







A SYSTEM
OF
CLINICAL MEDICINE.

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BY

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WITH

NOTES AND A SERIES OF LECTURES,

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TO WILLIAM STOKES, M.D.,

ONCE HIS PUPIL, NOW HIS COLLEAGUE, EVER HIS FRIEND,

WHOSE WORK ON DISEASES OF THE CHEST

HAS DESERVEDLY ACQUIRED

A MORE THAN EUROPEAN REPUTATION;

AND

TO FRIEDRICH W. OPPENHEIM, M.D.,

FORMERLY HIS FELLOW-STUDENT,

EDITOR OF THE HAMBURGH MEDICAL JOURNAL,

AND THE WRITER OF MANY VALUABLE SURGICAL TREATISES,

THIS VOLUME IS DEDICATED

BY

THE AUTHOR.

P R E F A C E

TO THE

THIRD AMERICAN EDITION.

SINCE the last edition of Dr. Graves's lectures was published in this city, a new one, considerably enlarged, has been published by Dr. Graves, in Europe: from this edition the present one is printed. It contains the whole of the lectures, which make a very large volume; but some detached papers which were not printed in the former editions, and were first published in the present one, are not reprinted. These essays the publishers will probably issue in a separate form. The demand for a new edition is the best proof of the high character these lectures have gained in the United States, and of the very extended reputation they have justly attained.

The additional lectures, which, at the request of the publishers, were appended to the last edition of the work, have been revised, and some new matter on the subject of Typhus Fever has been added. The lectures were originally delivered as a part of a clinical course, or rather of several clinical courses, at the Philadelphia Hospital, most of them were printed in a medical journal some years since, but they were for the first time published in a collective form in the last edition of Dr. Graves's lectures. The only important subject on which the editor differs from Dr. Graves, is that of typhus fever. This has been, for some years, a contested point between the English and French physicians; in reality, however, the difference of opinion has arisen from one simple fact. The typhus fever of England and Ireland was unknown in France, at least at Paris, where the continued fever had been for many years confined to typhoid fever; the same had been the case for many years in this country until in the year 1836, when we had a disease similar to the genuine typhus fever of the British islands. Since that time we have

had many cases, imported directly from England, perfectly identical with the same class of fevers. On the other hand, the typhoid fever of France is much less frequent in the British islands than on the continent, and is, to a certain extent, confounded with the much more common form of typhus fever. Such at least seems to me to be the best explanation of the confusion which has existed in the statements of writers, relative to these two allied but not identical diseases.

Philadelphia, }
August, 1848. }

P R E F A C E .

HAVING been, for many years, engaged in giving Clinical Instruction at the Meath and Sir Patrick Dun's Hospitals, I thought it to be my duty occasionally to publish the results of my observations in the form either of detached Essays, or successive series of Lectures; the former were printed in the Dublin Hospital Reports, and the Dublin Medical Journal, the latter appeared in various English periodicals, but chiefly in that excellent publication, the London Medical Gazette. Many of the detached papers were subsequently translated into French, German, and Italian, and several courses of the Lectures were published by Doctor Robley Dunglison, in a separate volume at Philadelphia. This has encouraged me not only to continue my exertions in the cultivation of practical medicine, but to revise what I had written and compress the whole within the limits of a single volume. It is necessary to mention that the Lectures were all originally delivered *extempore*, and were printed from notes taken by a short-hand writer. The reader being made aware of this circumstance, will kindly make due allowance for the many imperfections of style, and the redundancy and repetition which occur but too frequently in this work. In revising the whole, I have been at more pains to improve the substance than to polish the surface, and have rigorously excluded every assertion and conclusion which my subsequent experience has not verified.

It should likewise be borne in mind that this volume has no pretensions to the title even of *Outlines of the Practice of Physic*, for many most important diseases are not mentioned at all, none are fully described, and nowhere is treatment considered in all its bearings; my object in lecturing has, in truth, been always *strictly clinical*, and except where the subject was very tempting, and its discussion seemed to promise some useful and novel result, I have seldom allowed myself to deviate from the legitimate pursuit of that object; on the subject of Fever, perhaps, I may appear to have enlarged far beyond the limits of my prescribed plan, but a very sufficient explanation of this apparent exception may be given, for as the wards of our Hospitals are never without fever cases, every successive season suggested some new remarks on that disease, and when the task of consolidating these courses of Lectures was undertaken, it became necessary to collect the various scattered observations on Fever, which occurred in almost every Lecture, and consequently (although many insulated cases of Fever, and the remarks they at the time called forth,

have been omitted), when the materials already printed on that important affection were arranged in a certain connected order, and were elucidated by facts observed since their former publication, the mass of matter thus gradually accumulated was found to be much greater than was expected—still I must beg leave to remind the reader, that these Lectures are not intended to embrace the whole subject, even of Fever, and indeed it will be obvious from a cursory glance that my observations were generally dictated by some case actually under treatment, and were not intended to constitute any thing like a full and complete history of the Symptoms, Pathology, and Treatment of Fever. In attempting to form a continuous and connected series of reasoning on this disease, it became necessary not merely to reprint what I had published at various dates, but to remodel the whole, by adding much, and omitting more, and thus it has happened that the Lectures on Typhus in this work have assumed an entirely new form. For many years, several of the doctrines I promulgated respecting Fever, were opposed to those taught by other Lecturers and generally advocated by authors; and consequently I was then obliged to dwell on such disputed questions at greater length than perhaps their intrinsic importance would now seem to warrant: formerly I stood almost alone in resisting the inflammatory theory of Fever, as successively brought into fashion by Armstrong, Clutterbuck, and Broussais, and my opinions respecting contagion, the use of mercury, purgatives, of wine, diet, &c., were different from those then generally entertained: and therefore it was that such topics occupied so considerable a space in the original Lectures, and are treated of at some length in the present volume. While engaged in the task of preparing for the press, I have consulted many of my medical friends, both in Dublin, and the Provinces, on various subjects, and by this means having been enabled to avail myself of the experience of others where my own was deficient, much valuable information has been gained, and the courtesy of my professional brethren has produced communications which will no doubt be received by the public with a degree of favour proportioned to the gratitude the Author feels to his friends for their valuable assistance. Some of my readers may perhaps think, that the strictures my Introductory Lecture contains on the Physiological and Pathological Theories, founded on Liebig's chemical researches, are too severe, but a calm reconsideration of the subject convinced me that the Theories in question are calculated to retard the progress of Medical Science, and consequently ought to be energetically opposed.

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ON CLINICAL INSTRUCTION.

INTRODUCTORY LECTURE.

GENTLEMEN,—Before we commence an examination of the cases at present in the medical wards of this hospital, it is necessary to explain the method of instruction which I mean to adopt. Employed elsewhere in learning the principles that constitute the basis of medical education, you ought to be impressed with a precise notion of the peculiar objects and utility of hospital attendance. You come here to convert theoretical into practical knowledge; to observe the symptoms of diseases previously known to you only through the medium of books or lectures; to learn the art of recognising these symptoms, and of appreciating their relative importance and value; to study their connexion with morbid alterations of internal organs; and, finally, to become acquainted with the best method of relieving your patients, by the application of appropriate remedies.

Such, gentlemen, are the objects you seek in coming here; and in proportion to the number and importance of these objects, are the degree of responsibility attached to your clinical instructors, and of blame to yourselves, should the opportunities which this institution offers for your benefit be neglected.

The other branches of medical education may be cultivated at different times, and according to a certain order of succession—one period of your studies demanding a particular application to anatomy, another to chemistry, while a third must be especially devoted to materia medica. With the observation of disease it is otherwise. From the very commencement, the student ought to witness the progress and effects of sickness, and ought to persevere in the daily observation of disease during the whole period of his studies.

The human mind is so constituted, that in practical knowledge its improvement must be gradual. Some become masters of mathematics, and of other abstract sciences with such facility, that in one year they outstrip those who have laboured during many. It is so, likewise, in the theoretical parts of medicine; but the very notion of practical knowledge implies observation of nature; nature requires time for her operations; and he who wishes to observe their development will in vain endeavour to substitute genius or industry for time. Remember, therefore, that however else you may be occupied—whatever studies may claim the remainder of your time, a certain portion of each day should be devoted to attendance at a hospital, where the pupil has the advantage of receiving instruction from some experienced practitioner. A well-arranged, and sufficiently extensive hospital, contains every thing that can be desired by the student; but, unfortunately, his improvement is seldom

proportioned to the opportunities he enjoys. Whence this deficiency? How does it happen that many attend hospitals day after day, and year after year, without acquiring much practical knowledge? This may be attributed to want of ability or diligence on the part of the student, or to an injudicious or careless method of teaching on the part of the hospital physician. It may be well to examine more in detail the errors to which the student and the teacher are respectively most exposed.

A great number of students seem little, if at all, impressed with the difficulty of becoming good practitioners; and not a few appear to be totally destitute of any prospective anticipation of the heavy, the awful responsibility they must incur, when, embarking in practice, the lives of their fellow-creatures are committed to their charge. It is by persons of this description that the earnest attention, and permanent decorum, which ought to pervade a class employed in visiting the sick, are so frequently interrupted. Young men of the character to which I allude, attend, or as it is quaintly enough termed, *walk* the hospitals very regularly, but they make their appearance among us rather as critics than as learners; they come, not to listen but to speak; they consider the hospital a place of amusement rather than of instruction. I am happy to be able to state that such characters are not very numerous here, for this hospital possesses no other attractions, confers no special qualification beyond the knowledge which may be obtained within its walls.*

Of those who are anxious to learn their profession, a great number fail, and are found wanting when their studies are finished; in a few, the failure may be traced to a deficiency of intellectual powers; but in the majority it is owing to their studies being erroneously directed. Thus I have known many who have displayed a taste for the study of the progress and treatment of acute diseases, while they paid but little attention to complaints of a chronic nature. This predilection is not confined to students; professors and authors in general seem to participate in this taste; and, consequently, we find that acute diseases form the favourite subjects of clinical lectures, and occupy the greatest portion of medical literature,—and that for obvious reasons; for if the course of acute diseases, such as fever and the phlegmasiæ, be compared with that of chronic maladies, we shall find that the former begin, continue, and end in a manner comparatively so regular and definite, that their progress can often be accurately predicted, and their terminations foreseen—a circumstance which enables us not only to predict the event with confidence, but obtain, by the well-timed application of active remedies, relief, evidently the result of the means employed, and, consequently, reflecting credit both upon the physician and the art of medicine. How satisfactory are our feelings on arresting the progress of pneumonia by venesection, or tranquilizing the mania of delirium tremens by means of opium! Far different is the case with chronic diseases; in their commencement generally obscure, insidious, and irregular; in their terminations necessarily

* Since this was written, the Meath Hospital became for several years a privileged hospital. Latterly this premium upon idleness has been again withdrawn from us, and I most heartily rejoice that this and other hospitals have ceased to form a sort of favoured oligarchy to the exclusion of the less extensive institutions of this city; every thing like monopoly tends to retard the advancement of science, and I see no reason why a hospital with 50 beds should be inferior to one with 100. It is not the quantity of disease a teacher treats which renders his lessons instructive; his diligence and accuracy of observation are the best means of instructing the pupils.

uncertain ; frequently transferring themselves, as it were, from one part of the system to another, occasioning unexpected and anomalous symptoms, and involving in their destructive course almost every tissue of the body. From the very length of their duration, they are also more liable to be modified by new physical and moral influences, affecting either the mind or body ; and are, in a word, more closely leagued with time, the parent of mortality. In the treatment of such affections, the greatest judgment and patience are requisite ; there is here no room for the application of *heroic* remedies ; nor can the physician expect, from his most persevering exertions, that speedy benefit by which he acquires eclat in acute cases, for it must be remembered that chronic diseases require chronic remedies.

This most difficult department of medicine surely claims not the least portion of your attention, and you will attach more importance to this subject on considering that a knowledge of chronic diseases is essential to the surgeon, inasmuch as those who labour under them remain exposed to accidents which constitute his peculiar province.*

Many students fail from another cause : instead of studying the most common, and on that account, the most important diseases, they acquire a taste for observing and relating singular and rare cases, as if their chief object was to obtain a store of curious medical information. Let me warn you against this amusing, but comparatively unprofitable employment of your time. Suffer not yourselves to be misled by those who prefer the gratification of an idle curiosity to the laborious investigation of ordinary diseases.

Students should aim not at seeing many diseases every day, not at visiting daily numerous cases ; no, their object should be constantly to study a few cases with diligence and attention ; they should anxiously cultivate the habit of making accurate observations. This cannot be done at once ; this habit can be only gradually acquired. It is never the result of ability alone ; it never fails to reward the labours of patient industry. You should also endeavour to render your observations not only accurate but complete ; you should follow, when it is possible, every case from its commencement to its termination ; for the latter often affords the best explanation of previous symptoms, and the best commentary on the treatment. Did time permit, I could expose many other erroneous practices calculated to render your studies comparatively unprofitable ; but I must turn from the student to the teacher—from the errors of the learner to the imperfection of the mode adopted for instructing him.

I have had an opportunity of observing with attention three different methods of conducting clinical instruction ; the first is that practised in Edinburgh and Dublin. I shall select that of Edinburgh for examination, being by far the most celebrated of the British schools of physic, and much resorted to even by foreigners for instruction.† Two clinical clerks, one for the male, another for the female wards, are selected by the physician from among the senior pupils ; their business is to write an accurate history of the cases, to report the effects of medicines, and record the symptoms which may have occurred since the physician's last visit. All this is generally done with fidelity and zeal. At his daily visit the

* At the time this lecture was written, the absurd idea that the education of a surgeon should differ from that of a physician, had not been altogether abandoned.

† I speak of Edinburgh as it was when I studied there in 1819.

physician stops at the bed of each patient, and having received the necessary information from his clerk, he examines the patient, interrogating him in a loud voice, while the clerk repeats the patient's answer in a tone of voice equally loud. This is done to enable the whole audience to understand what is going on ; but, indeed, when the crowd of students is considerable, it is no easy task ; it requires an exertion almost stentorian to render this conversation between the physician and his patient audible by the more distant members of the class ; while the impossibility of seeing the patient, obliges all who are not in his immediate vicinity to trust solely to their ears for information.* This information is not indeed neglected, for every word so attentively listened to, and heard with so much difficulty, is forthwith registered most faithfully in each student's case-book ; and afterwards all the observations the professors make in their clinical lectures are taken down with equal care and fidelity. It is really a pity to find so much labour and diligence thrown away ; for it is evident that the practice of medicine cannot be thus taught or learned, as it were by hearsay ; and it is consequently to be feared, that many are annually dubbed Doctors at Edinburgh, who have been scarcely ever called on to write a prescription. The chief objection to this mode of teaching is, that however well inclined the student may be, he is never obliged to exercise his own judgment in distinguishing diseases, and has no opportunity of trying his skill in their cure ; and, consequently, at the end of his studies he is perhaps well grounded in the accessory sciences—is a perfect medical logician—able to arrange the names of diseases in their classes, orders, and different subdivisions ; he may be master of the most difficult theories of modern physiologists ; he may have heard, seen, and if a member of the Medical Society, he may have also talked a great deal ; but at the end of all this preparation, what is he when he becomes a full Doctor?—a practitioner who has never practised !

I do not assert that a diligent student may not obtain a good deal of knowledge by attending one or several clinical courses in Edinburgh ; no doubt he will gain many useful general ideas concerning the nature and treatment of disease ; and if he himself examines the patient after the physician's visit, he may even acquire a certain degree of tact in recognising symptoms and appreciating their value. This method of instruction is, indeed, very useful, and nothing better can be devised for a beginner ; but for the more advanced student it is by no means sufficient, nor is it calculated to give him practical experience, without which all other acquirements are of no avail. I say it does not give him experience, because he has at no time been charged with the responsibility of investigating a case for himself, and by himself—because at no time has he been called on to make a diagnosis unassisted by others—and above all, because he has never been obliged to act upon that diagnosis, and prescribe the method of treatment. If those who have been thus educated, and who have been made doctors upon so slender a foundation, were to confess the truth, we should be presented with a picture calculated to excite dismay, if not a stronger feeling. How many doubts and distracting anxieties attend such a man at his first patient's bedside ? If

* When this information was conveyed, as it formerly was at Sir P. Dun's Hospital, in Latin, the student had to encounter another barrier to the acquisition of knowledge. I have called the language *Latin*, in compliance with the generally received opinion concerning its nature.

the disease be acute, and life in imminent danger, if he shrinks under this sudden and unusual load of responsibility, he gains little credit for professional ability; if, on the contrary, inexperienced as he is, he assumes that decision of judgment, that energy of practice, which experience alone can confer, it is not improbable that the result may be still more disastrous.

Gentlemen, I am not drawing a picture from my imagination alone; I have had occasion too often to shudder at the original—too often to deplore the sad effects resulting from the well-meant but totally mistaken treatment employed by young men; and often have I regretted that, under the present system, experience is only to be acquired at a considerable expense of human life. There is, indeed, no concealing the truth, the melancholy truth, that numbers of lives are annually lost in consequence of mal-treatment. The victims selected for this sacrifice, at the shrine of experience, generally belong to the poorer classes of society, and their immolation is never long delayed when a successful candidate for a dispensary commences the discharge of his duty. The rich, however, do not always escape; nor is the possession of wealth in every instance a safeguard against the blunders of inexperience. This charge of inexperience is not necessarily confined to the beginner; it applies equally to many an old practitioner, whose errors have grown, and have increased in strength, during a long succession of years; because, from a defect in his original education—from the absence of a properly directed clinical instruction, he commenced practice without having previously acquired the power or the habit of accurate observation; because he had not in his youth been taught to reason justly upon the facts presented to his view; because, not having learned in the beginning to think accurately, he contracted a loose and careless mode of examining the progress of disease, and the effects of remedies; and, consequently, the lapse of time has had no other effect upon his errors, than that of rendering them more inveterate. Such a man has generally an overweening confidence in his own judgment; he never detects or is conscious of his own mistakes; and instead of improvement, years bring only an increased attachment to his opinions—a deeper blindness in examining the results of his own practice; and do not such persons abound in every branch of the profession?—are there not general practitioners, are there not physicians, are there not surgeons, are there not apothecaries, who answer to this description, and who nevertheless are cheerful in their demeanour, and enjoy a good repute among their clients? Believe me, gentlemen, the quacks who cover our walls with their advertisements, vend not annually to the community more poison than is distributed according to the prescriptions of your routine and licensed practitioners; and yet the science of medicine is improving daily, and treatises on the practice of physic are every day multiplying. Why, then, is society so infested? Many circumstances concur to produce this effect; but the most influential is undoubtedly that which now occupies our attention: I mean a system of clinical instruction radically wrong, because it does not teach the actual practice of medicine. Is there any other profession or art, or even trade, in which any but a madman would embark unprovided with a store of practical knowledge? But enough of this unpleasing subject. Let us next consider what systems have been adopted in other countries, with a

view of judging how far it is either practicable or expedient to introduce them into this.*

In France, the mode of conducting clinical instruction is very similar to that which we have already described, and consequently it is attended with nearly the same advantages and defects. In the French hospitals, however, no reports are dictated to the clerks, and more care is taken to explain the symptoms and progress of each case at the bedside of the patient; in fact, these explanations answering to the original institution and design of clinical lectures, are attended with many important advantages, and are well worthy of imitation. By this means the trouble and uncertainty of a circumstantial and detailed description are frequently avoided by a direct reference to the matter to be described; and the interest of the student is secured by a very slight exertion on the part of his instructor, while the latter owes many new ideas to the degree of attention which he is thus forced to give each case. It is true that the duration of the visit is thereby increased; and in Italy, where the same plan is pursued, it is not unusual for Tommasini to expend, in the morning, more than two hours upon eight or ten cases, besides the time devoted in the evening to the same purpose. Where the importance of the subject to be taught is so great, it is wisely judged that the teachers must be laborious; and it is thought necessary to use every possible means to convey clear ideas concerning each case to the student. His attention is not distracted by seeing a great number of cases in rapid succession, nor (as is too often the case in the hospitals of Dublin and London) are the inquiries dictated by a laudable curiosity on the part of the student, suppressed by a forbidding demeanour or an uncourteous answer from his teacher.† Although the French clinic thus presents several manifest superiorities over the British, yet it is liable to the chief objection already urged against the latter—that the student is not supplied with an opportunity of learning the actual practice of his profession. I am by no means disposed to join in the cant of humanity; yet I cannot overlook another disadvantage to this mode of teaching. I cannot help feeling that it is scarcely justifiable to lecture upon a patient's case in his presence, and in his native language; that it is cruel to explain, (as must, when this method is adopted, be often done) that the patient is labouring under a fatal complaint. During such a lecture, I have often watched the worn and pallid countenance of the sufferer, while he listened attentively to the record of his past and present sufferings, and I have marked the settled expression of despair it assumed when the prognosis thus tediously ushered in was too clearly announced. It is cruel to banish

* As truth has obliged me to expose a fault, which the Edinburgh school shares in common with the other schools of Great Britain, I am bound in candour to acknowledge the very great advantages which Edinburgh, in other respects, offers to students; they there find themselves surrounded by so much diligence, enthusiasm, and zeal, that they can scarcely resist the impulse of improvement, and consequently many learn there to think and to labour, who had been previously careless idlers. Were it possible to learn practical anatomy in Edinburgh, and were the mode of conducting clinical instruction improved, what might not be effected in a university otherwise so eminent?

† In this respect our hospital physicians and surgeons have improved much since 1821. I am strongly disposed to believe that the improvement was not owing to a voluntary change, but to a certain salutary fear of public castigation from the weekly medical press; much, however, remains to be done, for the influence of the last century has not yet entirely ceased, and there are those still lingering among us, who no doubt regret the aristocratic era, when an impassable gulf lay between the student and his teacher.

from the sick man's bed his sole remaining comfort—it is unmerciful to scare away hope, his only consolation during hours of pain and watching. We ought never to allow any expression to escape from us which could possibly add the terrors of apprehension to the weight of actual suffering. On this account, while we borrow the useful part of their system from the French, we must correct so glaring a defect by making use of the Latin language, whenever it is absolutely necessary to make any observation that might alarm the patient.* One of the most important duties of a surgeon, or physician, consists in the practice of humanity; and it is very doubtful whether the student does not experience as much difficulty in deriving benefit, not so much from the precept as the example of his seniors, in this department of his profession as in any other. Observe, gentlemen, I speak not of French, but of Irish hospitals; for, with the exception of the objection already adverted to, the conduct of the French medical men is in every respect praiseworthy. We do not find them indulging in coarse, harsh, and even vulgar expressions to their hospital patients; we do not find them provided with two vocabularies—one for the rich, and another for the poor.† The medical, more than any other profession, requires that the better feelings of our nature should be cultivated and fostered. The nature of anatomical pursuits obliges us to violate many of our natural prejudices, and disregard some of our strongest propensities; let us therefore be doubly anxious to give, by means of the most diligent cultivation, an additional and more vigorous growth to our better feelings—to our social affections;—and if we are accused of disrespect for the dead, let us answer the accusation by our humanity to the living.)

But to return to our subject. The third mode of conducting clinical instruction, is that adopted generally throughout Germany; and which, in addition to the means of improvement, comprehended in the plan of the French and English methods, possesses the advantage of allowing the more advanced students to undertake the care of patients in the hospital, under the direction of the attending physician.

The importance of clinical instruction is so much felt in Germany, that each school has three distinct medical clinics attached to it, by which means the labour of teaching is divided among the professors, and the number of students attending each is diminished. There is one clinical hospital for the treatment of acute diseases, and another for chronic diseases, while a clinical dispensary is devoted to the care of extern patients. The pupils are divided into two classes—the more advanced, who get the care of patients, and the junior students, who merely look on and listen. When a patient is admitted, his case is assigned to one of the practising pupils, who, when the physician is visiting the ward, reads

* This rule is always observed in Germany, a country remarkable for the zeal and humanity of the medical profession. In Italy both professors and students are less scrupulous. Thus, Dr. Clark relates that he has heard the case of a phthisical person explained, in all its bearings, by the professor at Bologna, in the patient's presence: in another instance, which occurred at the same place, a female, labouring under cancer uteri, burst into tears on hearing a detailed account of the nature of her complaint!

† When the above lecture was delivered, the abuse I speak of was but too frequent; and will it be credited that many other and greater abuses had existed during the preceding generation? Death, the most efficient of all reformers, had then removed several of the chief actors from the scene, for which, as on most other occasions, he has, I rather think, been undeservedly censured.

out the notes he has taken of the patient's disease, including its origin, progress, and present state. This is done at the bedside of the patient; and before he leaves the ward, the physician satisfies himself whether all the necessary particulars have been accurately reported by the pupil. After all the patients have thus been accurately examined, the professor and his class proceed to the lecture-room, and a list of the patients and the practising pupils is handed to the professor; the cases admitted that day are first inquired into, and the pupils are examined concerning the nature of their diseases, their probable termination, and the most appropriate method of treatment,—each student answering only concerning the patients intrusted to his special care. During this examination, the pupil's diagnosis and proposed remedies are submitted to the consideration of the professor, who corrects whatever appears to be erroneous in either, and then the student retires to write his prescriptions, while the rest of the cases and pupils undergo a similar examination. At the conclusion, the prescriptions written by the students are read out in order by the professor, who strictly comments on and corrects any inaccuracy or inelegance they may contain. When the prescriptions have been revised and corrected, they are signed by the physician, and handed to the apothecary to be made up and distributed. In some clinics, the price of each medicine is affixed to the bottle or box containing it, in order that the students may become acquainted with the comparative expense of various prescriptions, and may thus be enabled, in private practice, to accommodate, as far as is possible, the expense of the remedies to the circumstances of their patients. The clinic for extern patients is conducted on the same principles: patients who are able to attend, are examined at the dispensary; those who cannot leave their homes are visited by the senior practising students, who always seek the advice of the professor when the case is urgent, or the treatment doubtful. Nothing, gentlemen, can be better adapted than this plan of clinical instruction for the improvement either of the beginner, or of the more advanced student: this daily deliberation and anxious discussion concerning the nature and treatment of each case, is peculiarly interesting, and serves to accustom the beginner to habits of accurate examination, whereby he is taught to interrogate nature for himself, and learns the history and treatment of disease, not from books and descriptions, but from direct observation. The advantages gained by the practising pupils are too obvious to require comment: being obliged to give reasons for every plan of cure that they propose, they are accustomed to a rational and careful investigation of disease, and enjoying the most important of all advantages—the early correction of their errors—they commence private practice with a sufficient degree of experience to render them unlikely to commit any very serious mistakes.

It is evident that, according to the German method, no regular clinical lectures are necessary, as the pupil becomes accurately acquainted with the physician's views of each case, and no step is taken in the treatment without the reasons for it being given. This is the best sort of clinical lecture; the pupils have their doubts solved, and their erroneous views corrected, while the professor is enabled to mention, as the disease proceeds, every thing which he thinks is illustrative of its nature.

NOTE.—Eleven years experience enables me strongly to recommend the method of instruction pursued in Germany. Since my appointment

to the Meath Hospital, I have had extensive opportunities of observing its good effects. Not a session has elapsed without furnishing proofs in its favour. This system, however, at first met with much opposition, and its introduction was ridiculed in every possible manner; even now it may be doubted whether its well-wishers are as numerous as might be expected. It is still opposed by several narrow-minded persons, whose opinions have much weight with the pupils.

I remember perfectly well having only two practising pupils in one class, but I was not discouraged; and although we have had many numerous classes in the Meath Hospital, I doubt if any of them contained more talent and worth than was shared between my two pupils, Dr. Townsend and Dr. Stokes.

Since the latter, from being my pupil, has become my colleague, he has evinced the most indefatigable zeal in co-operating with me in instructing the pupils of the Meath Hospital; and I am sure he joins me in testifying the constant gratification we have received from observing that our efforts have been so far successful, that no season elapses without bringing under our immediate observation several pupils whose diligence, zeal, and moral worth, insure our warmest approbation. Many of these gentlemen have already distinguished themselves,—and will always carry with them the best wishes of myself and my colleague.

POSTSCRIPT, 1842.—One-and-twenty years have elapsed since the preceding lecture was delivered in the old Meath Hospital, and my subsequent experience has amply verified the opinions therein expressed. I regret to say, that however influential these opinions may have proved in this city, their promulgation has produced but little benefit in causing any alteration in the mode of instruction pursued in the medical schools of the United Kingdom at large. So far, indeed, from the mode of conducting medical education being improved it has decidedly been altered for the worse. This assertion may appear paradoxical, nay almost incredible, when it is recollected how many new Universities and Schools have arisen since the year 1821; and how many novel medical professorships have been founded. But if we carefully examine into the instructions given, and the qualifications required in the first and most recently organised medical school of the day, viz., that of the London University, it would readily appear that a very small part of the student's time and attention is directed to acquire a knowledge of how disease is to be actually treated and cured—unless, indeed, we admit that a knowledge of Greek and Latin, of mathematics, algebra, and optics, of physics, botany, and chemistry, are necessary for this purpose. That this multiplicity of subjects distracts every student is sufficiently evident *à priori*. And my own experience, from opportunities as a public teacher for many years, has satisfactorily convinced me that the practical parts of medicine are not taught so well now as formerly. It is not intended to assert that pupils now hear fewer clinical lectures or attend a shorter time in the Hospital, but it may be confidently affirmed that what they hear in these lectures, or see in the hospital, does not rivet attention or excite reflection now as formerly. For the pupil's avocations are so numerous that he is hurried from one to the other, and has no time to devote to serious reflections upon what he has seen. In Edinburgh, the engrossing subject of conversation amongst students used to be the nature of the diseases of

the clinical patients, and the effects of remedies employed; the clinical ward afforded constant themes for discussion, and its contents were constantly before the thoughts of the student. Such was Edinburgh in 1819, how it may be now in 1842, I cannot tell; but be it changed for the worse, which I hope is not the case, it must result from a change in the system, and not a deterioration in the professors, whose unwearied diligence in the promotion of medical science daily brings forth fruits not unworthy of the best era of their predecessors. When so many seductive subjects are successively placed before the student, it cannot be expected that he will think almost exclusively on what is practical. On the contrary the chances are that the chief energies of his mind will be misspent on the fascinating experiments and doctrines of chemistry, electricity, magnetism, and the polarization of light, to the exclusion of the less fascinating but all-necessary subject of disease and its treatment. In truth, the very rapid advances in the so-named collateral sciences has, of late years, seemed to render the practical improvement of the student less probable, and every day it becomes more unlikely that he will attain to the simple goal that he ought to hold in view, but will be diverted from the pursuit of the one indispensable object by the very means which he is taught to believe are necessary for its attainment. To this subject I shall recur in the following lecture, concluding this with an expression of satisfaction that since the first publication of my views upon medical education, they have been brought forward and enforced in several leading articles by the able Editor of the Medical Gazette; and they have had, I have reason to hope, a favourable effect upon the manner in which medical education is conducted in my native city.

This mode of instruction has been sanctioned by the respectable authority of my colleague, Dr. Stokes, and has also been much praised by Dr. Green, Professor of the Practice of Physic to the College of Physicians, in his address at one of the opening meetings of the Medico-Chirurgical Society.

INTRODUCTORY LECTURE.

Session 1834-1835.

GENTLEMEN,—As it is usual, at the commencement of a course of clinical instruction, to devote the first lecture to a consideration of some general topics connected with the line of studies most proper to be pursued by those who wish to attain eminence; I have, in compliance with this custom, thought it right to lay before you some observations on the proper mode of studying physiology and morbid anatomy, with a view of showing how best to derive advantages from these accessory but necessary sciences, sciences which, according to the manner in which they have been cultivated, have at different periods retarded, or advanced, that most important of all branches of professional knowledge, practical medicine. It is quite evident, that a knowledge of the functions and structure of the body in health is essential to him who undertakes the treatment of disease, and hence [physiology has always occupied the attention of physicians. Physiology, however, may be studied in very different ways, and with

very different objects, and, until lately, all those who were engaged in the cultivation of this fascinating science, not contented with observing the state of the different parts and tissues during health, the nature and quality of the secretions, the mechanism and operation of the different organs, sought to ascend from a knowledge of effects to an investigation of causes, and after they had classified the more obvious phenomena of living bodies, endeavour to ascertain, if not the very principle of life, at least those motions and causes of motion which result immediately from the action of the living principle. Having thus, as they conceived, obtained a more accurate knowledge of the conditions of health, they proceeded to form general explanations of the causes of disease, and frame general rules for their removal. This method, apparently so philosophical, and possessing so many attractions from the generality and simplicity of its application, has more than any other circumstance contributed to retard the progress of medicine. Gentlemen, this is not only an ancient, it is also a modern evil. We live among systems. It is true, that the practice founded on the mechanical, mathematical, chemical and humoral physiologies, has been long since abandoned; but the destructive system of Brown has not long quitted the stage, where its place is occupied on the Continent by those of Broussais and Rasori, and in Great Britain by the system which derives all diseases from derangement of the digestive function, or from inflammation. Physiology legitimately embraces not the study of vital actions, but merely aims at ascertaining and arranging their effects. The important facts, which its study discloses, are perhaps infinite in number. As long as we confine ourselves to these we advance at every step, and all is clear and intelligible; but the moment we attempt to inquire into the causes and modes of vital action, we begin to retrograde, and all becomes hypothesis and confusion. Thus, an examination of the organ of sight discovers a wonderful and beautiful optical arrangement, calculated to form on the retina a picture of external objects, exact both in its colouring and outline. The physiologist, examining with attention the different parts of the eye, and the laws of their respective refractions, investigates the means by which distinct vision is secured at different distances; he compares the human eye and its appendages with that of animals which live in water, those which soar into the highest regions of the atmosphere, and those which burrow under ground. He considers the eye of the mole, feeble but protected against injuries likely to be encountered in carrying on its subterraneous works; of the eagle, who, poised high in mid-air, selects its victim from the distant pasture; of the fly, whose microscopic organ, with a range of vision scarcely exceeding the limits of contact, distinguishes objects the most minute, and in all he finds variations in the optical instrument at once curious and intelligible. But when he endeavours to advance further in his inquiry, and tries to explain how an image painted on the retina, produces vision, whether by the means of undulations arising from the rays of light, and propagated along the optic nerve to the brain, or whether because the retina is a nervous expansion, highly organised and framed so as to feel the coloured image painted on it, he is at once arrested in his progress by the barrier which is every where interposed between physical and vital actions, between the mechanism of the organs of sense and the mode in which they produce ideas between body and mind.

But has he, therefore, gained no real knowledge applicable to practical

purposes, or has his time been merely spent in a pleasing but useless study? By no means;—being acquainted with the mechanism and arrangement of the optical instrument, he is often enabled to remedy its accidental derangement. By means of a concave glass he corrects a too speedy, by a convex a too tardy, concentration of the rays of light. When the crystalline lens becomes opaque, his knowledge of its connexions, nature, and position, enables him either to remove it altogether, or to displace it from the axis of vision, or to promote its absorption, and, in order to effect the latter purpose, he mechanically irritates it, knowing by experience, that after such an irritation, the process of absorption commences, although he is quite ignorant of the connexion between mechanical irritation and this vital process. He who inquires into the physiology of the brain and spinal marrow can never discover the nature of nervous influence, or the manner in which pressure on these organs destroys, or irritation deranges, the motions of the voluntary muscles, and yet the entire treatment of cerebral or spinal diseases, whether spontaneous, or from the effects of injury, is grounded on a knowledge of this physical fact; without it we could not estimate the value or effects of morbid changes in the brain or spinal marrow. On this reposes the rationale of the treatment of all convulsive, paralytic, and apoplectic affections.

Although we know not the manner in which the eighth pair of nerves superintends the respiratory process, although we understand not how the phrenic nerves influence the motion of the diaphragm, yet a knowledge of these facts led to a relief of spasmodic asthma, and to the recovery of persons apparently asphyxiated, by means of the Galvanic stimulus passed along the course of these nerves. Knowing that some of the nerves, distributed to the face, are destined for sensation, while others serve for muscular motion; in cases of *tic douloureux* we divide the sentient and not the motive nerves. In these, and a thousand other instances, physical physiology supplies us with information at once interesting and practical; it would be still easier to prove, as in the cases of Brown and Broussais, that vital physiology, by involving us in the discussion of subjects beyond the powers of our reason, never fails to entangle its votaries in a labyrinth, amidst whose mazes they move without progressing, and consume in idle speculations that time and labour they ought to spend in the acquisition of useful knowledge. But I trust the period has at length arrived when this error will be avoided; for, on the whole, it must be confessed, that in consequence of a wrong method of studying, and a misconception of the true objects of physiology, this science has in many instances retarded the progress of practical medicine.

Let us next consider the connexion of morbid anatomy with practical medicine. Many have mistaken the end and object of morbid anatomy, and there are not wanting some who even deny its utility, while others again, in their zeal for its improvement, have endeavoured to extend its limits so as to make it comprehend and embrace in the explanations it affords all the phenomena of disease. It is not easy to determine which of these parties has most injured the cause of practical medicine. Morbid anatomy comprehends not merely decided and permanent structural alteration, but embraces, so far as they are capable of being detected, even temporary physical changes in internal organs. In order justly to estimate its importance we should recollect that the first alteration in the texture

of a part is not the cause but the consequence of disease, for in every healthy organ the texture is natural, and as every change of texture is produced in consequence of derangement in the vital action of the vascular system of the part, it is obvious that structural alteration must in the first instance be always produced by functional derangement. Thus, the physical alterations which attend external inflammation, the tumefaction, the heat, the redness are not the causes but the consequences of diseases. But in thus reducing them to the rank of symptoms, do we diminish their importance? Certainly not. For being immediately connected, as effects, *with* the primary cause, they prove the most useful of all symptoms, in enabling us to ascertain the seat and progress of diseased action. In this respect they possess a manifest advantage over the general or constitutional symptoms. Thus, in cases of spontaneous gangrene, phlegmonous inflammation, or erysipelas, what practitioner would be contented to draw his indications from the general symptoms, disregarding the appearance of the affected part? and yet this is exactly what those persons do who refuse the aid of morbid anatomy in the treatment of internal disease.

In external diseases most of the physical changes in the affected part can be at once recognised; their diagnosis is therefore comparatively easy, and their treatment well established. In internal diseases the case is widely different, the physical alterations are here beyond the cognizance of our senses; and, in order to ascertain their nature and situation, we must carefully compare the morbid appearances of internal organs, as revealed to us by dissection, with the symptoms during life. Although alteration of structure is in the first instance produced by a disease in the vital action of the part, yet this structural alteration may itself become a new cause of mischief. Thus the vascular system of the lungs, from some unknown cause, assumes such a change of action as produces a deposition into the pulmonary texture of various fluid and solid products, by which the entrance of the air into its vesicles is prevented, and the respiratory function, one of the most important of the body, is thus considerably deranged. Again, whatever be the original vital derangement which causes scirrhus of the pylorus, the obstruction thus formed is a secondary cause of new and important symptoms. Another consideration, which enhances the value of morbid anatomy, arises from the fact, that when diseased action fixes itself in any part of the body, whether external or internal, and there gives rise to physical alterations, experience teaches us, that the progress of the disease may be often arrested by removing its effects. Thus, to recur to the example of external inflammation, the redness, the swelling, the heat of the part are but symptoms, and yet we find great benefit from the applications of remedies capable of diminishing them; hence we leech, and apply cold lotions, &c. From all these considerations it is evident, that whenever disease is attended with either a temporary or a permanent alteration in the tissue of an internal organ, it will be of the greatest practical importance to ascertain the nature and extent of that alteration, and the progress of practical medicine will be exactly proportioned to the accuracy with which this can be accomplished. Thus, how much has the treatment of pectoral diseases been improved by the application of auscultation and percussion, means which are only useful by enabling us to ascertain the physical alterations induced by the disease, or, in other words, the morbid anatomy of the affected organ. Without their aid, how trace the progress and follow the increase

or diminution of pulmonary inflammation?—how demonstrate the existence of dropsical or pleuritic effusion within the chest?—how detect latent pneumonia?—how distinguish with certainty pleurodyne from pleurisy? I could prove the utter impossibility of distinguishing many cases of bronchitic from tubercular phthisis without their assistance. I might refer to chronic emphysema of the pulmonary tissue, a disease of great importance, but actually unknown before the time of Laennec, who first accurately described it in the dead body; indeed, before the application of percussion and auscultation, a perfect knowledge of this derangement of the pulmonary structure in the dead body would not have assisted our diagnosis, for how recognise it during life? I might bring forward dilatation of the bronchial tubes, another disease wholly unknown before Laennec's time, and which, before his discovery, could not be recognised by the common method of observation. I might enlarge on the great utility of attending to the changes which take place within the chest in measles and scarlet fever, but the benefit resulting from an accurate acquaintance with the morbid anatomy of the thoracic cavity is now so generally acknowledged, that I shall rather choose my illustrations from other classes of diseases.

