectual, such as the daily painting of the part with

tincture of iodine, or with the following mixture at longer intervals :—

R Iodi; Iodidi potassii, aa $\bar{3}$ ss.; Glycerini, $\bar{3}$ j. M.

or the application every second day or so of a mixture of equal parts of crystallized carbolic acid and vinegar; or the painting of the eruption at intervals of about a week with Smith's "Emplastrum Cantharidinis liquidum," or the acid nitrate of mercury.

It is well known that discharges of blood from wounds, abrasions, and ulcers of the skin, especially in connection with menstruation, are by no means uncommon; indeed, innumerable examples are to be found scattered through the medical literature of this and other countries; but cases in which the sanguineous flow is altogether independent of any pre-existing cutaneous lesion are exceedingly rare. It is therefore right that I should bring under your notice the following case :—

On the 5th of May, 1866, at the recommendation of Dr. J. Lindsay Mason, of Ayr, I was consulted with regard to a young lady, who, although hardly fifteen years of age, had the appearance of being a couple of years older. I am indebted to Dr. Mason's description of her case for many of the details which follow.

Menstruation became fully established at the early age of eight, and continued regularly until she was eleven years old, when it ceased entirely. At the age of thirteen it reappeared, and continued normally until the middle of February, 1865, when it again became irregular, and about this time Mr. Haldan, of Ayr, was requested to see her on account of "a large abrasion of the cuticle in the middle of the right cheek,

suppurating in the centre, and inclining to bleed towards the circumference. This sore was exceedingly obstinate, refusing to yield to the constitutional and local treatment resorted to."

In the summer of this year she went to England, the sore being unhealed, and the menstruation very irregular. The cutaneous manifestations seem to have subsided in the month of October, coincident with which she began to menstruate regularly each month, the discharge on each occasion being profuse, and lasting about six days.

In March, 1866, Dr. Mason was requested to see her again, owing to a fresh outbreak of the eruption; and from about this time onwards until I saw her in May the menstruation was very irregular, that is to say, she menstruated for one day every week for four weeks, the discharge being, however, very scanty, after which a fortnight elapsed before the next menstrual flow, and then the weekly discharges reappeared again for other four weeks, and so on.

The only parts of the skin implicated from first to last were the face, arms, front of the chest, and legs. When I saw her I was struck by the arrangement of the round patches of eruption which were left in the sites of the hæmorrhagic attacks. One was on the brow, another on the chin, and one on each cheek. On the front of each arm also there were four in a row, two on each upper arm, and two on each forearm. When the chest was the seat of the eruption, the patches also occurred in a row in front of the sternum. It will thus be observed that the symmetry of the patches was wonderfully perfect, pointing very conclusively to the constitutional origin of the complaint. The patches were oval or rounded; some of them

resembled erythema, while others were covered with crusts due to the desiccation of serum, blood, or pus, and resembled eczema.

One of the most marked peculiarities of the hæmorrhage was the suddenness of its invasion. She sometimes exclaimed, "Oh, I feel another place on my face again," and *immediately* the hæmorrhage set in. One day, when Dr. Mason was dressing a patch of eruption on her face, she suddenly called out, "Oh, I feel a place on my arm." He at once turned up her sleeve, and sure enough a large oval patch, fully two inches in length and one in breadth, was detected on her left forearm.

Each outbreak was accompanied by a burning pain, and for some time after the development of a patch, especially when they were on the arms, the part was very sore, but never itchy. An oval or round red ring, varying from the size of a shilling to that of a crown, formed almost instantaneously, and the redness quickly spread inwards over the enclosed skin. As soon as seen, the patches appeared as if the cuticle had melted away, and the surface was quite wet. Sometimes the exudation was like water at first, and changed into blood; at other times, and especially on the face, the patches were at once covered with a complete dew of blood. The hæmorrhage did not, however, consist merely of the dew of blood; that was only at the outset; it was actual bleeding as from a cut, the blood sometimes streaming down the face or other part attacked.

Sometimes, instead of blood, there was only a serous discharge ending in suppuration. Those patches which bled most healed soonest; but before they healed (which generally took place within five or six days)

both suppuration and hæmorrhage often occurred in the same place. In exceptional instances the parts did not heal for four weeks. This was especially observed on the chin. No trace of the previous eruption was left after it healed up, except on the right cheek, where suppuration was free and prolonged, and where a slight cicatrix was left, although not sufficient to cause deformity.

At first she had not the slightest warning that an outbreak was at hand, but at the later periods of her illness Dr. Mason "observed her lean her head upon her hands, and wear an almost anxious look; and on questioning her she said she felt rather giddy, and in a quarter of an hour, or less, another place would break out."

There was rarely more than one attack each day, although sometimes the hæmorrhage occurred from two separate portions of skin simultaneously. It is very curious to note, too, that the outbreak *generally* occurred at the same hour each day—namely, at 11 a.m.; but it did not seem to be under the influence of mental or bodily excitement, or to be induced by taking food or stimulants. Occasionally it occurred in the afternoon, and sometimes a day passed without an attack.

While still suffering from this complaint, she had a severe attack of whooping-cough, which seemed greatly to aggravate the patches on her face, causing them to bleed freely. At this time also she had frequent and copious epistaxis, generally after a fit of coughing or retching, and this somewhat relieved the parts attacked.

This young lady was rather an excitable person, but her general health was good, and the bloody discharge was not sufficiently profuse to weaken her.

She had been seen by a number of medical men, some of whom, at all events, regarded the ailment as being dependent upon debility, as was evidenced by the courses of cod-liver oil, steel, &c., which were administered; but Dr. Mason and I regarded it as one of vicarious menstruation.

The treatment which was accordingly adopted was the maintenance of free action of the bowels with aloes and iron pills, especially when there was any menstrual flow, at which times she sat for about an hour in a hot mustard hip-bath, and had a few leeches applied to the insides of the thighs.

Locally, when the hæmorrhages occurred, the parts were bathed with cold water, and afterwards dusted with powder of oxide of zinc. Dr. Mason also combined with this the administration of Fowler's solution, which she had been getting before I saw her, and which, at all events, did no harm; although I was rather opposed to it on theoretical grounds, as being apt to produce congestion of the skin, and to favour the outbreaks.

Within a fortnight of the commencement of the treatment directed against the disorder of menstruation, there was manifest improvement, and Dr. Mason reported that by the beginning of June the cutaneous manifestations had quite disappeared, and no traces of them were left, except the slight scar previously referred to, and slight redness of the previously affected parts if she got overheated or excited. About this time, however, she had on one occasion a slight discharge of blood from the eyes. Her menstruation, although considerably improved, was not well established.

On the 27th October, 1866, Dr. Mason reported that

she remained "quite free from her old and troublesome complaint," and that her menstruation was "pretty regular," though "not quite up to the mark"; and on the 19th of May, 1867, he reported, "The young lady is now quite well, and has been so since I wrote you last."

Let me now refer briefly to other cases of a similar nature which I have found recorded, in the hope that they may serve still further to elucidate the subject under consideration.

Erasmus Wilson, in his valuable work "On Diseases of the Skin,"¹ reports two cases of vicarious menstruation very similar to my own—one being that of "a young lady, in whom a discharge of this nature took place every fortnight from four circular spots, each about the size of a half-crown, and situated symmetrically on the face; one being on each cheek, one on the forehead, and one on the chin."

He also quotes a very extraordinary case of a young woman of eighteen, who "suffered a loss of blood from 'her ears, a little after at the points of her fingers, and then at her toes; presently after, at the umbilicus and corner of the eye; several times by sweat; and at length it burst out from the middle of her breast; afterwards in the foot, where the saphena is pricked in bleeding; then at both palms and back of the hands. Two days after it flowed from her chin, and in the night-time from the tip of her tongue, and all this in a fortnight's time.' Whenever it flowed from her 'breast or other parts like sweat, there was no vestige of an orifice to be seen.'"

M. Brierre de Boismont, in his work on Menstrua-

¹ Sixth edition, p. 821. London: Churchill.

tion,¹ quotes the following case from the "*Médecine Pratique*" of Pinel:—Miss A—— had been subject to attacks of hysteria from the age of eleven, which were followed by vomiting of blood. She menstruated at fourteen; her health was re-established, and the catamenia continued to flow regularly for several months. A sudden fright suppressed the menses, and again hysteria came on. Vicarious menstruation now occurred. The legs swelled and were covered with vesicles, and during six months blood was regularly discharged from them. The left arm swelled and the legs recovered, and for a year there was a regular sanguineous discharge from the arm. A third deviation occurred from the left hand, which had been slightly wounded. The 'menses' flowed from this opening for six months. In the fourth year two wounds were formed on the face, from an attack of erysipelas—one upon the side of the nose, the other on the upper eyelid. For two years the periodic discharge took place from these openings, and it no longer occurred from the thumb. The abdomen, in its turn, was attacked with erysipelas, and for five months regularly there was a discharge from the navel at each menstrual period. For four months the discharge proceeded from the inner ankle of the left foot; for two months from the left ear; for three from the left nipple. When the discharge did not flow from any one part, bleedings at the nose and vomitings of blood, preceded by convulsions, pains in the head, and giddiness, took place. After remaining some time at the Salpêtrière, the health of this young female improved, and regular menstruation was established."

¹ "De la Menstruation considérée dans les rapports Physiologiques et Pathologiques." Paris. 1842.

In the *Lancet* for 2nd March, 1861, a very curious case, which came under his care, is related by Dr. T. K. Chambers, of which the following are the most salient points.

The patient was a young woman, the subject of suppressed menstruation, who "constantly suffered from want of appetite, cough, pains in the chest, and a feeling of debility," although her appearance was that of robust health, and who, at the age of twenty-three, became the subject of a cutaneous eruption on the face, the development of which is thus described: "She feels first a peculiar soreness and tenderness of an isolated spot, which enables her to predict that in the course of a few hours an eruption is going to commence. The first appearance of this is an erythematous blush, sometimes slightly raised above the surrounding surface, but not so much as in erysipelas. After an uncertain time—seldom more than a few hours—there may be detected a scattered crop of fine vesicles, like sudamina, mixed with a fine serous dew, uncovered by any pellicle. This never lasts long enough to form colourless drops, for quickly it becomes blood-stained, and then little points of blood are seen oozing out, sometimes so slowly as to dry and form a scab, sometimes collecting into great thick gouts, and trickling in a ghastly way down her face." If left alone to dry into a scab, the bleeding "stops in a week or ten days, usually, however, to be succeeded, before it is quite recovered, by a similar eruption in another place. Sometimes, at irregular periods, there was an interval of a week or a fortnight; sometimes the cutaneous phenomena were replaced by bleeding from the nose, sometimes by vomiting of blood, but never by hæmorrhage from either lungs or bowels. These symptoms

continued nine months, and were relieved by anticipating the eruption of blood, with leeches applied to the spot where it was expected. The discharge became serous, then was like little blisters, and finally ceased when her health was re-established by the sea air of Margate."

In September, 1860, that is four years from the commencement of the first attack, she was admitted into St. Mary's Hospital with similar symptoms; but on this occasion the face was not attacked. "When she lies down much in the day," writes Dr. Chambers, "that, indeed, is almost always the locality where it has appeared; but when she is about, the legs and thighs have exhibited like appearances; both forearms, too, and once the chest, were attacked." The fluid exuded "contained blood discs, . . . much granular matter, dark fatty-looking specks, and scales of epidermis." Blood drawn from a prick in the finger looked perfectly natural. On two occasions she threw up from the stomach about half a pint of dark brownish-purple sanguineous fluid, and occasionally her pocket-handkerchief was stained with blood reported to have come from the nose.

"She was bled three times," writes Dr. Chambers, "and after each bleeding successively, there was a decided improvement in the quantity and quality of the eruption. Four times there were leeches applied to the groins, but I could not trace any benefit to that. But when leeches were applied to the spots affected, they certainly arrested the hæmorrhage at that spot, and diminished its future violence elsewhere. She had leeches applied in this way, to one place after another, thirteen times during the month of December, making seventy leeches in all, in addition to twenty-four ounces

of blood taken by venesection. Yet, though blood-letting has been thus freely employed in the way most calculated to cause debility—namely, in small and repeated quantities—she has gained power and vigour, got less hysterical, and improved in every way, at the same time that her cutaneous hæmorrhage has been gradually diminishing. For a few days, while convalescing, she had a spontaneous diarrhœa.”

Contemporaneously with blood-letting, aloes and oleum sabinæ, in various doses, were employed, and consequent upon that treatment, about five weeks before she left the hospital, the catamenia occurred once, and flowed for five days. No immediate lessening of the cutaneous hæmorrhage followed the establishment of the uterine function; it had begun to improve before, and continued to improve after it, so that by the beginning of February, 1861, it had ceased altogether.¹

Chambers cites two cases from the “Archives Générales de Médecine,” 1829 (t. XIX., pp. 112, 113)—one of a young lady who, after ten years’ suppression, menstruated for three years through a vesicular eruption in one finger; and the other of a prostitute, in whom the discharge occurred through spots of the size of a five-franc piece, which appeared from time to time, one after another, on the breast, in the axilla, on the back,

¹ In a letter dated 29th July, 1867, Dr. Chambers wrote me as follows : —“Shortly before my illness in the spring of ’64 I saw the young woman. . . . She had experienced occasional attacks of hæmorrhage from the skin during the interval since I last saw her, but could always keep them off if she could get some leeches at the right time. She came then to ask for some leeches, for which I gave her a sort of general order. She distinctly said that she always found herself stronger after artificial loss of blood. I observed in her one thing which I did not, I think, notice in the lecture, namely, a peculiar livid injection of the conjunctivæ before the skin became affected.”

the buttocks, and the epigastrium. "The description of this case," writes Dr. Chambers, "accords closely with that of our patient, especially in the eruption being less periodical and more continuous than happens in most vicarious menstruations. The uterus also was healthy, for she became pregnant and bore a child."