Nosologists, until very lately, were agreed in attributing considerable frequency to those cases of apoplexy and paralysis, which arise from serous effusion into the brain, or from a mere functional inaction or debility of the cerebral and nervous systems. This opinion was founded partly on speculative grounds, and partly on inadequate and imperfect post-mortem examinations, and in practical books the symptoms supposed to announce sanguineous, serous, and nervous apoplexy were dogmatically laid down. What was the consequence?—Most disastrous, as I have had occasion to witness, in some parts of the continent, where the elderly practitioners still adhered to the practice founded on this false pathology. What can be more melancholy than to see time wasted or misemployed in the exhibition of diuretics, given to promote absorption of serum effused into the brain, or of strong exciting remedies, such as arnica, camphor, &c., to overcome the nervous debility, in cases where copious depletion by the lancet and purgatives were urgently necessary. I do not deny that in some rare cases serous effusion into the brain is the cause of death from apoplexy. I have seen such an event supervene in chronic dropsy, but there the termination was very sudden, and the previous history left no doubt as to the cause; but in the majority of the cases formerly treated as serous or nervous apoplexy a more careful examination would have detected marks of vascular excitement, or local inflammation, a subject I shall treat at large when on the pathology of the brain. A similar error in morbid anatomy led to a similarly erroneous practice in the treatment of hydrocephalus, and many cases of general and local dropsy. The effusion occupied the sole attention of pathologists; the marks of preceding vascular excitement or inflammation escaped their notice.

Time will not permit me to enlarge upon the light which morbid anatomy, rationally pursued, has shed upon diseases of the brain. It is sufficient to remark, that some of the most important modifications of inflammation in that organ have been only lately discovered, and it is only lately that a minute and extensive examination of the different changes the brain undergoes in disease, has begun to introduce a certain degree

of regularity and precision into a department where all before was confusion and inaccuracy. Examples of the utility of morbid anatomy might be brought forward without number :—the discovery of local inflammation being at times the cause of a disease in most of its symptoms resembling common ague ; the use of the lancet in the cold stage of ague, a practice which may be advantageously resorted to, in cases where each return of the fit is accompanied by a recurrence of inflammation in a vital organ, as the lungs or brain ; the connexion between inflammation of the mucous membrane of the stomach, and some of those symptoms of fever formerly attributed to mere debility ; the influence of cerebral inflammation and congestion, in producing the symptoms formerly vaguely denominated typhus ; the low character which fever assumes when accompanied by pneumonia (and that, too, often latent) ; the symptoms which are produced by follicular ulceration of the intestines, which so frequently occurs in the course of fever ; the diagnosis between the pain produced by neuralgia of the abdominal nerves, and that resulting from structural diseases of the intestinal canal ; a more accurate knowledge of the state of the mucous membrane in the diarrhœa of phthisis, and in intestinal tympanitis ; the numerous improvements in the treatment of diseases of the ear, which followed Itard's investigations concerning the morbid anatomy of that organ ;—these and many other discoveries, all replete with practical advantages, are the results of the attention of our contemporaries to morbid anatomy ; and, were I to appeal to the records of surgery, I might bring forward examples, if not more important, perhaps more evident and striking, for the invention and success of most capital operations depend on a perfect knowledge of the structural derangements, the removal or cure of which is attempted. Of this, examples suggest themselves on every side, but none is more striking than the one devised by Dupuytren for the cure of artificial anus, the most disgusting and loathsome malady to which human nature is subject, and deemed altogether incurable, until that excellent surgeon, by a combination of profound pathological and physiological knowledge, succeeded in planning and executing an operation, that were alone sufficient to immortalise his name.

The study of morbid anatomy, however, is attended with no ordinary difficulties, and, when imperfectly understood, is liable to lead to erroneous results, for it requires much candour, much patience, and that experience which can be only acquired by long-continued practice, to enable us to judge concerning diseased appearances. The power of accurately discriminating in the dead body the traces of disease cannot be suddenly acquired, and so numerous are the various errors to which superficial observers are liable, that much injury has thus resulted to medical science, diseased appearances being in some cases overlooked, and in others recorded where they did not exist. Those who are aware how often the congestion, which frequently takes place immediately before or after death, in the pulmonary tissue, and in the mucous membrane of the lungs and alimentary canal, alters the physical properties of these parts, so as almost exactly to simulate the vestiges of inflammation, will understand how it happens that in investigations connected with the real or supposed diseases of these parts, facts have been marshalled against facts, and observations arranged against observations, until the path which promised simplicity and order terminated in perplexity and confusion. Hence the doctrine of Broussais received so many corroborations, and

appeared to rest upon numerous series of undoubted and well-authenticated facts.

The morbid anatomist must of all things beware of seeing too much. He must avoid imposing on himself by every where seeing exactly what he expected to see, and above all things let him not always force himself to see something; for many diseases proceed to a fatal termination without having produced any evident morbid alteration.

When I come to treat of the pathology of the brain and nervous system, I shall have occasion to advert to errors which late authors have committed from too great an anxiety on the one hand to reduce to a certain and definite system the morbid appearances of the brain and spinal marrow, as connected with their diseases, and, on the other, to find, in every case where the cerebral or nervous functions had been diseased, lesions of structure to account for the symptoms. Thus, to cite one of numerous instances, I shall have occasion to prove that epilepsy and mania often commence suddenly and violently, without the existence of any organic alteration; and, indeed, that organic lesions are not necessarily connected with these formidable diseases is sufficiently proved by the occasional sudden manner in which they cease. Thus, a gentleman of great literary reputation was many years a patient of mine before his death, which happened in 1831, at the age of seventy. From the age of twenty-five to fifty-five he suffered from violent and frequently recurring fits of epilepsy; after having continued thirty years the disease ceased suddenly, without any assignable cause, and for the last fifteen years of his life he had not a single fit. I shall have occasion to show you how fine-drawn and how ill-founded the observations of those who profess to account for every nervous disturbance during life by cerebral lesions, who profess to distinguish accurately during life inflammation and irritation of the arachnoid or dura mater from irritation or inflammation of the brain itself, who maintain that one series of symptoms is produced by inflammation of the cortical, and another by inflammation of the medullary, substance, who have strained their eyes to discover, and their veracity to impose upon us, proofs that inflammatory or other diseased states of certain portions of the brain caused invariably similar affections of certain mental functions. These errors of some, even of the most eminent French pathologists, it will be my duty to notice from time to time; but I am sorry to say that much more unpardonable errors and misstatements have found their way into English and Irish publications on the pathology of the brain, and which I shall be compelled to speak of hereafter.

Having made the preceding observations on the dangers which arise from an ill-directed application of the studies of physiology and morbid anatomy to the practice of medicine and surgery, I feel myself imperatively called on to present the other side of the question to your view, in exposing the still more dangerous doctrine advocated by those who depreciate the value of pathology and morbid anatomy as only instructive after the death of the patient, and even then as not unfrequently calculated rather to mislead than to advance the interests of practical medicine.*

It must be conceded that he who is only a physiologist cannot hope to

* The dangers above enumerated may be almost all avoided by institutions, such as the Dublin Pathological Society, founded in 1838, and by means of which morbid specimens are exposed to an examination most likely to disclose their real nature.

cure disease, and that the mere morbid anatomist will be often misled by post-mortem appearances, if he has not attentively watched the progress of symptoms and the effects of medicines during life, for, unless this be done, he will, as I have already said, often mistake secondary for primary lesions, will confound effects with their causes, and will refer to certain alterations of structure that which had originated in a functional disorder, a morbid state of parts very different from that which is observed after death. But when, to an accurate knowledge of physiology and morbid anatomy is joined an extensive observation of the progress of symptoms and the effects of therapeutical agents, how much more certain and satisfactory will be our practical decisions, and how much more likely our efforts to be attended with success, than if we merely studied disease at the bedside of the patient. In the latter case, we might indeed become expert nosologists, be accurately acquainted with certain groups of symptoms, and even not unfrequently adopt the proper method of treatment. These symptoms, considered together, we would call by a certain name, and hand down to posterity this new acquisition of medical knowledge, perhaps clothed in the garb of a dead language, and invested with the false dignity of a learned tongue. But what have we really thus effected for posterity?—Our followers read our definitions of disease with an acquiescing admiration, and, sure of the efficacy of the remedies we have recommended, they go forth with an overweening confidence in the quest of the group of symptoms we have described, and when they have met with them they look upon their task as already half accomplished, and promise a successful termination of the disease. “Tell me the name of the disease,” was the motto of the nosologist, “and I will tell you the remedy;” but, gentlemen, I will engage to tell you the names of a hundred diseases, without your being able to name the proper method of treatment. I tell you a man has dropsy, his limbs are anasarcaous, water is accumulated in the peritoneal cavity, his urine is scanty, and his thirst increased. Will you, from this very excellent nosological definition, venture to prescribe for this case of dropsy? For the sake of the suffering patient and your own conscience, prescribe not on such data. And yet I regret to be obliged to say, that such a method of proceeding is by no means rare, nay, it is even a matter of daily occurrence. But this case of dropsy will not yield. Some other boasted specific hydragogue or diuretic is had recourse to; still the patient grows worse and worse, and finally dies, but his friends are not discontented with the medical attendant, who excuses himself by asserting that he has successively resorted to every remedy which has been recommended in dropsy; and in truth if you look over the list of medicines exhibited in rapid succession, you will probably find that his excuse is not unsupported by facts. But, gentlemen, these cases in which every thing has been tried, are exactly those in which nothing has been tried, in which medicine has followed medicine, and each symptom of disease has indiscriminately been the object of attack, until death approaches with accelerated steps, and charitably closes a scene distressing to humanity, and disgraceful to the cause—I was going to say—of science, but who will venture to give so ennobling a name to this pseudo-practical knowledge, this worse than absolute ignorance?

Gentlemen, I am not combating phantoms; I do not, Quixote-like, contend with imaginary giants; no, gentlemen, what I have described

exists, the picture I have drawn has many an original. But let us have done with this subject; let us turn to the gratifying considerations of the progress which practical medicine is making under its parent science,—physiology and morbid anatomy.

The reason of man is now more fully employed than at any former period, a vast store of mental power, a vast mass of mind is every where at work; what formerly was vainly attempted by the labour of a few, is now easily accomplished by the exertions of the many. The empire of reason, extending from the old to the new world, from Europe to our Antipodes, has encircled the earth—the sun never sets upon her dominions,—individuals must rest, but the collective intelligence of the species never sleeps; at the moment one nation, wearied by the toils of day, welcomes the shades of night, and lies down to seek repose, another rises to hail the light of morning, and, refreshed, speeds the noble work of science!

All inquiries commence, as it were, at the same point, as the labours of their predecessors are equally at the disposal of all, and consequently it is not surprising we should often find them arriving together at the same end: thence the number of simultaneous discoveries of the same fact now so common. It is not unusual to find the publications of France, Germany, Italy and England, announcing the same discovery, and each zealously claiming for their respective countrymen an honour which belongs equally to all. I am sorry to say that, with some splendid exceptions, this interesting and innocent controversy has been carried on by other countries, while Ireland has put in no claim for a share of the literary honours awarded to the efforts of industry or genius. But, gentlemen, I hope that this state of inaction, this state of mental torpor, has ceased, and that the time has passed away when we could not point out among our brethren any who had advanced the boundaries of the medical sciences, and thus promoted the interests of humanity.

Now we can enumerate many whose names form a catalogue the subject of congratulation for the present, of happy augury for the future, for cold must be the breast of him who will not hail with joy every symptom of our country's literary regeneration, dead the feelings which are not elated at the boon conferred on our species by every advance made by those who devote themselves to the grand, the noble pursuit of relieving the suffering, of healing the diseased; but time bids me stop, I shall, therefore, conclude by observing that the attention lately devoted to the distinctions between real and pseudo-morbid appearances, the diligent cultivation of morbid anatomy by men not the slaves of preconceived opinions, the abandonment of all systems whose baseless fabric rests on the phantoms of vital physiology, the importance now justly attached to medical statistics, to the study of endemic and epidemic maladies, to the operation of morbid poisons; these, and various other circumstances, give us reason to hope that the progress of the human mind in investigating the means of preventing and curing diseases, will not be less rapid than it has been in the other departments of knowledge; and thus it will be proved that if man has passions which impel him to the destruction of man, if he be the only animal who, despising his natural weapons for attack or defence, has devised new means of destruction, he is also the only animal who has the desire or the power to relieve the sufferings of his fellow-creatures; the only animal in whom the co-existence of reason and benevolence attests a moral as well as an intellectual superiority.

INTRODUCTORY LECTURE.

Session 1837-38.

TO-DAY, gentlemen, we commence our labours for the winter session. I hope you will manifest a steady and sustained diligence in your hospital attendance, observe carefully the various forms of disease submitted to your inspection, and accurately note the symptoms, together with the effects of the remedial measures. As usual, I have allotted the cases at present under our management to the more advanced students; it is their duty to take charge of each, and write on a folio sheet of paper (which is pinned to a large card suspended over the patient's bed) its previous history and existing symptoms; thus recording its progress and treatment from day to day. In a former lecture, published in the *Medical Gazette*, I endeavoured to explain the advantages of this system; at present, therefore, without entering into its details, I shall content myself with remarking that we have had many years' experience of its beneficial effects in the Meath Hospital, where this, the German mode of clinical instruction, was introduced by myself in 1821; I must remind you, however, that even its utility is necessarily proportioned to the diligence of the student. There is no system capable of communicating information to the indolent; every man must depend chiefly on his own assiduity, and all the teacher can do is to facilitate the means of acquiring knowledge, and afford an example of punctuality and attention. I would seriously recommend every one who undertakes the management of cases, to set out with a fixed determination to persevere throughout the whole session. Few things give me more concern than to find young men, who have commenced with ardour, becoming by degrees less and less industrious, until their hospital attendance degenerates into an irksome task, imperfectly performed, and at last wholly neglected. One of the most valuable things which the student can acquire is, a habit of daily diligence. The knowledge requisite for the efficient discharge of our professional duties is not to be acquired by sudden starts of intense application, or by the overwrought strivings of desultory exertion; it demands a daily and hourly attention, a steady, constant, and accurate course of observation, continued uninterruptedly for years.

I think students are very much misled as to the best mode of becoming good practitioners. This is an age of ambitious acquirement, and professional men seem to be ashamed unless they have the character of universal knowledge. Every body studies every thing, and the consequence is that few know any thing well. We live amidst the din of declamations in favour of general education; and are every where assailed by the ceaseless competition of those who vend cheap knowledge in the form of penny periodicals, lectures innumerable, and hosts of rival encyclopædias; but ours is not an age of calm unpretending acquirement, and severe precise study, without which, the effort to become good physicians and surgeons must prove vain and fruitless. Can any thing be more embarrassing than the multitudinous array of studies presented to the young student, who comes to London or Dublin with the view of educating

himself as a general practitioner? So many departments of knowledge are spread before him, and so numerous are the exhortations to study each with particular care, that he feels at a loss where to begin. The merits, advantages, and necessity of his own branch are insisted on by the respective teachers, with all the force of impressive eloquence; and after running the round of introductory lectures (an initiatory penance duly performed by all beginners), he returns in the evening to his home, puzzled and dispirited. He finds that it will be necessary for him to become an excellent botanist, an able and scientific chemist, and a profound anatomist; that he must have some knowledge of zoology, be well versed in comparative anatomy, know how to detect poisons with accuracy, and study the legislative enactments which bear on questions of medical jurisprudence. Physiology, materia medica, therapeutics, nosology, morbid anatomy, the principles and practice of surgery, medicine, and midwifery, claim, all and each, his especial attention; nay, many teachers insist upon the necessity of his becoming master of several languages—Greek, Latin, French, and German; while others assure him that he never can prosecute scientific medicine with success, unless he studies physics as well as physic; some are there even who encourage him to cultivate mineralogy and geology, as if forsooth a knowledge of these sciences could teach the laws that regulate diseased action, or the indications which should govern the exhibition of remedies. In a lecture lately published by my friend Mr. Hayden, I find it remarked “that to keep pace with the modern race of intellect, we should get on a railroad of literature; mathematics, natural philosophy, the art of drawing, and above all, logic, will be indispensable.” Dr. Elliotson would no doubt add metaphysics, animal magnetism, and phrenology, sciences he has cultivated with success, and taught with perspicuity! Dr. Latham, who has had sufficient courage to put forth his opinions on this subject, has demonstrated, with much truth and force, the injustice and folly of attempting to impose so many burthens on the minds of students, and has shown clearly the bad consequences resulting from such a mode of proceeding. No profession requires a sounder preliminary education than ours, and in none ought education to be more studiously directed to promote the activity and development of the mental powers, especially those connected with the habit of observation as well as with the judgment and memory. The latter faculty should be cultivated from the earliest period, and the boy should be taught the chief anatomical names, as those of the different parts of the muscular, nervous, and vascular systems, which names he will of course find no difficulty in retaining when a man, and it will then only be necessary to learn the qualities of the things to which they belong. If, in addition to this, boys were taught the scientific names of the chief articles of the materia medica, and the technical terms and classifications of botany and chemistry, much trouble would be saved them in after life: and their memories, while in the state of greatest activity, would be much better employed than in attaining the rules and terms of syntax, prosody, mythology, and ancient geography. I would not recommend any one to commence the actual study of medicine and surgery until the age of nineteen. Before that period the mind is not sufficiently ripe for practical observation, nor sufficiently stored with that knowledge (only to be gained by the daily intercourse of life) which teaches us to estimate the effects of moral or physical causes on the human system, imparts to us the power of weighing con-

flicting evidence, and detecting the too frequently incorrect and erroneous statements of our patients. A certain knowledge of the world is indispensable to the physician; and it is only loss of time—yes, of precious time—to employ boys in trying to learn what can only be acquired by men. Those who attend hospitals at too early an age are very apt to acquire careless habits of observation; all the interest which disease presents, when observed for the first time by matured minds, is lost to them, and all the attraction of novelty has ceased long before they possess that tact and experience which enable the adult to understand the meaning of symptoms, the progress and phases of morbid phenomena, and the effects of therapeutic agents.

It is then the duty of parents, guardians, teachers, and all who superintend the education of youth, to see that those who are destined for the medical profession should have their minds prepared and strengthened by diligent cultivation during early youth, not only by the attainment of extra-professional knowledge suited to their means and opportunities, but also by instruction in those portions of anatomy, materia medica, botany, and chemistry, which may be readily comprehended at that age. Especial care should be taken to impart to them some knowledge of the physical qualities of medicinal substances. All this being done, when the student, arrived at maturer years, comes to grapple with the practical departments of his profession, he will find many difficulties easily surmounted, and at this period he should disengage himself from too devoted an attention to the accessory sciences. But he need not wholly detach himself from them; some one of them may be cultivated along with his more serious pursuits. He may devote one session to lectures on chemistry, another to those on botany, a third to physiology, and so on of the rest. But his main object must now be the acquisition of practical knowledge, and consequently the greater portion of his time and energies must be devoted to the clinical wards and dissecting-room of a hospital, to the study of the materia medica and pharmacy in an apothecary's shop, and to practical anatomy. Five or six years' attendance on a hospital will be little enough to qualify you to enter with propriety and confidence on the discharge of your professional duties. Bear in mind, gentlemen, that when you come to treat disease, you approach the bedside as physicians or surgeons, and not as chemists, botanists, or anatomists. This is the character in which you are to appear; and, to the acquisition of knowledge which will prepare you for the discharge of its duties, you ought to engage your chief attention.

Some of you, gentlemen, may think that it ill becomes a teacher to narrow the limits of your exertions, or circumscribe your pursuits. But let me be understood. What I wish to impress upon your attention is, that you ought to address yourselves mainly to the acquirement of what is really useful, and should store up chiefly what is most important and available. And in furtherance of this object I think it my duty to warn you against the well-meaning but injudicious representations of those who would turn you from the study of practical matters to the cultivation of their favourite sciences—sciences connected with and ancillary to medicine, but in which medical students are too often encouraged to engage with an ardour that indirectly, but certainly, leads to a less zealous and efficient attention to more important matters. Take, for instance, two of the most popular of the adjunct sciences—two usually regarded as most

intimately connected with the study of medicine, botany, and chemistry. Both are extremely valuable in themselves, and a certain acquaintance with them is undoubtedly desirable; but to the student in medicine their utility has been greatly overrated. Botany is an extremely interesting and useful science; but I believe you might be very good practitioners without knowing the classes of Linnæus, or the families of Jussieu. To be sure, if you had the misfortune to practise in localities separated from the ordinary channels of commerce; if you were suddenly bereft of the numerous stores which maritime enterprise pours into the lap of medicine, and obliged, like the herbalists of old, to search the woods and fields for your *materia medica*, you would certainly be often at a loss, and might make some serious mistakes, unless you were adepts in practical botany. But this labour, fortunately for us and for every European practitioner, is quite unnecessary. A small capital will bring the vegetable productions of the most distant countries to your door; and any respectable druggist will, for a trifling sum, provide you with all the medical substances derived from plants, carefully selected and accurately prepared.

Those who boast the most loudly of their acquisitions in botany, and who lay most stress on its importance, know very well that to the physician it is of little or no practical value. Take one of the best of our English or Irish botanists, and see how meagre a knowledge he possesses after all, of many of the plants whose products are employed so largely every day in the treatment of disease. Transport him suddenly to the East or West Indies, to Africa, or South America, ask him to show you the camphor or the cinnamon-tree, the cajuput, the croton, or the guaiacum,—I doubt very much whether he would be able to recognise logwood, or even ipecacuanha, growing in their natural situations. Again, there are a great many vegetable productions used every hour in medicine, of which it may be said, that no two botanists are agreed as to the precise description of plant from which they are derived. There is no substance in such common use as gum Arabic, and yet, notwithstanding all that has been written on the subject, it is not clear from what particular plant it is derived. Nor do I think it necessary to know whether the gum we use in compounding a cough medicine comes from the *Acacia vera* or *Acacia Arabica*. In like manner, the plants which furnish arrow-root and many other substances in common use are by no means determined. How many disputes have there been with respect to the genus *Cinchona*? And what has been the result of all our investigations concerning the plant which produces this great remedy. Listen to what my late learned friend Andrew Duncan says, in the Supplement to the Dispensatory: “Notwithstanding that all the British colleges agree as to the botanical species of *cinchona* from which the commercial varieties of bark are derived, there is no satisfactory evidence that they are right; on the contrary it is almost certain that in regard to some of them they are wrong.” How many years were *columba* and many other similar productions employed, before scientific botanists knew any thing of their true history? In 1829 a paper was read by Dr. Hancock, on the tree which yields the *Angustura* bark; it appears that even Bonpland and Humboldt had described the wrong tree, and consequently it has been called for many years a *Bonplandia*; whereas it belongs, it now appears, to another genus, named *Galipea*: it is not a majestic forest tree, eighty feet high, but a very humble plant, half tree, half shrub. Dr. Hancock has also proved that the

Smilax siphilitica of Wildenow is not the true sarsaparilla, which, consequently, is produced by a plant not yet described; and at what conclusion does Dr. Hancock, who spent many years in South America, arrive? Why that the only criterion for knowing good sarsaparilla is its taste when chewed! In proof of the uncertainty which still prevails concerning the determination of species used in medicine, I have only to refer you to the admirable lectures of Mr. Pereira in the *Medical Gazette*, and those of Dr. Sigmond published in the *Lancel*.*

I do not wish to undervalue botany as a part of general education. Few sciences are more attractive, and few are more likely to become an object of enthusiastic pursuit; but it is the very enthusiasm it is so likely to generate that I wish to warn you against. Botany is an excellent exercise for the minds of youth: it gives habits of accuracy of observation, and tends to strengthen the memory. It leads to healthy occupation, and affords a source of innocent enjoyment. As productive of so much good, let it form a part of the early education of young persons in general; sure I am that its cultivation would give a healthier tone to both mind and body, than are to be obtained from many of the studies with which boys are now tortured in the schools. But let botany be restricted within its proper limits; and when once young men have seriously engaged in the acquirement of medical and surgical knowledge, let them not entertain the ambition of becoming accomplished botanists.

Speaking of botany, I may observe that it is much to be regretted that the names of plants should undergo so many mutations. What was formerly called *Stilozobium* has successively become *Dolichos* and *Mucuna*; while Iceland moss has been changed from *Lichen* into *Cetraria*, and

* In the number of the Quarterly Review for June, 1842, we find some very pertinent observations upon the ridiculous names given to many flowers, and the inconveniences likely to arise from the frequent changing of them.

The reviewer says, "Before we have done with the florists and botanists, we must say one word about their nomenclatures. As long as the extreme vulgarity of the one and the extreme pedantry of the other continue, they must rest assured that they will scare the majority of this fastidious and busy world from taking any great interest in their pursuits."

After objecting to many modern names, he adds, "Surely there is marked character enough about every plant to give it some simple *English* name, without drawing either upon living characters or dead languages. It is hard work, as even Miss Mitford has found it, to make the *maurandias*, and *alstræmerias*, and *eschscholtzias*—the commonest flowers of our modern gardens—look passable even in prose; they are sad dead letters in the glowing description of a bright scene in June. But what are these to the *pollopostemonopetelæ* and *eleutheromacrostemones* of Wachendorf, with such daily additions as the native name of *iztactepotzacuxochitl icohueyo*, or the more classical ponderosity of *Erisynum Peroffskyanum*?

"Like the Verbum Græcum,
Spermagoraiolekitholakanopolides,
Words that should only be said upon holidays,
When one has nothing else to do.

—————"To make confusion worse confounded, our botanists are not satisfied with their far-fetched names; they must ever be changing them too. Thus it is a mark of ignorance in the world of flowers, to call our old friend *Geranium* otherwise than *Pelargonium*—the *Glycine* (*G. Sinensis*), the well-known specimen of which, at the Chiswick gardens, produced more than 9000 of its beautiful lilac laburnum-like racemes from a single stem, is now to be called *Wistaria*; the new Californian annual *Ænothera* is already *Godetia*; while the pretty little red *Hemimeris*, once a *Celsia*, is now (its third designation) an *Alonsoa*; and our list is by no means exhausted. Going on at this rate, a man might spend the morn of his life in arriving at the present state of botanical science, and the rest of his days in running after its novelties and changes. We are only too glad when public sanction triumphs over individual whim, and, as in the cases of *Georgina* proposed for *Dahlia*, and *Chryseis* for *Eschscholtzia*, resists the attempted change."

Secale cornutum into *Acinula clavus*. *Uva ursi* is now preceded by the prænomen *Arctostaphylos*; and our old acquaintance *jalap*, deprived of its euphonious prefix *Convolvulus*, has degenerated into *Ipomæa*. All these changes are useless or injurious, and entail as a necessary consequence, that the young, the middle-aged, and the advanced in life, use a different medical vocabulary. The *materia medica*, too, as now taught by scientific professors, presents a serious stumbling-block to students. Teachers do not confine themselves to showing the different drugs and preparations, but they enter into very minute details of their natural history and characters; so that the student cannot learn the properties of bees'-wax without being entangled in the difficulties of entomology, or the nature of isinglass without learning the hard names used in ichthyological classification.

The same observations apply to chemistry. It is a science fully as attractive as botany, and medical men are apt to spend too much time in its pursuit. Some very pertinent observations on this subject were made in the *Medical Gazette* about five or six weeks ago, to which I refer you: they are conceived in a spirit of good sense and sound judgment, and you will find them well worthy of an attentive perusal. I grant it may appear very like a paradox to say, that you need not know much practical chemistry. But if you go to a reputable druggist with money in your pocket, he will furnish you with all the chemicals you have need of, excellent in their kind, and prepared with scrupulous exactness. You will get good calomel, good sulphate of quinine, and good hydriodate of potass.* So far as chemicals are required for medicinal uses, you can have them all of the best description. But it will be said that without an accurate and extensive knowledge of chemistry you cannot prescribe. This is an assertion to which I cannot assent. A very limited knowledge indeed of chemistry will enable you to ascertain what substances are compatible with each other, and a small share of attention will prevent you from making any important mistakes. Besides, you are all aware that many of our best prescriptions contain incompatible ingredients; and that many compounds which would be sneered at by the mere chemist, as heterogeneous and absurd, prove decidedly efficacious in medicine. Granting that a certain degree of chemical knowledge is requisite, it does not follow that you should be scientific and accomplished chemists. It is not necessary that you should dive into all the arcana of the science, or have your memories loaded with atonic numbers, symbols, and equivalents.

Let me repeat with respect to chemistry what has been already observed concerning botany. Students should attend one or two courses of this science as preparatory to the study of medicine, and during the period of that study they may attend another, in order to keep up and improve their knowledge; but they should never allow chemistry to cause them to ab-

* The reader will perceive, from the following extract, that I now speak of the hydriodate of potash sold in this city. That which is used at the Meath Hospital is prepared by Mr. Hunt, and I believe what Mr. Allen sells is equally good.

Dr. Christison, in his valuable "Dispensatory," states that this medicine "is exceedingly subject to adulteration, both from faulty manufacture, and from fraudulent admixture. The principal adulterations hitherto observed are with carbonate of potash, water, chloride of potassium or sodium, and iodate of potash. 1. Carbonate of potash is very generally present to between one and five or even ten per cent., owing, in all probability, to errors in preparing the salt; but I have sometimes found 74.5 per cent. of carbonate, and 16. of water along with it, so that there was only 9.5 per cent. of pure salt—an amount of impurity which could have arisen only from fraud on the part of the maker."—Page 753.

sent themselves from the hospital for a single day. Theoretical and philosophical call for your attention less than animal and pharmaceutical chemistry. But you are told that you may be called on to decide questions of medical jurisprudence, which demand an accurate knowledge of chemistry; that you will be required to test poisons, and detect them when accidentally or purposely mixed with food or drink. What should you do in such cases? Why, do not undertake any investigations of the kind, refuse to make them, refer them to those who are competent to the task. Where will you find a man engaged in the practice of physic fully capable of deciding such questions? What practising physician or surgeon is competent to enter at once upon an investigation of this nature? I have lectured some three or four years on medical jurisprudence, and bestowed a good deal of attention on the subject, and yet if called on to decide a case of poisoning, I would refuse, and say I was incompetent to the task. What then is to be done under such circumstances? This is a matter of deep importance to society. It is of the utmost consequence that the wretch who poisons should not escape, and that the innocent should not suffer. It therefore behoves the Government to employ and pay persons capable of deciding such questions. Then, and not till then, will the task be duly performed, and the decisions be such as the public can look up to with respect and confidence.

So far with respect to a knowledge of chemistry as connected with the choice and prescription of medicines, or the analysis of poisons. As to any benefits derived from analytic chemistry in solving the problems of vital action, or elucidating the functions of the various organs in health and disease, they may be said to be few and unimportant, and inconclusive. Few and scanty, indeed, are the rays of light which chemistry has flung on the vital mysteries. I am not aware that it has revealed any of the master secrets of the organism, or detected the sources of those important aberrations from normal action which we are called on to study every day and every hour. Chemistry has failed most remarkably in revealing the arcana of life; and notwithstanding all her boasted discoveries, we are still very little in advance of those who practised the healing art some centuries ago. Chemists, the ablest of their class, have bestowed the most minute and unwearied attention on the analysis of fibrin, and gelatin, and albumen; and what have they discovered? Simply this: that substances so apparently distinct in their vital relations, and so different, or even opposed, in their physical properties, are analogous compounds; that there is scarcely any difference in their elementary composition; and that their atomic constitution is nearly identical. How long have chemists laboured in attempting to detect the cause of animal heat! How many experiments have been made for the purpose of ascertaining the effect produced on the air by respiration! How many able and ingenious men have sought a chemical explanation of the difference in point of colour between arterial and venous blood! All these investigations have proved indirectly useful, but none of them have revealed the secrets sought; and we are still in profound ignorance of the powers which direct and modify the unceasing operations of the laboratory over which *life* presides—that mysterious influence which, like the Deity from whom it emanates, is invisible, inscrutable, incomprehensible.

So much for the light which chemistry has shed on the vital actions, and on the nature of organised compounds. There are, to be sure, one or two instances in which a rough examination of some organic products

is necessary ; as, for example, of the urine, in certain cases of gout, gravel, and dropsy. But even in these instances, a few simple rules will suffice, and sufficient information may be obtained by one moderately acquainted with chemistry. Generally speaking, the chemical knowledge requisite for the study of disease is very limited ; and those who are engaged in the practice of medicine are well aware, that cases demanding an accurate or extensive knowledge of chemistry are of extremely rare occurrence.

Let me now advert to a serious inconvenience which the chemists have imposed upon the medical world. They have, it appears, not only assumed to themselves the privilege of naming our medicines, but also of changing those names every five or six years. One of my ablest and most diligent pupils (Mr. Moore) has taken the trouble of drawing up a table, showing the various names which have been successively bestowed on each substance since the days of Lavoisier. I have the table here before me, and I find that most chemical substances have, in the space of fifty years, undergone at least five changes. Of course, as the march of chemistry progresses with accelerated speed, we may give our nomenclatures credit for an increased tendency to revolutionise the chemical vocabulary, and conclude that they will change them five times within the next fifty years. In 1890, how will a man be able to recognise a substance whose name has undergone ten mutations ? I am anxious to dwell on this defect as being pregnant with perplexity and confusion. It would almost seem as if some enemy to our profession had invented the chemical nomenclature for the purpose of retarding the advance of practical medicine. Of what use will a *Practice of Physic*, published in 1800, be to the reader who peruses it in 1900 ? We all know how easily the mind of man is deterred by difficulties ; how few there are who will submit to the labour of becoming genealogists in chemical names.

Many and able men foresaw this difficulty from the beginning, and raised their voices against the adoption of names meant to convey a knowledge of the chemical composition of mineral and saline medicines. Bostock and Murray have both written ably on this subject, and I regret much that their advice has not been duly weighed and considered. In practice, many serious inconveniences arise from this vacillating state of chemical nomenclature. Every apothecary knows that mistakes occur from day to day, owing to the shifting character of chemical nomenclature, and I think it is time for us to bestir ourselves, and make a stand against the useless and dangerous innovations of the chemists. We should come forward boldly, and declare that we will not be made the slaves of names. Compare our last *Pharmacopœia* with its immediate or penultimate predecessor, and the difficulties a physician has to encounter will be obvious. Are we to be perpetually called on to learn new names ? Must an artificial method of forgetting become even more necessary than a *memoria technica* ? Must my prescriptions of 1818 be translated into a new language, if I wish to employ them now ? It is time, then, to protest seriously against having our memories loaded with a polyglot vocabulary, and our ideas confused by a perpetual alteration of names. I do therefore assert boldly, that much benefit would accrue from reverting to the old system, and employing names which have no direct reference to the substances. I do not see any reason why we should not continue to call calomel, calomel ; nor do I see any advantage in giving it any of the numerous modern appellations supposed to indicate its chemical constitution. I am glad to find

that this view of the subject has the able support of Dr. Sigmond. He quotes Professor Brande as being of opinion that "it is very inconvenient to alter pharmaceutical terms according to the changes in chemical nomenclature; and as physicians in practice have not come to accord in this particular, I can see no objection to the term *calomel* for one substance, and *corrosive sublimate* for the other, pharmaceutically speaking." It is a subject of deep regret, adds Dr. Sigmond, that the attempt should be made, because it never can be successful; for some chemists will call calomel *protochloride*, others *chloride*, and some denominate sublimate *perchloride*, others *deutochloride*, and others again, as does the Royal College of Physicians, *bichloride*.

What is the use of a name? To designate a thing—to point out any substance, so that when we call for it we may get *it*, and nothing else. This is all that is necessary. When you tax a name beyond this, you exceed the limits of ordinary language, and demand too much. The old names for our medicines are not inferior, in this respect, to the modern ones imposed on us by chemists. Tartar emetic is a good and significant name, and yet I perceive it has been altered several times before, and again in the last edition of the London Pharmacopœia. Why is it that the preparation of bismuth used in pyrosis has been three times changed in my own memory? What alterations have not the carbonates of iron and of alkalies undergone? As for Fowler's solution, corrosive sublimate, Mindererus's spirit, and Æthiop's mineral (all good standard names), they are now nearly extinct, and have been superseded by a new generation likely to prove as unstable as their predecessors. Many other substances have undergone the same fate. Where will the revolution stop? Indeed we seem, at the present moment, as far removed as ever from the establishment of a stable system of chemical names. The progress of investigation discloses almost daily new views of the mutual relations between the elements constituting compound bodies; the atoms associated together are divided and subdivided into new groups, and, consequently, the symbolical representation of every compound assumes a new configuration, and is subdivided by brackets, altering their places with each successive advance of science. The labours of Bornsdorff and Hare already threaten the nomenclature of Berzelius, and the *chlorure platinosopotassique* of the latter, now considered as a compound of chloroplatinous acid and the chlorobase of potassium, must then be called chloroplatinite of potassium.

If chemical names are still to be formed with the view of expressing chemical composition, there is no end to the complication and length at which they must arrive. If they express composition, it is worse than useless, were they to do so incompletely. A name whose structure designates the nature of the thing named, must, in chemistry, to be serviceable, designate it with perfect accuracy. Professor Kane has analyzed, in one of his very able papers, a crystalline substance obtained by boiling the white ammonia subnitrate of mercury with solution of ammonia. Suppose this substance to be introduced into the Pharmacopœia, how can it be named in conformity with the principle which attempts to make each name expressive of the composition of the matter named? its composition is stated by Professor Kane to be—one atom of nitrate of the oxide of mercury, *plus* two atoms of oxide of mercury, *plus* one atom of amide of mercury, *plus* two atoms of the nitrate of the oxide of ammonium, *plus* two atoms of the oxide of hydrogen. Even if the ingenuity of chemists had surmounted the difficulty of inventing a name capable of expressing

the nature, number, and mode of aggregation of the above elementary atoms, is it probable that a name, so gifted, would be of a length manageable by either the tongue or the memory? Is it certain that future experiments may not unfold new views concerning the arrangement of the constituent atoms, and thus nullify the old, by requiring the adoption of a new designation?

In order to exemplify how much physiology and pathology are indebted to the researches of chemists I beg to quote at length from the *Quarterly Review*, June, 1842 (p. 99, and p. 121).

“Professor Liebig applies the name of *metamorphosis* to those chemical actions in which a given compound, by the presence of a peculiar substance, is made to resolve itself into two or more compounds, *e. g.* sugar by presence of yeast, into alcohol and carbonic acid.

“Now putrefying animal matters will cause sugar to ferment as well as yeast—explanation, the ferment or exciting body is invariably a substance in an active state of decomposition, and therefore its particles in motion; this motion is communicated to the particles of the body to be metamorphosed, and is sufficient to overturn their very unstable equilibrium, and to cause the formation of new and more stable compounds. *Liebig* explains the action of certain medicines and poisons on the human body in the same way—thus there are many medicines and poisons which produce a very marked effect without their elements taking a direct share in the changes which ensue; those bodies originate, as it were, an action, which is subsequently propagated from particle to particle; they are uniformly substances in a state of change, and appear to act on the blood, as yeast does on a solution of sugar. In this class appear miasms, contagions, and the similar sausage poison of Würtemberg; the latter is an excellent example. Sausages, made in a peculiar way, are much used in that country; when ill-prepared they become poisonous, and their effects are invariably fatal: the patient gradually dries up into a sort of mummy, and after weeks or months of misery, death closes the scene; but there is no poisonous *substance* to be detected in the sausage. It is, according to *Liebig*, in a peculiar state of fermentation, which is not checked by the action of the stomach, and which unfortunately is communicated to the blood; it never ceases until every part capable of solution has been destroyed, and death of course must follow. *Miasms* and *contagions* act on the very same principle, and the reason that all are not affected by them seems to be, that they require the presence of a peculiar compound in the blood, which enters into decomposition, and when the whole of this peculiar matter is destroyed, the disease disappears. If there be much such matter the case is *severe*, if little, the case is *mild*; and apparently in many contagious diseases, *the peculiar decomposable matter once destroyed can never be renewed, so that these diseases occur but once.*”

Such is Professor Liebig's theory of poisoning and contagion—a theory which, though it comes to us recommended by the abilities of the first organic chemist of the age, and sanctioned by his anonymous but able reviewer in the *Quarterly*, can nevertheless be easily proved to rest upon almost as many assumed as *proven* facts. Thus how can Liebig so positively assert that there is no poisonous substance in the fatal sausages? True it is that no chemist has yet insulated such a substance; but Liebig knows better than any one else how profoundly concealed any particular animal principle may be by being mixed with a great variety of other

animal principles. Thus how long did sugar, in the blood of diabetic patients, elude the researches of chemists? and yet they were looking for a principle with whose chemical qualities they were already accurately acquainted. How much more difficult of detection must the poisonous principle be which exists in so compound a body as a Würtemberg sausage? Besides, what chemist was ever sure that he was actually analyzing a poisonous sausage? Here a special difficulty lies, for hitherto there has been discovered no *à priori* method of distinguishing a poisonous from a wholesome sausage until both have been eaten, that is, too late for analysis. How long has the poisonous quality of ergot of rye been known? and yet the principle to which its effects are owing, though often sought, has been only lately insulated.

It is obvious, therefore, that Professor Liebig's main example of his new pathological explanation is not by any means *proven*, and consequently it is unnecessary to follow him into the regions of fancy where he has been enticed by a specious and seductive analogy. Pathology will cease to be a science when the study of facts gives place to such reveries as the above cited passage contains—relative to miasms, contagions, mild cases, severe cases, diseases occurring but once in life, &c., &c., &c. And yet I am sorry to say that one of our most distinguished lecturers, Dr. Watson, has, in the number of the *Medical Gazette* for July 29, 1842, fully adopted these opinions.

In order to give the reader some idea of what Dr. Watson considers to be "*distinct conceptions*," and "*lights supplied by a theory*," I beg leave to quote from the Doctor's lecture the following paragraphs:—

"Moreover, the light supplied by this theory gives distinctness to our conceptions respecting certain deviations from the regular course and type of these diseases; which deviations are not uncommon.

"Thus the symptoms which precede and usher in the eruption are sometimes slow, halting and irregular in their progress; appear, and then recede, and reappear, so that we are in doubt what is about to happen, until at length the disease declares itself in its decided and authentic form.

"We may suppose this to depend upon some tardiness or interruption of the process, whereby the virus is (to use the ancient term) concocted.

"Again, the series or combination of symptoms that mark the specific disease is sometimes, as I stated before, *incomplete*. We have the eruption of measles without the catarrhal symptoms; the sore throat without the rash, of scarlet fever. And experience has found that, where the malady is thus imperfectly developed, the protection it confers against its own recurrence is also incomplete. To explain this double failure we may reasonably infer a corresponding defect in the series of changes which the poison tends to produce in the mass of the blood.

"Glandular enlargements and chronic abscesses are frequent *sequelæ* of these exanthematous disorders. They may be considered to represent the dregs of the reproduced virus, which has been imperfectly eliminated from the system by the usual channels."

Very few observations are called for by these surmises of Dr. Watson; and certainly the learned Doctor is rather guarded in his expressions, thus admitting that though he has given in his adhesion to Liebig's theory, yet he seems to view the deductions to which it leads with considerable distrust. Indeed it is difficult to rest satisfied with reasoning which not

only assumes gratuitously a certain thing to be the cause of a certain effect, but considers it a corroboration of that assumption, that whereas the effect is irregular in its progress *we may suppose* the cause is so likewise.

It is still a greater triumph of logic to infer that because a disease is incomplete that we gain any thing towards the establishment of the true nature of its cause by saying that we may reasonably infer that a corresponding defect exists in the cause itself. To me the whole line of argument appears delusive, and as to the last paragraph concerning glandular enlargement and chronic abscesses, it seems that Dr. Watson's conclusion involves a contradiction, for he attributes to the virus itself, and that by virtue of its chemical action, the production of several exanthematous diseases, each specifically distinct, and indeed as different from each other as an acid from an alkali, while to the dregs of the reproduced virus, he attributes sequelæ—those glandular enlargements and chronic abscesses which so frequently appear after small-pox, scarlatina, or the measles. According to this hypothesis, three different animal poisons, all acting chemically, produce at first three different diseases, and at last the same disease. With regard to this hypothesis, I may further remark, that when a brewer takes a certain quantity of sweet wort, puts it in a vessel, and adds a given portion of yeast* to it, he knows that if he simultaneously fills in the same way fifty similar vessels, the process of fermentation will produce in each thirty times as much yeast as was originally added to the wort. But when the virus of small-pox is introduced into the blood of fifty individuals, is a multiplication of the small-pox matter thus proportioned to the quantity of blood in each? It certainly is not; *a fact* conceded by the supporters of Liebig's hypothesis, but which they try to evade by saying that the particles of the blood which are susceptible of this particular decomposition and metamorphosis exist in different proportions in different individuals.

This method of ratiocination is as inconclusive as it is novel, and may be aptly termed, arguing not *in* but *outside* of a circle.

The following quotation, taken from the *Provincial Medical Journal*, contains a condensed but very accurate analysis of Liebig's theory of heat, and the pathological inferences which necessarily appear to flow from it:—

“The carbon and hydrogen of food, in being converted by oxygen into carbonic acid and water, must give out as much heat as if they were burned in the open air. The only difference is, that this heat is spread over unequal spaces of time; but the actual amount is always the same. The temperature of the human body is the same in the torrid as the frigid zone. But as the body may be considered in the light of a heated vessel, which cools with an accelerated rapidity the colder the surrounding medium, it is obvious that the fuel necessary to retain its heat must vary in different climates. Thus, less heat is necessary in Palermo, where the temperature of the air is that of the human body, than in the polar regions, where it is about 90° lower. In the animal body, the food is the fuel; and, by a proper supply of oxygen, we obtain the heat given out during its combustion in winter. When we take exercise in a cold atmosphere,

* We are glad to find Dr. Watson adhering to the old spelling of this word. He spells it as De Foe spells it in his *Robinson Crusoe*; this authority is probably as good as any writer in the *Quarterly Review* could bring forward in support of his *vest*.

we respire a greater amount of oxygen, which implies a more abundant supply of carbon in the food; and, by taking this food, we form the most efficient protection against the cold. A starving man is soon frozen to death; and every one knows that the animals of prey of the arctic regions are far more voracious than those of the torrid zone.* Our clothing is merely an equivalent for food; and the more warmly we are clothed the less food we require. Were we to go destitute of clothes like certain savage tribes—or if, in hunting or fishing, we were exposed to the same degree of cold as the Samoyedes—we could, with ease, consume 10 lbs. of flesh, and, perhaps, a dozen tallow candles into the bargain, as warmly clad travellers have related, with astonishment, of those people. Then could we take the same quantity of brandy or blubber of fish without bad effects, and learn to appreciate the delicacy of train oil.

“We thus perceive an explanation of the apparently anomalous habits of different nations. The macaroni of the Italian, and the train oil of the Greenlander and the Russian, are not adventitious freaks of taste, but necessary articles fitted to administer to their comfort in the climates in which they have been born. The colder the region, the more combustible must the food be.”

It is, I must confess, quite new to me that our clothing is merely an equivalent for food, and the more warmly we are clothed the less food we require. Take the well-clad and warmly-clothed country squire, and compare the quantity of food he devours with that which is consumed by his ragged labourers, and it may be asserted that the balance will be as much in favour of the squire's food as of his raiment. The voracious Samoyedes referred to, however barbarous in their manners, are an extraordinarily warmly clothed race, and the semi-putrid fat and blubber of whales, agrees with the stomach of the Laplander as well in the heat of summer as in winter. In the arctic and cold regions of the earth man is driven by necessity to subsist on animal food, which is supplied to him by the unfrozen depths of the ocean, for in those inhospitable regions vegetable life is almost a stranger, and therefore it is that the Laplander, the Greenlander, and Samoyede subsist almost exclusively on animal food. In the expeditions of Franklin, Parry, and Ross, our countrymen braved all the rigours of an arctic winter on the same food which they were in the habit of consuming in milder climates; and if it be true, as stated in the above passage, that in the animal body the food is the fuel, and, by a proper supply of food, we obtain the oxygen given out by its combustion in winter; if this be true, it is strange that there is no record of its being found necessary to give our sailors more food during the extreme cold than at other periods.

Facts are wholly inconsistent with many of Liebig's allegations. All

* I cannot guess how every body comes to know all this; for my own part, I think it may be maintained that a Bengal tiger, or Cape hyena, requires, in proportion to its size, quite as abundant rations as any of the arctic carnivora; and as to the vultures of Hindostan and Persia, where on earth, in air, or in water, can be found such gluttons? Neither do I think that any one (not to say every body) would be prudent in counting on the abstinence of a shark, even within the tropics! Although religious ordinances prevent the Hindoos from eating beef, yet both they and the Arabs occasionally devour mutton in astonishing quantities. Those who ride over the Pampas in South America, at the rate of 100 miles a-day, exposed to a burning sun, subsist entirely on boiled beef and water, without a particle of vegetable food of any kind, and yet they attain to an extraordinary condition, and capability of enduring violent and long-continued exertion. Liebig's theory must be very ductile, if it can explain how it happens that an exclusively animal diet agrees with man quite as well at the equator as within the arctic circle.

hunting tribes of mankind, whether in northern, temperate, or tropical regions, subsist chiefly on animal food. This is true of the North and South American Indians, and it is true of the Hottentots, and indeed our travellers relate prodigies of gluttony enacted by the latter, for when, after a long fast, they suddenly obtain abundance of game, they will sit up the whole night occupied in cooking and devouring steak after steak unaccompanied by a morsel of vegetable food, and at such times, so indefatigable are they in the business of eating, that the party which over night had tightened their famine girdles to the last hole, have enormously distended abdomens on the following morning, this, too, in the heat of Africa, where certainly no additional food was required for supporting the animal temperature. If Liebig's theory be correct, that animal food is peculiarly adapted to cold climates, how comes it that the most voracious carnivorous animals abound in the hottest regions of the earth. The Bengal tiger, and the African lion, and the boa constrictor of South America, together with alligators and crocodiles of the Nile, the Ganges, and the Orinoko, all subsist solely upon animal food; and on the other hand, among the whale tribe it is observable that they abound in every variety of oceanic temperature, where the appropriate animal food occurs, and the same observation applies to fishes in general. Take the antelope and the gazelle of Africa, which would shiver from cold during the warmth of an English summer, and compare them with the reindeer, that bears with impunity, and that for months together, a temperature far below zero, and how can we explain the difference by Liebig's theory, for they both subsist on vegetable food? Facts such as these are not merely irreconcilable with, but destructive of, that theory.

I would not be understood here as wishing to depreciate any department of human knowledge. Far be it from me. Besides, the attempt would be useless. But I am anxious that you should concentrate all your energies on the proper objects of medical pursuit, and devote the largest share of your attention to those acquirements which will render you good practitioners. I have seen students led astray by false notions, wasting half of the time which should be spent in hospital, and by the sick bed, in wandering through the fields on botanical excursions, or working in the laboratory, engaged in the solution of some unimportant problem. Now this is not what will teach them to relieve suffering, and cure disease. When I look round me, and behold so many young gentlemen entering upon an honourable and important profession, I feel that my responsibility is great. I consider you all as instruments of good or evil, and cannot help being conscious that I should be guilty of a great crime, did I not use every means in my power to render you able and efficient practitioners. The teacher of clinical medicine, gentlemen, occupies in every nation a post of heavy responsibility. But when he happens to preside over the medical education of those who resort to the wards of a metropolitan hospital—when the metropolis is a British one, and the hospital destined to send forth annually practitioners to every quarter of the globe—to North and South America, to New Holland, to the Cape of Good Hope, to the East and West Indies, and the countless isles which, in either hemisphere, are visited by the British flag, then indeed does that teacher become himself an instrument of good or evil, to an extent which it is fearful to contemplate.

He who gives instruction to a clinical class in Berlin, Stockholm, Vienna or Paris, has much to answer for, if he discharge not his duties with zeal

and diligence. Yet if he fails to make his pupils good practitioners, their errors, however deplorable, are circumscribed within comparatively narrow bounds, and limited in a great degree to their own countrymen. But the British teacher sits in the centre of a circle far wider than Sweden or Prussia, Austria or France; his pupils are to be met with practising in every climate, exercising their art in almost every habitable region of the globe and dispensing the blessings of health to all races of mankind;—to the hardy white settlers of Canada, the aboriginal red-skins of North America, the Negroes of Jamaica, the Hottentots and Caffres of Africa, and the countless tribes of Hindostan.

In truth, gentlemen, the British teacher of practical medicine exercises an influence without parallel in importance and extent, and his opportunities of benefiting or injuring his fellow-men are incalculably great. If he neglects his duty, if he teaches erroneously, his negligence and his errors in practice are multiplied indefinitely, by means of those whom he ought to have better instructed; the scene of his guilt—for it deserves no better name—becomes fearfully enlarged, for there is no country so remote that it may not contribute victims to the incapacity of his pupils. But if, on the contrary, he works with zeal and diligence; if he labours conscientiously and perseveringly in performing the important task he has undertaken, a compensation awaits him, to which scarcely any member of any profession can attain. Can any reward exceed in value the reflection that he has assisted, materially assisted, in imparting practical knowledge to multitudes of enterprising young men, who, year after year, leave our hospitals to engage in the sacred duties of the medical profession, throughout the world? Is it not a high privilege to be enabled to combat death, and conquer disease, as it were by proxy, in so many different localities? Can man enjoy a purer, prouder, more gratifying reflection? When I hear that a favourite pupil who has acquired a solid stock of practical knowledge in this hospital, has settled in any particular town or district, I cannot help feeling, on the part of my colleagues and myself, that we have been the humble means of conferring a blessing on the people intrusted to his care; and I cannot refrain from congratulating myself upon holding a situation which multiplies a thousand-fold our efforts to be useful, and enables us to stretch forth our hands to heal men of all nations and languages. The hero and the despot may extend a sovereignty over distant regions—may exert an unlimited control over millions of vassals—may dispense honours and rewards, or inflict punishment and death; they may, like Alexander, grieve at the narrow limits of a conquered world, and sigh for other scenes of glory;—but they cannot chase away pain; they cannot bid the burning thirst to cease, or give back repose to the sleepless: they cannot impart feeling or motion to the paralyzed, or sight to the blind; and above all they cannot imitate that almost godlike function of the healing art, by which man is enabled to recall to his fellow-man reason long banished, and restore to society the hapless victim of insanity.

Gentlemen, the profession we have embraced is the noblest that can engage the mind of man, when diligently cultivated and conscientiously practised; but it requires great and persevering industry to enable the student to master all the difficulties that beset his path. Feeling this strongly, I have trespassed perhaps too long on your attention; but I thought it my duty to lay before you, as fully as I could, those views which I deemed best calculated for your adoption in the acquirement of practical knowledge.

LECTURES ON FEVER.

LECTURE IV.

General Observations—Reports of Mortality from Fever in Ireland—Importance of the study of Fever—Typhus Fever an *essential* disease—Contagious—Treatment—Proper choice of a Nurse and Assistants—Air of sick chamber—Necessity of attending to Diet, &c. &c.

BEFORE entering on the treatment of Typhus Fever, I wish to make a few preliminary observations upon its nature and peculiar characters. In the first place, typhus fever is endemic in this country; at no period from the earliest records down to the present, has it been entirely absent—a fact of which you can easily satisfy yourselves by consulting our old authors, and by referring to the annual reports of the fever hospitals, established through different parts of Ireland. Fever, as I have said, is always endemic in Ireland, but occasionally for one year or one season, or a succession of years or seasons, it becomes much more than usually rife, and then is said to be epidemic. In my report of the Fever which devastated the west of Ireland in 1822, I advanced the opinion that such epidemics are brought on by a great dearth of provisions, and their unwholesome quality. These are, no doubt, aggravating circumstances, but that they are not the sole or even the chief causes of typhus epidemics, is evident from what I have since frequently witnessed, viz. the occurrence of fever epidemics during years of plenty, of which 1826 was a remarkable example.

That fever, in Ireland at least, depends on some general atmospheric change, which affects the whole island simultaneously, independent of situation, aspect, height above the level of the sea, dryness or moisture of the soil, or any other circumstance connected with mere locality, is proved by the fact, that when typhus begins to increase notably in the Dublin hospitals, we may always rest assured that a nearly simultaneous increase of fever will be observed in Cork, Galway, Limerick, and Belfast, as I have on more than one occasion ascertained by writing to the physicians of fever hospitals in those cities.

For a considerable period there was a great tendency among physicians to refer the origin of typhus, and almost every variety of fever to malaria, or unwholesome emanations from the soil, produced by the decomposition of vegetable matter. In Ireland facts do not bear out this hypothesis, for as already stated, when an epidemic of fever has become established, it breaks out simultaneously in situations the most different, and in some where no such emanations can be supposed to exist. Thus I have seen a whole family affected in the telegraph, situated at the summit of Killiney, a mountain formed of bare granite—and indeed the granite and mountain districts beyond Rathfarnham, Tallaght, and Killikee, supply the Meath Hospital with its worst cases of typhus. The malarious origin of fever in general, has, I may remark, become much less probable since the publication of the official documents connected with the sickness and mortality of the British troops in the Colonies, and from which, as Major Tulloch reports, it clearly appears that fevers of the most malignant character frequently

arise in places presenting, to all appearance, a combination of circumstances most favourable to the exclusion of malarious influence, while fever is never endemic in other stations, where all the reputed sources of malaria exist together.

There can be no doubt that in Ireland, as in other countries, the effects of cultivation and drainage on the health of the inhabitants are very remarkable, and I myself have witnessed several exemplifications of the improvement in the public health thus effected. Formerly ague was of rather common occurrence in some marshy districts in the immediate vicinity of Dublin, and consequently when I was a pupil, cases of intermittent fever were constantly to be met with in the hospitals; now the low grounds have been drained, and thus the production of ague has been entirely arrested. It may be cited as a proof of the former frequency of ague in Dublin, that when sulphate of quinine had been discovered in France, we in Ireland were among the first British physicians, who verified its *anti-aguish* powers, and Doctor Barker and I, each of us published tables of many cases of ague cured in hospital by that remedy. If I am not mistaken, the first dose of sulphate of quinine ever administered in Ireland was by myself, at the Drumcondra Fever Hospital. It is now generally admitted that drainage greatly improves the health of the public; and this opinion has lately received additional support from the investigations of Mr. Chadwick, relative to the sanitary condition of the labouring population, from whose work the following passage is extracted:—

“In considering the circumstances external to the residence which affect the sanitary condition of the population, the importance of a general land drainage is developed by the inquiries as to the causes of the prevalent diseases, to be of a magnitude of which no conception had been formed at the commencement of the investigation: its importance is manifested by the severe consequences of its neglect in every part of the country, as well as by its advantages in the increasing salubrity and productiveness wherever the drainage has been skilful and effectual. The following instance is presented in a report from Mr. John Marshall, jun., the clerk to the union in the Isle of Ely:

“It has been shown that the Isle of Ely was at one period in a desolate state, being frequently inundated by the upland waters, and destitute of adequate means of drainage; the lower parts became a wilderness of stagnant pools, the exhalations from which loaded the air with pestiferous vapours and fogs; now, by the improvements which have from time to time been made, and particularly within the last fifty years, an alteration has taken place which may appear to be the effect of magic. By the labour, industry, and spirit of the inhabitants, a forlorn waste has been converted into pleasant and fertile pastures, and they themselves have been rewarded by bounteous harvests. Drainage, embankments, engines, and enclosures have given stability to the soil (which in its nature is as rich as the Delta of Egypt) as well as salubrity to the air. These very considerable improvements, though carried on at a great expense, have at last turned to a double account, both in reclaiming much ground and improving the rest, and in contributing to the healthiness of the inhabitants. Works of modern refinement have given a totally different face and character to this once neglected spot; much has been performed, much yet remains to be accomplished by the rising generation. The demand for labour produced by drainage is incalculable, but when it is stated that

where sedge and rushes existed but a few years since we now have fields of waving oats and even wheat, it must be evident that it is very great.

“On reference to a very perfect account of the baptisms, marriages, and burials, in Wisbech, from 1558 to 1826, I find that in the decennial periods, of which 1801, 1811, and 1821, were the middle years, the baptisms and burials were as under:—

	Baptisms.	Burials.	Pop. in 1801.
1796 to 1805	1,627	1,535	4,710
1806 to 1815	1,654	1,313	5,209
1816 to 1825	2,165	1,390	6,515

“In the first of the three periods the mortality was 1 in 31; in the second, 1 in 40; in the third, 1 in 47; the latter being less than the exact mean mortality of the kingdom for the last two years. (See Registrar-General’s Second Report, p. 4, folio edition.) These figures clearly show that the mortality has wonderfully diminished in the last half-century, and who can doubt but that the increased salubrity of the fens produced by drainage is a chief cause of the improvement.”

Evidence of a similar nature is given with reference to various parts of England.

In the reports given from the parish ministers in the statistical accounts of Scotland, the effects of drainage upon the general health of the population are strongly marked in almost every county, expressed in notes made from an examination of the returns. Sutherland—Parish of Rogart: “Healthy, and a good deal of draining.” Far: “Subject to no particular disease; a deal of draining.” Ross and Cromarty—Alness: Dry and healthy, “climate improved by drainage.” It is to be understood that drainage appears to form the essential part of agricultural improvement, which is connected with the improvement of health. Thus the notes from another parish in the same county, Kilmuir Wester and Suddy, states it as “healthy; great improvement; scarcely an acre in its original state.” Rosmarkie: “Healthy; agriculture much improved.” Elgin—New Spynie: “Healthy: much waste reclaimed, much draining.” Alves: “Dry and healthy, well cultivated, wood sometimes used for drains.” Banff—Deckford: “Healthy, and people long-lived; much draining.” Kincardine—Fordoun: “So much draining that now no swamps: formerly agues common, now quite unknown.” Angus Carmylie: “Health improved from draining.” Kinross—Kinross: “Agues prevalent sixty years ago in consequence of marshes now never met with.” Oswell: “Ague prevailed formerly, but not since the land was drained.” Perth Methven: “The north much improved by draining.” Redgorton: “Healthy; no prevailing disease; ague was frequent formerly, but not since the land has been drained and planted.” Moneydie: “Healthy; an immense improvement by draining.” Abernyte: “Since the land was drained, scrofula rare and ague unknown.” Monzie: “Healthy; a good deal of land reclaimed.” Auchterarder: “Much draining, and waste land reclaimed; climate good.” Muckhart: “Great improvement in agriculture; ague formerly prevalent, not so now.” Muthill: “Healthy; much draining and cultivation extended.” And similar statements are made from the rural districts in all parts of the country.

Ague is the most remarkable disease engendered by a marshy state of

the country, and consequently the disappearance of ague forms the most easily noted and most striking change in the health of the inhabitants produced by drainage; hence ague is so often mentioned in the above extract. There is no doubt, however, that drainage not merely removes ague, but is beneficial to the public health, in removing various other maladies and derangements of the health which are observable among the inhabitants of marshy districts; and the remark made with respect to *Abernyte*, "*since the land was drained, scrofula rare,*" was no doubt founded on accurate observation.

Numerous other statements, corroborative of the preceding, might be easily brought forward, but though ready to allow the general improvement in the health of the public resulting from drainage, improved habits of cleanliness and increased comforts, yet I cannot admit that in Ireland we are to expect any notable diminution of continued fever from the operation of these causes. In making this statement, you are aware that I am opposing the usually prevalent opinion. The grounds for my dissent have been partly explained to you already, for according to my observation, the increase or diminution of fever in Ireland arises from some unknown general atmospheric, or, if you will, *climatic* influences, quite independent of locality; and, consequently, the most improved and thoroughly drained towns and country districts are quite as liable to epidemics of typhus as are the most neglected and marshy parts of our island. The causes which occasion these epidemics are, on the other hand, in no way connected with notable variations in the seasons, for with us the ravages of typhus are observed sometimes in dry, sometimes in rainy seasons, and its epidemics appear quite uninfluenced either by the cold of winter or the heat of summer. Other complaints are obviously dependent on the physical characters of the seasons, and I have made the curious observation, that whenever the weather in Dublin becomes dry and steady, the public becomes unhealthy. This singular fact admits, perhaps, of explanation; for so habituated is the Irish constitution to rapid changes of temperature, wind and rain, that it is placed, as it were, in an unaccustomed, and therefore unnatural position, when the weather is dry and steady. Be this as it may, the fact is undoubted, that fever is neither so prevalent nor so fatal in any of the western kingdoms of Europe as in Ireland. This opinion has been long entertained by physicians, and its truth will appear from the following statistical report of the Census Committee for the Province of Leinster, for the last ten years—a truly valuable document, now for the first time published, and for which I am indebted to the kindness of Doctor Wilde, the distinguished Ophthalmic Surgeon, under whose able superintendence the Census Committee has been placed by government.

Return of Mortality by Fever, and General Mortality during the 10 years ending 6th June, 1841, in the several Counties of the Province of Leinster:—

Counties, &c.	Fever in Towns and Country.			Fever in Hospitals and Public Institutions.			Total Fever.			General Mortality.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Carlow County.	463	428	891	99	103	202	562	531	1093	6030	5619	11649
Drogheda Town.	137	101	238	1	1	138	101	239	2249	2102	4351
Dublin County.	720	528	1248	61	50	111	781	578	1359	11422	10636	22078
Dublin City.....	1385	984	2369	3265	3128	6393	4650	4112	8762	33622	31562	65184
Kildare County.	558	450	1008	170	106	276	728	656	1284	8560	7666	16226
Kilkenny do.....	1283	1095	2378	54	60	114	1337	1155	2492	13637	12805	26442
Kilkenny City....	111	93	204	264	223	487	375	316	691	2238	2022	4260
King's County...	932	822	1754	57	69	126	989	891	1880	11103	9931	21034
Longford do....	673	592	1265	2	1	3	675	593	1268	7832	6979	14811
Louth do.....	626	575	1201	1	1	627	575	1202	9219	8533	17752
Meath do.....	1140	1011	2151	150	144	294	1290	1155	2445	14183	13171	27354
Queen's do....	951	812	1763	51	33	84	1002	845	1847	11496	10965	21761
Westmeath do...	798	752	1550	29	25	54	827	777	1604	10151	9204	19355
Westford do....	940	796	1736	339	298	637	1279	1094	2373	15272	14209	29481
Wicklow do....	579	423	1002	147	133.	280	726	556	1282	8551	7513	16064
Total Males.....	11296		4690			15986			16585			
Total Females....		9462			4373			13835				152217
General Total.....			20758			9063			29821			317802

W. R. WILDE.
Infanctides are not included in the total number of deaths shown in this Table; and all the Mortality Tables have yet to be revised.—August 8th, 1842.

RDW. SINGLETON, Secretary.

From this document it follows that the mortality from fever in Leinster amounts to a fraction less than one-tenth of the whole mortality, whereas in London the fever deaths do not amount to more than one-fiftieth of the total deaths. This difference becomes more striking from considering that deaths in Dublin from fever are actually nearly double the deaths from the same cause in London. The last census made the population of London amount, I believe, to one million and a half, while that of Dublin is three hundred and sixty-two thousand.

The admirable papers of Dr. Cowan have thrown much light upon the comparative frequency of fever in different parts of Britain, and his tables prove that Glasgow is more unfavourably situated, as regards fever, even than Dublin; for in 1835, 1836, 1837, the deaths from fever alone were

412, 841, 2,180, being, in the relation to the mortality from all diseases, one in 15·6, 10, and 4·7 annually: but as the year 1837 was remarkable for a fearful epidemic, this mortality is over the average, for Dr. Cowan in another place shows, that while in Glasgow, with a population of 200,000, the annal average of fever, deduced from seven years, ending with 1836, has been 1842 cases; in Manchester, with a population of 228,000, it has been for the same period only 497; in Leeds, with a population of 123,000, only 274; and in Newcastle, with a population of 58,000, so little as 39. These numbers bring out, in striking contrast with Ireland, the immunity from fever enjoyed by large English towns, and corroborate the remark already made, that the eastern and central parts of Britain, enjoying a climate more different from that of Ireland, so likewise are much freer from fever than the western parts of Britain, whose climate approximates more to the Irish. It is curious that in those towns in England which have greater intercourse with Ireland, as Liverpool, Manchester, Bristol, typhus predominates more than others not similarly circumstanced. It was on this account that Dr. Lombard* concluded that maculated typhus fever was imported into England and Scotland by Irish labourers, who go over in such numbers every year to reap the harvest. But from the statistical reports of Dr. Cowan and others, it appears that, as regards Scotland, this explanation is any thing but satisfactory, and it seems more probable that the west of England, Scotland, and Ireland, in which the climate is almost the same, possess the same combinations of circumstances which produce typhus. Nothing, indeed, can be more remarkable than the facility with which a simple cold (which in England would be perfectly devoid of danger) runs into maculated fever in Ireland, and that, too, under circumstances quite free from even the suspicion of contagion—in truth, except when fever is epidemic, catching cold is its most usual cause. Much has been said and written about epidemics among cattle being simultaneous with human epidemics, and we have the testimonies of Homer and Herodotus in support of the popular belief. I am quite sure that various diseases, such as ague, remittent and bilious fever, &c. &c., may be brought on by miasmata, which, emanating from the earth, may likewise produce epidemics among cattle. Mr. Chadwick's work contains the following striking statement:—

“In the course of inquiries as to what have been the effects of land drainage upon health, one frequent piece of information received has been that the rural population had not observed the effects on their own health, but they had marked the effects of drainage on the health and improvement of the stock. Thus the less frequent losses of stock from epidemics are beginning to be perceived as accompanying the benefits of drainage in addition to those of increased vegetable production.”

Dr. Edward Harrison, in a paper in which he points out the connection between the rot in sheep and other animals, and some important disorders in the human constitution, observes:—

“The connection between humidity and the rot is universally admitted, by experienced graziers; and it is a matter of observation, that since the brooks and rivulets in the county of Lincoln have been better managed, and the system of laying ground dry, by open ditches and under-draining, has been more judiciously practised, the rot is become far less prevalent.

* *Dublin Medical Journal*, vol. x.

Sir John Pringle informs us, that persons have maintained themselves in good health, during sickly seasons, by inhabiting the upper stories of their houses; and I have reason to believe that, merely by confining sheep on high grounds through the night, they have escaped the rot."

"The late Mr. Bakewell was of opinion that, after May-day, he could communicate the rot at pleasure, by flooding, and afterwards stocking his closes, while they were drenched and saturated with moisture."

The sanitary effects of road-cleansing, to which house-drainage and road-drainage are auxiliary, it appears is not confined to the streets in towns and the roads in villages, but extends over the roads at a distance from habitations on which there is traffic. Dr. Harrison, whose testimony has been cited on the subject of the analogy of the diseases of animals to those which affect the human constitution, in treating of the prevention of fever or the rot among sheep, warns the shepherd that, if after providing drained pasture and avoiding "rotting-places" in the fields, all his care may be frustrated if he do not avoid, with equal care, leading the sheep over wet and miry roads with stagnant ditches, which are as pernicious as the places in the fields designated as "rotting-places." He is solicitous to impress the fact, that the rot, *i. e.* the typhus fever, has been contracted in ten minutes, that sheep can at "any time be tainted in a quarter of an hour, while the land retains its moisture and the weather is hot and sultry." He gives the following instance, amongst others, of the danger of traversing badly-drained roads. "A gentleman removed ninety sheep from a considerable distance to his own residence. On coming near to a bridge which is thrown over the Barling's river, one of the drove fell into a ditch and fractured its leg. The shepherd immediately took it in his arms to a neighbouring house and set the limb. During this time, which did not occupy more than one hour, the remainder were left to graze in the ditches and lane. The flock were then driven home, and a month afterwards the other sheep joined its companions. The shepherd soon discovered that all had contracted the rot except the lame sheep; and as they were never separated on any other occasion, it is reasonable to conclude that the disorder was acquired by feeding in the road and ditch bottoms." The precautions applicable to the sheep and cattle will be deemed equally applicable to the labouring population who traverse such roads.

With reference to this question I may remark, that although I have carefully watched the progress of *fever* in Ireland for more than quarter of a century, I have not been able distinctly to connect its epidemics with any epizootic disease,—true it is, that occasionally typhus fever is prevalent at a time that some fatal epidemic affects horned cattle, pigs, and sheep, and from such an occurrence an incautious reasoner might be led to assume a natural connexion between the two epidemics as both proceeding from one cause; a more protracted series of observations will, however, dispel this illusion, for he will then see that the connexion is only accidental—of this the years 1841 and 1842, afforded a remarkable example; for during both, the cattle of Ireland were decimated by a most malignant epizootic, while during the same period I never recollect a greater immunity from typhus; in fact, the wards of the Meath Hospital were often destitute of a single specimen of that disease.

I have already stated that when a person gets a feverish cold in Ireland, it is more apt to pass into continued fever than it is in England; this is especially the case when fever prevails as an epidemic, in which case the

transition into fever takes place on account of one or other of the following causes: First—the patient had been exposed to contagion, whose effects might never have become perceptible, had not his constitution been assailed by the feverish cold. Secondly; in many cases there has been no previous exposure to contagion, and yet a feverish cold will finally determine the breaking out of fever, no doubt under the action of the prevailing epidemic influence. Thirdly, individuals who are debilitated by excesses, night watching, and bodily fatigue, are of all others the most liable to slide from feverish cold into fever; if in addition to these causes, mental anxiety, or intellectual labour have been harassing the individual, the fever generally assumes a most dangerous form, being attended with want of sleep, raving, and early, often violent delirium.

The well-known fact that several had sickened on the spot on smelling the effluvia from a patient's person or evacuations, has led to the supposition that the contagion of fever influences the system through the nerves, and in support of this opinion many refer to Prussic acid, which, *they say*, kills by its action on the nerves, and before it has been absorbed.

Another class of inquirers assert that the blood is the seat of the first morbid change, and with equal confidence refer to the action of vegetable poisons, which they assert never produce any effect on the system, until they enter the circulation.* In the present state of our knowledge it is quite impossible to determine in what manner the poison acts, and, happily, it is equally unimportant. This much is certain, that changes in the nature of the secretions, as in the sweat, sputa, mucus of the tongue, feces, and urine, take place simultaneously with changes in the blood, and they are all the result of some *common unknown cause*. Of course once the blood is changed, the secretions become more rapidly altered, and when the secretions are changed, the blood is more quickly deteriorated; but the knowledge we thus obtain leads to no satisfactory explanation or practical result.

Lately the investigations of chemists respecting the composition of the blood in fever and other diseases, have excited hopes that we are on the eve of discovering some more secure basis for our practice, founded on the analysis of that fluid. I must confess, that however I applaud these efforts of science, I entertain no hopes that they will be followed by the expected beneficial consequences; for, except the good effected in diabetes mellitus, by diminishing the quantity of starch in the bread such patients eat, and the advantage derived from medicines and articles of diet, in certain derangements of the urinary functions, such as the phosphatic and lithic diatheses; except in these instances, I know of no improvement in practice for which we are indebted to chemistry; and even here the result was obtained not by an examination of living, but of secreted fluids; and, in truth, it is vain to look for remedies founded on chemical principles, when these principles cannot even approximate to affording us an explanation of the mode of action of our best established medicines. When chemistry reveals why tartar emetic vomits, jalap purges, or opium causes sleep—when chemistry detects palpable changes in the blood produced by these remedies—then we may begin to hope that this science can conduct us still further, and may even, by disclosing the morbid changes which the blood undergoes in disease, become useful

* Blake's Experiments, Baley's Elements of Physiology, vol. i., page 246, quoted by Dr. Hudson, vide "*Med. Chir. Review*," April, 1841.

to us in searching for remedies capable of counteracting and even preventing these changes.

The different *theories of fever*, as they have been called, have much and often injuriously affected practice. The speculations of Brown, Cullen, Clutterbuck, Broussais, Rasori, Armstrong, and our Indian physicians, have successively introduced the stimulant, diaphoretic, general antiphlogistic, leeching, tartar emetic, mercurial plans, each of which has in its turn been pushed to a most deleterious excess. For my own part, I have long abandoned every hope of being able to frame any satisfactory theory of fever, and confine myself altogether to a diligent study of its symptoms, watching how they are grouped, and in what order they follow each other, and observing closely the effects of treatment on their progress; and in my choice of remedies I am guided either by experience, or an analogy derived from the action of medicines, in other diseases which present the greatest similarity to the complications that occur in fever.

Fever in this island exhibits a great variety of character, and even during the same epidemic remarkable differences are observable, as appears from the subjoined summary, taken from Cheyne and Barker's valuable work on fever—vol. i., p. 431:—

“Delirium ferox was observed in Limerick, and other symptoms indicating a determination of blood to the head, namely, hemorrhage from the nose, which, in some instances, took place to a very considerable extent.

“As to the organs chiefly affected in the progress of the disease, some variety seemed to exist. In most instances the brain has been reported as the organ which suffered chiefly. In some instances, as at Ennis, the lungs were not all affected, during the early periods of this epidemic fever; but in other places the lungs next to the brain principally suffered; this was observed in Listowel. The same remark was made at Tralee, and Dr. Bishop observed at Kinsale, that the lungs were frequently affected in children. At Ennis it was noticed as a peculiarity in the fever, that profuse perspiration occurred in its earlier stages without any relief to the patient; and it was remarked at Waterford, as stated in the report at page 251, that copious perspiration often afforded no relief. Yellowness of the skin and tunica adnata of the eyes, was frequently noticed at Cork. The head and biliary system were more than usually affected.