Chambers also quotes from Heusinger¹ the case of a woman who had diseased ovaries and recto-vesico-vaginal fistulæ, in whom, although the catamenia sometimes appeared at the proper place, they were generally arrested there, and appeared in a variety of parts of the external skin, but especially on the face. She had suffered five years, was very hysterical, and had been in several hospitals.

Besides the above, cases have been related by A. Finol,² Schilling,³ Lenhossék,⁴ Voigtel,⁵ Van Sweiten,⁶ and others; but space will not permit of my alluding to them further.

It must not be supposed that all cases of Hæmidrosis are connected with derangements of menstruation. That such a conclusion is erroneous is proved by the fact that it has been observed in adult males and in infants. Thus Hebra,⁷ tells us "of a young man,

¹ "Schmidt's Jahrbuch." 1836.

² "Observation d'une Dégénération telle que le sang transsuidoit par la peau;" Sédillot, "Recueil périodique de la Soc. de Méd. de Paris," XIX., p. 71.

³ "De Sudore Sanguineo, post graves convulsivos et spasmodicos affectus erumpente, feliciter tandem sublato;" "Acta Acad. Nat. Cur.," vol. III., p. 425.

⁴ "Physiologia Medicinalis," vol. III., p. 352.

⁵ "Stark's General Pathology," p. 1131.

⁶ "Commentaries on Boerhaave," sec. 1286.

⁷ "On Diseases of the Skin." By Ferdinand Hebra, M.D. Translated and edited by C. Hilton Fagge, M.D. The New Sydenham Society. London. 1866. Vol. I., p. 94.

strong, and well nourished, who was attacked repeatedly by hæmorrhage from the surface of the lower limbs. This generally occurred during the night, so that he first became aware that the bleeding had taken place, by finding the sheets stained with spots of blood when he awoke." "I once, however," continues Hebra, "saw blood flow from the uninjured back of the hand of this patient while he was sitting near me at table. The blood formed a jet, which would about correspond in size to the duct of a sweat-gland. This jet had also a somewhat spiral form, and rose about 1''' above the surface of the skin."

Beneventus, too, has recorded the case of a man who discharged blood once a month from his right side;¹ and M. du Gard² has described a case, quoted by Erasmus Wilson,³ of a child of three months old that was "taken with a bleeding at the nose and ears, and in the hinder part of the head, which lasted for three days, and afterward the nose and ears ceased bleeding, but still blood like sweat came from the head. Three days before the death of the child, which happened the sixth day after it began to bleed, the blood came very violently from its head, and streamed out to some distance. It also bled on the shoulders and at the waist"; "it bled also for three days at the toes, at the bend of its arms, at the point of the fingers, and at the fingers' ends."

From a study of the recorded cases of Ephidrosis Cruenta—a title, by the way, which was given to the disease by Dr. Mason Good, but which is singularly

¹ "Van Swieten's Commentary on Boerhaave," vol. XIII., sec. 1286.

² "Medical Essays, abridged from the Philosophical Transactions," vol. I., p. 52.

³ "On Diseases of the Skin." By Erasmus Wilson, F.R.S. Ed. vi., p. 820. London: Churchill.

inappropriate, for the discharge is a hæmorrhage and not a perspiration tinged with blood as some have supposed—the following conclusions may be drawn :—

1. Discharges of blood from the skin, apart from wounds, abrasions, ulcers, and the like, are exceedingly rare.

2. In some cases such discharges are preceded by the development of oval or round patches of erythematous inflammation; in others by the eruption of crops of vesicles, such as I once saw in an instance of milky (white fibro-serous) discharge from the leg; while in a third class of cases the hæmorrhage comes from the follicles without any intervening eruption.

3. The disease occurs most frequently in females, and in connection with Amenorrhœa or defective menstruation, being, in fact, a species of vicarious menstruation.

4. That such is its invariable pathology, however, is disproved by the fact that it has been known to occur in infants and in adult males.

5. That the treatment by means of nourishing diet, stimulants, and tonics—on the supposition that the discharge is due to debility and deterioration of the blood—is unsuitable in the majority of cases.

6. That, on the other hand, an opposite line of treatment, and especially the abstraction of blood, local or general, or both, is much more likely to prove serviceable, and to stop the discharge.

7. That when the disease occurs in the female in connection with anomalies of menstruation, these must be corrected by the usual means.

Referring to the bloody sweat of Christ, the celebrated Dr. Mead makes the following observations:¹—

¹ The Medical Works of Richard Mead, M.D. London: 1762, p. 630.

“Saint Luke relates of Christ himself that, when He was in an agony by the fervency of His prayers, His sweat was like drops of blood falling down on the ground. This passage is generally understood as if the Saviour of mankind had sweated real blood. But the text does not say so much. The sweat was only *ὡσεὶ θρόμβοι αἵματος*, as it were, or, like drops of blood; that is, the drops of sweat were so large, thick and viscid, that they trickled to the ground like drops of blood. Thus were the words understood by Justin Martyr, Theophylactus, and Euthymius.”

Before we part let me bring under your notice another morbid condition, examples of which you may perhaps meet with in the course of your practice. I refer to the disease which is generally known under the names of Elephantiasis Arabum, Bucnemia Tropica, and Barbadoes Leg, and for which Mr. Erasmus Wilson has proposed the name of Spargosis—a term handed down to us from Hippocrates. It seems to have more of a local than of a constitutional origin and to be due to excessive nutrition of the affected parts, which produces hypertrophy of the skin and subcutaneous cellular tissue; and that this is its true pathology is corroborated by the wonderful results which follow upon a diminution of the supply of blood to the parts by means of ligature of the main artery of the limb.

The following is a good illustration of this curious disorder, and of the beneficial results of the method of treatment just mentioned. On the 22nd June, 1866, a young woman, seventeen years of age, was admitted under my care, on account of an elephantine condition

of the left leg, and a similar affection, in a minor degree, of the right.

The disease commenced in the left limb about five years previous to admission, with an attack of inflammation of the skin, apparently of an erysipelatous character.

She seems to have had about a dozen of these attacks of inflammation before I saw her, each being succeeded by an increase in the size of the leg. She was seen during one of these attacks by my late clinical assistant, Dr. Alexander Forsyth, who reported that it was ushered in by sickness and vomiting, followed by febrile symptoms—the skin of the left leg becoming red, swelled, tense, and so painful as to prevent movement. The redness extended up to the middle of the calf, but there was no tendency to the formation of bullæ. In a few days, as the inflammation subsided, the parts became softer, pitted slightly on pressure, and presented a shrivelled appearance. Finally, desquamation set in, the scales being about a quarter of an inch in diameter. Most of the other attacks of inflammation were much more severe, and some of them implicated the thigh as well as the leg.

On admission the limb presented the appearance delineated in fig. 1. It will be observed that the parts are not only enormously enlarged, but also extremely misshapen. Deep sulci are seen on the flexor surfaces of the joints, especially at the ankle-joint, where the sulcus was two inches in depth. On the front of the knee, along the edges of the sole, and most markedly of all, upon the dorsal surfaces of the toes, the skin bore a close resemblance to that of a patient labouring under ichthyosis—an appearance which at an earlier period of the disease was more extensively dif-

fused over the leg. The rest of the skin had a very coarse appearance, the natural markings of the surface being greatly exaggerated. To such an extent was the skin hypertrophied, that at no part could it be pinched up between the finger and thumb, and no bone could be felt, except at the bottom of the sulcus, at the ankle-joint, the skin lining which was smooth, and not much thickened. The limb measured—round the ankle, $21\frac{1}{8}$ in. ; calf, $26\frac{7}{8}$ in. ; and thigh, 23 in.

As may be inferred from the above, the hypertrophy of the thigh was not carried to nearly the same extent as that of the leg ; and, indeed, the skin on the internal and posterior aspect of the former was nearly normal.

The appearance of the right leg, which is delineated in fig. 3, is of great interest, as showing the appearance of the disease in its early stage. It had only been once attacked by inflammation, which did not extend above the knee. It measured—round the ankle, 13 in. ; calf, $16\frac{1}{8}$ in. ; thigh, $19\frac{1}{2}$ in.

With the exception of the disease of the lower extremities, the patient seemed to be in perfect health in every respect, and neither she nor her parents had ever resided in foreign parts.

In the year 1863 she was under the care of Dr. Lyon, in the Glasgow Royal Infirmary, and at that time, under the influence of rest and careful bandaging, the progress of the disease appears to have been temporarily arrested.

When she came under my care she seemed to improve considerably under the use of small doses of Fowler's solution, combined with rest and the use of a flannel bandage ; for she thought that the affected parts were considerably softer, and on the 10th Septem-

ber, 1866, the limb measured—round the ankle, $17\frac{3}{8}$ in.; calf, 26 in.; and thigh, 23 in.

From this time no improvement took place in the size or appearance of the affected parts, so that I was induced to recommend her to the care of my friend Professor George Buchanan, with the view of having a ligature placed round the external iliac artery.

She was admitted into the Infirmary on the 2nd of November, 1866.

On December 21st, the patient having been put fully under the influence of chloroform, the operation was performed by Dr. Buchanan.

It is not my intention to enter into any surgical details, either of the operation or the after-treatment, but it may be stated that on the 22nd—the day following the operation—the parts were flabbier than before, and on the 25th they were so soft that the upper part of the tibia could be felt for the first time. The measurement of the limb on this day gave the following result:—Round the ankle, $16\frac{1}{2}$ in.; calf, $21\frac{1}{2}$ in.; thigh, $22\frac{1}{2}$ in.

On the 3rd of January, 1867—thirteen days after the operation—the ligatures came away while the dressings were being removed, after which the discharge diminished, granulations sprang up, and the wound had completely healed three months after the operation was performed.

She was dismissed on April 30th, 1867.

On the 17th of May, 1867, she visited the Dispensary, when I had an opportunity of examining the limb. It was very greatly reduced in size, though it still retained, to a considerable extent, its distorted shape, as may be seen from the accompanying woodcut (see fig. 2). The most remarkable improvement, how-

Fig. 1.



LEFT LEG BEFORE TREATMENT.

Fig. 2.

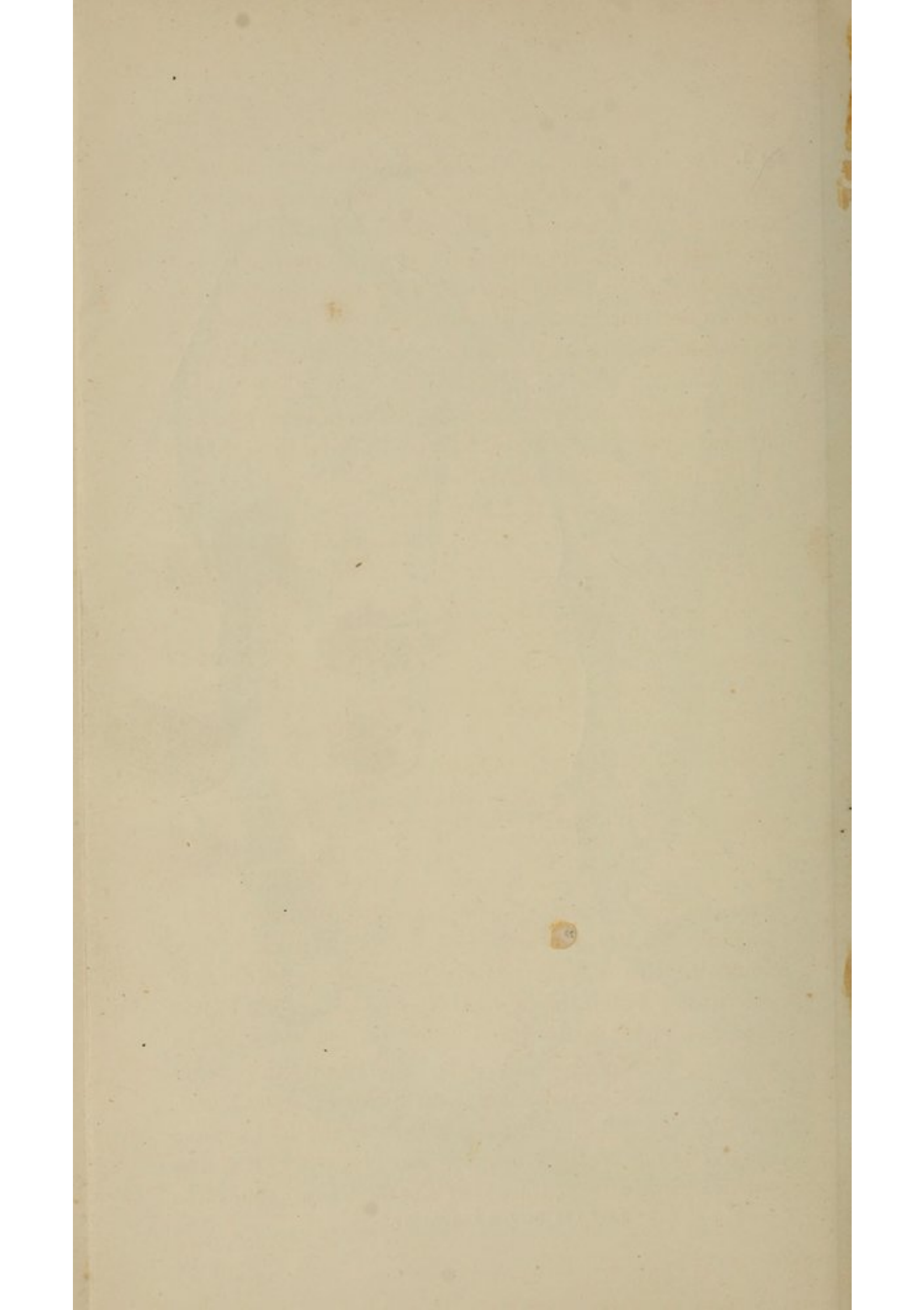


LEFT LEG FIVE MONTHS AFTER LIGATION OF THE EXTERNAL ILIAC ARTERY.