“As the disease advanced, it was observed in most or all parts of the province, that eruptions of different kinds, either closely allied to, or varieties of, those termed petechial, very generally accompanied it. In some instances the eruption was papular, or a motley appearance of the skin, or a rash somewhat resembling the measles showed itself. At Cork, Dr. M. Barry remarked that in the species of fever which he termed synchus, petechiæ seldom occurred earlier than the fourth or fifth day; but his observation, if it does not express it directly, at least implies that their occurrence was frequent. *They were generally of a bright red colour, sometimes small, at other times large.* He did not consider them dangerous, nor find it necessary to abstain from those measures of depletion which were useful when high excitement prevailed. In a communication from Clonmel, Dr. Fitzgerald states, that petechiæ occurred in four cases out of five. At Fermoy, petechiæ appeared very generally among the poor. At Kinsale, a red rash, we believe of the kind above mentioned as resembling that of the measles, was common, and petechiæ were more inclined to red than brown in that neighbourhood. At Listowel, petechiæ

were so common, that Dr. O'Connel did not see six cases of fever unattended by a petechial eruption, which often appeared early in the disease. The frequency of petechiæ was noticed also at Waterford, as well as of the eruption resembling measles already mentioned. The frequency of an eruption resembling measles was noticed at Bandon by Dr. Clarke and Dr. Jenkins. At Clonmel petechiæ were common even amongst children, in whose cases this eruption was not indicative of peculiar danger, but on the contrary, often attended a mild disease. It was observed in the neighbourhood of Tramore, and we believe the same to have happened in every part of Ireland, that one member of a family had petechiæ and aggravated symptoms of typhus, whilst the relatives in the same room had fever in the mildest form. In many instances, particularly in the more advanced stages of the epidemic, the lungs were observed to suffer, as at Fermoy, Listowel, and Mallow, according to the authorities already quoted; but both at Cork and at Ennis, places very remote from each other in this province, the lungs, at least at the commencement of its epidemic progress, were but rarely affected in this fever.

“As the epidemic advanced, gastric symptoms were observed, and mention has been already made of dysentery, which, in many parts of Munster, kept pace with fever. Dr. Grogan, of Limerick, remarked, that pains resembling those of rheumatism were common; and he also noticed a symptom, which there is reason to believe was not infrequent in most parts of Ireland, namely, that the tongue, which in most febrile diseases is white or altered in colour and other appearances, in many cases exhibited no morbid change, and remained moist and clean during a great part of the disease. From the same authority we learn that increased heat of surface, which is generally considered peculiarly characteristic of fever, was, in many instances at Limerick, altogether wanting; this absence of the usual febrile heat is observed in the worst kinds of fever.”

Farther on, the report states that, “Dr. Milner Barry, of Cork, in his account of the fever in that city, relates that the disease presented itself under different forms, which he arranges under the following heads:—1. Synochus; 2. S. Cephalica; 3. S. Pulmonica; 4. S. Hepatica; 5. S. Gastrica; 6. S. Enterica; 7. Typhus gravior; 8. Typhus Mitior; 9. Febricula. From the arrangement which Dr. Barry here adopts it is evident that a determination to particular organs was at Cork, as at other places, of frequent occurrence.”

For more than twenty years I have in my lectures advocated the doctrine, that morbid anatomy had not served to reveal the cause of fever, which I looked upon to be an *essential* disease; or to use the words of Fordyce, “*Fever is a disease which affects the whole system; it affects the head, trunk, and extremities; it affects the circulation, absorption, and the nervous system; it affects the body, and it affects the mind; it is therefore a disease of the whole system, in the fullest sense of the term. It does not, however, affect the various parts of the system uniformly and equally, but, on the contrary, sometimes one part is more affected than another.*” “This excellent view of fever seems to be borne out completely by modern pathology, and particularly the last part, where he says, that in cases of fever one part is more affected than another. We have, for instance, cerebral fevers, nervous, bilious, gastric, and catarrhal fevers, by which, it is to be observed, we do not mean to imply that there is nothing more than simple disease of the brain, or nerves, or liver, or bowels, or respiratory system, but that in each

of these fevers disease predominates in some particular part. So that when we speak of these fevers, we speak of such a fever as Fordyce has described, in which one part of the body is affected more than the rest.”*

I am happy to find that the views I have so long entertained in opposition to the great majority of writers both in Britain and on the Continent, are now generally acknowledged to be correct, as will appear by the following passage taken from the able essay on continued fever by Dr. Christisen in the “Library of Medicine.”

“*Anatomical characters of continued fever.*—The pathological anatomy of continued fever remained, until lately, in a very crude and unsatisfactory condition. But no other topic has attracted so much attention during the last five-and-twenty years, or has been investigated with more success, so far as the accumulation of facts goes. Whether the result has been hitherto beneficial in reference either to pathological doctrine or medical practice, is a question which admits of some doubt. A very great variety of morbid appearances have been indicated as occurring in fever. Of these many are plainly incidental, because they do not by any means present themselves regularly, others, however, have been held to be invariable; and consequently authors have sought for the nature and essence of fever, in the local morbid action which gives rise to such appearances. On taking into account the general result of the observations of all pathologists of credit, it seems impossible to avoid the conclusions, that no morbid appearance is invariable except congestion of internal organs; that every other pathological fact which has been observed is not constant and is therefore the effect of a secondary disease; and that, in all the observations hitherto made on the pathological anatomy of fever, we must be content with discovering its *consequences, not its causes.* The information which has been amassed is important in a practical point of view, as turning the attention of practitioners to the necessity of studying and treating these secondary affections, which in various circumstances are the occasion of suffering, danger or death. But it does not seem to throw much light on the real essence of fever, and by being rashly assumed to furnish that light, it has led to grave, theoretical and practical, errors.”

In fact, gentlemen, the knowledge we possess of the pathology of typhus fever, is of a *negative* character. Pathology teaches us what typhus is *not*, rather than what it *is*; it shows us that it is neither cerebritis, meningitis, pneumonia, pleurisy, gastritis, or enteritis, for it may exist without any of these, and they may exist without typhus fever; but it also shows that one or other of these lesions frequently arises in the course of that fever, and these require special attention.

It is difficult to classify the different varieties of fever that are observed in this city. The following are the most remarkable of the distinct varieties that have come under my notice:—

1st, Simple continued fever, without maculæ, or any notable determination to particular organs. 2d, Continued fever, without maculæ, with determination to some organ. 3d, Continued fever, with maculæ. 4th, Continued fever, accompanied *from the very beginning* with gastric derangement, and epigastric tenderness. 5th, The last-mentioned species, but in a more intense form, having black vomit and yellowness of the skin superadded. 6th, Continued fever, with petechiæ.

* STOKES'S *Practice of Physic* (American Edition, page 409).

I have observed each of these varieties of fever constituting epidemics, which lasted for longer or shorter periods ; but with us the dominant type of epidemics is the maculated. This species, too, confers more immunity upon the sufferers than any variety of fever, and in this respect, as well as in its well-marked eruption, it approaches in character to the exanthemata ; like the exanthemata, too, this species of fever seems to be the most contagious.

Concerning contagion, the physicians of Ireland and Scotland are nearly agreed in attributing that quality to fever. The fever wards of the Meath Hospital are by no means crowded, and are both well ventilated and cleanly, while the building itself is placed in the most salubrious part of the vicinity of Dublin, being built upon the site of Dean Swift's garden ; and yet it almost invariably happens, that when a patient, labouring under any other acute disease, or any chronic disease, is admitted into a fever ward, he gets fever in the course of a fortnight, or even sooner. This happens the more surely if the patient is placed in the immediate vicinity of a maculated case. Among the pupils who attend the hospital, the greater number are sooner or later attacked by fever ; and the same is true of the porters, laundry-maids, and nurses.

I have great pleasure in recommending Dr. Christison's observations on this subject, and shall here quote briefly some of the arguments advanced by him in support of the contagious nature of the disease. In the first place he says, that in districts thinly inhabited, fever is generally very rare, whereas in large towns, where numbers of people are living in a crowded state, typhus fever is never absent. When it becomes epidemic in a large town, it never bursts forth with impetuosity, like the diseases of *undoubted miasmatic origin* ; but extends gradually, and always the more slowly the larger the city, so that many months may elapse before it reaches its full height. It then begins to decline, retires as gradually as it commenced, and finally resumes its natural condition, affecting only a few individuals here and there, and at distant intervals.

At the commencement of an epidemic, fever is found to spread at first, not by scattered unconnected cases occurring at a distance from one another, but by slow degrees around one or more invalid localities as foci ; first creeping from one individual to another of a family, then from family to family, according to their proximity, relationship, or general intercourse, and at length to the surrounding population promiscuously.

But a further argument of very great weight may be drawn even from the very violations of this general rule. For sometimes the disease is seen suddenly to arise, and gradually to spread in parts of a town where it had not previously existed ; and this in concurrence with the arrival of the disease by importation from a previously invaded locality.

“ Another argument, more powerful perhaps than any other, and upon which alone the doctrine of the *communicability* (Dr. C. uses this word in preference to *contagion* or *infection*) of fever might be rested, is, that in circumscribed localities, inhabited by crowded bodies of men, fever is observed invariably to spread among the healthy, when it is introduced to a great extent from without, but never materially at any other time. This is a general mode of expressing the history of such institutions as infirmaries and fever hospitals. During the last twenty years the Infirmary of Edinburgh has been the receptacle of a large proportion of fever cases in three epidemics, which have lasted between three and

four years ; and there have been two intervals varying from three to five years in duration. During the intervals, when fever cases from without were few, fevers originating within the hospital were extremely rare among any classes of individuals attached to its service. But during the prevalence of the several epidemics fever abounded in every department of its service : physicians, clinical clerks, general servants, nurses, washer-women, apothecary's assistants, all suffered more or less, and some to an excessive degree. The same facts were observed even more remarkably in an institution which was, during the same interval, occasionally occupied as a fever hospital. In these epidemics it was made use of for this purpose ; and at various periods during the last twenty-five years, it has also been occupied, when fever did not prevail epidemically in the city, by crowded bodies of men, first by soldiers as a barrack, then as a retreat for some hundreds of poor people, who were turned out of their houses in winter by an extensive fire, next as a quarantine house during the prevalence of cholera, and for some years past, during the worst epidemic of fever which has yet prevailed in the city, it has been occupied by about 300 of the very lowest of the community, namely, as a house of refuge for vagrants and other persons. Now, on each occasion, when it was occupied as a fever hospital, the people on service in the institution suffered to an extraordinary degree, scarcely a single individual escaping an attack, who remained a moderate length of time in it. But on other occasions, fever was either absolutely unknown, or the cases were rare and distant, and easily referable to the particular manner of life of the individuals composing the population of the establishment. It is also worthy of notice, in reference to both chains of facts here mentioned, that neither around the infirmary, nor around the late fever hospital, did fever ever prevail to any material extent during any of its epidemic visitations." It is unnecessary to allude to the many instances of fever occurring amongst nurses, porters, and clinical clerks in different fever hospitals, which strongly bear out the view that typhus fever is eminently contagious.

Another interesting point connected with the contagion of fever has lately been inquired into, viz., to determine the particular period of the disease when this character is most remarkable.

Dr. Perry, of Glasgow, was the first, I believe, who advanced the opinion that the stage of convalescence was the most infectious in typhus fever. He considers typhus fever as a true *exanthema*. He says, "I have some years entertained the opinion, founded upon an extensive series of observations, that contagious typhus is an *exanthematous disease*, and is subject to all the laws of the other exanthemata ; that, as a general rule, it is only taken once in a life-time, and that a second attack of typhus does not occur more frequently than a second attack of small-pox, and judging from my own experience, less frequently than a second attack of measles or scarlet fever."

From numerous observations and experiments I am satisfied, that it is not contagious *before the ninth day*, perhaps not till after a later period of the disease. Among many circumstances which establish this opinion, I may mention one experiment which I made upon a pretty extensive scale. The fever wards of the Glasgow Royal Infirmary are each capable of containing twenty patients. The beds are arranged in two opposite rows, and are pretty near each other. While the patients are in the acute wards, they are not allowed the use of their clothes, though they may be able to

sit up ; they are, therefore, almost constantly confined to bed, except when rising to stool ; and there is about one close stool to every three patients. Into the fever-house are admitted cases of measles, scarlet fever, and small-pox : and patients are very frequently sent in labouring under bronchitis, pneumonia, erysipelas, and other local inflammatory affections. I found by experience, that when the latter class of patients were sent to the convalescent ward, where they necessarily mixed with the others, almost all of those who had not a previous attack of typhus fever were either seized with it before leaving the house, or returned soon after their dismissal labouring under it ; the period intervening between the time of their being sent to the convalescent ward, and the attack, never being less than eight days. Although means were taken to keep those recovering from small-pox, scarlatina, &c., in a separate room from those convalescent from typhus, the rooms being adjoining the non-intercourse was incomplete, and the result was, that these diseases occasionally spread among the typhus convalescents, and the convalescents from small-pox and scarlatina caught typhus. In consequence of these observations, I adopted the practice of not sending, as formerly, to the convalescent wards, those patients affected with inflammatory diseases, unless I ascertained that they were secured against the disease by having had a previous attack of typhus ; but kept them in the acute fever wards till they were so far recovered as to go to their own houses, and the result was (and the practice was continued for several months), that not one of those detained in the acute wards caught the disease while there, or returned with it afterwards. From the above and other observations, I have adopted the opinion, that typhus, like measles, small-pox, &c., is chiefly spread during the period of convalescence. In the paper already noticed, I have mentioned the desquamation of the cuticle, which usually takes place when a patient is convalescent from typhus. Do the fine scales thrown off in this state contain the poison which, by adhering to the clothes and hair of the patient, are carried about with him, and being rubbed off are, while floating in the atmosphere, applied to the mucous surface, or inhaled by a susceptible recipient, in whom it produces, after a certain time, the specific disease ?*

I shall now, in pursuance of my intention, proceed to speak of the treatment of fever. I may observe here, that we are now at a point of time possessing no common interest for the reflection of medical observers.† It is now nearly two years since my attention was first arrested by the appearance of maculated fever, of which the first examples were observed in some hospital patients from the neighbourhood of Kingstown. This form of fever has lasted ever since, prevailing universally, as if it had banished all other forms of fever, and being almost the only type noticed in our wards. Within the last four days, however, a change appears to have taken place. Scarcely any cases of maculated fever have been admitted within the last fortnight, and the majority of fever patients at present under treatment are free from cutaneous eruption, so frequently observed during the last two years. The cases which we have recently admitted present no spots, or maculæ, and have been termed, perhaps improperly, simple typhoid fever. And here permit me to observe, that it would be very wrong to conclude, from this circumstance, that our recent cases are of a more favourable de-

* Dublin Medical Journal, vol. x.

† This lecture was delivered at the beginning of the session 1836-7.

scription than those which preceded them ; the disease, it is true, appears to have lost a character which is always looked upon as bad and unfavourable, but it may be just as dangerous a modification of fever as the eruptive typhus. During the predominance of the latter form, all cases without maculæ were in general simple and free from danger : but it is probable that this is not the case at present. There are two cases of this non-maculated typhus in the female ward, which are of an extremely doubtful character, and in which it would be difficult to predict the result. Indeed, were I to make any prognosis, I should say that the chances, if not against them, are at least very fairly balanced.

Now, gentlemen, as it appears we have come to a change, and that we may have to treat a new modification of fever, it behoves us to be extremely vigilant. I invite you to watch and study, with the closest attention, the cases of fever which come before you. Let us, in the first place, endeavour to ascertain whether we have seen the close of one epidemic, and are now at the commencement of another. The number of cases of simple typhoid fever have, you perceive, increased in a very remarkable manner, and the number of cases of eruptive typhus have become remarkably scarce. But there is another and a more important reason why we should study these cases with all due diligence and attention. They may be the first examples of a new epidemic, and every new epidemic, as it has its peculiar characters, so has it its peculiar treatment. We cannot follow the same track which we have pursued for the last two years—we cannot apply our remedies with the confidence of experience—we must now strike into a new path, and for some time our practice must be tentative and experimental. It was only after a good deal of experimental observation that we were able to arrive at a plan of treatment adapted to meet the exigencies of the maculated form of fever : and it is very probable that this new fever may prove at first extremely difficult to manage ; and it may be some time before the diminished rate of mortality will show that we have at length discovered its true character, and the remedies best calculated to arrest its progress.

Let me now direct your attention to some practical points connected with the treatment of the maculated fever which has prevailed for the last two years, and which has spread to a very considerable extent in this city and its environs, attacking alike the upper, middle, and lower classes of society. It is not my intention to enter into a detailed history of the origin and progress of this fever, its varieties, symptoms, and pathological phenomena ; my purpose is to furnish you with a brief but comprehensive outline of its treatment, and of the remedies which have been found most successful in its removal, as well as the most appropriate time and mode of their application.

Having made these general observations, I may observe, in addition, that in the whole range of human maladies there is no disease of such surpassing interest and importance as fever ; and I cannot dwell too much on the necessity of your applying most attentively to the study of its pathology and treatment. If you compare the mortality from fever with that resulting from any other disease in this country, you will be struck with the overwhelming fatality of this affection, and will readily admit the inestimable value of a thorough knowledge of its nature and treatment. Recollect, too, that fever is a disease which numbers among its victims persons chiefly in the prime of life, and during the most active and useful

stage of existence,—fathers and mothers, persons who are the ornament or the stay and support of their families, the intellectual, the industrious, the efficient,—those whose lives are most valuable to their friends and to society. This gives an additional interest to the study of fever, and should stimulate you to endeavour to arrive at a correct knowledge of its nature and treatment. And here let me observe, that there is nothing more untrue than the assertion, that the treatment of fever is a matter of indifference. It has been the custom to look upon every plan of treating fever as idle and absurd, and until very lately there were many persons in this country who believed that patients recovered not from having had the advantage of treatment, but from goodness of constitution or some favourable accident; and it was usual with such persons to appeal to the experience of Dr. Rutty, who, in recording the history of the epidemics of his own time (1741), observes, “the poor abandoned to the use of whey and God’s good providence recovered, while those who had generous cordials and great plenty of sack, perished.” And, indeed, I must admit that the treatment of some of the cases of fever which I witnessed when a student, would seem to justify the quaint and sarcastic observation of Dr. Rutty. At that period, whether it was from bad treatment, or from what has been termed the *nimia diligentia medici*, it is a fact that the maximum of mortality was among the rich, and that those who were most attended to, died most speedily. In the epidemics of 1816, 1817, 1818, and 1819, it was found by accurate computation, that the rate of mortality was much higher among the rich than among the poor.* This was a startling fact, and a thousand different explanations of it were given at the time; but I am inclined to think that the true explanation was, that the poor did not get so much medicine, and that in them the *vis medicatrix* had more fair play.† I could appeal to the practice of those times in proof of this opinion, and as we go along I shall have an opportunity of alluding to this part of the subject again, and contrasting the practice of the present day with that which was generally followed thirty years ago. If you look to Dr. Cheyne and Dr. Barker’s Synopsis of the plan of treatment employed by the physicians of those days, you will be prepared, from a mere inspection of it, to admit that it was at least as hard to escape the physician as the disease. Since that period our practice has greatly improved, and things are much changed; the preponderance of fatal cases is now to be found among the poor, and the mortality among the rich, or those who have proper medical advice from the commencement, is not one-third of that which is found among the indigent, who are generally neglected at the commencement of the disease. I am therefore fully prepared to deny that, in the present state of medical knowledge, our practice is a matter of indifference; on the contrary, there is no disease in which diligent attention and skilful treatment are more frequently successful than in fever, nor is there any

* “The rich are less frequently affected with epidemic fevers than the poor, but more frequently die of them. Good fare keeps off diseases, but increases their mortality when they take place.”—*Fletcher’s Pathology*, p. 27.

† “On the whole the mildest and simplest treatment seems to be the most generally successful, and the result of a certain Lady Bountiful’s practice forms its best commentary. She begins with an antimonial emetic; the patient is washed every morning with soap and water, gets every second day half an ounce of sulphate of magnesia, on the seventh day a blister to the neck, and if necessary some diluted wine, this seldom and sparingly; of 120 in fever, treated after this mechanical plan, not one died.”—*Cheyne and Barker’s Report*, p. 444.

affection of equal importance in which our therapeutic means are more efficient and valuable.

Now, when called on to treat a case of fever, there are several things which require your attention. In the first place, you should examine the state of the family arrangements. This is a matter which men are apt to overlook or treat as a matter of indifference, but in my mind it is of no ordinary importance, and should always be attended to. You should never, if possible, undertake the treatment of a case of fever where the friends or relations of the patient supply the place of a regular fever nurse. The mistaken tenderness of relatives, and their want of due firmness, presence of mind, and experience, will frequently counteract your exertions and mar your best efforts. Affection and sorrow cloud the judgment, and hence it is that very few medical men ever undertake the treatment of dangerous illness in the members of their own families. The sympathy which a nurse should have for her patient should be grounded on a general anxiety to serve, and a strict sense of duty, as well as a laudable desire of increasing her own reputation; it is, in fact, a sympathy analogous to that which should actuate a physician. Again, it will not do to have a nurse who has been usually employed in other diseases; your assistant must be a regular fever nurse, and the man who undertakes the treatment of a long and dangerous case of fever without such an assistant, will often have cause to regret it. I could mention to you many cases illustrative of the truth of this assertion. I could tell you, that where I have permitted the continuance of the services of one of the family, or of a common nurse, I have been almost invariably annoyed and disappointed. I now make it a general rule to refuse attending any dangerous and protracted case of fever without a properly qualified nurse.

In the next place, when treating a case of bad typhus, do not think that it will be sufficient to see your patient once a-day. But you will say, perhaps, that our hospital patients here do very well, and yet they are visited only once in the twenty-four hours. True—but then we have experienced nurses to look after them at all hours; we have the valuable surveillance of our apothecary, Mr. Parr; we have the attendance of the resident pupils, and of the gentlemen who take charge of the cases. You see then that they do not depend on a solitary visit. How often has Mr. Parr, or the resident pupil, found it necessary to change the treatment adopted at the morning visit? How often have the remedies of which we had only given a hint in the morning, been actively and energetically employed before the close of the day; and how often have lives been saved by the valuable attentions to which I have just alluded? No one should attend a case of fever without having proper medical assistants. My practice, in general, is to visit my fever patients two or three times a-day; and, when I have a bad or a dangerous case to manage, I always have a competent medical assistant to stay by the patient and watch every change of his malady. I do not know how they manage this matter elsewhere, but in this city we have so many zealous, intelligent students, so many young medical friends, and so many well-educated apothecaries, that we are never at a loss for an assistant. This fact is, I think, a sufficient answer to the objections put forward by Dr. Johnson, in the last number of the *Medico-Chirurgical Review*. He says that tartar emetic is a two-edged sword—an agent powerful alike for good or evil, and in the administration of which no ordinary circumspection is demanded. All this I

am willing to admit; there is no remedy capable of producing more mischief when abused, but when properly watched it is, I am confident, the means of saving many valuable lives. He says, also, that Dr. Graves cannot give that share of attention to his patients which the employment of such a remedy demands. He is quite mistaken on this point. I am never at a loss for some skilful person to remain with the patient, watch the operation of each dose, and modify or change it according to circumstances. The want of proper assistants may be elsewhere an objection to the administration of tartar emetic, but this objection does not hold good with respect to Dublin.

One or two more observations of a general nature. Some persons have such a terror of foul air, in cases of fever, that you will find all the windows in the house thrown open, not even excepting those of the patient's bed-chamber, and wherever you turn you are sure to meet with a current of air. Now, this is an unnecessary practice, likely to entail disease on the family and local inflammation on the patient. The bed-room of a patient labouring under fever should be well aired, but without what is termed thorough air; and it should, if possible, be a quiet back room, away from the street. In the next place, it should be sufficiently large to hold two bedsteads conveniently; and you should order the attendants to have two well-aired beds in readiness, from one of which the patient should be changed to the other every twelve or twenty-four hours. You can scarcely have an idea of the comfort this affords to a person in fever. The room can be kept properly ventilated by a fire, and the temperature can be regulated by a thermometer. Some persons are in the habit of constantly sprinkling the room with vinegar—others with the chlorides. I do not know that it is necessary, and I think the use of chlorine is doubtful, if not improper, and may prove injurious to the patient.

Having made these few general observations on the steps to be taken by those who enter on the treatment of typhus, I shall now proceed to speak of diet and medicines. In a disease like fever, which lasts frequently for fourteen, twenty-one, or more days, the consideration of diet and nutriment is a matter of importance, and I am persuaded that this is a point on which much error has prevailed. I am convinced that the starving system has, in many instances, been carried to a dangerous excess, and that many persons have fallen victims to prolonged abstinence in fever. This was one of the errors which sprung from the doctrines of those who maintained that fever depended on general or topical inflammation. They supposed that fever arose from inflammation, and immediately concluded that, to treat it successfully, it was necessary to reduce the system by depletion and low diet, and to keep it at this point during the whole course of the disease. Hence the strict regimen—the *diète absolue*—of the disciples of the physiological school, and of those who looked on inflammation as the essence of fever. The more the symptoms appeared indicative of inflammatory action, the more rigorous was the abstinence enforced. If a patient's face was flushed, or his eyes suffused, no matter what the stage of the fever was, they said, "here is inflammation of the brain, and nourishment will exasperate it." If he had red or dry tongue, and abdominal tenderness, they immediately inferred the existence of gastro-enteritis, and all kinds of food, even the lightest, were strictly forbidden. That this proceeds from false notions on the nature of

fever is beyond doubt, and I pointed out this fact many years ago, long before the appearance of Piorry's work. Let us, in the first place, examine the results of protracted abstinence in the healthy state of the system. Take a healthy person and deprive him of food, and what is the consequence? First, hunger, which after some time goes away, and then returns again. After two or three days the sensation assumes a morbid character, and instead of being a simple feeling of want and a desire for food, it becomes a disordered craving, attended with dragging pain in the stomach, burning thirst, and some time afterwards, epigastric tenderness, fever and delirium. Here we have the supervention of gastric disease, and inflammation of the brain as the results of protracted starvation. Now, these are in themselves very singular facts, and well deserving of being held in memory. Read the accounts of those who perished from starvation after the wreck of the Medusa and the Alceste, and you will be struck with the horrible consequences of protracted hunger. You will find that most of the unhappy sufferers were raging maniacs, and exhibited symptoms of violent cerebral irritation. Now, in a patient labouring under the effects of fever and protracted abstinence—whose sensibilities are blunted, and whose functions are deranged—it is not at all improbable that such a person, perhaps also suffering from delirium or stupor, will not call for food, though requiring it; and that if you do not press it on him, and give it as medicine, symptoms like those which arise from starvation in the healthy subject may supervene, and you may have gastro-enteric inflammation, or cerebral disease, as the consequence of protracted abstinence. You may, perhaps, think that it is unnecessary to give food, as the patient appears to have no appetite and does not care for it. You might as well think of allowing the urine to accumulate in the bladder, because the patient feels no desire to pass it. You are called on to interfere where the sensibility is impaired, and the natural appetite is dormant; and you are not to permit your patient to encounter the horrible consequences of inanition, because he does not ask for nutriment. I never do so. After the third or fourth day of fever, I always prescribe mild nourishment, and this is steadily and perseveringly continued through the whole course of the disease.*

* In the preceding lecture frequent mention has been made of petechial fevers, particularly in the passage cited from Cheyne and Barker's work, respecting the fever of 1816 and 1817; and, in compliance with the generally received opinions, I have set down this fever as a distinct species. I must acknowledge, however, that I myself have never seen petechial fever epidemic in Ireland. I was clinical clerk at Sir Patrick Dun's Hospital during the great epidemic of 1816 and 1817. The eruption consisted of maculae, somewhat resembling measles, frequently dark and livid in bad cases; but except in a very few instances indeed there were no true petechiæ. In 1822 I had the charge of a large district in the town of Galway, when fever was committing great ravages; then too the eruption was maculated. I cannot account for so many witnesses testifying the contrary to this statement, except by supposing them to have been misled by appearances; for it must be confessed that although *true petechiæ* are rare, *true flea-bites* are common in Ireland. Most observers, too, seem to have been very inaccurate in their phrasology, as is evident from the above quotation from Cheyne's work. Dr. Barry plainly uses the word *petechiæ* very loosely—"They were generally of a bright red colour, sometimes small, at other times large." Surely this is quite descriptive of maculae, but totally inapplicable to petechiæ; and the same may be said of the other observers, most of whom, I verily believe, overlooked the true eruption, and noted down flea-bites as petechiæ! Connected with the question first raised by Dr. Perry, whether maculated typhus should be considered as an exanthema, the fact is deserving of notice, that children exhibit the eruption much less frequently than adults, although they are quite as liable to the fever, when it is epidemic. This fact is the more remarkable, because in measles, scarlatina, &c., the true exanthemata, the eruption is more constant in children than in adults.

LECTURE V.

General treatment of fever—Dietetic management—The starvation system may produce organic disease—Proper food for fever patients and convalescents—Allaying of thirst—Sedatives—Expergefacients—Efficacy of green tea in a case of narcotism—Flagellation effectual in a case of poisoning with opium.

At my last lecture I spoke of some preparatory steps which should be taken before you enter on the treatment of a case of fever. I stated that one of the most essential requisites was a good nurse; that you can readily find persons to undertake this office in every family, but that it is rare to meet with any individual among the patient's relatives properly qualified to discharge so important a duty. There is a vast difference between readiness to undertake and ability to perform. Some persons are always a-doing, but never do right; always attempting but never successful. There are many nurses who are extremely attentive, but inexpert and injudicious, and their ill-judged attentions are frequently prejudicial to the patient. A fever nurse has a vast deal in her power; if an enema is to be administered, the patient will be much less disturbed and annoyed than if it were given by an unskilful person. The mere handling of a patient—the moving of him from one bed to another—the simple act of giving him medicine or drink—the changing of his sheets and linen—the dressing of his blisters—and a thousand other offices, can be performed with advantage only by an experienced nurse. Always bear in mind that it is of the utmost importance to economise the patient's strength in fever. The very act of lifting him up, or moving him from one side to another, tends to produce exhaustion. In the advanced stages of fever, the services of a properly qualified nurse are inestimable. Then there is the moral management of the patient, and this is an office which no one can undertake unless qualified by experience, and a correct knowledge of the habits of persons labouring under such forms of disease. Every one admits the value of moral superintendence in the treatment of the insane. Now there are very few patients who are not in a state analogous to insanity, for a longer or shorter period, during a course of typhus fever. There is a necessity for moral management in fever as well as in insanity, and this is understood only by an experienced nurse. Friends or relatives are seldom found capable of discharging this office. If they chance to discover from the physician's remarks or questions the weak points of the patient's case, they generally contrive to let him know them in some way or other. If the patient is restless, for instance, the ill-judged anxiety of his friends will most certainly prevent him from sleeping. They steal softly to his bed, draw the curtains, move the candle so as to make the light fall on his eyes, and wake him perhaps at the moment he is settling down to rest. If he happens to take an opiate, and that they are aware of the nature of his medicine, they inform him of it, and his anxiety for sleep, conjoined with their inquiries, prevent its due operation. Hence, when you prescribe an opiate, you should not, in any case, say any thing about it; and it should not be administered in such a way as to lead the patient or his friends to expect decided benefit from it. It is only where I have to deal

with prudent persons that I break through my rule of concealing both the nature of the medicine and the results which I expect from its operation. One of the best ways of giving an opiate is to administer it in the form of an enema. The patient's attention is then turned away from the consideration of loss of rest—he supposes that the enema is to act on his bowels, and in expecting a motion he drops asleep. You will often, too, succeed in producing sleep in this way, where you would fail in bringing it on by an opiate administered by the mouth. Another recommendation attached to this mode of exhibiting opiates is, that it can be employed in cases of delirium, where the patient obstinately refuses to swallow any kind of medicine. Let me give you here another caution. Do not let the patient know the situation or extent of his danger, however you may feel bound to act in reference to these matters towards his relatives or friends. If you apprehend mischief in the brain, do not commence by examining the head, or putting your questions in such a manner as to lead him to suspect the seat and nature of the affection. The same remark may be applied to the examination of the thorax and abdomen.

At my last lecture I endeavoured to impress upon you, that persons have been occasionally starved to death in fever, and laid before you some remarkable facts connected with the influence of protracted abstinence on the general system, as well as on the brain and digestive tube. I endeavoured to show that long-continued denial or want of food generates symptoms bearing a very close resemblance to those which are observed in the worst forms of typhus. Pain of the stomach, epigastric tenderness, thirst, vomiting, determination of blood to the brain, suffusion of the eyes, headache, sleeplessness, and, finally, furious delirium, are the symptoms of protracted abstinence; and to these we may add, tendency to putrefaction of the animal tissues, chiefly shown by the spontaneous occurrence of gangrene of the lungs. It has been shown by M. Guislain, physician to the hospital for the insane, at Gand, that in many instances gangrene of the lungs has occurred in insane patients who have obstinately refused to take food. Out of thirteen patients who died of inanition, nine had gangrene of the lungs. You perceive, then, that starvation may give rise to symptoms of gastric disease, to symptoms of cerebral derangement, and to mortification of the pulmonary tissue. It is not, therefore, wrong to suppose that when a system of rigorous abstinence has been observed in fever, and when food has been too long withheld, because, forsooth, the patient does not call for it, and because his natural sensibilities are blunted and impaired—it is not, I say, unreasonable to infer that gastric, cerebral, and even pulmonary symptoms may supervene, analogous to those which result from actual starvation.*

An attentive consideration of the foregoing arguments has led me, in the treatment of long fevers, to adopt the advice of a country physician of

* The following interesting case is very illustrative of the views advanced in the text:—

HUGHAM gives the history of a gentleman “who obstinately starved himself to death, and would not, for many days, either by force or persuasion, swallow any kind of food, or a drop of liquor. He soon grew feverish, flushed in his face, and very hot in his head; his pulse was small, but very quick, in four or five days his breath became exceedingly offensive, his lips dry, black, and parched, his teeth and mouth foul, black, and bloody, his urine vastly high-coloured and stinking as much as if it had been kept a month; at length he trembled continually, could not stand, much less walk, raved and dozed alternately, fell into convulsive agonies frequently, in which he sometimes sweated pretty much about the head and breast, though his extremities were quite cold, pale, and shrivelled; the sweat was of a very dark yellow colour, and of a most nauseous stench.”

great shrewdness, who advised me never to let my patients die of starvation. If I have more success than others in the treatment of fever, I think it is owing in a great degree to the adoption of this advice. I must however observe, that great discrimination is required in the choice of food. Although you will not let your patient starve, do not fall into the opposite extreme: you must take care not to overload the stomach. When this is done, gastro-enteric irritation, tympanitis, inflammation, and exasperated febrile action are the consequences. I have witnessed many instances of the danger of repletion in febrile diseases. A case of this kind occurred some time ago in this hospital, in a boy who was recovering from peritonitis. In another case, in private practice, an incautious indulgence in the use of animal food was followed by a fatal result. A young lady ate some beefsteak, contrary to my orders, at an early period of convalescence from fever, relapsed almost immediately, and died of enteritis in thirty-six hours. Food must be given with great care and judgment, particularly in the beginning of fever. For the first three or four days, particularly if the patient is young and robust, water, weak barley-water, and whey will be sufficient. After this it may be well to begin with some mild nutriment. What I generally give is some well-boiled gruel, made of groats, and flavoured, if there be no tendency to diarrhœa, with sugar and a small quantity of lemon juice. The ordinary oatmeal gruel does not answer sufficiently well for this purpose, for it is apt to produce griping and diarrhœa, symptoms which are extremely disagreeable in the commencement of fever, and which often lead to others of a more troublesome and formidable character. I am also much in the habit of ordering a little thin panado, morning and evening, during the latter part of the first, and the beginning of the middle stage of fever. A small slice of bread is slightly toasted, and boiling water poured on a tablespoonful of the crumbs, in sufficient quantity to make a thin panado, of which the patient takes a tablespoonful two or three times a-day. It may be flavoured with a very small quantity of lemon juice and sugar, if there is no tendency to diarrhœa; but where this exists, or where you are administering mercurials, I think you should be cautious in the use of acids. Although medical men of the present day do not object to giving acids during the use of mercurials, I think the practice is not entirely devoid of danger, and I think our predecessors were right in withholding them under such circumstances. You will begin, then, on the third, fourth, or fifth day, according to circumstances, with a little gruel; and after two or three days you may add a little panado, giving, as I have already observed, a spoonful of either every third hour. As the fever advances you may add some mild animal jelly or broth; and one of the best kinds of nutriment in the middle and latter stages of fever, is chicken broth. I do not speak here of chicken water; I mean good and well-made chicken broth. Give this, but give it in small quantities, and with great caution at first. Watch the effects of the few first spoonfuls; it may act injuriously, and you should give it up, at least for some time, if it produces any bad effects. If it brings on heaviness, sickness of stomach, flushing of the face, excitement of pulse, and increased feverishness, give it up, and return for some time to the gruel and panado. You can try it again in a day or two; for although your patient does not bear it to-day, he may to-morrow or the day after; and it is a most fortunate circumstance when it agrees with him, for, as I have already observed, it is the best kind of nutriment you can give in the middle and latter stages of fever.

Recollecting the tendency to diarrhœa and intestinal irritation in fever, you will be extremely cautious in allowing your patient the use of fruit. Indulging patients in the use of grapes and oranges is a very popular, but, in my mind, very hazardous and improper custom. I have on many occasions seen persons injured by fruit of this description. Stewed and roasted apples are still more dangerous; they are apt to produce tormina, flatulence, diarrhœa, and intestinal inflammation. All acid or raw fruit have a tendency to produce irritation of the stomach and bowels, and should be avoided altogether, or very sparingly used.

One general observation as to the administration of food and nutriment in fever. All kinds of food and nutriment should be given by day, and the patient should, if possible, be restricted to the use of fluids by night. The natural habit is to take food by day and not by night, and in sickness as well as in health, we should observe the diurnal revolution of the economy. With respect to drinks, the mildest, of course, should be preferred: on this point most persons are generally agreed, and it will be unnecessary for me to detain you with any particular observations. There is one error, however, which is very frequently committed in the use of drinks in fever; patients are generally allowed to drink too much. It may be urged that they have a strong desire for fluids; but they should not be gratified in every thing they wish for. They labour under a constant state of nervous irritation and restlessness, and will beg of you to do twenty different things to relieve their immediate feelings; but it would be just as improper to give them large quantities of drink every time they desire or call for it, as to indulge them in any momentary whim which may be the offspring of their disordered and changeable fancy. The continued swilling of even the most innocent fluids will bring on heaviness of stomach, nausea, pain, and flatulence, and predisposes to congestion and intestinal irritation. From the mere ingestion of a large quantity of the simplest fluid, you will frequently see well-marked symptoms of gastric irritation arise during the course of fever. This is not a picture drawn from imagination; I have witnessed it on many occasions during the course of my practice. It is extremely painful, indeed, to be obliged to refuse drink to a patient labouring under intense thirst; but you should never allow them to take a large quantity of fluid at a time: you should impress upon them the danger attendant on such a practice, and tell them that a spoonful or two, swallowed slowly, allays thirst more effectually than drinking a pint at a time. The sensation of thirst, as you all know, is almost entirely confined to the fauces and upper part of the pharynx, and it is as much relieved by a small quantity swallowed slowly and gradually, as by a large quantity gulped down at once.