Fig. 3.



RIGHT LEG.



ever, consisted in the fact that the abnormal firmness and inelastic character of the skin had given place to a softness and elasticity which was all but normal, and the patient said that the leg was very much lighter than before, and that she could walk with greater ease. The measurements on this day gave the following result:—Round the ankle, 15 in.; calf, 17 in.; and thigh, 21 in.

The results of the treatment which was adopted in this case can be seen at a glance by placing together all the measurements, as follows:—

	Round the ankle.	Round the calf.	Round the thigh.
	in.	in.	in.
<i>June</i> 22, 1866.—On admission at the Dispensary for Skin Diseases, Glasgow,	21 $\frac{1}{8}$	26 $\frac{7}{8}$	23
<i>Sept.</i> 10, 1866.—After a course of arsenical treatment, bandaging, and comparative rest,	17 $\frac{3}{8}$	26	23
<i>Dec.</i> 25, 1866.—Four days after ligature of the external iliac artery,	16 $\frac{1}{2}$	21 $\frac{1}{2}$	22 $\frac{1}{2}$
<i>May</i> 17, 1867.—After her dismissal from the Glasgow Royal Infirmary,	15	17	21

In the forty-ninth volume of the “Medico-Chirurgical Transactions (for 1866, p. 175), a case very similar to the above, and which was likewise treated successfully by means of ligature of the external iliac artery, is narrated by Mr. Bryant. In this case, as in mine, neither the patient (who was twenty-five years of age) nor her parents had ever resided abroad; and, with the exception of the elephantiasis, she had always enjoyed good health. In her case, however, the disease was entirely confined to the left limb, and was

unattended by inflammation: in mine it implicated both limbs; the right exhibiting the earliest, the left the most advanced stage of the complaint. As may be seen from the accompanying woodcut, the leg, in the early stage, has the appearance of being œdematous, but there was not a vestige of pitting upon pressure. The progressive hypertrophy of the parts was evidently induced, too, by well-defined attacks of inflammation of the skin, the right leg having only once been the seat of inflammation, the left about a dozen times.

In Mr. Bryant's case the left leg measured round the calf $22\frac{1}{2}$ in. before the operation, and five and a half months after it, $15\frac{1}{2}$ in.; there being a diminution of 7 in. in the circumference of the calf as the result of the operation.

In my case the left leg measured round the calf 26 in. before the operation, and rather more than five and a half months after it, 17 in.; there being a diminution of 9 in. in the circumference of the calf as the result of the operation.

For further particulars as to Mr. Bryant's case, and for an abstract of cases published by Dr. Carnochan of New York, and others, I must refer you to the article in the "Medico-Chirurgical Transactions."

LECTURE XVII.

ARE THE VEGETABLE PARASITIC AFFECTIONS OF THE SKIN
DUE TO ONE OR TO SEVERAL PARASITES?

It is curious to note the variety of opinion which prevails amongst scientific men with regard to the so-called vegetable parasitic affections of the skin. Thus some, with Wilson at their head—whose opinions must always command respect¹—hold that there are no such diseases, the plant-like structures met with in favus, ringworm, &c, not being fungous growths at all, but mere degenerations of the normal elements of the skin. Others, while admitting the presence of fungi in these diseases, hold that they are not essential, but accidental formations; and many are of opinion that they are not peculiar to them, but are met with more or less in almost all chronic skin diseases.² Then there are those, with Devergie for their leader,³ who lean to the theory of spontaneous

¹ "On the Phytopathology of the Skin and Nosophytodermata, the so-called parasitic affections of the skin."—*British and Foreign Medico-Chirurgical Review*, January, 1864. See also a pamphlet in answer to this paper entitled "The Nature of so-called Parasites of the Skin," by W. Tilbury Fox, M.D. T. Richards, 37 Great Queen Street. 1864.

² See an article by Mr. Jabez Hogg, in the *Lancet* for March 26, 1859.

³ "Traité pratique des Maladies de la Peau," par Alph. Devergie, second ed., pp. 51 and 501.

generation as applied to them ; and lastly, the camp is pretty equally divided between those who believe that several fungous growths are concerned in the production of the parasitic affections of the skin, and those who maintain that they are due to the presence of one and the same parasite.

It has been urged by some, whose opinion I value, that, in the volume published by me some years ago on the parasitic affections of the skin, this last point should have been fully discussed ; but it appears to me that, in a work intended as a guide to diagnosis and treatment, it would have been wrong to have entered into details on this head, except in so far as they were necessary to the practical elucidation of the subject. In the volume alluded to, however, I endeavoured to prove the correctness of Bazin's view, which was contrary to the belief of dermatologists in this country—that herpes tonsurans (ringworm of the head), herpes circinatus (ringworm of the body), and sycosis parasitica (ringworm of the beard), are all due to the presence of one and the same parasite, the trichophyton¹ ; and all my subsequent experience has tended to confirm the opinion which I then expressed, an opinion which, it is gratifying to observe, has been pretty generally accepted by the profession. There are not a few, however, who go farther than this, who hold that there is only one parasite productive of *all* the vegetable parasitic affections of the skin, amongst whom may be mentioned the names of Hebra, Tilbury Fox,² Lowe, and Jabez Hogg,³ to whose writings I must refer the reader

¹ "The Parasitic Affections of the Skin," by T. McCall Anderson, M.D., p. 46. London: Churchill, 1861.

² "Skin Diseases of Parasitic Origin," by W. Tilbury Fox, M.D., p. 99 *et seq.* London: Robert Hardwicke, 192 Piccadilly.

³ "Further Observations on the Vegetable Parasites, particularly those

for the arguments in favour of such an opinion, as the following remarks are devoted almost exclusively to the arguments in favour of the opposite view.

But, before proceeding further, it may be well to state that, as there is a difference of opinion amongst those dermatologists who admit a group of parasitic affections of the skin, as to whether alopecia areata (porrigo decalvans) is a parasitic disease or not, it is advisable to leave that affection out of consideration in the present discussion in order to avoid confusion. So that the task which I propose to myself now is to lay before you the arguments in favour of the view that the *Tricophyton*, the parasite met with in the three varieties of ringworm (viz., herpes tonsurans, herpes circinatus, sycosis parasitica), the *Achorion Schönleini*, the parasite of favus, and the *Microsporon furfur*, the parasite of pityriasis versicolor, are not identical, but distinct fungous growths.

First of all, let us view the proofs of non-identity, as these are displayed in the *results of inoculation*.