Besides the simple fluids, there are other drinks required in fever. Beer, ale, porter, wine, tea, and coffee, are also frequently used in the treatment of fever, and are of the utmost value when employed on appropriate occasions; they are adjuvants of the highest importance in the dietetic management of fever, and it will require some time to explain the rules by which you should be guided in their administration. I shall therefore speak of them according to the indications with which they are given; and, first, of tea and coffee. You are aware that we give sedatives and narcotics to tranquillise, to produce a species of exhaustion of the mental faculties, and to bring on sleep; and I do not see any reason why we should not also administer expectorants, or remedies calculated to maintain intellectual activity, and keep the patient awake. Among

the remedies most frequently employed for the latter purpose, are tea and coffee. You have lately seen an infusion of green tea useful in a case of narcotism which occurred in the fever ward. A man in the latter stage of fever, and labouring under great nervous excitement and total loss of sleep, was ordered an opiate enema, after we had tried various other means without success. During the course of the evening he got twelve drops of black drop, with two ounces of mucilage of starch, in the form of enema, and soon after fell into a sound sleep. When we came next morning and inquired after him, every thing was reported to have gone on well; the opiate enema had answered the purpose completely, and the man was still sleeping deeply. We found, however, on a more accurate examination, that he was in a kind of lethargic state, and could scarcely be roused. When addressed in a loud tone of voice, he raised himself heavily and slowly, half opened his eyes, gave a brief answer to our questions, and then, leaning back on his pillow, dropped asleep. Observe here the danger connected with this state. He was in an advanced stage of fever, had been restless and sleepless, and had suddenly passed to an opposite state. The rapidity with which coma had supervened on sleeplessness, and the danger of fatal congestion of the brain coming on, gave me considerable alarm. There was no use, however, in thinking of what had been done; the man's state called for prompt and decided measures, and we proceeded at once to attack the symptoms of our own creation. One of the gentlemen went down and got some green tea, of which he made a strong infusion, and administered a strong dose of it to the patient. This had the desired effect; the symptoms of coma gradually disappeared, and when I came to see him in the afternoon, he was quite out of danger. Green tea was first introduced here as an *expergeficient* in the treatment of coma by Dr. Edward Percival, son of Dr. Percival of Manchester; and some years ago he read a paper at a meeting of the College of Physicians, in which he brought forward several cases of coma and stupor, in which green tea had produced the most favourable effects. On the continent they generally use strong coffee for the same purpose. Whether these beverages produce this effect by their influence on the circulation, or on the nervous system, I am not prepared to say; but there cannot be a doubt of their efficacy and value in many cases of this description; and I am frequently in the habit of using both with this intention.

While on the subject of *expergeficients*, I shall beg leave to read for you a very curious case from the 13th number of the Boston Medical and Surgical Journal, in which an *expergeficient* of a less agreeable character was employed to rouse a patient from the lethargic stupor brought on by a large dose of laudanum. There are some transatlantic peculiarities of expression in the detail of this case, but I have no doubt of its being correct. It is entitled "a case of successful treatment by flagellation, where a large dose of laudanum had been taken." And the author, Dr. Joseph Barret, of Middleton, Connecticut, proceeds as follows:

"Tincture of opium is not unfrequently resorted to for destructive purposes. It is also, unfortunately, and too frequently, taken by mistake, and proves fatal before efficient means can be adopted to counteract its deleterious effects on the system. I am induced, therefore, to offer a short statement of a case of poisoning with laudanum that fell under my care several years since, for the following reasons: first, the success that attended

the mode pursued, and, secondly, from not having met with any such means recorded, to my knowledge,* either in works on medicine, or in treatises on poisons."

Observe, it is not I that am speaking here, but Dr. Barrett, of Middleton, Connecticut.

"In the year 1822, February 23d, I was called on to see Mr. Wright Harris (this was in the state of New York), who had intentionally taken a large dose of laudanum for the purpose of destroying himself. He had committed this act during his absence from home, under circumstances which it is not important to relate. Much time, about three hours, was therefore lost, before any effectual measures could be adopted for his relief. His case, as I found him, appeared to be altogether hopeless. Before my arrival, emetics and various drinks had been tried, besides frictions, and constant, though ineffectual attempts, had been made to irritate the œsophagus by feathers. All these means had failed, and the patient was in such a profound sopor, that apparently nothing but warmth remained to indicate that life had not already become extinct. The quantity of laudanum taken was ascertained to be one ounce and a half. The case appearing so desperate, justified me in the course of treatment which I was, under existing circumstances, then obliged to adopt.

"Internal remedies having entirely failed, there was no chance left but for high external excitements. I therefore determined to use vigorous measures. I commenced with flagellations, using long pliant, fresh twigs, to the palms of the hands and soles of the feet. These were briskly applied, and in a short time gave indications of uneasiness and pain. This treatment was unremittingly pursued till the man spoke, and complained of being pained by the whipping, when this severe appliance was relaxed; but on so doing, he instantly sunk into a profound stupor, from which he was again only roused by the severity of the whipping. It required the aid of a number of men to take turns in the flagellation, as well as to support and walk him about; for a cessation of the use of the rods was followed by instantaneous stupor. After about six or eight hours under this course, the stupor was lessened, and the severity of the flagellation mitigated; but as the case required constant high excitement, it was still repeated at intervals; till eventually the exercise of walking was sufficient to keep him awake. This was in about twelve hours from the commencing with the flagellation. He afterwards experienced but little inconvenience from his hands and feet, and was perfectly restored in a few days to his usual health. I would here state that the first proposal made by me to adopt flagellation, as the only hope, was objected to by the persons present, from its carrying with it the semblance of unkindness towards what was regarded by them as a corpse; and it was not till the application of the rods by myself, in the first instance, that I obtained the aid of those present; but as soon as the patient began to move, and at last spoke, they took hold with alacrity, and by dividing themselves into relief parties, they very cheerfully, and rather amusingly, kept up the castigation so long as the state of the patient required it at their hands. He by no means seemed to relish this harsh proceeding, and in return gave his attendants several severe blows. If while lifting his arm to give a blow, the flagellation was then entirely suspended, the arm would instantly sink powerless; to

* This practice, though not generally adopted, has been recommended by several authors in Europe.

such a degree had the effects of the narcotic drug prevailed over the nervous system, that nothing but the torture of the rods could rouse him. On his recovery, it was said that the man's wife was highly satisfied with this remedial course, which was believed to have a good effect upon his subsequent conduct."

LECTURE VI.

Treatment of Typhus Fever—Tympantitis often the consequence of inattention to diet, or to overdosing with purgatives—The uses of air in the Intestines—Treatment of Tympantitis unaccompanied by Intestinal Inflammation—Utility of Spirit of Turpentine in such cases—Tympantitis with Inflammation and Congestion of Intestines—Acetate of Lead best remedy—Turpentine in Iritis.

BEFORE I proceed to speak of the diet and remedies to be employed in the treatment of typhus, allow me to make a few observations. There is a patient at present in the fever ward, whose case shows the necessity of strict attention and incessant watchfulness on the part of those who have the management of bad cases of fever. A man who has been labouring under delirium, with symptoms of cerebral excitement and congestion, was ordered the tartar-emetic solution, with the view of reducing the increased vascular action; but on inquiry this morning, we find that he has taken no medicine, and that his symptoms have been allowed to go on unchecked for twenty-four hours. He refused to take his medicine, and the nurse very improperly neglected to report the circumstances of the case, in order that proper steps might be taken to remedy so dangerous an omission. Thus a whole day has been lost at a most critical and important period of fever. There can be no excuse for such negligence as this, for it could be easily remedied. Patients in this state have always more or less thirst, and a spoonful of the tartar-emetic solution could be mixed with whey or cold water, and administered in this way without his knowledge, or if he refused to drink any fluid, it might be given in the form of enema. There is no excuse, therefore, for such negligence; and when you recollect the state that such patients are in—their nervous excitement, incessant raving, agitation, struggling, and sleeplessness—you will be able to appreciate the dangerous, and even fatal, consequences that may arise from culpable neglect of this kind.

At our last meeting I spoke of the use of food and drink, and laid before you my views of the most appropriate articles of diet in the various stages of fever. I told you that I attributed much importance to the use of a proper regimen, and that I looked upon the observance of this principle as a main cause of success in the treatment of typhus. I think it is chiefly owing to our care in this respect, that so few of our patients have tympantitis. Now and then we have cases of fever with tympantitis and diarrhœa, but in the majority of instances, these are persons who have been under treatment before admission, and who have been too much purged. The use of drastic purgatives in the early and middle stages of typhus, is one of the most fertile sources of subsequent evil, and there are few evils of greater magnitude than tympantitis with diarrhœa, and gastro-enteric inflammation, particularly in the latter stage of fever. Now, if

you inquire into the history of the cases in which these symptoms are most distinctly marked, you will find that in at least two-thirds, powerful cathartics have been employed, not once, but repeatedly, in the commencement of the disease. Almost all cases, in which calomel and colocynth, or aloes, followed by black draught, have been liberally used in the commencement, become tympanitic, frequently at a very early period.* The same mischief, but in a less degree, is apt to occur where a system of strict abstinence has been enforced, and continued undeviatingly for a considerable length of time. Want of food, even in the healthy state of the system, is apt to produce flatulence, weakness, and distension of the stomach, and in many instances gives rise to very serious forms of gastrointestinal irritation. The *dîète absolue* is very apt to produce the same effect in fever. Even the abuse of drinks of the simplest and most innocent description, is apt to produce flatulence, distension, and a tendency to tympanitis. Hence the value of the rule which I laid down in a former lecture, viz., to allow the patient only small portions at a time, and to order him to swallow them slowly. The abuse of the ordinary drinks, as common water, whey, barley-water, soda and seltzer waters, and effervescing draughts, is a frequent source of tympanitic swelling in fever.

Having commenced the subject of tympanitis in fever, I cannot do better than introduce in this place a paper I published in the 8th volume of the *Dublin Medical Journal*, where the subject is treated of at considerable length. The paper is headed, "*Tympanitis occurring in Fever, and the different modes of treating it.*"

* The views of my colleague quite agree with mine—

"A common practice has prevailed in these countries, and, indeed, still exists to a very great extent, of making the patient take purgative medicine every day; and this, I regret to say, is too often done even in cases where the surface of the small intestine presents extensive patches of ulceration. Now I will ask you can any thing be so barbarous as this, or can it be exceeded in folly or mischief by the grossest acts of quackery? Here we have an organ in a state of high irritation, and exhibiting a remarkable excitement of its circulation; and yet we proceed to apply stimulants to that organ, and to increase the existing irritation. Would it not be absurd in a case of inflammation of the knee or elbow-joint to direct a patient to use constant exercise and motion? Would it not be a very strange practice to apply irritants to a raw and excoriated surface? Yet something equally absurd, and equally mischievous, is done by those who employ violent purgatives in a case of inflammation of the digestive tube in fever. This has been a great blot in the history of British practice. Calomel and black bottle, and even jalap and aloes, and scammony, have been prescribed for patients labouring under severe and extensive dothineritis. Morbid stools are discharged, and the more morbid they are, the more calomel and purgatives does the physician give to change their character, and bring them back to the standard of health. I want words to express the horrible consequences. Too often have I seen fever patients brought into the hospital with diarrhœa, hypercatharsis, and inflammation of the mucous membrane, from the use of purgatives administered before their admission. Practitioners will not open their eyes. They give purgatives day after day, a very easy practice, and one for which there are plenty of precedents; but it is fraught with the most violent consequences. I will freely admit that the disciples of the school of Broussais have gone too far in decrying the use of laxatives altogether. But if they have lost hundreds by this error, British practitioners have killed thousands by an opposite plan of treatment. In cases of fever where there is no decided symptom of gastro-enteric disease, there can be no objection to the use of laxatives *if required*, but they should always be of the mildest description. You will gain nothing by violent purging in fever, mild laxatives alone can be employed; and where there is any sign of intestinal irritation present even these should be used with caution. There is one mode of opening the bowels, which you may always have recourse to with advantage in fever, viz., the use of enemata. There is not the slightest doubt that occasionally accumulations of fecal matter will take place, and tend to keep up irritation, but they should always be removed with the least risk of producing bad consequences. To purge in fever when intestinal irritation is present, is a practice opposed alike to theory and experience, and I have already stated that its results are most horrible."—DOCTOR STOKES'S *Lectures*, American Edition, p. 500.

The mucous membrane of the alimentary canal secretes air in great abundance during health. The immediate uses of this secretion have not been enough studied, nor have I now sufficient space to dwell on this subject; it may be remarked, however, that the presence of air in the bowels must be of great importance, both physically and chemically assisting digestion, which essentially consists in the gradual softening and final solution of the solid food, and the absorption of the dissolved portions. Physically the air must facilitate the motions of the alimentary bolus, keeping the bowels in a suitable state of distension, and being ready immediately to occupy the place of the solid or fluid contents as they are moved about or absorbed; chemically, it is known that certain gases, such as carbonic acid, a gas always very abundant in the intestine, possess a remarkable power of rendering various solids more readily soluble in water, particularly when these gases are subjected to the effects of pressure in close vessels along with the solvent fluid, a state of things which exists also in the intestines; another chemically powerful gas secreted by the mucous membrane of the bowels is sulphuretted hydrogen. In the upper portion of the canal common air is most abundant, in the lower the two other gases become predominant, a distribution not fortuitous, but no doubt destined to fulfil important purposes. It appears, indeed, that these portions of the alimentary canal, which secrete fluid acids (the muriatic and acetic) in abundance, do not secrete acid gases, while the remaining portions secrete these gases in greater abundance, so that the one may be considered as supplemental to the other. I am not aware that physiologists have as yet considered this subject in the point of view here brought forward,* although it evidently illustrates many things connected with practice. Thus I have frequently remarked, and I would call attention to the fact, that in persons labouring under dyspepsia, and in whom the derangement appears to be limited to the stomach, the supplementary digestion in the small intestines appears to be carried on with great activity. Such persons suffer much immediately after having taken food; they experience an oppressive sense of weight about the stomach, with flatulence and distension; in fact, they feel exceedingly uncomfortable until the food passes into the duodenum, where the digestive power is in full vigour and activity. As soon as this occurs, the sense of weight and distension rapidly disappears, and they are no longer troubled with flatulence. I have further noticed, they do not lose flesh or strength, and an inspection of their alvine discharges has shown that every particle of nutritious principle has been absorbed and found its way into the system. This I have frequently observed. Persons will apply for advice who have been for a long time labouring under symptoms of derangement of the stomach, yet they are by no means emaciated, and are quite capable of discharging the duties of situations which require great mental and bodily activity. This shows that if the process of digestion does not go on well in the stomach, it must somewhere else. If, in such a case, the stomach is weak and unable to perform its functions, the remaining part of the digestive tube is strong, and pours out the fluids necessary for completing the process with great energy. Again, we meet with many persons who never complain of acidity, pain, flatulence, or sense of distension and weight in the stomach, and yet they are frequently annoyed with un-

* This view of the uses of air in the alimentary canal, published in 1836, has been completely verified by the subsequent researches of Liebig.

pleasant abdominal sensations; they have costive or irregular bowels, diarrhoea, tormina, tympanitis, fetid unhealthy evacuations, and scanty high-coloured urine. They feel uncomfortable, not immediately after a meal, but in three or four hours; they lose flesh and strength, and have a pale sallow unhealthy look. Here the dyspepsia is intestinal: the stomach works well and performs its functions with vigour, but when the alimentary mass enters the small intestines, it produces a great deal of discomfort, because the supplementary digestion is deranged, and its performance attended with much labour and difficulty. In some cases both these forms of dyspepsia are combined, and these are of course the worst; but they exist quite distinct from each other, and a patient, with his stomach in a perfectly normal and healthy state, may labour under dyspepsia from derangement of the digestive functions of the small intestines, or with the latter in a healthy state, he may have indigestion from simple gastric derangement. We have reason to conclude, that when organic or functional disease so impairs the energies of the stomach that it assists but little in the performance of digestion, the intestinal digestion becomes more intense; it is only thus that we can account for the absence of emaciation in certain cases, such as that of Napoleon Buonaparte, where nevertheless the stomach was so extensively disorganised as totally to prevent its taking any part in the process of digestion.

The preceding remarks, though not directly connected with, are nevertheless illustrative of the subject under consideration—it being evident that the secretion of air natural to the mucous membrane of the intestines during health, may readily be augmented in disease, so as to give rise to intestinal tympanitis. This happens in all cases where inflammation or congestion attacks this tissue, an occurrence particularly frequent in fever. When tympanitis takes place in the commencement of fever, it invariably proceeds from inflammation, and is usually preceded by tenderness and other unequivocal symptoms of inflammatory action within the abdominal cavity. The remedy for this complication consists in local blood-letting freely applied, together with small doses of Dover's powders, with considerable doses of pulvis hydrargyri cum creta; all active aperients should be avoided, but emollient lavements are often useful. When tympanitis occurs, during the middle or latter stages of protracted fever, it sometimes is inflammatory, but more frequently depends on a state of venous congestion, occupying a considerable extent of the mucous membrane of the small intestines, which subsequently becomes gorged with blood, and livid, and secretes, among other morbid matters, a large quantity of gases. This tympanitis is often preceded by bowel complaint, unaccompanied by abdominal tenderness or pain, in the first instance; a state of things which may last for one or several days before inflation of the intestines commences. When this occurs, then, if it proceeds rapidly, the belly becomes painful and swollen on account of the sudden distension; and a superficial observer is thus apt to attribute the tympanitis to active inflammation. Now, as this state of things takes place at a period of great debility, when the powers of life are already much exhausted, and when even the application of a few leeches may be followed by alarming weakness, it is evident that this tympanitis must be treated in a manner different from that spoken of. In general, it will be right to commence with the exhibition of ten or fifteen grains of magnesia, with the same quantity of rhubarb, given in some carminative water, such as aqua menthæ viridis,

or aqua fœniculi; when this has operated the belly should be well stuped and rubbed with a stimulating terebinthinate liniment. It often happens, that after the operation of the rhubarb, the diarrhœa, and with it the tympanitis, begins sensibly to diminish, and then a little care will soon remove these symptoms altogether. Sometimes, however, no such improvement follows; and the belly continues to swell while the bowel complaint is unchecked. This is a dangerous crisis, and requires the utmost judgment in its treatment. It is of great consequence to remark, that when the bowel complaint has preceded intestinal tympanitis in fever, and when, notwithstanding the continuance of the bowel complaint, the tympanitis has gone on increasing, spirit of turpentine will seldom be of the least use, whether exhibited by the mouth or in an enema. We must, therefore, under these circumstances, look for some remedy different from those usually recommended, and such remedy we possess in the acetate of lead. Pathologists are agreed that venous congestion and active inflammation of the intestinal canal may often be associated together; and, in fact, although these two states are different, and require different remedies, yet they so often approach each other as to require medicines taken from the class of antiphlogistics; the one requires, however, a very different antiphlogistic from the other, just as chronic dysentery must be combated by remedies different from those suited to acute bowel complaint. Spirit of turpentine is admirably suited to the cure of congestive tympanitis in fever, where no bowel complaint, or a very slight one, has preceded or accompanied it. But is spirit of turpentine an antiphlogistic remedy? I answer, does it not cure certain cases of iritis, of sciatica, and of epilepsy? When, however, a bowel complaint forms the chief feature in a patient's state, and is associated with tympanitis, then the acetate of lead must be our sheet anchor. I was first led to use this medicine in considerable doses, in the latter stages of protracted fever, on the recommendation of Dr. Bardsley, for the purpose of preventing that state of the bowels which so insidiously leads to ulceration of Peyer's glands. Dr. Bardsley certainly deserves much credit for the introduction of this remedy, with which I became familiar in consequence of using it largely in Asiatic cholera, a disease in which the serous discharges are almost invariably preceded, and, when the patient recovers, invariably followed by a copious secretion of air into the bowels. This it was that led me to observe the anti-tympanitic properties of the sugar of lead; for I found it to be a remedy, not merely for the secretion of serous fluid into the intestines, but for the secretion of air in that disease. Afterwards, analogy led me to apply it to the cure of tympanitis, combined with diarrhœa, in the middle or latter stages of typhus fever, and I have had much reason to congratulate myself upon this new application of the remedy, for it has been very successful in my hands. It may be well to observe, that sugar of lead, besides its astringent, seems to possess antiphlogistic properties; otherwise we could scarcely account for its good effects in active hemorrhage, and in violent action of the heart, for which latter it is much celebrated in France, when given in large doses.

In the above sketch of the treatment of tympanitis, my chief object being to point out the circumstances in which acetate of lead may be used, I have omitted mentioning many other remedies and methods of treatment as sufficiently known by practitioners in general; among these, probably none is more effectual than leeching the anus in inflammatory cases, and

in *all* mercurial dressing applied over a very large vesicated surface on the abdomen.

As I have mentioned spirit of turpentine as a cure for iritis, as first recommended by Mr. Hugh Carmichael, it may be well to observe, that it is extremely useful when, by judicious mercurialization of the patient, the destructive progress of the disease is arrested, but, as happens not unfrequently again, recommences, notwithstanding that the patient's mouth is still sore, nay, though he may be salivated. Then it is that spirit of turpentine often acts like a charm, and prevents the necessity of recurring to mercury a second time; it has also been found extremely useful in instances, where, notwithstanding that the patient has been judiciously salivated, yet no improvement has taken place in the diseased eye: in such cases the most satisfactory results have been observed to follow its exhibition.*

Having dwelt at considerable length upon tympanitis, I shall now make a few observations upon hiccup.

When hiccup occurs in typhus fever, it is generally owing to a congested state of the mucous membrane, accompanied by flatulent distension of the stomach and bowels. A remarkable case of this sort occurred to Doctor Ireland and myself, in which a corpulent man, labouring under maculated typhus, hiccupped during several days, more than eighteen hours out of the twenty-four, as was ascertained by notes kept by his sister, who carefully watched him.

In such cases, the treatment adapted to tympanitis in typhus fever is most appropriate for the removal of that affection, and therefore much variety of treatment is required. Thus, when hiccup occurs early in the disease, along with much thirst, parched tongue, and tender epigastrium, the treatment ought to consist of leeches to that part, iced water in small quantities, *dîte absolue*, and bland aperient injections. But when it comes on late in the disease, we must have recourse to stimulating liniments applied to the spine; blisters to the epigastrium; and if the bowels are at the same time confined and distended, spirit of turpentine internally, or by lavement, while the strength is supported by wine and proper nutriment. Here the spirit of turpentine is best given in doses of two or three drachms, combined with castor oil: but on the other hand, when diarrhœa is present, together with tympanitis, we must have recourse to acetate of lead, as recommended in tympanitis, to various stimulants in small and repeated doses, such as turpentine, ether, &c., combined with opium. In fever, hiccup occasionally occurs without any obvious derangement of the alimentary canal being present, and without our being able to detect any cause of this symptom. Our treatment under such circumstances must be empirical, and relief will be frequently obtained by the exhibition of some substance which has an obvious action on the nervous system; but, as I have said, our treatment must be empirical*—in one patient we

* There is no mention made of the use of turpentine in iritis, in the latest work on *Materia Medica*, namely, that by Dr. Christison. Such an omission admits of no excuse.

† My colleague, Dr. STOKES, thinks that the period of fever, when hiccup occurs, will guide us to the line of treatment we should adopt. This does not accord with my experience; for, except in the particular cases I have described, I know of no certain rule by which to regulate our treatment.

He says—"In the early period of fever, I have found it (*i. e.*, hiccup) co-exist with inflammation of the cardiac orifice of the stomach; in the advanced stage, as far as my experience of it goes, it seems to be more connected with general lesion of the nervous system. With these

may find success attend the exhibition of an alkali, in another, of an acid. The same observation applies to swallowing of ice, or water as hot as it can be drunk, to the various narcotics and stimulants, to musk and camphor, &c., &c.

LECTURE VII.

Thirst in fever frequently dependent on the state of some internal organ—Blisters, employed as stimulants and evacuants, excite the vital action of the capillaries—An important remedy where cerebral affection is apprehended—Signs of approaching cerebral symptoms—Tartar emetic, solution and ointment—The latter used with success in some desperate cases.

In this hospital we seldom prescribe effervescing draughts, and never give them in the *ad libitum* quantity which some persons recommend. Thirst can be sufficiently assuaged by the use of whey, or common water, acidulated with currant jelly or raspberry vinegar, given in small portions, and at certain intervals. Sometimes you will succeed effectually in controlling feverish thirst by the use of a very light infusion of cascarilla, acidulated with a small quantity of muriatic acid. I have seen this employed with success by Mr. Kirby, and I have often prescribed it myself with the best effects. Very often a small quantity of some light bitter, slightly acidulated, will appease the morbid thirst of fever more effectually, and for a much longer period, than large draughts of water, or any of the fluids usually employed for the same purpose. You should always bear in mind, that thirst in fever does not exclusively depend on a dry or parched state of the mouth or fauces, but lies much deeper in the system, and has its origin in some peculiar derangement of the nerves, most probably of those belonging to the ganglionic system. In going through a fever ward, you meet with numerous illustrations of the truth of this position; one man with a moist tongue and fauces, labours under insatiable thirst, while you will observe another with parched tongue and throat, and yet without any desire whatever for fluids, or any choice as to their temperature. We had two examples of this in the fever ward during the past week. One patient with a moist tongue was incessantly calling for drink, while another man, who had his tongue almost perfectly dry, exhibited a very remarkable indifference to fluids.

There is a curious circumstance connected with the sensation of thirst in inflammatory diseases, which deserves attention. I lately attended a fatal case of metritis after delivery, in consultation with Mr. Hayden and Dr. Ireland. These gentlemen pointed out to me the singular fact, that the patient's thirst was instantly increased to an intolerable degree, by pressure applied to the womb. I merely notice the fact here as being extremely curious, leaving the explanation of it to those who are more conversant with such investigations.*

views, we may divide the treatment of hiccup into two parts: first, that which occurs in the early stage of fever, and, in the next place, that which comes on towards the close of the disease. In the former, we have found leeching, cold drinks, and abstinence, the best remedies; in the latter, antispasmodics and stimulant remedies appear to be more applicable. By reasoning, then, from experience, we find that hiccup, in the beginning of fever, demands local antiphlogistics; but in the latter periods, when there is profound adynamia, it may be treated with opiates, antispasmodics, and even stimulants."—Stokes's *Practice of Medicine*, Am. ed. p. 499.

* The opinions advanced in the text are strongly confirmed by the views of Dr. Carpenter:

"The conditions of the sense of thirst appear to be very analogous to those of hunger. This

Having said so much of food and drink in fever, I come now to speak of external and internal remedies, and first of blisters. Blisters are employed in a variety of diseases, but are followed by very different physiological effects, and capable of serving very different purposes, according to their mode of application. In fever they are generally employed either as stimulants, or as evacuants and derivatives. As stimulants, they may be used with the intention of rousing the depressed energies of the system in general, by their action on the nervous and circulating systems, or of stimulating the torpid functions of some particular part or organ. With this object in view, they are applied as flying blisters—that is to say, for a space of time not exceeding two or three hours, and solely with the intention of producing a stimulant effect. You have seen some cases of fever in our wards, in which the powers of life were greatly depressed, the extremities cool, the action of the heart feeble, the pulse weak, respiration short and imperfectly performed, and a tendency to faintness and sinking; and you have observed that in such cases we derived great benefit from the application of flying blisters over the regions of the heart, the epigastrium, chest, and inside of the legs and thighs. We applied our blisters in these situations, left them on for two or three hours, and then removed them; and you have seen them, when employed in this way, succeed in rousing the vital energies, the depressed action of the heart and capillary system, and the flagging state of the respiratory action, as shown by the increased strength of the pulse, the more general diffusion of heat, and the renewed play of the various functions.

In such cases, where the stimulant effect alone is required, it would be wrong to leave the blisters on longer than two or three hours; it will be quite sufficient if they prove merely rubefacient, or, at most, vesicate so slightly as to give to the blistered surface the appearance of a miliary eruption. Here you have all the stimulant effects of blistering, but not followed by their debilitating consequences. You are aware that blisters applied in the ordinary way have a twofold effect; they first rouse, and then depress; acting primarily as stimulants, and secondarily as evacuants. They first act as stimulants, producing pain, heat, and redness of the part; after a few hours these symptoms diminish, and are followed by an effusion of serum—in fact, a quantity of white blood is abstracted from the cutaneous capillaries, and in this way an evacuation is produced, calculated to diminish any accidental congestion in neighbouring parts. The capillaries, by means of their increased action, draw a quantity of white blood to the part; and in saying this, I think I am only using a perfectly physiological expression for the quantity of circulating fluid in any part of

sense is not referred, however, to the stomach but to the fauces. It is generally considered that it immediately results from an impression *made on the nerves of the stomach*, since, if liquids are introduced into the stomach, through an œsophagus tube, they are just as effectual in allaying thirst, as if they are swallowed in the ordinary manner. It may, however, be doubted whether the sense of thirst is not even more immediately connected with the state of the general system than that of hunger; for the immediate relief afforded by the introduction of fluid into the stomach is fully accounted for, by the instantaneous absorption of the fluid into the veins, which is known to take place, when there is a demand for it, not only from Dr. Beaumont's observations, but from many experiments made with reference to this particular question. This demand is increased with almost equal rapidity by any excess in the amount of the fluid excretions; and it may be satisfied without the introduction of water into the stomach. Thirst may also be produced, however, by the impression made by peculiar kinds of food or drink upon the walls of the alimentary canal."—DR. CARPENTER'S *Principles of Human Physiology*, page 356.

the body must depend on the vital action of the capillary vessels of that part. It is to the peculiar state of the capillary vessels that the quantity of blood in any part is to be referred, and not to the force or frequency of the heart's action. It is by means of changes produced in them that the phenomena of active congestion and inflammation are produced; the capillaries of the affected part enlarge, increase in number and multiply, and those which were invisible become visible. These phenomena have been falsely attributed by Hastings and others to debility and impaired action of the capillaries.

Enlargement or distension of the capillary vessels, whether the result of active local congestion or inflammation, is quite a different process, and bears a very close analogy to the enlargement of the anastomosing arteries of a limb in which the principal vessel has been tied. The afflux of blood, and the vascular distension, are not the consequences of debility or of relaxation, but of an actual increase of vital action. In the enlargement of the anastomosing arteries which takes place in cases of collateral circulation, the increase of size is not confined to the arteries connected with the main trunk; it commences simultaneously in the more distant set of branches, beginning in the smaller ones, and then gradually extending to the larger. This is a proof that the enlargement of the vessels depends solely on a vital action inherent in themselves, and is not the result of a mere passive distension, or of an increased determination of blood to the part, produced by the action of the heart.

Dr. Houston, in a very important paper on the circulation in a monstrous fœtus, without head or brain, published in the x. vol. of the Dublin Medical Journal, has proved to a demonstration, that, in the case referred to, the circulation in the placenta could not be carried on, unless by the vital attractive power of the capillaries. It is owing to this power that vascular tumours bleed so profusely when wounded or scratched: and yet, if you cut through the artery which supplies them, there will not be any considerable hemorrhage. When you divide the artery, the capillaries cease to draw blood to the part, and the hemorrhage is slight; but if you wound the tumour itself, the blood is attracted to the part as fast as it drains off, and a profuse hemorrhage is the result.

You should also bear in mind, that there are many animals which are without a heart, and yet in which the functions of the circulation are adequately performed. We have numerous instances of human monsters born without any trace of a heart, and yet well nourished and developed. In cases of this description how is the circulation carried on, or by what power is the blood impelled through the vessels? I do not see what cause we can refer it to, except the vital agency and attractive power of the capillary system. I mention these facts because, in the treatment of inflammatory and febrile affections, it is important that you should have correct physiological views, and that you should bear in mind, that each part and organ of the body may have its vital action deranged, or, in other words, may become congested and inflamed, independently of the action of the heart or of the general circulation.*

* I shall here lay before the reader an extract from the paper of Dr. Houston, referred to in the text. The paper is entitled "An Account of a Human Fœtus without Brain, Heart, or Lungs; with observations on the Nature and Cause of the Circulation in such monsters. By John Houston, M.D."—*Dublin Medical Journal*, vol. x.

"A healthy young woman gave birth to twins between the seventh and eighth months of her first pregnancy. They were borne in quick succession, and the placenta came away imme-

Blisters, then, produce first increased action of a part, and then act as evacuating. They also stimulate the system generally; but if left on until

diately thereafter. One of the children was, to outward appearance, perfect in every particular, and of full growth for its age. The other, a female, the subject of this communication, was a monster, and of somewhat smaller size than its companion. Both were alive at the time of delivery, but died almost immediately after. The placenta were so intimately united as to appear to constitute but a single organ; but the marks of their union showed that one was scarcely half the size of the other. There was a separate cord and separate set of membranes for each fœtus. The points of attachment of the cords to the placenta were several inches asunder. The abdominal fœtus had no cranium, and consequently no brain. The spinal column commenced at the sixth cervical vertebra. The two first vertebrae were imperfect, and without spinal canal; all the remainder were perfect in every respect. A large watery tumour, having somewhat the appearance of a head, occupied the upper part, and extended down along the back. There were no upper extremities, not even clavicles; there were twelve ribs, but no sternum; there was no diaphragm, and consequently no subdivision of the cavity into chest and abdomen; there were neither lungs nor heart, nor thymus gland; and the liver was totally wanting. The kidneys were of inordinate size, nearly filling the abdomen, and pressing upwards on each side, to the apex of the cavity formed by the ribs; a large ureter rose from the inside of each. No vestiges of supra-renal capsules could be discovered."

It is unnecessary to detail any further particulars of this monster, and I shall pass at once to the observations which Dr. Houston makes on the circulation.

"Supposing however it were possible that the heart of the perfect fœtus might assist, in a slight degree, to propel the blood into the body of the imperfect one, by what agency then shall that blood be driven out of that body again? It cannot be accredited that the remote heart of the second fœtus would have power, after conducting the circulation in the individual to which it properly belongs, to drive the fractional surplus of its blood, with all the rest belonging to the placenta of the monster, not only into that monster, but out of it again.

"It must, therefore, appear evident that the *vis a tergo* imparted by the heart of the perfect twin, cannot be the sole moving cause of the circulation in its abdominal companion, no matter in what light we view the application of the force in question. A healthy fœtus of this kind stands perhaps in the same light, in reference to the influence of a heart on the circulation, as one of the same description without a companion in utero, and in which, of course, the blood should take its rounds, totally unaided by any mechanical *vis a tergo*. But even in the perfect fœtus, while it remains connected with the womb, the heart does not fulfil the same important offices as after the individual is brought into a condition of independent life, for there is in all cases a period, and that, too, long after the growth of the fœtus has commenced, in which there is no heart at all, and in which nothing but vessels are discernible; and there are other instances in which throughout the whole period of fetal existence, the organ never acquires perfection; and, nevertheless, we do not find that, under either of these circumstances, the blood fails to flow through the body; whatever parts are developed in such cases receive an abundant supply of that fluid. This question might be still further elucidated by a reference to the state of the circulation in many of the lower animals; but enough—sufficient has been advanced to show that the heart is not an indispensable organ in fetal life, and that the circulation of the blood at this period is not solely due to its influence. It grows simultaneously with the other organs, but does not appear so much to have reference to the existence of the fœtus while in the womb, as that it may be in readiness for operation after birth, when exterior mechanical agencies demand more precision and force of progress in the circulating fluids. Such passive energy on the part of the heart is not without analogy in the body of the fœtus; for there are many other organs, such as the lungs, intestinal canal, &c., which are precisely in this predicament. But in thus questioning the power of the heart as being solely instrumental in accomplishing the transmission of the fluids through the body of the fœtus, I am not prepared with any new explanation likely to account for the phenomenon. The theory of "vital attraction and repulsion," though conveyed in terms which may be considered more as expressive of the facts than as explanatory of them, appears to me to approximate more nearly to the true one than any which has been yet broached. And I may here introduce the statement of a fact which appears to have passed unnoticed, but which places in a strong light the influence of vitality on the circulation through animal bodies. The leg of a man amputated by Surgeon Trant for mortification after fever, was submitted to me for examination. The foot was black, shrivelled, and dry, and a line of separation had passed deeply through the skin and cellular membrane, a little above the ankle; the foot had been cold and insensible for weeks. I threw some common injection into the tibial arteries, and, to my surprise, this coarse fluid passed into the foot, filling all the digital arteries, and even the smaller twigs among the muscles. The other foot, which mortified at the same time, but which was not removed for three weeks subsequently, and until the line of separation had extended into the joint in several places, had exposed all the tendons, and divided the posterior tibial artery completely through,

full vesication is produced, they act as evacuates and depletives, and lower the general tone of the economy. I have frequently observed this succession of events in chronic cases, in which it was found necessary to blister repeatedly during the course of the disease. The patients generally told me that they felt better and lighter on the day on which the blister was applied, but on the next day they usually felt weaker and more depressed; and this state sometimes lasted more than a single day. You may therefore apply blisters as excitants and stimulants, or you may employ them as evacuates and depletives; yet there are many persons who seem to forget this distinction. If in a case of inflammation, occurring in a low state of the system, you propose to apply a certain number of leeches over the inflamed organ, they say no; but they have no hesitation in applying a large blister, leaving it on until it produces full vesi-

I injected in the same manner, and with the same result. The injection passed along the anterior tibial artery, through all the vessels of the foot, even with more minuteness than in the former instance, and, after entering the anastomosis with the posterior tibial artery, flowed out in a retrograde direction at the inner ankle, from the remote extremity of the aperture produced in that artery by the ulcerative process. Both these preparations I have preserved and placed in the Museum of the Royal College of Surgeons in Dublin. Why did not the blood impelled by the heart of this man flow into all these open vessels with the same readiness as the injection, seeing that there was no coagulum or other mechanical cause to impede its entrance? Why was there hemorrhage from the open though dead mouth of the posterior tibial artery, when the injection found egress therefrom with so much facility? The answer is obvious: the life of the part being extinguished, the *vital attraction*, by which the blood was induced to enter, had ceased to operate, and that fluid had deserted the vessels; the heart, with all its power, was not competent to overcome this negative obstacle. And that the heart of this individual had not, by his long illness, suffered any diminution of power, may be considered as proved by the occurrence of unusual hemorrhage during the operation, and the recurrence of that hemorrhage several times after the stump had been dressed. The heart, therefore, even in the adult human body, is not an all-powerful agent in propelling the blood through the vessels; without the presence of some vital attraction in every part, its power is unavailing.

“What the action of the placenta may be, in promoting the circulation of the fœtus, it is difficult to say; but that this organ possesses an inherent power, a vital force of drawing in and ejecting again the blood which traverses its vessels, no one who has ever heard the placental soufflet—the noise caused by the rush of fluids to the spot in which it lies—will, for a moment, question. This rush of blood cannot be accounted for by a reference either to the force of the heart of the mother, or of that of the infant; it is independent of both, and due, no doubt, to the vital endowments of the organ itself, and of the uterus to which it is connected. And it is quite possible to understand that, with such vital properties in the placenta, together with others of a like character, co-existing in the fœtus, the circulation may be carried on between them, without any other influence whatever. Such would, at all events, be a much more intelligible explanation of the cause of the circulation in monsters without heart, than that which refers the phenomenon to the heart of a remote and disconnected fœtus—an explanation which involves many contradictions and difficulties.”

In the above paper Dr. Houston has, I think, clearly established the fact, that the circulation through the capillaries is completely independent of the heart's influence. This opinion, though opposed by Müller, appears to be daily gaining ground. “Trevisanus, Carus, Doellenger, and Oesterrheicher have adopted the opinion of Keilmeyer, that the blood is endued with a *power of self-propulsion*, which they suppose to be exerted in the capillaries during life, independently of the heart's action, and to continue after the latter has ceased. This opinion seemed to be confirmed by the observations of Wolff and Pander, who asserted that in the chick, blood is formed in the *area vasculosa*, and moves from the periphery towards the heart, before that organ has pulsated.”—*Müller's Physiology*, page 235.

The reader will perceive that both Dr. Houston and the distinguished physiologists just mentioned, agree in the main point, viz., that the circulation through the capillaries is entirely independent of the heart's action—the former gentleman is disposed to attribute this to a *vital attractive property* of these vessels, whilst those last named consider it as the consequence of an *automatic movement* of the blood itself—a doctrine not easily understood.

It affords me much pleasure to observe that Dr. Carpenter, the distinguished physiologist, considers the case related by Dr. Houston, as quite conclusive. See CARPENTER'S *Principles of Human Physiology*, page 414.

cation, and thus abstracting a considerable portion of white blood from the system.

You will not expect me to lay down any general rules for the use and application of blistering in fevers; you will find all these matters sufficiently explained in your books and manuals. I am not giving any thing like a regular outline of the treatment of fever; in fact I pass, *per saltum*, from one point to another, without any attention to order or method. You can read methodical treatises, and then compare them with such detached observations as I shall make. And here allow me to make some cursory remarks on that peculiar state of the brain which we most commonly observe in the middle stage of typhus, and in which blisters form one of our most efficient, and in some instances our only mode of relief. In many of the cases of typhus which come under our observation in hospital, we frequently meet with a train of symptoms strongly calculated to perplex and puzzle, and which should seldom exist in fever regularly treated; these are chiefly cases which are admitted in the middle or latter stage of the disease, and at a period when the patient's state of intellect is such as to preclude the hope of obtaining any satisfactory information from a personal examination.

A man in the lowest class of life, and at a distance from medical aid is attacked with fever; for the first eight or ten days he is either improperly treated or altogether neglected, and in this state symptoms arise and superinduce others, causing the most unfavourable complications, and rendering the cure difficult, if not impossible. Now of all the symptoms which occur in cases of fever, where the state of the principal organs has been neglected, there are none more formidable, or more fatal, than the cerebral; nor is there any local affection in fever, in which the value of prevention is so unequivocal and decided. What I wish to impress upon you is, that you should always anticipate the cerebral symptoms in fever. Never allow the cerebral symptoms to explode—watch the first scintillæ of cerebral excitement—repress the commencing mischief, and do not permit your patient to be overtaken by formidable inflammation of the brain. Every writer will tell you that when the patient's face is flushed, his eyes suffused, and when he complains of headache and intolerance of light, you should leech and blister his head, give him purgatives, tartar emetic, James's powder, and the medicines calculated to bring down cerebral excitement: but a careful and observant practitioner will anticipate all these symptoms, although there is as yet no particular flushing of the face, headache, or suffusion of the eyes; and though the patient is still quite rational, he will recognise threatening disease of the brain, and take proper steps to prevent its increase. Watch the functions of the brain attentively, and they will inform you, in almost every case, of the approach of cerebral symptoms. You will find in patients who are about to have cerebral symptoms, a degree of restless anxiety, and a higher degree of energy than accords with their condition; and they either do not sleep at all, or their sleep is broken by startings and incoherent expressions. When you speak to a person in this state, he answers in a perfectly rational manner; he will tell that he has little or no headache; and were you to be led away by a hasty review of his symptoms, you would be very likely to overlook the state of the brain. If you inquire closely, you will find that he scarcely ever sleeps or even dozes—that he is irritable, excitable, frequently incoherent, and muttering to himself. Under

such circumstances, although there is no remarkable heat of scalp, suffusion of the eye, or headache, I am frequently led to suspect the supervention of cerebral symptoms, particularly about the ninth or tenth day of the fever (for it is generally about this period that cerebral symptoms begin to manifest themselves); and whenever I observe these premonitory indications, I never hesitate in taking proper measures to anticipate the evil. I immediately order the hair to be shaved off, and blister the whole scalp. Thus, at the period when disease of the brain would most probably have set in, I have the whole external surface of the head pouring out serum, or even suppurating; and when by this treatment I have opposed a barrier to the further progress of the disease, the exhibition of a little tartar emetic will soon remove every trace of it. In laying down this plan of treatment, I have supposed that the patient has been properly treated from the beginning, and that the earlier symptoms of inflammatory excitement have been combated by bleeding, leeching, and other appropriate depletory measures.

There is, on the other hand, an opposite state of the patient, which in like manner informs me that danger to the brain is at hand. In this case, the patient is almost continually sleeping. When you enter his chamber in the morning, and ask how he does, his attendant generally tells you that he has passed the night most favourably, and that he has slept without almost ever waking since your visit on the preceding afternoon. If he awakens to take drink, he quickly drops asleep again, and when you arouse him he looks rather heavy; there is some slight suffusion of the tunica adnata, and some appreciable congestion about the external parts of the face and head. Persons in this state, though apparently doing well, and even where they have been properly treated in the beginning, about the ninth or tenth day begin to rave, and exhibit undoubted proofs of congestion and excitement of the brain. Now, in all cases of this description be on your guard, and do not allow symptoms of dangerous import to steal on you. Here you will derive great benefit from the use of blisters. I was lately called to a very remarkable case of this kind, at some distance from Dublin. The patient slept almost constantly, and complained of no headache or heat of scalp. From an attentive examination of the case, however, I was led to predict the approach of cerebral symptoms. Observe this was a case of spotted fever; and in this form of fever you can predict the occurrence of such symptoms with a greater degree of confidence. The patient's pulse was 96, his tongue presenting nothing worthy of remark, his behaviour and speech rational, and his sleep almost constant. Recollecting, however, the period of the fever, and observing carefully the condition of the cerebral functions, I had his head shaved and blistered. Notwithstanding this precaution, his cerebral symptoms had proceeded so far that he subsequently got a slight attack of paralysis of the face and tongue, accompanied by a fixed state of the pupils, which would neither contract nor dilate. After having blistered his head extensively, I gave him the tartar-emetic solution, to the amount of one-eighth of a grain every second hour. These measures were completely successful in removing the cerebral symptoms, and I have no doubt that the active precautions which had been taken were the means of saving his life.

Now there is one symptom connected with cerebral excitement in fever which is well worthy of your notice, as its existence is often sufficient of itself to give timely intimation of the approach of irritation or inflammation

of the brain. This is, the state of the respiratory function. In fever, the breathing will often announce the approach of cerebral symptoms for days before their actual occurrence. When, in cases of typhus, you find the patient's breathing permanently irregular, and interrupted by frequent sighing—when it goes on for one or two minutes, at one rate, and then for a quarter or half a minute at another rate, you may rely upon it that sooner or later an affection of the brain will make its appearance. You will frequently observe the same kind of breathing preceding attacks of apoplexy and paralysis, and indeed it was the occurrence of this symptom, in these and other cases in which the functions of the brain were deranged, that first drew my attention to this kind of breathing. The first time it engaged my attention was in a remarkable case of an apoplectic nature, which I sat up a whole night to watch. On recollection, I found that I had frequently observed an analogous state of the respiratory function in fever, on several occasions, although its connection with excitement of the brain had not struck me before. I speak here of irregularity of breathing, independent of any pectoral affection. But when the patient breathes in a permanently irregular manner, at one time at a certain rate, and at another at a different rate,—when the respiration is suspicious and heaving, without any disease of the chest or great debility,—you will have some grounds to suspect the existence of cerebral derangement. I am in the habit of calling this kind of breathing *cerebral respiration*, because my experience has told me that it is almost invariably connected with oppression and congestion of the brain. To recapitulate:—When you find a patient in fever lying constantly awake, or when, on the contrary, you find him continually slumbering,—when there is a certain quickness of manner and irritability,—and when the cerebral respiration has been noticed for some time without any concurrent debility or pulmonary disease,—under such circumstances, you may, in cases of maculated typhus, predict the approach of cerebral symptoms; and the period about which they generally manifest themselves, is the eighth, ninth, or tenth day. Now, in cases of this description,—if you have previously used leeches and antiphlogistics to a sufficient extent,—your best plan will be to shave and blister the whole scalp. Dr. Little, of Belfast, and Mr. Kirby, of this city, have fallen into the same train of ideas, and employ blisters at a very early period of the disease, with the view of combating cerebral excitement. In a recent instance, in private practice, I think I saved the life of a young gentleman in Harcourt-street by extensive blistering of the scalp on the fourth day of fever. We were not accustomed to blister at this early period of fever. Formerly it was the practice to bleed and apply leeches for several days together, and never to have recourse to blistering until towards the latter stage of the disease. In common inflammation, or in arachnitis, we do not blister until we have carried depletion by the lancet, leeches, and purgatives, as far as the patient's strength will allow. But this is not the case in fever: the cerebral congestion and irritation, or inflammation (call it which you will), which accompanies typhus, differs essentially from ordinary arachnitis or encephalitis, and requires very often a treatment strikingly different.

One physiological fact connected with sleep may be noticed here. It has been stated by Mr. Mayo, that the pupils are contracted during sleep. This is in itself a very curious fact, and I was anxious to verify it. Now we had an excellent opportunity yesterday morning of trying what the

state of the pupil was in two patients who lay soundly sleeping in the fever ward. We came up softly to them as they lay on their backs, and in a most favourable situation for observation, just opposite one of the windows; and having opened the eyelids, found that the pupil was actually contracted to the size of a pin-hole. It remained in this state for a while, and then expanded, when they awakened. This is a very curious fact, and appears to be a very beautiful instance of the protective care of nature. To protect the eye while we sleep, nature, as it were, draws the curtain, and thus defends the delicate organ from any accidental dazzling, at a period when consciousness slumbers, and is off its guard.

Blisters applied extensively to the shaven scalp, are not only valuable in fever, but also in other diseases, and that under circumstances in which little benefit could be expected. The same effects may be produced by rubbing the whole scalp with tartar-*emetic* ointment; but from the pain and inflammation it produces, this proceeding is seldom adopted. I have, however, occasionally employed it; and on two recent occasions with the most fortunate results. A friend of mine had lost two children from hydrocephalus. About five weeks ago another child, an extremely fine boy, was attacked with symptoms of the same disease. After having laboured for a fortnight under fever, with great restlessness, vomiting, and diarrhœa, he was observed to utter frequently that faint cry which is so characteristic of hydrocephalus, and to roll his head constantly from side to side. These symptoms were soon afterwards succeeded by constant motions of the right arm and leg, and subsequently by paralysis of the opposite side. I was consulted before the paralysis occurred, and advised the child's father to have the whole of the blistered scalp well rubbed with tartar-*emetic* ointment. The boy recovered completely. I derived also a very striking advantage from the use of the same remedy in a very remarkable epidemic which attacked a family in the neighbourhood of Rathmines, and which was witnessed throughout its whole course by my friend Dr. Burke and myself. One of the family, a young lady, was attacked with symptoms of fever, accompanied by a pain in the back of the head, and stiffness of the neck. After a few days, symptoms of inflammation of the cerebellum and upper part of the spinal cord became developed. About the seventh day she got strabismus, and soon afterwards was attacked with convulsions: the pupil became permanently dilated, and she was quite blind. I was called to see her at this period, and found her almost in a state of insensibility, with involuntary discharge of urine and feces, cold extremities, and irregular pulse. Thinking that nothing could be done for her, I was about to leave the room when I asked the nurse, could she swallow? She replied she could, and immediately proceeded to offer the young lady some drink, which she swallowed without any difficulty. This at once arrested my attention. I said to myself, if this patient can swallow, she must be still conscious, and while she is so, there is a chance of saving her. I ordered the whole of the scalp, which had been previously blistered, to be rubbed with tartar-*emetic* ointment; violent inflammation ensued, and she recovered completely. But the curious part of the case is this:—her brother and sister were attacked, in exactly the same way, a few days afterwards, although less formidably, and were cured by the same treatment. Shortly afterwards two of the servants got pain in the back of the head and stiffness of neck, followed by signs of an inflammatory affection of the cerebellum and spinal cord. They were treated in the same way, and recovered.

What could be the cause of this peculiar fever, manifesting itself in exactly the same way in all the individuals of the family who were attacked? I endeavoured to arrive at the cause, but could not; and I merely state the facts, without wishing to attempt any thing like an explanation. But the history of this extraordinary form of disease is exactly as I have told you. It has been witnessed by Mr. King and Dr. Burke, and they, as well as myself, were very much struck with the novelty of the phenomena.

LECTURE VIII.

Further remarks on the treatment of Fever—Management of delirious patients—Advantages of tartar emetic in the form of enema—Subsultus tendinum sometimes from disturbance of the nervous extremities, independently of the brain or spinal cord—Vomiting and purging at the commencement of fever, indicative of cerebral affection—Scrofulous inflammation of the brain—Chronic scrofulous fever.

In speaking of the use of drinks in fever, I alluded to the abuse of soda or seltzer water, and effervescing draughts. It is very much the custom both in hospital and private practice, to look upon the latter as a remedy which may be administered at the pleasure of the patient, or the discretion of the nurse. They are certainly to many persons a most grateful means of cooling thirst; but the cautious physician will never allow his patient to indulge too much, for he knows that their frequent use distends the stomach, and produces a tendency to tympanitis, and bowel complaint. I am also of opinion that the exhibition of large quantities of free carbonic acid is a very doubtful, if not a dangerous, practice in fever, and may increase that tendency to narcotism and functional derangement of the nervous and respiratory systems, which is observed in every case of genuine typhus. In addition to this, the evolution of a large quantity of fixed air in the stomach frequently causes a very disagreeable sense of distension and suffocation, and acts injuriously on the mucous membrane.

Allow me here to digress a moment from my subject, and make a few observations on a case which terminated fatally in our wards within the last twenty-four hours. I wish to call your attention to this case more particularly, as I think a different plan of treatment might have succeeded in saving the man's life. This man was admitted into the fever ward about the seventh or eighth day of his illness. I cannot exactly state how he was treated in the commencement, but I believe he was very badly attended, and that the state of the principal organs was wholly neglected. It will be sufficient to state, that when he came under our care the chief features of his case were delirium, accompanied by total want of sleep, and a violence of conduct and behaviour calling for the restraint of the strait waistcoat. Now under circumstances of this nature the most diligent attention and promptitude are imperatively demanded on the part of the physician, and every step calculated to anticipate danger should be instantly taken. I regret to say that I did not at the time take a correct view of the treatment, or precautions necessary to be adopted under such exigencies. I did not expect that the case would terminate fatally in such a short time, and I anticipated benefit from the remedy prescribed. He was ordered to take the tartar-emetic solution in full doses; but on

visiting him next morning, we found that he had obstinately refused to take his medicine, and that his symptoms were greatly aggravated.

In delirium of this kind it is certainly very difficult to manage the patient, and we are frequently obliged to have recourse to force and stratagem to make him take his medicines. I regret extremely that this man's head was not leeches on his admission, as, from the state of his pulse, I think he would have borne it well. Eight leeches might have been applied to his temples, and repeated two or three times the same day, according to the state of pulse and strength. I think I was wrong in contenting myself with ordering the tartar-emetic solution and a blister to his head, and I should have anticipated from the violence of his behaviour that it would be very difficult to manage him.

In cases of this kind, where it is necessary to give tartar emetic (and this is one of the best remedies you can employ in cases of cerebral excitement in fever), you should be always prepared to obviate any omission arising from the obstinacy of the patient; and when he will not take his medicines voluntarily, you may secure its effects on the system in two different ways. In the first place, it may be secretly mixed with the patient's ordinary drink; and as such persons are generally thirsty, and seldom refuse drink altogether, an intelligent nurse will readily find means to make the patient take a sufficient quantity of it to secure its full effect on the cerebral circulation.

Another expedient which you may resort to on similar emergencies, is to give the tartar emetic in the form of enema. I had recourse to this plan some time since, in a similar case of delirium, and with the best results. After leeching the head I gave the solution of tartarized antimony in enema; and this can be always done, whether the patient likes it or not, if you take care to prevent his struggles by confining him in a strait waistcoat. The best way of administering it is to dissolve two or three grains of tartar emetic in four or five ounces of mucilage of starch or isinglass, and inject it with the aid of a long flexible tube, so as to make the contents of the syringe pass high up into the bowel. In this way you can secure all the good effects of tartarized antimony in overcoming the congestion of the brain, and procuring sleep. In all cases of alarming congestion of the head in fever, I have been long in the habit of using tartar emetic in this way, if the stomach be deranged, and incapable of bearing it safely; and I can assure you that it is a most fortunate thing to have such a powerful resource in all cases of the kind. I have also not unfrequently given expectorant medicines in the same way, where from the state of the stomach, or the debility of the patient, the ordinary remedies could not be administered by the mouth with sufficient rapidity, or in sufficient quantity to produce the desired effect. In this manner I have often given the infusion of ipecacuanha—a remedy of very considerable value, and not sufficiently appreciated by most modern practitioners. I may also remind you that vomiting, and all the benefits derivable from it, may be likewise thus produced. Of course the cases in which these expedients are required are comparatively rare, but the practical physician must be always prepared for such exigencies, and be provided with means of meeting them.

Another of our patients died also within the last few days in the fever ward. He laboured under a very bad form of maculated fever, and when admitted was evidently in a hopeless state. I shall not say any thing

about this case, except to use it as an occasion for making a few observations on a particular state of the cerebro-spinal system, which we not unfrequently observe in cases of maculated typhus, and occasionally in other varieties of fever. Now you observed that this man had not the slightest tendency to sleep; that he lay with his eyes constantly open, raved incessantly, had subsultus tendinum, floccitatio, and cold extremities, and often attempted to get out of bed. Yet we could not find in him any thing like decided evidence of cerebral inflammation. The tunica adnata was of a clear pearl-white, the face pale, and the scalp and integuments of the face cool. You perceive, then, that sleeplessness, delirium, and subsultus tendinum, may depend on a state of the nervous system having no connection with congestion of the brain, or determination of blood to the head. This occurrence has struck me very forcibly in many cases of fever. But I have been most particularly struck with the occurrence of subsultus tendinum in such instances. In the present case we had a patient with sleeplessness and subsultus. But this concurrence of symptoms does not always exist. You recollect the case of the boy in the small fever ward, who laboured under excessive subsultus, and to whom we gave the spirit of turpentine in drachm doses with so much benefit. Yet this boy, as you all remember, slept remarkably well. I have frequently pointed out to the class patients labouring under subsultus tendinum, who slept well, and in whom the tunica adnata was of a pearl-white colour, without the slightest suffusion. We have subsultus, therefore, occurring in two very opposite states of the nervous system; we have it accompanied with loss of sleep, and we have it existing in that condition of the system where the patient slumbers long and heavily, and cannot be easily roused. Hence I was inclined to think that the cause of subsultus resides not so much in the nervous centres as in their extremities. I would even go so far as to advance the proposition, that if it were possible for the fever to go on, and life to continue after the removal of the brain and spinal cord, I am quite sure that the subsultus would continue. I am almost confident that subsultus tendinum is the result of some derangement of the nervous extremities. I have shown on a former occasion, when lecturing on the subject of paralysis, that the nervous periphery may become diseased primarily, and without any antecedent affection of the brain or spinal cord. I think it extremely probable that in fever the nervous centres are subject to certain derangements producing coma, sleeplessness, and delirium, but that there are other nervous symptoms which are to be referred rather to a derangement of the nervous extremities, and among the latter I would particularly include subsultus tendinum, a symptom which we find co-existing with such opposite conditions of the nervous centres.

But to return to the case to which I first alluded. Never blister in the early stage of fever, until you have applied leeches in sufficient quantity. In this case, it is true, we could not well ascertain what the period of the fever was; for the man was brought in in a state of delirium, and there was nothing known respecting his previous history. Yet you are all aware that a great deal must depend on our knowledge of the period of the fever, and the medicines which have been employed. Had we been acquainted with these circumstances, it is probable we would not have fallen into the error we committed. What I wish to impress on you is, that in all cases of maculated typhus, you should be careful in examining the head

and ascertaining whether there are any evidences of cerebral congestion present. If there is headache, strong pulsation of the carotids, suffusion of the eyes, and heat of the face and scalp, along with the other signs of functional lesion of the brain present, you should always have recourse to leeching; beginning cautiously, and continuing their application as long as the patient will bear it with safety. When you have the symptoms already mentioned, and the patient is in the early stage of fever, you may commence by applying one or two leeches to the nostrils, or six or eight to the temples, or behind the ears, repeating them two or three times a-day, according to the exigency of the case. The best way of using leeches is to apply them in small numbers every six or eight hours, so as to keep up a constant drain from the head. After you have leeches sufficiently, you may then have recourse to blisters. In making this change much will depend on the sagacity and skill of the practitioner; for it requires no ordinary tact to hit on the proper time when you should give up leeching and commence with blisters.

I shall make no apology for introducing here what I consider to be an important observation, with reference to the pathology and treatment of fever. We had a striking instance of the fact on which I am about to offer some comments, in the case of a little girl who died lately here, in a very remarkable manner. I mentioned in a former lecture, that vomiting and purging in the commencement of fever are, generally speaking, indicative of a cerebral affection. Every fever which commences with vomiting and diarrhœa, whether it be scarlatina, or measles, or typhus, is a fever of a threatening aspect; and in all such fevers the practitioner should be constantly on the watch, and pay the most unremitting attention to the state of the brain. There is much difference between the vomiting and diarrhœa of gastro-enteritis, and this *cerebral diarrhœa and vomiting*. The latter sets in generally at a very early period of the disease, perhaps on the first or second day, and is seldom accompanied by the red and furred tongue, the bitter taste of the mouth, the burning thirst, and the epigastric tenderness, which belong to gastro-enteric inflammation. There is also another source of diagnosis, but of a less valuable kind; and this is founded on the results of treatment. Gastro-enteric vomiting and diarrhœa are relieved by leeching the belly; but I need not tell you that this mode of treatment can have no effect on the vomiting and purging produced by cerebral disease. There is also another means of distinguishing: the vomiting and diarrhœa which result from gastro-enteric inflammation is never accompanied by such copious discharges of bile as that which depends on disease of the brain. In diarrhœa from derangement of the brain, the quantity of bile passed is very remarkable; and it is equally curious, that when vomiting follows derangement of the cerebral circulation, in ordinary cases, and without fever, bile is thrown up in very large quantities. This is frequently observed in persons who become sick from swinging or sailing. In such instances, a larger quantity of bile is vomited than could occur from mere gastric irritation. Now in the commencement of cerebral disease, where congestion or inflammation is present, one of the first symptoms is copious vomiting, and purging of a bilious character. This is very often the case in scarlatina, and there are few cases in which there is more danger to be apprehended. We had these symptoms, under very unfavourable circumstances, in the little girl to whom I have just alluded. From the imperfect history of the case

which we were able to obtain, it appeared that she had been ill of fever for fourteen days before her admission, and had in addition a severe attack of bronchitis and pneumonia. She then got inflammation of the stomach, and finally congestion of the brain, as indicated by the cerebral vomiting and purging. We employed every means in our power to check these symptoms, but without success; she went on from bad to worse, and she ultimately sank under a combination of affections, which you will frequently observe in many forms of disease as well as in fever; and it is to this point in particular that I wish to direct your attention. You will frequently observe that at a certain period of fever, whether it be inflammatory, nervous, bilious, or typhoid,—and very often in other forms of disease, whether depending on a general affection of the system, or connected with inflammation of important organs, when the patient has been going on pretty well for some time,—you will find that about the period when you would naturally expect that the fever would go off, and convalescence begin, a new form of fever makes its appearance, and carries off the patient in spite of all your exertions. To this form of secondary fever I would give the name of *scrofulous*, because it resembles in its chief features the intractable form of fever which is frequently observed in persons of an originally *scrofulous* habit, or who have become so from the abuse of mercury or other debilitating causes. This is a subject which is not well understood, and I am not acquainted with any author who has devoted to it that share of attention to which, from its great importance, it has such decided claims. Its chief characters are, that the patient, during its existence, exhibits a strong tendency to inflammatory affections, which bear a close analogy to the *scrofulous*, both in their intractable character, in the facility with which they pass from one organ to another, and in their frequently unfavourable termination. A patient of this description, while labouring under fever, will frequently exhibit a very remarkable succession of inflammatory affections. If, during the course of his fever, he gets an attack of gastro-enteritis, you will have great difficulty in managing it; and no sooner is this overcome, than he is seized with bronchitis or pneumonia; and when, by great care and the most skilful treatment, you have overcome this also, he gets *scrofulous* inflammation of the brain, and dies. Now you will frequently meet with patients who, during the course of typhus, will be attacked with this bad form of fever, and get what may be termed *scrofulous* inflammation of the brain, which carries them off in five or six days, in spite of all your care. You are aware that persons who are much in the habit of observing diseases of the brain, can generally distinguish between *scrofulous* inflammation of the brain and its membranes and that inflammation which occurs in persons of healthy habit. In cases of the latter description, the treatment, if commenced at the first appearance of the disease, is simple and successful. Appropriate bleeding and leeching, with the use of calomel and James's powder, are almost always sufficient to accomplish a cure. When once you have succeeded in touching the gums with mercury, the patient's safety is tolerably certain, and recovery is in general rapid; but in the *scrofulous* affections of the brain, though you may have fully mercurialized your patient, you will too often discover that you have merely retarded the progress of the complaint for a brief period; it grows bad again, and carries him off in spite of all your efforts. In the *scrofulous* hydrocephalus, a much greater time elapses from the appearance of coma

and strabismus until death takes place, than in the ordinary forms of meningitis. This fact was well illustrated in the case of the girl to which I have just now referred: she continued to live on for a long time after the appearance of symptoms which you would think ought to terminate fatally in a few hours after they had been developed. There is also a great deal of irregularity in the way the symptoms come on in cases of scrofulous inflammation of the brain. Sometimes blindness is one of the first symptoms. I recollect having been called, with Dr. Beatty, to see a very fine boy, living in Merrion Square, and was very much struck, on entering the drawing-room, to find him walking about, and in apparent good health, but quite blind. Here amaurosis was the first symptom. This was subsequently succeeded by others, and he died in a convulsive fit about a fortnight afterwards.

We have many excellent observations on the chronic scrofulous fever, but I think that there is no author who has described this acute form with the precision and care which it deserves. It is, however, a very frequent form of fever, and you will see many examples of it among the chronic patients in the medical and surgical wards. You will frequently observe persons who are labouring under acute disease, from accidents or other causes, become feverish and ill again at a time when you expected a remission of their symptoms, or even recovery; and without any assignable cause, they will get scrofulous inflammation of some other part or organ, and quickly fall into a state of hopeless and incurable disease.

LECTURE IX.

Morbid appearances after Delirium in Fever—Treatment in anticipation of Cerebral symptoms
—Great advantage of Blisters judiciously employed—Notice of the old mode of Blistering.

I SPOKE at my last Lecture of a man named Cassels, who died in the fever ward with symptoms of cerebral excitement, and stated that I regretted having omitted to leech his head, and prescribe tartar emetic in the form of enema. Since that time we have had an opportunity of examining his body, and the results of the dissection are well worthy your attentive consideration. He was a young man of robust habit and apparently good constitution, and laboured under the ordinary form of maculated typhus. Shortly after his admission he was attacked with delirium, which was soon afterwards followed by coma and death. Now, suppose you were called to see a patient, not labouring under typhus, but exhibiting a similar train of symptoms—that is to say, violent delirium, accompanied by flushing of the face, suffusion of the eyes, headache, and a tendency to get out of bed—in fact, a state of furious excitement requiring the restraint of the strait waistcoat—what idea would you be likely to form of the condition of the brain? If a patient of this kind had no typhoid symptoms, you would certainly say that he was labouring under meningitis or cerebritis; and if the case proved fatal, you would naturally expect to find lesions of the brain fully sufficient to account for all his symptoms. And you would in all probability find extensive thickening of the membranes of the brain, with subarachnoid effusion, or you would discover softening, increased vascularity, and suppuration of the enee-

phalic mass. But, here, a man in fever exhibits all the symptoms of cerebral inflammation; the cerebral affection runs on to a fatal termination with great rapidity; he dies comatose. And what do we find on dissection? Doubtful signs of congestion, and no distinct evidence of inflammation; a slight opacity of the arachnoid at the base of the brain, and about a teaspoonful of clear subarachnoid effusion. Now this is a point to which I would earnestly call the attention of every inquiring student. A patient, during the course of typhus, is seized with symptoms which are generally regarded as characteristic of congestion and inflammation of the brain; he dies, to all appearance in consequence of the intensity and violence of these symptoms, and on dissection little or no trace of cerebral disease is found. In the case under consideration, the symptoms present were strongly indicative of congestion if not of inflammation; and had the man been free from typhoid symptoms, you would expect to find decided traces of inflammatory mischief. This seems to prove that in the production of cerebral symptoms in typhus, some cause not to be recognised by the production of cerebral lesions, or in other words something besides mere congestion or inflammation exists. I have now examined a great number of cases of this description, and the examination has brought home to me a strong conviction, that the delirium of fever depends upon something more than mere inflammation or congestion. There is another fact, the study of which is well worthy of attention, as it appears to support very strongly the views I have put forward; and that is the occurrence of analogous symptoms under opposite conditions of the cerebral circulation. Take, for example, the phenomena of vertigo and headache. Now these symptoms are found in states of the brain which are directly opposite. In incipient congestion of the brain, in that turgescence of the cerebral vessels which precedes apoplectic seizures, one of the most frequent symptoms is vertigo, and the same thing may be affirmed with respect to headache. But we observe the very same symptoms under circumstances totally dissimilar. Frequently while bleeding a patient for some affection of the lungs or bowels, or for some accident, we find that after a certain quantity of blood has been lost, the patient becomes pale; and while the pallor is coming on, he often gets quite giddy, and sometimes complains of headache. Gentlemen who are attending lying-in hospitals are well acquainted with the headache, giddiness, and tinnitus aurium, so constantly complained of by females who have suffered from excessive uterine hemorrhage. Hence you perceive facts are not wanting to show that opposite states of the cerebral circulation, a superabundance or deficiency of pressure on the brain, may give rise to similar phenomena. You saw an illustration of this in the case of one of our patients in the fever ward this morning. He was quite free from headache as long as he remained in the horizontal posture, but the moment he sat up in bed he complained of headache. Yet this was a man who had not the slightest symptom of determination to the head, and who had been sufficiently depleted during his illness. You will also recollect the fact, that persons who have had a long illness, and remained for many days in the horizontal posture, generally get weakness, giddiness, and sometimes headache, at first when they attempt to sit up during convalescence. This is a point which should always be borne in mind. You are consulted by one person who complains of giddiness, tinnitus aurium, and frequently recurring headache. You examine the patient

carefully, and you find all the symptoms of unequivocal determination to the head. You are applied to by another person labouring under the same symptoms; but how different is the state of the brain found to be on a careful examination. One patient is robust, of florid complexion, and with a hard bounding pulse; the other is a weak chlorotic female who has been ailing for months, and whose pulse is so weak, that a slight degree of pressure obliterates the canal of the artery. Yet the tinnitus aurium, giddiness, and headache complained of by the latter, are just as bad and as troublesome as in the case of the former.

From a consideration of these points, you will perceive that, for the production of cerebral symptoms in typhus, there must be something more than mere congestion or inflammation of the brain; but you are not to infer from this that there is no necessity for taking any steps to obviate or remove congestion of the head in fever. On the contrary, I am of opinion that in typhus one of the principal sources of danger is connected with the head, and that the cerebral symptoms should be always watched with the most unremitting and anxious attention. It is this which constitutes the great difference between the mortality in private and hospital practice. In private practice the physician is called at an early period of the disease, and has an opportunity of checking the cerebral symptoms before they rise to a dangerous height; but hospital patients, in general, are admitted at an advanced stage of fever, and in many instances have been improperly treated, or wholly neglected from the commencement. I am also of opinion, that when there is any evidence of determination to the head, the best way of preventing dangerous cerebral symptoms is to deplete the head by the application of a sufficient number of leeches, and then to proceed to the use of blisters. You should direct your attention as much to the head as to the bowels, and one of the best modes of doing this is to apply six or eight leeches behind the ears, and repeat them every six hours until relief is obtained. You should then order the head to be shaved, and kept constantly covered with cloths wet with warm vinegar and water, and at the same time have recourse to the internal use of tartar emetic and nitre, or blue pill with James's powder. Should this plan fail in giving relief, you have a powerful aid in the application of blisters to the scalp, and this must be done extensively, and at once.

Most of the fatal cases of typhus at present die of cerebral disease.* But in the majority of instances you will find that these were cases in which the head was neglected, and in which the appropriate remedies were used too late. In cases treated from the commencement with judgment, decision and attention, although the head may be threatened, you will not have one-twentieth of the mortality observed in cases where the early prevention of cerebral symptoms has not been an object of care. One of the worst cases of cerebral disease which I have witnessed for many months, and which would have probably terminated fatally before the seventh day, I saw in consultation with Mr. Daly, and yet this case

* [In the genuine typhus fever this is almost always the case. Very few patients die of this disease without strongly marked cerebral symptoms, but we do not on that account find strongly developed cerebral lesions; on the contrary the brain is generally found in a condition but little different from that of health, and the lesions are very unlike those met with in proper inflammatory affections of that organ.—W. W. G.]

was saved by prompt and decided measures calculated to counteract the cerebral symptoms. I have also very recently witnessed another remarkable case of this description at Bray.

The patient, a gentleman very full and plethoric, but remarkably temperate, aged thirty-five, was attacked after exposure to cold by intensely violent maculated fever, for which aperients of an active nature were exhibited. I saw him in consultation with Dr. Hefferman on the fifth day. His headache had been relieved by leeching, but his breathing was very quick, and he was almost constantly asleep. Skin very hot: eyes somewhat suffused; most copious crop of maculæ. We at once blistered the whole scalp; and on the eighth day blistered it again, and also the nape. On the ninth day the cerebral symptoms, *which we had been endeavouring to anticipate*, came on, but probably our treatment prevented them from being fatal; for when they appeared, the application of tartar-emetic ointment induced a purulent discharge from the whole surface of the twice blistered scalp, in the course of a few hours, and three grains of tartar emetic given in divided doses that day procured a complete cessation of the symptoms, after—mark, after—the pupils had been dilated, and one fit of slight paralysis of the mouth and tongue had taken place.

The result of all my experience in fever is, that the majority of fatal cases are rendered so, in this country at least, by severe cerebral symptoms supervening sooner or later in the disease. Delirium, sleeplessness, stupor, convulsions, extreme subsultus, jactitation, sluggish and dilated, or else extremely contracted, pupils: these are the symptoms we have to fear after the fever has lasted some time; and let me repeat it, the chief art of the physician consists not so much in remedying these symptoms as in anticipating them. When he judiciously attempts this, he may not, indeed, always succeed in preventing their supervention, but he will, in many cases, be successful in diminishing their violence, and preventing their usual disastrous effects.

I shall now resume the subject of blistering in fever, on which I made some observations in my last lecture. I have spoken of it chiefly as a powerful revulsive remedy in the treatment of cerebral congestion; let us now treat of its employment with other objects in view. In the first place, as has been already explained, blisters may be used as most energetic stimulants in cases where the powers of life flag, and threaten a sudden cessation. Occasionally, in fever, you will find the vital tone reduced to a very low pitch, the heart uncertain in its action, the pulse irregular, the respiration feeble, the skin cool, and the patient so weak that he cannot be lifted up, or even turned in bed, without having a tendency to faint. Here we have to superadd to the ordinary treatment of fever the prompt exhibition of remedies calculated to meet such emergencies, and in addition to internal stimulants, we have recourse to powerful stimulation of the cutaneous surface by what are termed flying blisters. One of the best remedies in such cases is a large blister applied over the region of the heart, to be left on for two or three hours, or until the vascular action of the skin is sufficiently excited. When the patient appears to labour not only under sudden weakness of the heart, but also of the capillary and nervous systems, as shown by coldness of the extremities and sinking of the pulse, it will be necessary to apply flying blisters, not only over the region of the heart, but also over various parts of the chest, the epigas-

trium, and the inside of the legs and thighs. You will find this plan of treatment frequently succeed in cases which have a very unpromising aspect. I have now witnessed many instances of this description, in which, from cold, neglect, or debilitating treatment, the patients appeared moribund, with lividity of the extremities, hippocratic face, cold skin, and failing pulse; and I have seen them saved, as it were miraculously, by the use of carbonate of ammonia, musk and wine, and the application of warm fomentations to the limbs, followed by a succession of flying blisters.

The next use to which we apply blisters is in the treatment of those pulmonary affections which arise during the course of typhus. From what you have seen of the present epidemic, you must be convinced that bronchitis is one of its most frequent complications, and that few patients pass through fever without having some affection of the bronchial mucous membranes. You are also aware, that when bronchitis attacks the more minute ramifications of the bronchial tubes, it is very apt to produce congestion and engorgement of the lung. We meet with pneumonia much less frequently in fever, but it is occasionally observed, and requires the most prompt and decided treatment. In pneumonia, as well as in congestion of the lungs accompanied by inflammation of the smaller bronchial tubes, blisters afford us a most valuable adjunct to the other means which we employ, and admit of being used in cases where no other mode of depletion could be safely borne. The affections of the lung in fever are of no small importance, and the stethoscope has not conferred a greater benefit on practical medicine, than by indicating, in diseases of the chest, not merely the existence of disease, but also its locality, extent, and precise nature. It points out to us the portion of the chest in which the bronchial tubes are chiefly engaged, and informs us with certainty when the affection of the smaller tubes has given rise to pulmonary engorgement. The experienced stethoscopist will in such cases be aware of the exact site and nature of the affection, where the mere symptomatic practitioner would be unable to acquire any thing more than a loose and undefined notion of pulmonary disease. The latter employs his depleting means at random, and frequently abstracts a large quantity of blood with little benefit to his patient; the former, aware of the precise situation and extent of the disease, applies his leeches or cupping-glasses immediately over the engorged or inflamed portion of the lung, and relieves his patient at the expense of a comparatively small loss of blood. The same observation will apply, with equal force, to the use and application of blisters. A good and accurate knowledge of the various stethoscopic phenomena is besides of so much more value in the treatment of fever, as, at certain seasons of the year, almost every case of fever will be complicated with pulmonary derangement; and it may happen, during the course of an epidemic, that the lungs may be the organs which are chiefly engaged. Although cerebral disease is at present the principal source of danger in fever, it may not be so always. A change may take place in the character of the epidemic; the cerebral symptoms which are now of such frequent occurrence may become unfrequent, and we may have the organic affections chiefly limited to the viscera of the thorax. I have seen many cases of fever in which the principal source of danger was connected with the chest, and where an accurate knowledge of the stethoscope was indispensable to a correct and successful plan of treatment.