(1.) *Results of inoculation with the Achorion Schönleini* (the parasite of favus).—This parasite has been repeatedly inoculated with success, and, amongst others, by Hebra, Rémak, Vogel, Bazin, Gruby, Köbner, and Deffis. Bennett thus describes a case in point:—

“In the summer of 1845 one of the gentlemen in attendance at the Royal Dispensary volunteered to permit his arm to be inoculated. A boy, called John B——, aged eight, labouring under the disease (favus) was at the time the subject of lecture, and a portion of the crust, taken directly from this boy's head, was rubbed upon Mr. M——'s arm, so as to produce

infesting the human skin.” By Jabez Hogg, F.L.S., M.R.C.S., &c.—*Quarterly Journal of Microscopical Science*, January, 1866, p. 10.

erythematous redness, and to raise the epidermis. Portions of the crust were then fastened on the part by strips of adhesive plaster. The results were regularly examined at the meetings of the class every Tuesday and Friday. The friction produced considerable soreness, and, in a few places, superficial suppuration. Three weeks, however, elapsed, and there was no appearance of favus. At this time there still remained on the arm a superficial open sore, about the size of a pea, and Mr. M—— suggested that a portion of the crust should be fastened directly on the sore. This was done, and the whole covered by a circular piece of adhesive plaster, about the size of a crown piece. In a few days the skin surrounding the inoculated part appeared red, indurated, and covered with epidermic scales. In ten days there were first perceived upon it minute bright yellow-coloured spots, which, on examination with a lens, were at once recognized to be spots of favus. On examination with the microscope, they were found to be composed of a minute granular matter, in which a few of the cryptogamic jointed tubes could be perceived. In three days more the yellow spots assumed a distinct cupped shape, perforated by a hair; and in addition to tubes, numerous sporules could be detected.”¹

Of three cases inoculated by Deffis, the epidermic variety of favus—the crusts exhibiting the achorion microscopically—was produced twice, and a typical favus cup once, and the average period of incubation was ascertained to be about forty days. The true favus cups are only formed when, by inoculation, some of the

¹ “Clinical Lectures on the Principles and Practice of Medicine” by J. Hughes Bennett, M.D., second ed., p. 799. Edinburgh: Adam and Charles Black.

fungus can be brought into contact with a hair-follicle; hence the epidermic variety is more frequently produced. Köbner inoculated himself on the forearm with the parasite of favus, and there resulted well-marked favus-cups,¹ which he exhibited at the Medical Society at Breslau. Gruby also tried the effects of inoculation. He deposited some of the fungus on the bark of an oak in full vegetation, and there developed itself a favus cup identical with that which grows on the heads of infants, and which was exhibited at the French Institute.²

(2.) *Results of inoculation with the Tricophyton* (the parasite of tinea tonsurans, or ringworm).—The experiments with this parasite have been on a much less extensive scale than those with the achorion, but, as far as they go, they lead to the same conclusion. Thus M. Deffis, encouraged by the success of his inoculations with favus matter, essayed some inoculations with the tricophyton in 1856, in which he was completely successful, characteristic patches of ringworm being produced; and similar inoculations were made with the tricophyton by Köbner on his own and on Dr. Strube's forearm, and also upon rabbits, which resulted likewise in the development of ringworm.³

(3.) *Results of inoculation with the Microsporon furfur* (the parasite of pityriasis versicolor).—The inoculation of the microsporon furfur has not, as far as I am aware,

¹ "Klinische und Experimentelle Mittheilungen aus der Dermatologie und Syphilidologie," von Dr. Heinrich Köbner, Artz in Breslau, p. 21. Erlangen, 1864.

² "Traité pratique des Maladies de la Peau," par Alph. Devergie, second ed., p. 526.

³ "Klinische und Experimentelle Mittheilungen aus der Dermatologie und Syphilidologie," von Dr. Heinrich Köbner, Artz in Breslau, p. 23. Erlangen, 1864.

been attempted, or at all events the results have not been communicated by any one, except by Dr. Heinrich Köbner, who inoculated himself with it upon the skin covering the sternum, and produced an eruption of pityriasis versicolor.¹

Now of all the inoculations which have been made upon man, animals, or plants, with the achorion, the tricophyton, and the microsporon furfur, many, of course, owing to defective inoculation, unsuitableness of soil, or the like, have proved abortive; but I think I am equally correct in stating that amongst the many cases of successful inoculation, not a single one has resulted in the production of any other parasitic disease than that from which the parasite was taken. In other words, when the inoculations were successful the achorion always gave rise to favus, the tricophyton to tinea tonsurans, and the microsporon furfur to pityriasis versicolor.

So much, then, for the results of inoculation.

In the second place, let us glance at the *clinical proofs* of the non-identity of these parasites.

There are very few dermatologists of note who now deny the contagious nature of favus, tinea tonsurans, and pityriasis versicolor. Amongst the five or six thousand cases of parasitic affections of the skin treated at the Dispensary for Skin Diseases, Glasgow, there were numerous examples of this; but there was not a single instance of one of those diseases giving rise, by contagion, to one of the others. And this is just what one might have expected, seeing that artificial inoculations point so conclusively the same way. And here it must be mentioned, that those who are not well versed in the diagnosis of skin diseases are apt to fall

¹ Ibid., p. 24.

into the error of confounding the appearances of the first stage of favus with fully developed ringworm, and thus to arrive at the opinion that these two diseases are present on the skin at the same time. This mistake has, I think, been committed by a recent writer in the *Dublin Quarterly Journal of Medical Science*, in an article entitled "Observations tending to show the Identity of Favus and Tinea Tonsurans." That there are instances of the coincidence of ringworm and favus on the same person at one time—a delineation of which is published by Hebra—no one can deny, but it is equally certain that they are very rare, for I have never met with a single case of the kind; so that they no more constitute proofs of the identity of these diseases than do instances of the coexistence of psoriasis and ringworm—a case of which I met with the other day—of the identity of these two affections. Then, if we study the appearances of fully developed favus, tinea tonsurans, and pityriasis versicolor, it would be difficult to name any three skin diseases which are more dissimilar; and this I may say with the greatest confidence, that I have never seen a transition of one of these diseases into one of the others. It is but fair, however, to state that my experience differs in this respect from that of Dr. Tilbury Fox, who makes the following remarks:—

"Tinea favosa (favus) can be produced from bad cases of tinea tonsurans, on a minor scale, by keeping up such an amount of irritation as, being less than sufficient to destroy the fungus, shall lead to the effusion of blastematous fluid (be it pustular, vesicular, or other), in which the plant will vegetate rapidly for a while, producing a crust depressed in its central part, and completely riddled by hairs in various stages of

disease ; the crust itself being composed of the normal elements of the part, effused fluid, and parasitic growth."¹

As I have just said, this state of matters is totally at variance with my own experience, and I cannot help suspecting that some error has crept into the inquiry.