Now, when you have recourse to blisters in treating pulmonary affections, whether these affections be simple or complicated with typhus, it would be well to recollect that much good may be effected without leaving the blisters on for a long time, or until they rise fully ; and also that when risen, it will not be necessary to cut them at once and let out the effused serum. In treating the bronchitis of children, and in the bronchial affections of fever, I have frequently directed the blister to be left unopened ; and I can state, from experience, that this plan answers very well. The effused serum forms one of the best dressings for the excoriated surface of the skin, and the formation of troublesome sores is avoided. I frequently have recourse to this mode of treating blistered surfaces in children, and persons of irritable habit, in whom the cutis is extremely tender and vascular. Such persons, when blistered, will often have profuse discharges, first of serum and afterwards of sero-purulent matter, from the denuded surface, accompanied by torturing pain, loss of rest, and considerable irritation of the general system. I have seen the discharge continue to flow profusely for five or six days ; in fact, to such an extent as to wet several napkins in the course of a day, and expose the patient to the risk of an aggravation of the pulmonary symptoms, in consequence of his linen becoming so frequently moistened as to require repeated shifting.* In all cases of children and persons of an irritable habit, I would therefore advise you to let the blisters alone, particularly where they have been applied to the fore part of the chest, or any other part not exposed to pressure or friction. As soon as the blister rises, apply over it a piece of lint, smeared with spermaceti ointment, which can be renewed as occasion requires, and leave the rest to nature. I was forcibly struck some time since, with the difference of result between this and the ordinary practice, in the case of a young gentleman residing in Camden Street, who had a severe attack of bronchitis towards the termination of fever. A blister had been applied to his chest in the morning, and another in the middle of the day. The first had been opened freely, and dressed in the usual way ; but the other, which had risen about the time I was called in, was left untouched at my request. The one which had been opened caused such a degree of irritation and restlessness, that it was found necessary to give him an opiate every night ; the other gave little or no inconvenience, and healed up much sooner. If I have done nothing better, I think I deserve some merit for being the first to reprobate the practice of keeping on blisters for twelve, eighteen, and twenty-four hours, and for having shown, by numerous experiments, that a much shorter period of time was required to ensure the full effect of these remedies. When I commenced the practice of medicine, blistering was looked upon by most sick persons as one of the severest trials of their patience, and the agony which it caused in some irritable habits was almost insupportable. Blisters were left on for twelve, eighteen, and even twenty-four hours, and when at length they were removed, the whole epidermis of the blistered part came, or was torn away, leaving behind a raw irritable surface, from which large quantities of serum and pus were effused

* In pulmonary diseases, this continued discharge is often very useful, and should be encouraged, by dressing the vesicated surface with the French blistering paper, or, what I have found equally useful, that prepared by Mr. Bewley of this city : but in fever the production of such effects from blisters must be avoided, as a surface thus denuded of its cuticle, and inflamed, may be converted into a dangerous sore.

for several days, to the great torture and inconvenience of the patient ; and, not content with this, the practitioners of that time generally dressed the excoriated surface with some sharp stimulant ointment, so that the blistered surface most commonly resembled that of a severe burn. Ask those who are our seniors in practice, and they will tell you what blistering was twenty or thirty years ago. They first produced excessive irritation of the skin, by leaving the blisters on too long, they then irritated the denuded surface with stimulant ointments, and in this way brought on extensive sores of a bad character, which remained long after the disease for which the blisters were applied had disappeared, and which formed, in fact, a new ailment, requiring new medicines and additional attendance. If you look over Mr. Moore's account of the principal remedies employed in the practice of Dublin physicians, about the period I allude to, you will find that nothing was more common than the application of stimulant and, as they were termed, digestive ointments, to blistered surfaces. I was among the first who assailed this barbarous treatment, and showed that all the good effects of blisters might be secured by leaving them on for a much shorter space of time. I proved by numerous experiments, that in many cases it was not necessary to leave them on more than four or five hours, in the adult,* and that they might then be removed and the blistered part dressed with spermaceti ointment. Under this dressing the blister rises well, and there is no danger of tearing away the cuticle, or producing an irritable sore. In addition to this, you entirely avoid the irritating effects which blisters are known to produce on the urinary organs. You will very rarely meet with dysuria, or hæmaturia, where the blister has been left on for the spaces of time I have mentioned.

Blistering is then to be used with the restrictions I have mentioned, and you will find it a most valuable aid in the treatment of fever and its complications. It may be employed either as a derivative and revulsive, or you may have recourse to flying blisters over various parts of the body, in certain forms of fever, where there is marked and sudden depression of the powers of life.

Speaking of depression of the powers of life, reminds me of a curious incident which occurred some time ago in my practice, and which shows the value of being acquainted with the peculiar habits and idiosyncrasies of families. I attended, with Mr. Kirby, about three years since, a gentleman of middle age and active professional habits, who had been attacked with fever. I was first called to see him on the ninth day of fever, and found him apparently moribund. His pulse was intermittent and irregular, the action of the heart tumultuous, the respiration feeble, and the extremities cool. Mr. Kirby had instantly ordered internal stimulants, and blisters over the region of the heart and epigastrium. The patient rallied, and ultimately recovered. It is to be observed, that the group of formidable symptoms just enumerated had supervened quite out of the usual course, and without any previous warning. They were consequently not only alarming but unexpected. About a month afterwards, Mr. Smyly and I were called to see this gentleman's brother, who was living at Dun-

* Of course blisters applied to the scalp must be excepted. They require at least twelve hours. In old persons generally the skin is much less vascular than during youth and middle age : and consequently, in the old, blisters require a much longer time to produce the required effect.

drum, and who was supposed to have caught fever from his close attention on his brother during his illness and convalescence. What was most remarkable in the case, was, that his pulse began to flag and intermit, and he likewise suddenly and unexpectedly got the same symptoms of depression of the vital powers on the very same day and hour as his brother. His symptoms also continued for the same length of time, and yielded, or spontaneously ceased, under the same plan of treatment. In some families you will find a very curious coincidence between the play of the various functions in disease as well as in health, and you should neglect no opportunity of making yourself acquainted with the family peculiarities and idiosyncrasies of your patients, as knowledge of this description is of the greatest value and importance in the treatment of disease.

LECTURE X.

On Epidemics—On the use of Emetics in the commencement of Fever—Not so well adapted to a later period—Domestic remedies for feverish colds—These colds prove to be fevers, and time is lost—Protest against the abuse of purgative medicine in fever—The idea of curing fever by purging is absurd—Treatment where the bowels have become almost paralyzed after the cure of preceding diarrhœa—Venesection as a means of checking fever—Beneficial even within the first twelve hours after seizure by typhus—Various cautions respecting leeching and cupping-glasses—Mode of applying leeches when pneumonia or hepatitis supervenes on fever.

HAVING spoken at some length respecting epidemics, one only fact occurs to me in addition to those already detailed, viz.: It by no means follows when fever has a decidedly malignant type, that other acute diseases which prevail at the same time should exhibit a similar tendency; thus measles and scarlatina are often epidemic simultaneously with fever, and yet each of the three may present a different type. This very year (1842) we witnessed a very widely disseminated epidemic of scarlatina, whose character was most malignant and fatal, and yet fever during that period was unusually mild in its form, while measles were rife and of a purely inflammatory character. Here then was a year during which fever, without becoming inflammatory, ceased to be *typhus*, scarlatina assumed a typhoid character, and measles prevailed, but of a pure inflammatory type! This statement, for the accuracy of which I can vouch, teaches how difficult it is to explain the causes which give to epidemics their peculiar complexion; indeed for the last five years scarlatina has been extremely malignant, and during the same period measles very benign; so that we must not too hastily adopt the hypothesis that some general cause exists capable of simultaneously modifying diseases of different species—an hypothesis which has found many advocates, among the rest Dr. Watson, who says, “Sydenham found that measles of an unusually bad kind prevailed in London in the years 1670 and 1674; the very same years in which small-pox was also remarkably malignant and fatal. This illustrates what I have stated before, viz., that the typhoid tendencies of these and other febrile disorders depend less upon any peculiar virulence in their *exciting* causes, than upon some change previously effected in the human body by the silent and gradual influence of certain *predisposing* causes.”*

* *Medical Gazette*, September 9th, 1842, page 899.

I have already observed, that it is not my intention to give a systematic account of the practice to be adopted in the treatment of typhus. I have designedly passed over many important points, being unwilling to trouble you with any observations on practical matters in which my opinions coincide with the latest and best authorities. I shall therefore touch very briefly on the subject of emetics in fever, as the rules by which the administration of these remedies is regulated have been laid down with precision by many modern writers. I am not in the habit of using emetics in fever, except when called in at the very commencement of the disease. Here emetics are of great value, and will often succeed in stopping the fever. There is no way in which you would be more likely to cut short an attack of fever than by the administration of an emetic, if you chance to see the patient when the fever is just beginning. I speak here without any subterfuge, and without grounding my opinions on the results of doubtful or merely suspicious cases. I speak not of cases of bad feverish cold, in which the symptoms, at the commencement, bear a very strong analogy to those which usher in typhus; I speak of cases where the patient gets rigors, followed by the usual symptoms of feverish excitement, after exposure to contagion, and is seen on the evening of seizure. If I were called to visit a patient who had been attacked with shivering, headache, quickness of pulse, increased temperature of skin, and lassitude, during the prevalence of an epidemic, or after exposure to contagion, and happened to see him a few hours after the attack, I should certainly bleed him, and administer an emetic: and I think he would have a very good chance of escaping the disease. I think the exhibition of emetics an excellent practice in the commencement of fever, but I must observe that the period for their exhibition is very brief. After the lapse of twenty-four or thirty-six hours from the occurrence of the rigor, they will not succeed in cutting short the fever. A few hours make a vast difference in the chances, and after the lapse of twenty-four hours, there is, generally speaking, very little hope of extinguishing the disease. At the termination of that period, it has in most cases seized hold of the constitution too firmly to be shaken off by an emetic, even though aided by bleeding, but for the first few hours after seizure, the plan I have mentioned affords you a reasonable hope of being able to put a stop to the mischief at once. Army surgeons, and practitioners who have opportunities of treating incipient disease, are well aware of the truth of these observations. I have myself witnessed many cases in private practice, of medical men and students, who had been attacked with symptoms of fever after exposure to contagion, and who escaped by taking an emetic and being bled in proper time.*

* The annexed observations on the use of emetics at the commencement of fever, appear very judicious:—

“When the opportunity offers of administering remedies in the first days of fever, an emetic may often be given with advantage, especially where the type of the fever is mild. An emetic clears the stomach of offending matters or sordes, which may be either undigested aliment, bile, thickened and vitiated mucus, or its own thin acid or acrid secretions. Besides which, an emetic has the additional advantage of determining the blood to the surface, and in this way relieving the oppressed state of internal organs. A powerful emetic may sometimes give the system a shock, sufficient to alter the course of the symptoms, and even to cut the fever short. This practice, however, is not without its dangers. In some cases it determines morbid action to the stomach, and renders that organ *irritable* during the whole course of the fever. At other times an emetic brings on local inflammation in some important viscus, on the same principle that it forces out sweat. As a general rule, we are not justified in giving an emetic,

Except at the commencement, I am not an advocate for the use of emetics in fever. They fail in checking the disease, and they are apt to be followed by considerable debility of the stomach and general system—states which it would be better to avoid, where the patient has to run through the course of a long and exhausting disease. If called to a case of fever in which you cannot give an emetic, there are two or three other remedial agents you may employ to moderate the feverish excitement, and render the disease milder and more manageable during its progress. One of these is James's powder, with which you may combine blue pill or hydrargyrum cum cretâ, if necessary, giving two or three grains of each every third or fourth hour, according to circumstances. Another remedy, which many are in the habit of using, particularly where the fever is accompanied with symptoms of inflammatory excitement, is a weak solution of tartar emetic. Two grains of tartar emetic may be dissolved in a pint of barley-water, and of this mixture a tablespoonful may be taken every second hour. These are good and useful remedies in the first stages of fever; they moderate the feverish excitement, act gently on the bowels, and produce more or less diaphoresis.

It most commonly happens that the physician is not called to see a case of fever until forty-eight hours, or perhaps three or four days, have elapsed, from the period of seizure. In this climate, feverish colds are extremely frequent; and as their symptoms bear considerable resemblance to those of incipient fever, and very few are capable of making a distinction between them for some time, a person attacked with fever usually regards it, at the first onset, as the result of cold, and expects to be able to alleviate or remove it in a few days by bathing his feet and taking a warm drink at night, with, perhaps, some opening medicine on the following morning. The usual period, however, at which the feverish cold had been accustomed to decline, passes over without the expected amendment, the patient feels himself weaker and worse, the conviction is brought home to him that his disease is something more than an ordinary cold, and he sends for a physician about the third or fourth day. Now at this period, I believe, you must be content to let the fever run its course, for it has taken root too deep to be expelled by a *coup de main*, and yet many persons seem to think they can still succeed by what they term bold and

unless we have reason to think that the stomach is *foul*, that is, loaded with acrid matters, whether formed within the body, or received into it from without."—GREGORY'S *Practice of Medicine*, page 112. *Fifth Edition*.

In the following extract from Dr. Copeland's Dictionary, the experience of that eminent physician is laid before the reader:—"The arrest of fever may be also successfully attempted during the stage of invasion, or up to the commencement of vascular reaction or excitement; but when once this period has supervened, the fever will run a regular course, although it will often be much shortened by treatment. Fevers, I believe, caused by infection, are very rarely arrested after reaction is established. The means just advised for the formative stage may likewise be tried in that of invasion; but much discrimination is requisite in the choice of means. Camphor, ammonia, and warm diaphoretics and diluents, sometimes with opium, when the head is not affected; the warm bath, the vapour or heated air bath, and frictions, subsequently, are the most generally appropriate. In robust persons, and where terrestrial emanations have been the chief cause, a warm emetic and active stomachic purgatives may also be exhibited; but they should more rarely be ventured upon in other circumstances, for the reasons just assigned. When there is tenderness at the epigastrium, with other signs of gastric irritation and depression of nervous power, instead of an emetic or cathartic, a large sinapism, or a warm turpentine epithem, should be placed upon this region, and over a great part of the abdomen; or, in other cases, upon the inside of the thighs; but neither of these ought to be resorted to if reaction have supervened, nor continued after it has come on."—COPELAND'S *Medical Dictionary*, page 921.

decided treatment. The mode which they generally adopt is, first, to administer an emetic, and then to have recourse to copious and continued purgation. This leads me to say a few words on the use of purgatives in fever.

The abuse of purgatives, particularly in the first stage of fever, continues, I am sorry to state, even to the present day, a blot on the character of practical medicine. Large doses of calomel, and vegetable purgatives, in the form of pill or bolus, followed by draughts composed of infusion of senna, Epsom salt, and electuary of scammony, form the chief part of the treatment in fever with too many practitioners. I know well that this is a mode of proceeding too commonly employed, and I have frequently heard those who adopt it, when questioned as to the remedies they have used, declare, with much self-satisfaction, that the patient's bowels have been well cleared out. This, I believe, is a very common mode of treating fever in the incipient stage; and though there can be no objection to the administration of a purgative, as a cautionary measure, particularly where an accumulation of fecal matter in the bowels is suspected, I must confess that my experience does not authorise me to say, that fever can be either checked or mitigated by continued purgation. If active purgation does not check fever in the commencement, what benefit, then, can be expected from it? People will tell you that full purging must act beneficially in two ways; by unloading the bowels, and by evacuating the general system. With regard to evacuating the bowels, I think it can be done well and sufficiently by the use of mild aperients. It is seldom necessary to give active purgatives, and we never have occasion to continue their employment from day to day. The bowels, I repeat, can be sufficiently unloaded by the exhibition of mild aperients and enemata, and even these will seldom be required more than once or twice in the commencement, and occasionally during the course of the disease. The second question (in reference to the use of purgatives as general evacuants) is, whether it is prudent or safe to act antiphlogistically on the system through the medium of the intestinal canal, during the first stage of fever? My opinion is, that it is not. I grant that the administration of active purgatives is followed by a copious evacuation of the fluid secretions of the intestinal canal, and that in this way you deplete the system to a very considerable extent. Admitting all this, and, moreover, that depletion is required, still I am of opinion that this is not the best way of effecting it, and shall always give a preference to the action of other remedies. I prefer the action of James's powder, or tartar emetic, or nitrate of potash, or leeches, or, in fact, any remedy which will act with less risk of subsequent mischief. I have observed that the abuse of active purgatives in the commencement of fever—nay, even the exhibition of cathartics two or three times, in the beginning of fever, in persons with irritable bowels, is very apt to induce excitement of the gastrointestinal mucous surface, giving rise to early and profuse diarrhœa, tympanitis of a bad and unmanageable character, and not unfrequently to disease of the mucous coat of the digestive canal. Great tenderness of the belly, meteorism, and exhausting diarrhœa, are the general consequences of early and continued purgation. In private practice I can generally tell, by examining the patient's belly, whether he has been actively purged in the commencement of the disease or not. I invite you to study the cases that come before you in hospital, with reference to this

point ; I think you will find in most instances, that the patients who have escaped active purgation before admission, will get through the disease with little or no tympanitis. The physician who merely employs mild aperients and enemata—who does not use active purgatives from day to day, as is too often done—will not have his plans of treatment embarrassed by the occurrence of dangerous tympanitis, or obstinate and debilitating diarrhœa ; nor will he have the melancholy prospect before him of having an inflammatory affection of the gastro-intestinal mucous membrane to treat, at a period when neither the condition nor the constitution of the patient will bear any thing like antiphlogistic measures. As to purging in general, the idea of curing fever by it is quite absurd. In fever, all the secretions are affected, and it would be idle to think of altering and improving all by acting on the bowels. Take the skin, for example. Consider what a departure there is from the normal state ; observe the quantities of moisture which exude from it without any apparent cause, or its equally inexplicable dryness. Its odour, its feel, its nervous and vascular conditions, are all more or less altered. Take the lungs, in the next place. There is generally some change in the smell of the patient's breath ; there is some change also in the quantity of the pulmonary exhalation ; there is an alteration in the rate and mode of respiration ; and I have ascertained, by experiment, that a person in fever does not consume as much oxygen, or give out as much carbon, as he would in a state of health. Observe the functions of the brain, or those of the liver or kidneys, and see how much they have departed from the normal state. Every secretion, every function, is more or less deranged, and will remain so as long as the fever lasts. You have no right to think that you will be able to restore the healthy state of the stomach and bowels any more than that of any other organ. The secretions of the lungs, liver, pancreas, kidneys, stomach, and skin, are all deranged, or more or less suppressed, and will not be restored to a healthy state until a crisis come on, or the disease begins to decline. As long as the belly is soft and fallen, and where the bowels have been sufficiently opened in the commencement of the disease, I do not feel the least anxiety if the patient remains without having a stool for two or three days. I have, on some occasions in private practice, been induced to consent to the exhibition of a purgative where I did not think it required ; and have seldom done so without regretting it afterwards. The patient has been going on well, the belly soft and fallen, no tenderness present, and no distinct evidence of fecal accumulation. All this I have pointed out to the practitioners in attendance with me, but to no purpose. They would generally observe, in reply, " Oh ! this may be all true ; but you see the patient has had no stool for the last thirty-six hours, and it would be quite wrong to let him go on in this way any longer." Indeed, you will frequently meet with cases in which you should exercise much caution in the administration even of enemata. An illustration of this remark occurred to Surgeon O'Ferrall and me lately in practice. In a case of fever in which the patient's friends were importunate as to the necessity of opening the bowels, the ordinary purgative injection was prescribed. It proved too active, and produced much irritation of the bowels, giving rise to an increased secretion of gas into the intestines, and a considerable degree of temporary tympanitis.

You will be guided, therefore, in the administration of purgatives, not

by the rule of those who are dissatisfied with less than two or three motions in the day, but by the circumstances and exigencies of the case; and you will be cautious in giving purgatives, except where you have good reasons to conclude that there is an accumulation of feces. In this way you will avoid tympanitis, diarrhœa, and inflammatory affections of the bowels; symptoms which always give great annoyance to a practitioner, and tend greatly to embarrass his practice in the treatment of all fevers of a typhoid character.

So far concerning the administration of purgatives as a cure for fever, or as a means of diminishing its violence. You perceive that I think their employment more than questionable, and in this particular am consequently at issue with Hamilton, and a great number of writers. There are, however, circumstances which may arise during the course of typhus, and may require a free use of purgative medicines; we are then forced to have recourse to purgatives, not in the hope of curing the fever itself, but for the purpose of removing or alleviating certain superadded symptoms. It may be well to mention some of the chief of these symptoms. One of the most common is determination of blood to the head, producing delirium, headache, &c. &c. In many examples of this nature, occurring at an early period of typhus, purgatives of a very active nature are amongst our most efficacious remedies. Nay, even in the advanced stages of fever, delirium and determination to the head are seldom relieved by tartar emetic, unless it produces very copious, yellow, watery stools. Many patients become uneasy and restless at night, in the latter periods of fever, in consequence of insufficient evacuations from the bowels; whenever, therefore, restlessness or sleeplessness supervene unexpectedly, and that the bowels are confined, the occurrence of these symptoms call for aperients, even though the belly be not very full and tumid. Preternatural fulness of the belly, and tympanitis, often demand purgatives at every period of the disease. In some cases, when a troublesome diarrhœa has yielded to astringents, a very obstinate and long-continued state of constipation comes on, apparently connected with impaired muscular power of the intestinal tube. At first, this confinement of the bowels produces no uneasiness on the part of the medical attendant, inasmuch as it is unattended by any fulness or tension of the abdomen, and the patient may, in other respects, appear to be doing well. After some days, however, it is judged prudent to excite alvine evacuations, which is attempted cautiously, for the practitioner bears in mind the violence of the previous diarrhœa. He therefore chooses mild purgatives at first, and next day, finding them ineffectual, he ventures on the exhibition of more active medicines, and orders a frequent repetition of injections. Even these steps fail, and constipation continues for several days after the efforts to remove it have been commenced. This is a juncture full of difficulty. In such cases, much caution must be used in employing active cathartics, and great care should be taken to remove any hardened feces which may be present in the rectum or sigmoid flexure of the colon. This must be done partly by the finger, or by means of an appropriate scoop, as, for instance, a marrow-spoon, and by injections of soap and water. When no such mechanical obstructions exist, to account for the failure of the cathartics, we must proceed cautiously, and not rashly accumulate medicines of this description in the stomach and bowels of the patient. Very active purgatives, though they fail to stimulate the paralyzed bowels so as to evacuate their contents, may yet irritate the intesti-

nal mucous membrane, and cause destructive inflammation. For this reason, where moderate doses of colocynth, gamboge, jalap, scammony, rhubarb, &c., have failed, they must not be repeated; neither, except in desperate cases, ought we to administer croton oil internally. The neutral salts, senna, magnesia, and, above all, castor oil, given combined with spirits of turpentine, or uncombined and very frequently repeated, must be our chief internal medicines. In some cases, the compound decoction of aloes, with small doses of sulphate of magnesia, will succeed in exciting the paralyzed bowels to action, where other and more powerful purgatives have failed. Injections should be perseveringly repeated, and varied both in quality and quantity; and they should be always thrown as far as possible into the bowel, by means of a flexible tube and Read's syringe. When they are retained, and excite swelling of the belly, as too frequently happens in these cases, we must desist from their use.

This obstinate state of constipation may be supposed to depend on a degree of paralysis of the bowels; for usually in such cases an evident paralysis affects the bladder, causing retention, or its sphincters, giving rise to an involuntary dribbling of urine.

On the subject of bleeding in fever, I have but very few remarks to offer. In the first place, with respect to the power which venesection possesses of checking fever, it may be observed, that there can be no doubt that it has frequently been found capable of effecting this purpose, particularly where it has been properly employed, and in conjunction with other means. I speak here with reference to cases in which bleeding has been used under favourable circumstances, and very soon after seizure—as in students, medical practitioners, hospital attendants, soldiers, and seamen. In such persons, and others where circumstances have been equally favourable, there is no doubt that venesection has frequently succeeded in cutting short fever; and if called to a case of typhus within the first ten or twelve hours after seizure, I should have no hesitation in having recourse at once to venesection, followed by an emetic; and my own experience convinces me that I should afford my patient a very good chance of escaping the disease. I have on several occasions succeeded in arresting the progress of fever by these means; and the records of naval and military practice furnish many proofs in corroboration of my statements. I have also the authority of Dr. Cheyne (whose experience on every point connected with fever was immense) in favour of the efficacy of bleeding in commencing fever, as a mode of treatment which has frequently proved successful in his hands. But it is only in the very commencement, and during the stage of rigor, that you can hope to derive any advantage from venesection in cutting short an attack of fever. I do not mean to say that you have in typhus, as intermittent, distinct rigors, lasting each for half an hour, or even longer; by the stage of rigor in typhus, I mean to designate the period of formation, during which the patient complains of recurrent chills, although his skin feels hot to the touch when examined by another person. This stage lasts generally from twelve to twenty-four, and in a few cases to thirty-six hours; and it is only during this stage that you have a chance of extinguishing the fever at once, by the abstraction of blood from the system.

You may also have recourse to venesection within the first day or two, for the purpose, not of arresting fever at once, but of lowering inordinate vascular action, in persons of a robust habit, and where the fever sets in

with violent headache, great heat of skin, and a firm bounding pulse. We do not, however, at present meet with many such cases, nor are we often called in at a period when venesection might be advantageously practised. The physician seldom sees a case of fever until the third or fourth day, and then it is too late to think of general depletion by the lancet. This explains why venesection is so seldom employed in typhus in our hospitals. Moreover, in entering on the treatment of any case of fever at present, you should bear in mind the nature of the prevailing epidemic, and be careful how you proceed with respect to bleeding; and if you take away blood, do not go so far as you would if treating a case of fever under different circumstances, and of a genuine inflammatory character. I know that many persons have asserted that you can bleed in all cases of fever, no matter what the state of debility may be; because this, they say, is only apparent, and depends upon congestion and oppression of vascular action. I do not know how far this doctrine may be applicable to other epidemics, but in the present fever it certainly does not hold good; and no man in his senses would think of adopting it as a guide for his practice. I have seen some of the most intense, dangerous, and protracted cases of fever, commence without any appreciable increase of vascular action, with a soft slow pulse, a cool skin, no symptoms of congestion of any internal organ; in fact, without any thing which would, even in the youngest and most robust habits, call for the use of the lancet. Increased vascular action, and this you should always bear in mind, is not in itself a proof of an inflammatory diathesis in fever, but rather one of a set of symptoms produced by the same morbid cause. The heat of skin and rapidity of pulse are, just like the debility, products of the same morbid cause, and not the results of inflammation. You should also recollect that in fever, as well as in other diseases in which the nervous system is greatly deranged, the pulse is not unfrequently a very deceptive guide. In many cases of fever, where the patient happens to be of an irritable habit, the pulse exhibits a degree of thrill and apparent hardness, which might lead an inexperienced or unobservant practitioner into serious errors. I do not mean to say that an inexperienced finger will not be able to distinguish a pulse of this kind from one of genuine hardness, but I know that many persons have been misled by it, and I warn you against the danger.

Again, never use the lancet when there is any, even the slightest, appearance of maculæ, no matter how intense the headache, heat of skin, or signs of general vascular action, may be. I have seen some cases in which the lancet was used during the presence of maculæ, and I have seen its employment followed by the most lamentable consequences. You should, therefore, never omit to examine the skin, for circumstances might occur which would authorise a moderate use of the lancet, provided there was no sign of maculæ present. Formerly, persons were very much in the habit of employing arteriotomy when the headache and delirium were violent, regardless of the period or stage of fever; and nothing was more common than to see a physician ordering the temporal artery to be opened on the eighth, ninth, or even tenth day. This was very much the practice during the time when the doctrine of typhus being the result of inflammation of the brain prevailed in this country and England, and a very unsuccessful practice it was. You perceive we seldom have recourse to arteriotomy here; it may be occasionally necessary, and when it is, we

employ it; but as a general practice it does not appear entitled to any merit, nor can we give it our recommendation.

The examples which you have seen in hospital show you that local inflammation arises, generally speaking, at a period when general bleeding is no longer admissible. I have spoken already of the mode in which leeches are to be applied to the head, with the view of relieving headache and cerebral congestion; it is not necessary that I should say any thing respecting their application to the epigastrium, or abdomen, for the relief of gastro-intestinal symptoms in the beginning of fever, as there is very little chance of your doing any mischief, even by the free use of leeches, at this period; it only remains for me to make a few remarks on the use of leeches and cupping-glasses, in the more advanced stages of the disease. Well; your patient, suppose about the ninth or tenth day, gets pain in his side, cough, and increased frequency of respiration, and, on examination, you find sufficient evidence of the existence of pneumonia. Or he complains of abdominal symptoms, and you have strong reasons to think that hepatitis or enteritis is present. Here you will have recourse to leeches or cupping, according to the circumstances of the case. An attack of pneumonia, coming on in fever, frequently acts as a stimulus to the economy; the collapse of fever disappears more or less, and the pulse becomes more firm and resisting. This is a fortunate occurrence, for under such circumstances the patient is better able to bear depletion, and you may proceed at once to apply cupping-glasses or leeches to his chest, regulating the quantity of blood you abstract, not only with reference to his present symptoms, but also to his future condition. But it sometimes happens that pneumonia occurs at a later period of the disease, and when you cannot use cupping-glasses, or even leeches, to any great extent. In such cases (and the same remark will apply to enteritis, or any other inflammation occurring in the advanced stage of fever), you should leech with great caution: begin with four or six at a time, and when they drop off, cover the leech-bites with a cupping-glass. In this way you will know pretty nearly the exact quantity of blood which the patient has lost, and you can arrest it with less difficulty afterwards. You can then have recourse to calomel and opium, or tartar emetic, according to circumstances. Leech as far as you can, and then have recourse to immediate blistering, and such other means as the exigencies of the case may demand.

You may leech, then, freely, and without any particular caution, in the commencement of fever, whether it be for cerebral, or for thoracic, or abdominal symptoms; but as the fever advances, you must exercise more discrimination and care, both as to the number of leeches you apply, and the time you allow them to bleed.* In applying leeches to the head, I

* [Dr. Graves's remarks respecting the propriety of omitting venesection when the disease is at all advanced, are now almost universally admitted. There is no doubt of their entire correctness. Even at the earliest stages of the disease, venesection is not generally advisable. Cupping is a better mode of taking away blood locally than leeching, which indeed is scarcely practicable in most parts of the country. Cups may be used when there is much flush of the countenance and a tendency to active delirium. When the delirium becomes less active in its character, cupping should either be used very sparingly, or entirely avoided.—W. W. G.]

would advise you not to put them on both temples, or behind both ears at once, as this is awkward, and prevents the patient from lying on either side. You may also, in cases of cerebral irritation, apply them to the nostrils or septum marium; in this way you will be able to get away a large quantity of blood by means of very few leeches, for one or two at a time will be sufficient. In leeching the chest and abdomen in particular, I advise you never to have recourse to fomentations with the view of getting more blood from the leech-bites. Fomentations are too often a source of fresh mischief in cases of this kind, leading to exposure of the patient to cold, and to the annoyance of having his linen and bedding kept wet for hours together. Always give directions to have cupping-glasses, or hot dry flannel cloths, applied as soon as the leeches drop off, and you will have less difficulty in arresting its flow afterwards, a point of some importance in cases where the loss of even a trifling quantity of blood is often of great moment, and likely to have a very powerful effect on the state of the patient.

LECTURE XI.

Fever—Application of cold to the head; particular apparatus for this—Warm applications recommended—Use of mercury in fever—Effects of Intemperance—Illustrations afforded by particular cases—Necessity of active attention to cerebral symptoms—Occasional absence of morbid appearance after death—Contraction and dilatation of the pupils—Coup de soleil—Flatulent distension accompanied by delirium, coma, &c., treated by spirit of turpentine with success.

I HAVE already laid before you my views as to the use of general and local bleeding in fever, and pointed out the circumstances under which they might be employed. In treating of general bleeding, I stated that we used it at the commencement of fever, with a view of checking the disease altogether, or of rendering it milder and less dangerous, by moderating excessive inflammatory action, and controlling cerebral excitement. I have also spoken of the use of leeches and blisters, and it only remains for me to say a few words respecting the application of cold to the head as a means of moderating or removing symptoms of cerebral excitement. In Dr. Southwood Smith's *Treatise on Fever*, you will find many cases and arguments to show that where headache and delirium are present, and where the lancet is inadmissible, if you place the patient in a warm bath, and direct a forcible small stream of very cold water on his head, he soon becomes more calm, experiences great relief of his headache, and is frequently brought back to his bed quite free from cerebral symptoms. The burning heat of the skin is quickly replaced by a sensation of coolness, or even cold, the flushing of the face disappears, the delirium vanishes, and a favourable crisis is often produced. Indeed the effects of this remedy are extremely remarkable, and I have no doubt that many of the cases in which I have employed tartar emetic with such signal advantage would derive equal benefit from this mode of treatment. The cold affusion, as recommended by Dr. Smith, and practised at the *Charité Krankenhaus*, at Berlin, is most certainly an excellent and energetic remedy, and I regret that we have not apparatus in this hospital for

applying it ; but I fear its utility must be, at least for some time, limited to public institutions, and that it cannot be employed to any extent in private practice. There is a good deal of prejudice against applications of the kind in this country. At the time that cold affusions were used in the treatment of scarlatina, much mischief was done by their indiscriminate employment, and this added to the general feeling of dislike towards them. At all events, cold affusion is a remedy which requires an apparatus seldom at the command of the physician in private families, and, indeed, I think that in most cases we may do very well without it.

You are all aware, that in cases of determination to the head, the common practice is to shave the scalp, and apply cold lotions. In my published lectures, I have endeavoured to point out the imperfect, and even hurtful, mode in which this remedy is ordinarily applied, and to show that it is calculated rather to increase than diminish the heat of the integuments. Cold lotions act as a powerful refrigerant, if constantly repeated, so as to keep the part below the standard temperature of the body. But this is seldom or never done. The nurse applies the lotion, and then, perhaps, drops asleep, or occupies herself with some other business, until at last she is attracted by the vapour arising from the patient's head, and then she renews the application. I need not say, that in this way all the good effects of cold, as a refrigerant, are entirely lost, and that a degree of reaction is produced which must altogether mar and nullify its application. I have, therefore, given up, except in very few cases, the practice of applying cold lotions, and give a preference to the use of warm fomentations of equal parts of vinegar and hot water, applied to the temples and shaven scalp, and frequently repeated. I am quite sure we employ warm applications for the relief of headache and cerebral symptoms much less frequently than we ought. You are aware that surgeons are in the habit of treating some local inflammations with warm, and others with cold applications, and that the rules laid down for distinguishing the cases in which cold, and those in which warm, fomentations should be used, are deficient in precision, and that most commonly the practitioner has to refer to his own individual experience for the guidance and determination of his choice. So it is, also, with respect to the use of fomentations, to relieve the pain and congestion of internal parts, among which I include determination to the head in fever, accompanied by intense headache, restlessness, and delirium. In some cases of this description, cold applications will give ease; in others, most relief is obtained by fomenting the head with water as hot as it can be borne.

The idea of employing hot fomentations in cases of this description was first communicated to me in 1833, by the late Mr. Swift, who became accidentally aware of their value while washing his face one day in very warm water, at a moment when labouring under severe headache. The sudden relief obtained by the application of hot water, induced him to try it extensively in the headache of influenza, and with the most satisfactory results. You are aware, that in the influenza which appeared in this country in 1833, one of the most remarkable symptoms was intense headache. This was accompanied with great debility, and was not amenable to the ordinary modes of depletion. Now, Mr. Swift found that by applying water, as hot as it could be borne, to the forehead, temples, and back of the head, great and almost instantaneous relief was obtained, and that in this way he was able to keep a most unpleasant symptom in check, while

he was taking measures to remove the disease. I afterwards heard from my friend, Dr. Oppenheim, of Hamburg, that he had also discovered that this was the best means of affording relief under the same circumstances. This led me to think of applying hot fomentations to the head in other diseases, and although I cannot give you any particular rules for determining the cases in which you should employ them, I can say that you will generally find warm vinegar and water the best and most efficacious application in the ordinary headache of fever.

I shall close this lecture with a few observations on the use of mercury in fever, and this will include all I have to say at present on the remedies most generally employed in the treatment of typhus. Are we to have recourse to mercury, or not, in typhus? I do not allude here to its use as an aperient, but when called to treat a case of fever, are you to proceed at once to bring the patient's system under the influence of mercury? Are you, in addition to the other measures usually adopted in the treatment of fever, to go on with the administration of mercury until you affect the mouth, and bring on salivation? This was the practice in my earlier days, and great confidence was placed in it by the majority of practitioners. It has been also very extensively recommended by army and navy surgeons, in the treatment of tropical fevers, but I must confess that I am not at all inclined to adopt this practice, and that I have seen abundant reasons why I should neither employ nor recommend it. In the first place, we have observed in our wards that patients with other diseases have frequently caught fever from exposure to infection, at a time when they were fully under the influence of mercury. In the next place, we have observed that persons who were thus attacked with fever while in a state of salivation did not escape better than others, and that in them the disease ran its full course, aggravated rather than diminished in its danger by the pre-existing mercurialization. These facts I have frequently seen verified in hospital and private practice. You perceive, then, that mercurialization neither protects a man from the contagion of typhus, nor does it produce a favourable modification in its type or progress. Again, I have repeatedly witnessed the daily and continued exhibition of mercury in fever, and I cannot recollect a single case in which it appeared to check the disease, moderate its symptoms, or bring about a favourable crisis. I am aware, that in entering my protest against this practice, I dissent from a very considerable body of my brethren, who, from the beginning to the end of fever, never cease in their attempts to bring the patient's system under the influence of mercury. I am convinced that, in the cases in which recovery is stated to have followed this practice, the *post hoc* has been mistaken for the *propter hoc*. Besides, fever is one of those affections in which you will find it extremely difficult, and often impossible, to bring the system fully under the influence of mercury. There are certain states of the system which prevent altogether the full operation of mercury, and bad typhus is one of these states. Where fever has laid deep hold of the constitution, you cannot affect it with mercury. When a patient recovers who has been mercurialised during the course of fever, he does not recover because his system came under the influence of mercury, but he comes under the influence of mercury because he recovers from the fever. Add to this, that mercury is a remedy which requires a peculiar regimen, and that it is very apt to engross the practitioner's attention, and prevent him from the exhibition of remedies which are more directly indicated, and in reality more

useful. These considerations, and others, have convinced me that the exhibition of mercury in fever, with the view of touching the gums, is injudicious and unnecessary. There are, however, cases in which you will be compelled to have recourse to mercury, whatever the stage or type of the fever may be. Whenever inflammation of some internal organ—as, for instance, of the lungs—arises during the progress of fever, you must employ mercury at once; and cases of pneumonia, which would have proved fatal, have, on numberless occasions, been treated successfully by mercurialization. But under ordinary circumstances, and were there no indication similar to that which I have just pointed out, I do not see any advantage to be derived from the use of mercury. I am not, therefore, in the habit of employing mercury in fever. Sometimes I use calomel as an aperient, and I frequently prescribe small doses of hydrargyrum cum cretâ, with the view of gently stimulating the liver, and preventing the tendency to congestion of the intestinal canal; but farther than this I am not in the habit of going; and I never, except in cases of pneumonia, or inflammation of some internal organ, attempt to bring the patient's system under the influence of mercury during the course of typhus.

Permit me next to direct your attention to the case of the patient Murphy, who died last week. This case excited a good deal of our attention at the time, and I wish to make some further observations on it while it remains fresh in your minds.