In the third place, let us view for a moment the proofs derived from a *microscopic examination*, which I hold, however, to be of very secondary importance, and which cannot have nearly the same weight as several of those previously advanced, for in structures so minute it is difficult, even with all the light which is shed upon them by the most perfect instruments, to appreciate with precision the differences which may exist between them. And yet, as far as my experience goes, the differences between the microscopical appearances of the *Achorion*, the *Tricophyton*, and the *Microsporon furfur*, are very considerable. Thus, to take an instance derived from the spores: those of the *achorion* are, on an average, about the 3000th of an inch in diameter, and many of them are oval; those of the *tricophyton*, on the other hand, are much smaller, being, on an average, about the 7000th of an inch in diameter; while the spores of the *microsporon furfur*, although nearly as large as those of the *achorion*, are more uniformly rounded, and have a remarkable and characteristic tendency to run together, so as to form clusters, like bunches of grapes. Other differences in the microscopical appearances I might mention, which must be familiar to those who have carefully studied the subject of parasitic diseases of the skin with the microscope; but it is unnecessary to enlarge further on this subject, holding, as I do, that the proofs derived

¹ *Lancet*, September 10, 1859.

from a microscopical examination are of secondary value in the determination of the point at issue, and I conclude with the observation, that if carefully prepared microscopical specimens of the *Achorion*, the *Tricophyton*, and the *Microsporon furfur*, and of these only, were handed to me, and I were allowed to use my own microscope, I think I could generally arrive at a correct diagnosis of the disease from the microscopical appearances alone.

Curiously enough, the morning after this statement was penned, my friend Dr. Irvine handed to me a paper containing some epithelial scales and fine hairs, with the request that I would examine them with the microscope, and give him my opinion of the nature of the skin disease from which they were taken. This I did, and pronounced it to be a case of pityriasis versicolor, an opinion which proved correct. This fact is cited, not to show that I am possessed of any extra skill in the use of the microscope, but merely in verification of the above statement.

Lastly, we come to the proofs derived from a branch of inquiry in which I have for some time been deeply interested, namely, *the occurrence of vegetable parasitic skin diseases amongst the lower animals, and their transmission to the human subject*. And first of all, as regards favus, I may be allowed to transcribe the following case from a previous communication—a case which was first published by Bazin.¹

“In the course of the year 1854 several members of a family, amongst whom was a young physician, remarked that several mice, caught in a trap, were affected with a peculiar disease. Upon the head and

¹ “Leçons Théoriques et Cliniques sur les Affections Cutanées Parasitaires,” par le Docteur Bazin (1858), p. 119.

front legs there were crusts of a sombre yellow tint, of a regularly circular form, and more or less elevated above the level of the neighbouring healthy parts. A manifest depression was likewise detected in the centre of each crust, just as one observes in *porrigo favosa*, and the parts where these had fallen off were ulcerated, and the skin appeared to be destroyed throughout its whole thickness. These mice were given to a cat, which exhibited some time afterwards, above the eye, a crust similar to those on the mice. Later still, two young children of the family, who played with the cat, were successively affected with the same disease, yellow crusts making their appearance on several parts of the body, on the shoulder, face, and thigh. The physician who was summoned pronounced them to be cases of *porrigo favosa*."

Some of the fragments were sent to Bazin, who detected the parasite with its characters well marked.

On the 7th of February, 1866, M. Dron sent to M. Saint-Cyr some crusts of *favus* taken from the head of an infant suffering from the disease. Some days after he inoculated the head of a young cat with it; an eruption soon appeared, presenting exactly the same characters as those upon the head of the child. On eight occasions he inoculated young cats, and in every case with the same results; but when adult cats were employed, which he did on two occasions, the experiment did not succeed.¹ This is identical with what we find in the human subject, the disease being much more readily contracted by children than by adults.

The following cases, which came under my own observation, are of much interest:—

A patient of my late colleague's, who lived in lodg-

¹ "Annales de Dermatologie," tom. I., p. 266.

ings in a newly-built house in the West-end of Glasgow, showed him his dog, upon whose fore-paw a peculiar disease existed. Dr. Buchanan examined the patch, and found that it corresponded in every particular with a patch of favus—an opinion which was amply corroborated by a microscopic examination of a portion of the crusts. This dog was in the habit of killing mice which abounded in the house, some of which were accordingly caught and examined by Dr. B. and myself. We had no hesitation in pronouncing the disease to be favus, and a microscopic examination showed distinctly the presence of the *Achorion Schönleini*.

This disease in mice has a special tendency to attack the ears, and from thence it spreads to the head and throat, and to other parts. It produces much greater destruction than in the human subject, as it not only destroys the hair, but tends to eat into the deeper structures, and by slow degrees leads to exhaustion and death. One of the mice above referred to was stuffed, and is preserved at the Dispensary for Skin Diseases, Glasgow, where those who are interested may have an opportunity of studying the appearances and of verifying the conclusions to which we arrived with regard to the nature of the disease. The complaint in mice had at this time attracted the attention of non-professional persons in Glasgow, as was evidenced by a correspondence in the columns of the *Glasgow Herald*, the writers having all seen in their houses mice so affected, and having been much alarmed lest they might be the means of poisoning the food or water, or of transmitting the disease to members of their family. No instance, however, was cited in which this had occurred.

A still more interesting case than that above referred to occurred shortly afterwards in my own practice. A poor woman came to the Dispensary for Skin Diseases on the 1st February, 1864, accompanied by one of her children. They were both affected with favus of the non-hairy parts of the body. On each there were scattered here and there characteristic little round patches of eruption, on some of which numerous minute favus cups were detected, exhibiting the *Achorion Schönleini* microscopically. Two other children of this woman, as also their father, were similarly affected. Mice abounded in the house some time previous to this, and a cat was accordingly procured which killed all of them. I had therefore no opportunity of examining them, but the cat was brought to me, and on the tops of its fore-paws I detected numerous undoubted favus caps.

In January, 1869, M. Saint-Cyr, while engaged in a series of experiments with the view of proving the communicability of favus from cats to dogs, observed a patch the size of a ten-franc piece on the dorsal surface of his left hand between the metatarsal bone of the thumb and that of the index finger, which was the seat of desquamation. It gradually enlarged, and presented all the characters of herpes circinatus; but, by and by, at the orifices of the hair follicles, little, circular, yellow, depressed points, about the size of pin-heads, made their appearance. On removing one of these, it was found to present all the characters of a favus cup, and a microscopic examination showed that it was composed of the spores and tubes of the achorion—an observation which was confirmed by MM. Tripier and Rollet.¹ Had the patch been destroyed before the

¹ "Annales de Dermatologie," tom. I, p. 281.

favus cups made their appearance, the disease might have been supposed to be one of ringworm, and cited as a proof that the latter may result from inoculation with favus matter.

The next case, which came under my own observation, is equally interesting. On the 22nd February, 1864, I was asked by Mr. Thomas Bryce, surgeon, to visit along with him a family which he was attending. A number of mice had been caught in the house three months previous to this date, which had been much handled by the children. Five weeks afterwards an eruption was noticed on one of the little girls, which spread to one of the sisters, her mother, the baby, and a little girl who worked in the establishment. On examining the eruption, which was confined to the non-hairy parts, it was found to correspond exactly with the appearances in the previous case. On some of the patches distinct favus cups were seen which exhibited the achorion microscopically, and on those which were devoid of them the eruption corresponded to the variety described in my volume on the parasitic affections of the skin as "Favus of the Epidermis," and the scales were loaded with the spores and tubes of the parasite. There were no mice in the traps at the time, but shortly after my visit Dr. Bryce kindly sent me five, on the back of one of which, near the tail, a characteristic favus cup was seen, while the side and lateral aspects of the head and ears of another were eaten away by the disease. The crusts were examined with the microscope, and the achorion was detected in great abundance. Dr. Bryce informed me that the mice sent to me exhibited the same appearance as those with which the children had been playing.

But favus is not limited to dogs, cats, and mice, for

we read that Müller observed it in a Cochin-China fowl and in several chickens which had contracted it from the fowl ; that Gerlach observed its transmission from fowls to the human subject,¹ and that Köbner succeeded in producing favus in rabbits by inoculating them with the achorion taken from the human subject ; and there can be little doubt that as the question becomes more thoroughly ventilated, this disease will be found to be much more generally diffused amongst the lower animals than many suppose.

Now, in all these cases favus transmitted favus, and I have never read of, still less have I ever observed, any case in which either *tinea tonsurans* or *pityriasis versicolor* was really the result.

Let us now glance for a moment at the occurrence of *tinea tonsurans* (ringworm) amongst the lower animals, in order to see if it gives us any information upon the point at issue.

In a paper on "Parasitic Skin Diseases in the Ox," by Gerlach, Professor at the Royal Veterinary School of Berlin, the author gives an account of ringworm in oxen. Having remarked that oxen which were put into the same stable with affected ones contracted the same disease, he determined to perform some experiments with the view of ascertaining whether it really was communicable to other animals. By successive inoculations he succeeded in the production of ringworm in oxen, in calves, and in horses, while his experiments in the case of pigs and sheep yielded a negative result. He likewise inoculated his own arm and those of some of the pupils with some of the parasitic matter

¹ "Klinische und Experimentelle Mittheilungen aus der Dermatologie und Syphilidologie," von Dr. Heinrich Köbner. Erlangen. 1864. Pp. 26 and 27.

from oxen, and in each case there resulted well-marked herpes circinatus (ringworm of the body).

Bärensprung's experience coincides with that of Gerlach. He rubbed on his forearm some scales containing an abundance of the spores and mycelium of the trichophyton taken from a case of ringworm in one of the lower animals. No effect was produced for the first few days, but after a longer interval his attention was attracted to the part by the supervention of itching, when he discovered a well-marked patch of herpes circinatus (ringworm of the body.¹ It is unnecessary to multiply cases of this kind, so that I may conclude with a case extracted from the volume published by me on the "Parasitic Affections of the Skin," and quoted from Bazin—

"A dragoon came to the dispensary of the St. Louis Hospital, affected with herpes circinatus of the front of the right forearm; the skin of one of the patches was denuded of hair. He stated that five or six of his comrades had contracted this affection, as well as himself, from grooming diseased horses. We went to the barracks, where, sure enough, we saw three horses which exhibited round patches, absolutely identical with those of herpes tonsurans (ringworm of the head) on the withers, shoulders, back, and belly. The hairs in the centre of each patch were broken off close to the skin, and there was, as in herpes tonsurans, a whitish, squamous, and even crust-like production which was traversed by the hairs. The presence of spores was detected with the microscope. The dragoon, who conducted us to see the horses, showed us also his young daughter, eight or ten years of age, the side

¹ Quoted by Aitken, from "Brit. and For. Med.-Chir. Review," July, 1857, p. 263.

of whose nose exhibited a patch of herpes cincinatus."

We see, then, that as in the previous case favus invariably transmitted favus, so in this ringworm invariably gave rise to ringworm.

I believe I am correct in stating that pityriasis versicolor has not been observed in the lower animals.

The following is a summary of the proofs adduced in favour of the non-identity of the *Achorion Schönleini*, *Tricophyton*, and the *Microsporon furfur*, the parasites met with in favus, tinea tonsurans, and pityriasis versicolor respectively.

(1.) In all cases of successful inoculation with the *Achorion*, *Tricophyton*, and *Microsporon furfur*, the same parasitic disease has been produced as that from which the parasite was taken.

(2.) Of the innumerable cases occurring in the human subject illustrative of the contagious nature of favus, tinea tonsurans, and pityriasis versicolor, which have been recorded, there is no authentic case in which one of these diseases gave rise to one of the others.

(3.) The difference in the appearance of favus, tinea tonsurans, and pityriasis versicolor, when fully developed, is so very striking as to lead to the belief that they are produced by separate parasites.

(4.) There is no authentic instance on record of the transition of one of these diseases into one of the others.

(5.) The difference in the appearance of the *achorion*, *tricophyton*, and *microsporon furfur* is sufficiently striking to enable the observer in many cases to form a correct diagnosis from the microscopic examination alone.

(6.) Of the numerous instances on record of the

transmission of favus and tinea tonsurans *from the lower animals* by contagion or inoculation, favus has always given rise to favus, and tinea tonsurans to tinea tonsurans.

Before concluding, it may be well to refer to the opinion of Dr. John Lowe and others, that not only are the parasites in question identical, but also that they are one and the same with the *Aspergillus glaucus*. In confirmation of this view Dr. Lowe states, amongst other observations, that he placed in a bottle exposed to a moderately cool atmosphere, a solution of brown sugar and some favus matter. In rather more than a month the *aspergillus glaucus* was detected in the solution, having been apparently developed from the favus matter. Dr. Lowe seems to have repeated the experiment several times with a like result. It must be remembered, however, that there are many sources of fallacy in experiments of this kind, and I am entirely at one with Dr. Lowe in the following remarks—

“In an investigation of this nature, where the objects to be examined are so minute, a considerable degree of difficulty is naturally experienced in affording satisfactory proof of the accuracy of the remarks concerning their development. For instance, in watching the germination of any given fungus, it may often be difficult to prove that no other plant of the same tribe is present to complicate the result; and this in consequence of the myriads of spores of various species which are constantly floating about in the atmosphere, ready to become located, and grow upon any suitable pabulum.”¹

Moreover, similar experiments were conducted by

¹ “Transactions of the Botanical Society,” vol. V., part iii., p. 193.

Rémak, who did not arrive at any definite conclusion ; while Köbner subjected the point to a more practical and satisfactory test by inoculating himself, Strube, and others repeatedly with the penicillium glaucum, using the same precautions as in the experiments alluded to in a previous part of this paper, but without the slightest result. Now if the penicillium glaucum were identical with the parasites of favus, ringworm, and pityriasis versicolor, one would naturally have expected that he would have been as successful with it as he was in his inoculations with the *Achorion Schönleini*, the *Tricophyton*, and the *Microsporon furfur*. So that, while no one can withhold from Dr. Lowe the credit which is due to him for the interesting experiments which he has carried out, and for the scientific manner in which he has conducted them, I think it must be conceded that further proof is required before we can admit that the parasites productive of favus, tinea tonsurans, and pityriasis versicolor are identical with the *Aspergillus glaucus*.

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