It was one of those mixed cases of typhus, in which, as the fever advances, we observe the usual phenomena of determination to the head, accompanied by a train of symptoms which bear a close analogy to those of delirium tremens. Among the pauper population which we have to treat, you will frequently meet with cases of this description. We witnessed many examples of it here, but not so many as are to be seen in other hospitals. It is a melancholy but well-known fact, that a great proportion of the diseases which come under our notice, in the acute as well as in the chronic form, are more or less complicated with intemperance.* This you should never forget. In persons of the lower class, who are addicted to the daily use of spirituous liquors, you will find disease assuming a thousand unfavourable shapes and complications. You will find their fevers intermixed with various symptoms of an anomalous or dangerous character, and their chronic affections embarrassed by organic and visceral disease. You will be repeatedly struck with the strange and protean character which disease assumes under the influence of an habitual intemperance; and you will often, in the course of your practice, have to endure the annoyance and disappointment of seeing your patient carried off by some new and unexpected malady, after you have succeeded, by infinite toil, ingenuity, and patience, in removing every trace of his primary affection.

The case of Murphy was one of those which have been neglected in the beginning, where the vantage ground has been lost, and the chances of success are diminished almost to nothing. You have observed that all the fatal cases of fever which we have had in hospital were cases admitted at an advanced period of fever, and in which the head had been neglected. You have also observed how exceedingly difficult it must be to treat cases

* Since this lecture was delivered, a great change for the better has been effected by the efforts of the Rev. Mr. Matthew—the poorer and working classes of Ireland are now distinguished for temperance.

of this description. The patient is admitted at an advanced stage of fever, and at a period when he can give no account of his present or past symptoms, or the mode of treatment to which he has been submitted. He comes in with delirium, or coma, and subsultus tendinum; his symptoms are certainly cerebral, and he exhibits, perhaps, a blistered scalp; but we can have no means of ascertaining whether he has headache, heat of scalp, throbbing of the carotid and temporal arteries, or vertigo—we cannot, in fact, decide with precision as to the exact state of the brain, and our practice must be embarrassed by more or less doubt and obscurity. I have already impressed upon your attention the urgent necessity of watching the head in fever, and I think I cannot too often reiterate the advice which I have given you, to endeavour to check cerebral symptoms before they amount to any degree of absolute danger. The fate of those who have died here will convince you that when cerebral disease has once arrived at its *acme*, the most energetic measures will often fail in arresting it. It is a matter of vital importance, then, to prevent this lamentable state of things, and, without waiting until the symptoms of cerebral disease manifest themselves, to anticipate in its very origin, and thus be enabled to control with certainty symptoms which assume such a fearful aspect in cases where cerebral disease has been allowed to go on unregarded. This is the practical lesson which I wish you to draw from the four fatal cases which have occurred in this hospital within the last month.

There are some points in the case of Murphy to which I wish to recall your attention, as I am anxious that you should make them the subject of reflection. For some days before his death, he had been delirious and unmanageable, with total loss of sleep and a contracted state of the pupil. The antiphlogistic and derivative treatment had been employed without effect; and seeing that his symptoms were advancing, and his sleeplessness undiminished, I ventured to give him an injection, consisting of two grains of tartar emetic with ten drops of laudanum. I am cautious in the administration of opium in the advanced stage of fever, where there is evidence of determination to the head; and it was on this account that I ordered it to be combined with tartar emetic, giving also directions that the effect of each dose should be carefully watched. He got three enemata during the course of the night—that is, thirty drops of laudanum altogether. He dozed after the last injection, and appeared more tranquil; but at our morning visit we found him in a state of coma, with rapid sinking of the powers of life, and death took place in the course of a few hours afterwards. I must confess the issue of the case gave me some degree of uneasiness at the time, as I thought it might have been precipitated by the administration of the opium. I could not say but that even this small quantity of opium might have greatly aggravated the cerebral symptoms, and accelerated the fatal event. Dissection, however, revealed the true cause of death. On opening the brain, we found extensive arachnoid inflammation, some effusion on the surface of the brain, and an intensely congested state of its vessels. The patient, altogether dissipated in his habits, and greatly reduced by fever, had been a young man of rather robust constitution previous to his illness; he had been neglected in the beginning of his fever, which, from the phenomena observed after death, must have been characterised by early and decided determination to the brain, producing delirium, watchfulness, coma, and a contracted state of the pupil, which all our antiphlogistic measures were

inadequate to remove or control. We did every thing in our power: we leeches, blistered, and gave tartar emetic, but without effect; the case had not come under our care until symptoms of unmanageable cerebral disease had been established. This state of delirium, followed by contraction of the pupil and coma, and terminating in death, occurs in two classes of cases: first, in hospital patients of the lower class, who have been neglected in the commencement of fever; and secondly, in persons in the better classes of life, in whom the mind is frequently subjected to over-exertion, and who, when attacked by fever, exhibit a strong tendency to the early development of cerebral symptoms of a bad and unmanageable character. One of the worst symptoms observed in such cases is extreme contraction of the pupil. I have seen the pupil in some cases contracted to the size of a pin-hole; and I think I can state, that out of all the cases of this description which I have witnessed there were but two recoveries. I have seen persons who had exceedingly bad and alarming symptoms of cerebral derangement recover, although accompanied by great dilatation of the pupil; but I think I have seen but two cases recover in which the pupil was contracted to the small size observed in Murphy.

With these facts fresh in your minds, allow me to direct your attention to the case of another man, who died lately in the fever ward with cerebral symptoms of an intense character. Now, in this man the very same train of phenomena were present which we observed in Murphy's case. He had, you recollect, typhus of a low character, accompanied by delirium, subsultus, and the ordinary symptoms of determination to the head. I defy any man who compared these two cases together to point out any remarkable difference between them. The delirium, nervous excitement, and watchfulness, commenced the same way in both, and ran through the same course; both had contraction of the pupil, constant muttering and delirium, persistent watchfulness, and subsultus tendinum; and in both the cerebral symptoms terminated in coma and death. I would defy the most accurate symptomatologist to point out any marked distinction between them. Yet how different were the phenomena observed on dissection! In the one there was extensive lesion of the membranes of the brain, effusion on its surface, and intense congestion of its vessels; in the other, there was no appreciable departure from the normal condition. These are very strange things, and well worthy of attentive consideration. But it is not in typhus alone that we meet with the occurrence of analogous symptoms—in cases which exhibit a very different state of the brain after death. We are encountered with the same puzzling contrarieties in many cases of scarlatina. Cases come under our notice in which the patients appear to die entirely from the violence of the cerebral symptoms, and yet, on examination, we find very dissimilar states of the brain. In some, there is palpable and fatal lesion—in others, there are some dubious marks of congestion, quite insufficient to account for the symptoms; or the brain is found to be perfectly sound and normal.

It would appear that in scarlatina and fever, the poison of the disease exercises a deleterious influence on the brain, independent of inflammation, but capable of producing an analogous train of symptoms. Hence it is in many cases extremely difficult to distinguish the cerebral symptoms produced by the poisonous influence of fever on the brain, from those which depend on true inflammation. The one gives rise to delirium and

fatal coma as well as the other ; and in the advanced stage of fever, when the manifestations of nervous energy are feeble and imperfect, and when the circulating and respiratory organs act with diminished power, the distinction between mere irritation and actual inflammation becomes a matter of great difficulty.

In alluding, on a former occasion, to the occurrence of analogous symptoms under opposite conditions of the brain, I noticed that headache, tinnitus aurium, and giddiness, have been observed in cases where there was distinct evidence of determination to the head, as well as where there was every reason to believe that the supply of blood to the brain was greatly diminished. You will find a very curious illustration of this fact in the last number of Guy's Hospital Reports, which contains a very interesting paper from Sir Astley Cooper, on the effects produced by tying the carotid and vertebral arteries. Among other results, it appears that when the supply of arterial blood destined for the brain is diminished, the animal experimented on becomes stupid, is to a certain extent incapable of voluntary motion, and exhibits a very remarkable dilatation of the pupils. This is an extremely curious fact. You are all aware that dilatation of the pupils has been long regarded as one of the most characteristic signs of extravasation and increased pressure on the brain ; and yet it appears the very same condition of the pupil is observed when you cut off the supply of arterial blood to the brain. We are, I fear, as yet very much in the dark as to the derangement of function which occurs in the brain under opposite states of its vessels ; and I think we have equally imperfect and confused notions of the changes which take place in that organ as the result of fever.

Dilatation of the pupils is usually regarded as a sign of increased pressure on the brain ; and when hydrocephalic symptoms are present, it is generally looked upon as pathognomonic of effusion. Yet from the experiment just alluded to, we find that dilatation of the pupil is also the result of a state of things in which we cannot suppose the existence of any thing like increased pressure on the brain. When I speak of increased or diminished pressure on the brain, I am not prepared to maintain that such is actually the case, or that when a man becomes giddy and faints, after bleeding, the actual quantity of blood circulating in the brain is diminished, and consequently the amount of pressure ; but when a man gets headache, vertigo, or syncope, from loss of blood, it must depend upon causes different from those which are connected with congestion of the brain, or extravasation on its surface, or into its substance. What I wish to impress upon your minds is, that dilatation of the pupils may be connected with very opposite states of the cerebral circulation ; and that in fever it cannot of itself be regarded as a sign of paramount value in determining the existence of congestion or inflammation of the brain.

It may not be amiss to mention briefly on the present occasion, the details of a very remarkable communication, by Surgeon Russel, of the 73d regiment, formerly a pupil in this hospital. This communication was read by Dr. Wilson, at one of the *soirées* of the College of Physicians in London, and afterwards published in the *Medical Gazette*. Mr. Russel observes—

“ I was led, by the following circumstance, to reflect on the nature of ‘*coup de soleil* ;’ which, as well as I can recollect, is treated of by all authors, and is generally considered to be nothing more or less than true

apoplexy, produced by the direct influence of the sun's rays ; that its pathology is the same, and its mode of treatment similar—that is, that all the efforts of the medical attendant should be directed to the head, as the chief, nay, almost the only, seat of the disease : and here it strikes me a fallacy exists, leading to erroneous principles of practice. In May, 1834, while I was in medical charge of the 68th regiment (a fine corps, composed of men in robust health), then recently arrived at Madras, the funeral of a general officer took place ; to which, unfortunately, the men were marched out at an early hour in the afternoon, buttoned up in red coats and military stocks,—at a season, too, when the hot land winds had just set in, rendering the atmosphere dry and suffocating even under shelter of a roof, and when the sun's rays were excessively powerful. The consequence was, that after proceeding two or three miles, several men fell down senseless. As many as eight or nine were brought into hospital that evening, and many more on the following day ; three died—one on the spot, and two within a few hours. The symptoms observed (and they were alike in these three cases) were, first, excessive thirst, and a sense of faintness ; then difficulty of breathing, stertor, coma, lividity of the face, and in one, whom I examined, contraction of the pupil. The remainder of the cases, in which the attack was slighter, and the powers of reaction perhaps greater, or at all events sufficiently great, rallied ; and the attack in them ran on into either an ephemeral or more continued form of fever. The symptoms of these three cases did not more closely resemble each other than did the post-mortem appearances. The brain was, in all, healthy ; no congestion or accumulation of blood was observable ; a very small quantity of serum was effused under the base of one, *but in all three the lungs were congested even to blackness through their entire extent* ; and so densely loaded were they, that complete obstruction must have taken place. There was also an accumulation of blood in the right side of the heart, and the great vessels approaching it.”

Since our last meeting, some cases of fever have occurred in our wards, which have presented too many points of interest to be passed over without any observation. A very curious case occurred here, in a man named Toole, who was admitted on the 4th of January. This patient is a robust labouring man, about thirty years of age, and had been labouring under maculated fever for ten or eleven days before admission. Of his history previous to admission we could learn nothing ; but when he came under our care he appeared very ill, and exhibited great depression of the vital energies, so that we found it necessary to encourage reaction by the application of heat to the surface of the body, frictions, warm fomentations, and the internal administration of wine and carbonate of ammonia. On the following night reaction became established ; next day he became irritable and restless, and towards night was seized with delirium. The nurse omitted to report his state to Mr. Parr, or the resident pupil ; he was thus left without any treatment until next morning. Now, this is a matter of much regret to me, and I think I cannot do a more essential service to those who are about to enter on the practice of their profession than to impress, as strongly as I can, the indispensable necessity of watching fever patients with the most anxious and unremitting diligence. In a case of bad fever a single visit in the day will never suffice ; two, and even three visits will be required ; and when the patient is in a doubtful or dangerous condition, it will be often necessary to have a properly edu-

cated medical person in constant attendance, prepared to meet every emergency, and counteract or modify every unfavourable change. Fever will often run on for several days without any change calculated to arrest our attention, or call for the adoption of any new measures, and yet, in the space of six hours, an alteration may occur, of which the physician should have early and full information.

Well, this man remained without any treatment for several hours after delirium commenced. On the sixth we ordered his head shaved and leeches, and prescribed tartar emetic, in doses of a quarter of a grain, every second hour. Next day we found him as bad as ever. The tartar emetic had failed in diminishing the cerebral symptoms, and his delirium had rather increased. We found also on inquiry, that he had had no sleep for the last three nights. His pulse was weak and rapid, his eyes suffused, his restlessness and delirium such that he required a person to sit by him constantly, and prevent him from getting out of bed. Under these circumstances, we ordered five drops of black drop to be added to each dose of the tartar-emetic mixture, of which he took an ounce every third hour, that is, about a quarter of a grain of tartar emetic. He took four doses of this during the night; and next morning we found that the delirium and sleeplessness continued still unabated, and that the man was sinking fast into a state of stupor and insensibility. He neither answered questions, nor put out his tongue when desired; he had subsultus, and was muttering to himself with great volubility and rapidity of utterance. Indeed, his condition was such that I had no hope. Among other symptoms, I should mention that he had contraction of the pupils, a symptom of very unfavourable augury in fever. Having failed with tartar emetic alone, and afterwards with tartar emetic in combination with opium, I had now to seek for some other means of subduing cerebral irritation, and in this emergency had recourse to the use of turpentine—a remedy which I was inclined to adopt in preference to any other, as there was some fulness of the abdomen, and other symptoms indicating the existence of congestion of the intestinal mucous membrane. I therefore ordered two drachms of the spirit of turpentine to be made up into a draught with a little oil and mucilage, and administered every second hour.

I was guided here by a knowledge of the fact, that turpentine exercises a very remarkable influence over many forms of nervous irritation. I can refer for illustration to many affections of the nervous system characterised by excitement, in which turpentine has been employed with the most signal benefit. Thus, we frequently find it a most valuable agent in the treatment of chorea, of epilepsy, and of the convulsive fits of children. We have frequently experienced benefit from its use in the treatment of spasmodic affections of the stomach and bowels; in hysteria, tympanitis, and the subsultus of fever, we often derive from it the most rapid and effectual relief. You recollect a case of typhus which was lately under treatment in our wards, and of which one of the most prominent symptoms was general and continued subsultus; and you have all witnessed how much relief the patient obtained from small doses of oil of turpentine. Hence I was led to conclude that it might be employed with benefit in the latter stages of fever, where vascular excitement is greatly abated, and where the most prominent symptoms are irritation of the nervous centres, with more or less congestion of the gastro-intestinal mucous mem-

brane.* In this case, however, I must confess I used it as a last resource, and did not anticipate the very striking results which followed so unexpectedly. After the second or third dose the patient had two or three full motions from the bowels, and shortly afterwards fell into a sound and tranquil sleep, from which he awoke rational and refreshed. He is now wonderfully improved in every respect, and I have no doubt that his convalescence will go on favourably.†

There is one symptom in this man's case which is worthy of your attention, as connected with the history of fever, although in other respects it does not seem to possess much importance. I allude to the bullæ which have appeared on the calves of his legs, on the inside of his ankles, and on the soles of the feet. This affection seems to belong to that class of eruptive diseases which are occasionally observed during the course of idiopathic fevers, particularly those which have arisen from the introduction of an animal poison into the system. Thus we sometimes find an eruption of pustules, sometimes of vesicles (as the miliary); occasionally we have bullæ, and not unfrequently erysipelas.

We have had another case of spotted or eruptive typhus, in a man named Henry Harpur, which has exhibited in the strongest manner the value of a combination of tartar emetic and opium in diminishing cerebral irritation, and bringing about a favourable change in cases characterised by symptoms of alarming and imminent danger. Those who have witnessed Harpur's case will confess that few cases could present a more unpromising appearance. He had violent delirium, requiring the restraint of a strait waistcoat, a furious aspect, suffusion of the eyes, constant raving and muttering, and perfect sleeplessness. His pulse was weak, thready, and rapid; his tongue and lips parched, fissured, and black; his breathing quick and irregular; and his cerebral symptoms of such intensity as to leave little or no ground for hope. In addition, he had continued and general subsultus, and constant irregular motions of the extremities. Now this man had been rescued from a state of the most imminent danger, and restored to convalescence by the use of tartar emetic and opium. Those

* [Dr. Wood, of the Pennsylvania Hospital, is also a strong advocate for the use of the oil of turpentine in continued fever, but rather in typhoid fever than in the proper typhus. He uses it in doses of five to twenty drops every two hours, and, as he thinks, with almost universal advantage, whenever, during the cleaning process of the tongue or "after its completion, the surface of the tongue becomes quite dry, and the process, if not finished, is suspended. At the same time there is generally an increase of the tympanitis, and an aggravation, or certainly no abatement, of the other symptoms." As the case improves, the quantity of the oil of turpentine is diminished, but it is not suddenly given up.—W. W. G.]

† Whenever any particular line of treatment is advocated, it is better, perhaps, to quote the opinions of others in its support rather than adduce examples from our own experience; it is therefore on this account I extract the following passage from the work of a celebrated writer, in which the line of practice adopted in the case above mentioned is spoken of in terms of approbation.

"This substance (spirit of turpentine) is especially indicated where, with the abdominal distension and intestinal affection, there is also *delirium* or *coma*; and is equally beneficial in a relaxed as in a constipated state of the bowels." The author quotes the case of Toole, and relates one which occurred in his own practice very similar."—COPELAND'S *Medical Dictionary*, page 930.

who saw the case two days since, and who have noticed the remarkably improved state of the patient to-day, will agree with me in saying that so favourable a result could scarcely be expected. In this case the tartar emetic and opium were combined with musk and camphor. Where great subsultus tendinum is present, in addition to the usual symptoms of cerebral excitement, I am in the habit of combining musk and camphor with tartar emetic, in the following form :—

R. Mucilaginis gummi arabici, ℥ss. ; syrupi papaveris albi, ℥j. ; antimonii tartarizati, gr. ij. ; camphoræ, gr. xv. ; moschi, ℥ij. ; aquæ fontis, ℥ivss. M.

The camphor should be previously triturated with a few drops of alcohol, and the whole must be rubbed up into the form of an emulsion, of which a tablespoonful is to be taken every second hour, until copious discharges of fluid yellow fecal matter take place—an occurrence always attended by much relief of the cerebral and nervous symptoms, and which marks the period at which we ought to desist from the further use of tartar emetic. In the case which we are now considering, the medicine was administered in draughts, each of which contained half a grain of tartar emetic, ten grains of musk, five grains of camphor, and about ten drops of laudanum. After taking three such draughts, the patient fell into a quiet sleep, which continued for several hours. He awoke quite rational ; and since that period his improvement has been steady and progressive. I have not time to enter any further into the particulars at present, and merely allude to it as one of those instances in which we have succeeded in allaying symptoms of cerebral excitement, where the state of the patient afforded very little grounds for any hope of a favourable termination.

At my next lecture I purpose to lay before you, in detail, the history of the results which have attended the employment of tartar emetic and opium in fever, with some observations on its value as a therapeutic agent, and on the cases to which it is most peculiarly adapted.

LECTURE XII.

On the efficacy of tartar emetic and opium in fever, with much cerebral disturbance ; illustrated by cases.

AT my last lecture I alluded to the use of tartar emetic in the treatment of the cerebral excitement and determination to the head, which are so frequently witnessed in the advanced stage of the present epidemic, typhus ; I shall now proceed to mention some of the beneficial effects derived from this plan of treatment, as illustrated by cases which have recently occurred in my own practice, or in that of other members of the profession.

Did I bring forward this plan of treatment as infallible, or if I boasted that it never failed, then indeed you might well doubt my judgment in recommending it to your notice, for infallible remedies never earn the sanction of experience ; but such is not the fact. This treatment we ourselves have seen will not always succeed ; nay, we must acknowledge that it has occasionally disappointed us, even where we seemed justified in calculating upon success. But, gentlemen, we must recollect that

every useful remedy is subject to the same charge, and that in the long list of therapeutic agents, there does not exist a single medicine which is fairly entitled to the appellation of a true and infallible specific.

We have failed in several cases with tartar emetic, either alone or combined with opium and other medicines, and patients labouring under typhus have fallen victims to cerebral disease, although we applied the remedy with all due diligence. Yet I think it but fair to observe, that most of the instances in which we failed were cases that had come under our notice at an advanced stage of fever, and where the cerebral symptoms had been wholly overlooked or improperly treated in the commencement of the disease. I may observe also, that cases of this description, in which the cerebral symptoms have been permitted, before admission into hospital, to form themselves fully, are exceedingly difficult to manage, and terminate fatally at a much earlier period than the ordinary cases of typhus observed in private practice.

Maculated typhus with determination to the head, when improperly treated, terminates not unfrequently about the tenth, eleventh, or twelfth day; sometimes it is protracted to the thirteenth or fourteenth, but most usually it ends fatally about the eleventh or twelfth. In neglected cases, the cerebral symptoms frequently assume a fearful violence on the seventh, eighth, or ninth day, and in such instances it must be expected that the best and most appropriate plan of treatment will fail in rescuing the patient from impending dissolution. If, however, we can find out a remedy, which, in many cases, apparently desperate, succeeds in rescuing the patient from the jaws of death, we must be satisfied. A case of this description has occurred since our last meeting. It has excited the attention of all who witnessed it, as well from the violence of the symptoms, and the apparently hopeless state of the patient, as from the rapidity with which the exhibition of the remedies employed was followed by a striking and decided alteration in the symptoms. Any one who saw him yesterday, would scarcely recognise him as the same individual to-day.

This man, named Fogarty, was admitted about the seventh or eighth day of his fever, according to the account of his friends. Of course in such cases we cannot give implicit credence to those loose statements, for the lower class of persons in this country never calculate the time during which the patient remains out of bed struggling against the disease—a period which, in a people inured to suffering and privation, frequently lasts three, four, or even six days. Well, this man, aged five-and-twenty, and of rather robust constitution, was admitted on the 20th of December, being then about eight or nine days ill. Previous to admission he had taken purgative medicines, had his head shaved, and six leeches applied behind his ears, or to his temples, I forget which. Now, all these measures, although perhaps insufficient, were extremely proper, and must have produced more or less benefit. When we examined him on the 21st, we found him in a state of high excitement, as manifested by continued mental wandering, incessant talking and raving, and frequent attempts to get out of bed. He had illusions of the senses of sight and hearing, consisting of terrific ocular spectra,* and alarming sounds, which threw him into a state

* In a former lecture I mentioned that analogous symptoms result from increased or diminished sanguineous pressure on the brain; the ocular spectra in Fogarty's case evidently depended on determination of blood to the head, but in the case of a lady, the wife of an eminent physician, a continued and varied succession of spectral illusions formed one of the chief symptoms, produced by exhausting hemorrhage after delivery.

of intense agitation ; his eye was red and watchful, and he never slept. Here then was a very threatening array of symptoms, —perfect insomnia, ocular spectra, illusions of the sense of hearing, a fiery eye, and incessant mental wandering. To this was added, great derangement of the whole nervous system ; his body was agitated from head to foot by continual tremors, and he had violent and persistent subsultus ; his respiration was interrupted, suspicious and irregular, amounting at one time to forty in the minute, and a few minutes afterwards not exceeding twenty-five ; the acts of inspiration and expiration were extremely unequal, and occasionally accompanied by blowing and whistling. In a former lecture, I made some observations on this form of respiration, which I termed *cerebral*, from having first observed it in persons subject to apoplectic attacks, either before or during the paroxysms ; it is frequently observed in bad cases of fever, and is a symptom of the greatest importance. He also lay constantly on his back ; his pulse 120, soft, and very weak, so that the canal of the artery could be obliterated by very slight pressure ; his pupils were somewhat dilated ; tongue parched and brown in the centre, red at the edges and tip ; skin covered with maculæ ; abdomen soft and full. Those who have witnessed the case will acknowledge that the picture I have drawn is not too highly coloured, but, on the contrary, falls far short of the reality, and no doubt you all expected that if we did not succeed at once in arresting the progress of his symptoms, the case must have proved rapidly fatal. Observe the position in which we were placed. In the commencement of the fever, certain appropriate but inadequate remedies had been employed, and, under a treatment proper but insufficient, the disease had progressed ; it was an example of one of the worst forms of fever, characterised by intense cerebral excitement, and accompanied by total want of sleep, persistent delirium, and excessive disturbance of the nervous functions ; all these symptoms had come on gradually, and arrived at their acme at a period when the low and debilitated state of the patient precluded the use of depletive measures to such an extent as to exert any efficient control over the most dangerous symptoms. The application of a few leeches would be extremely hazardous, and blistering would have been wholly useless and nugatory, for before a blister could rise the man would be dead. For these reasons, we concluded that the only remedy we could have recourse to with any prospect of success was tartar emetic. We therefore ordered a draught composed of two drachms of mint water, two of common water, and a quarter of a grain of tartar emetic, to be given every hour until it produced some decided effect on the constitution. You will recollect, here, that the scale was vibrating between life and death, that it was necessary that our plan of operation should be at once prompt and prudent, decisive and cautious. One of the pupils promised to stay by him the whole day and watch the effects of the remedy, and I determined to visit and examine him personally in the afternoon. In the course of four hours he took four doses of the tartar emetic ; the first and second, in fact almost every dose vomited him, but not immediately. He retained each dose for a considerable time, and then threw it up. After the fourth dose, it began to act on his bowels, and then the medicine was suspended for some time, and a small quantity of porter administered. When I saw him at eight o'clock in the evening, he had been freely purged, and had discharged a considerable quantity of bilious yellow fluid from his bowels. He had also enjoyed about an hour's

sleep; his respiration was now more uniform and natural; his raving greatly diminished; the subsultus and tremors were nearly gone, and the man appeared quite tranquil. I then ordered him a wine-glassful of porter, with two drops of black drop, to be repeated every second hour for three or four turns successively. I saw that the cerebral symptoms were evidently diminished, and that there was a tendency to returning tranquillity and repose, and I wished to follow up and assist the operations of nature. To-day this man is in a most favourable state. His skin is covered with a profuse warm perspiration, he has slept well, belly soft and natural, respiration slow and regular, and pulse diminished in frequency; he is calm, rational, and composed, and I think I am not too sanguine in anticipating for him a speedy and certain recovery.*

It is always an unpleasing and ungracious task for any individual to be obliged to come forward with proofs of the originality of his contributions to science: this task some have endeavoured to impose on me, and have sought to impugn both the originality and utility of my method of using tartar emetic and opium in typhus fever. Their arguments do not require any answer, and may be passed over in silence without any loss to you or prejudice to me, for certainly you could derive little profit from hearing the statements of my opponents, and I but slight credit from their refutation; suffice it then to say, that the prescriptions filed by the apothecaries of Dublin establish my claims, for you will search in vain among them for one bearing a date prior to the publication of my papers on the use of tartar emetic and opium *in the advanced stages of fever*, and in which these medicines are prescribed in the way, or in any thing like the way, recommended and practised by me. Since that date, such prescriptions have daily become more numerous, and I am proud to bear testimony to the general liberality of the profession, for the greater number of my brethren have not merely tried my plan of treatment, but have acknowledged its utility, and have hastened to assure me that until my publications they had not seen it practised. But enough of this, let us not employ in general encomiums that time which may be more profitably dedicated to instructive details; let us therefore again recur to facts.

I have within the last fortnight received from Mr. Burke and Dr. Beauchamp the notes of an extremely interesting case of this description. Mr. Burke is remarkable for his professional ability and his attention to his patients, and of Dr. Beauchamp I may state, that his experience in fever is most extensive. The case is extremely valuable as having been observed by Mr. Burke from the commencement; I shall read the whole of it from his letter, as it is well worthy of attention.

"I was called on the 25th of November to see Mrs. M., a married woman, without family, of a weakly and nervous habit, though generally enjoying good health. She complained of having had chilliness on the preceding day; and now, that she was hot, thirsty, had pain in the head and back, and great debility. On examination I found that petechiæ covered the chest and abdomen; the eyes suffused; face red; scalp hot; pulse 110, small and hard; tongue covered with a creamy exudation; no abdominal or chest affection; secretions and excretions arrested. She was ordered some aperient medicine, and directed to be kept very quiet.

"26th.—Passed rather an uneasy night, frequent startings; some raving; complains of headache, and that the light and noise are distressing;

* He recovered rapidly and completely.

pulse as before, face more flushed, bowels open. I directed a cooling lotion for the head, and a diaphoretic mixture containing liquor, acetatis, ammonia, and nitre. On the 27th, she complained of the headache being made worse by the noise in the house, from which I determined to have her removed, and I therefore did not put any active treatment into requisition.

“30th.—This day she was removed to a quiet airy room. I then had her head shaved, eight leeches applied behind the ears, and a blister to the nape of the neck; bowels opened by enemata.

“Up to the 5th of December, which was the tenth day of her illness, she went on tolerably well, occasionally raving at night; tongue dry and red; pulse very weak, 100; eyes much suffused; face occasionally flushed, then pale; scalp hot. At this period Dr. Beauchamp saw her, and from the weakly habit of the patient, and the peculiar tremulous feel of the pulse, he thought it advisable to let her have some weak chicken-broth and light negus; the latter had soon to be discontinued on account of the excitement it produced.

“On the 14th day she became more delirious and somewhat unmanageable, though previously very gentle; however, when spoken to she answered tolerably reasonably. Ordered to continue the lotion, enemata, and saline draughts.

“Dr. Beauchamp and I saw her next day about ten o'clock in the forenoon, being the fifteenth day of her fever. Previous to our going into the room, the nurse gave us a frightful picture of the way she spent the night. She had been perfectly unmanageable, continually screaming and imagining she saw frightful apparitions, and had been convulsed during the night. On entering the room, we found her with her hands outstretched and rigid; a mixture of wildness and terror in her face, her eyes red and protruded, pupils contracted, pulse not to be counted, and scarcely to be felt; feet cold and stiff. When spoken to she made no answer, but kept her eyes steadily directed towards the foot of the bed. Her aspect was altogether frightful, and Dr. Beauchamp observed that her state appeared to be a combination of delirium with hysteria.

“The question now was, what were we to do? We dared not apply leeches, blisters would be doubtful, and the probability was that the patient would sink before they vesicated. There was no indication for cold to the head, for the scalp was cool. Could we rely with safety on nervous medicines? their very stimulus might hasten her to the tomb. The indication was to relieve the brain, and the question was, what medicine or combination of medicines would effect this safely? Under these circumstances, we happily thought of the treatment employed by you in somewhat similar cases. We immediately ordered a mixture containing three grains of tartar emetic, half a drachm of laudanum, and six ounces of water: of this a tablespoonful was administered every half-hour, its effects being watched. We saw her again at one o'clock on the same day, and had the pleasure of finding her much improved. She had taken three doses, and vomited twice. The expression of her countenance was much changed, it had lost its ferocity and wildness; her tongue was now moist, perspiration was beginning to appear over her body, the pulse was soft and about 100, and the intelligence, which had been absent for a considerable period, now reappeared. She was able to answer our questions, and expressed herself relieved. We ordered the medicine to

be continued, giving a tablespoonful every hour. After taking two doses, she became perfectly quiet, fell into a profound and tranquil sleep, perspired copiously, and at our visit next morning at ten o'clock, we found her, to our astonishment, almost well. She looked cheerful and refreshed, and spoke of the wonderful relief she obtained; her pulse was soft, and about 80; her skin natural, her tongue moist and clean. Dr. Beauchamp did not think it necessary to continue his visits, and all that remained for me was to conduct her by proper regimen from convalescence to perfect health. She is now quite well.

“It is a source of gratification to me to have had the able assistance of Dr. Beauchamp on this occasion, and his presence during the eventful period adds much value to the case. Dr. B. remarked at the time when hope had fled, that he knew of no routine of practice which afforded a probability of being of service, so that we may fairly conclude, that but for your happy combination the patient must have died.”

This is a very strong case, indeed there could scarcely be a more striking illustration of the value of tartar emetic and opium in the treatment of the cerebral symptoms of fever. The case too was one of great danger, the patient was of a nervous weakly habit, and during the acme of the disease she had an attack of convulsions. This is a very important and most formidable symptom in fever, particularly when superadded to others indicating a deranged state of the sensorium. We had a patient here, some time back, who had two convulsive paroxysms during the course of his fever, and you recollect that I told you that it was a symptom of unusual danger. Some time ago a gentleman, in discussing my cases, said that convulsions in fever were not so dangerous, but I had the satisfaction of quoting for him the authority of Hippocrates, to show that persons who have been attacked in this way very seldom recovered.

I shall conclude this lecture by detailing a very remarkable case, which has been communicated to me very recently in a letter from Mr. Swift:—

“J. Kinsela, a labourer, aged 23, of powerful make, and robust constitution, was attacked with fever about the 14th or 15th of January. He complained during the ensuing week of intense headache, thirst, and debility, but had no medical treatment. On Saturday, the 21st, he was extremely ill and restless, and on Sunday morning, while his clergyman and several of his friends were with him, he got out of bed in a state of furious delirium, seized a knife, and having cleared the room, rushed out into the street in his shirt, where he was secured by a policeman and some of his neighbours, and brought back to bed, having previously wounded several of his captors in the struggle. He then fell into a state of coma, and when I saw him on the following Thursday, the 26th, he exhibited the following symptoms:—Decubitus on the back; eyes nearly closed; lips red, dry, and chapped; forearms bent and agitated by apparently unconscious movements; convulsive twitches of the eyebrows and angles of the mouth; breathing irregular, heavy, and somewhat stertorous (of that description which you have aptly termed *cerebral*), pulse oppressed, unequal, weak, and about 110; great heat of scalp and face; temperature of the body normal; feet very cold. He had no pulmonary symptoms; his belly was soft and apparently natural, but he gave indications of uneasiness when firm pressure was made over the situation of the stomach and small intestine. He was raised up in bed, shaken roughly, and spoken to repeatedly, but gave no answer; nor would he put out his tongue, or

open his eyes when requested. His tongue, as far as I could see it, appeared red, dry, crusted, and fissured; and on raising his eyelids, I found the eyes greatly suffused, and the pupils contracted nearly to the size of a pin's head.

"His face, hands, and head were bathed with warm vinegar and water, jars filled with hot water applied to his feet, and about two o'clock, P.M. he commenced taking tartar emetic in doses of a quarter of a grain every hour. It was combined with a small quantity of opium.

"When I saw him again, about nine o'clock in the evening, he was wonderfully improved. He could be easily roused, answered questions distinctly, put out his tongue when desired, and appeared quite rational. He had taken about two grains of the tartar emetic, the effects of which appeared to be chiefly confined to the circulating system. His pulse was now equal and regular, the temperature of his body nearly uniform, and a slight degree of moisture could be felt on his skin, but he was neither vomited nor purged. A mixture, containing nitrate of potash and tincture of hyosciamus, was substituted for the tartar emetic; the fomentations of warm water and vinegar were continued, and he had a purgative enema with turpentine, which was followed by a full discharge from the bowels and copious diuresis. On Saturday, the 28th, he had an indistinct but favourable crisis; his tongue became clean and soft, and his pulse diminished in frequency. On the following Tuesday, his pulse was 76, his tongue clean, eyes clear, pupils natural, appetite returning, so that I considered it unnecessary to continue my visits beyond the following day. His convalescence is now completely established.

"I have been particular in describing the cerebral symptoms in this case, as the patient's head was neither shaved, blistered, nor leeches. A portion of his hair was cut off with a scissors, and this was all that was done in addition to what I have mentioned. I attribute his recovery to the tartar emetic and opium, as under its use he recovered in a few hours from a state of stupor and coma, which otherwise must have speedily terminated in death, and I think this valuable remedy has additional claims to notice, if (as it would appear from Kinsela's case) it can be employed as a substitute for all the ordinary and expensive remedies used on such occasions,—remedies, which in dispensary practice, and among a pauper population like ours, it is often difficult, and sometimes impossible to procure."

LECTURE XIII.

On bed-sores in fever, and their treatment—Instances of fever spreading by contagion—Attacking a person whose mouth was affected by mercury—Observations on the use of tartar emetic in fever—An account of the manner in which it is usually employed—New views upon this subject—Treatment of fever with profuse sweating in the commencement—Mr. Cookson's case—Mr. Stephenson's case—Mr. Knott's case.

A woman has been admitted lately who had been labouring under fever for a considerable time before she came into the hospital. This poor creature seems to have been in very miserable circumstances during her illness; her bedding must have been totally neglected, and no attention paid to cleanliness, for on her admission, though nearly free from fever, she

was covered with bed-sores to a frightful extent. Almost every point which had been subjected to pressure had ulcerated, and the ulcers went on undermining the skin, and committing terrible devastation in the cellular substance. Cases like this require great care and unremitting attention; it is on the exercise of an active and untiring humanity that the cure will mainly depend. In the first place, you are to recollect that the efforts of the constitution towards the re-establishment of health are impeded by the irritation of the sores; sleep is prevented, and the patient kept in a state of continual suffering, while a constant drain from the system is kept up by the ulcerative discharge adding to the amount of existing debility. Hence a pseudo-febrile state arises, characterised by quick pulse, restlessness, and want of sleep, somewhat akin to that which is produced by scrofulous irritation. The appearance, however, of general excitement of the system should never prevent the physician from adopting every mode of strengthening the patient as much as possible. You will not succeed in removing this condition by an antiphlogistic regimen; the patient requires tonics and narcotics with a nutritious but not stimulating diet. If you put him on a low regimen, and give anti-febrile medicines, you will do mischief, you will increase the existing debility, and add to the source of febrile excitement. Your practice should be to prescribe a nutritious diet, wine, and the sulphate of quinine, and to treat the sores with stimulant applications. The local application which we found most beneficial in such cases, is one composed of two ounces of castor-oil, and one of balsam of Peru, which is to be applied on pledgets of lint, and covered with a poultice of linseed meal two or three times a-day. In addition to this, we direct the sores to be washed night and morning with a solution of chloride of soda, in the proportion of twenty or thirty drops of the saturated solution to an ounce of water. We also direct the patient to lie occasionally on her face, and enforce the strictest attention to cleanliness on the part of the nurse. Dr. Arnott's hydrostatic bed is an excellent adjuvant in the treatment of this disease, but unfortunately the one we have is at present out of order.

Such, then, is our mode of treatment. We order the patient nourishing, but not heating food; we give wine, regulating its quantity according to its effects on the system, and the liking of the patient; we prescribe small doses of the sulphate of quinine, and administer an opiate at night to allay irritability and procure sleep. The local treatment consists in the use of stimulant and detergent applications, poultices, attention to cleanliness and change of position.

With respect to the present epidemic fever,* we have now seen so many instances of its direct communication from one point to another in our wards, that we are induced to believe it to be contagious. From the great number of applicants labouring under serious and threatening diseases, we are sometimes obliged to put into our fever wards, patients affected with local inflammations, accompanied by symptomatic inflammatory fever; several of these, while recovering, have been attacked with symptoms of the present epidemic. A man was admitted last week into the fever ward with violent pneumonia; the right lung was extensively hepatised, and, in addition to this, the pleura was found to be engorged over a large portion of its surface. The case was one of extreme distress, and the state of the patient apparently hopeless; however, by appropriate

* This lecture was delivered in 1834.

depletion, assisted by mercury and blisters, convalescence became established, and the pulmonary symptoms were rapidly subsiding. His system was still under the influence of mercury, his fever had disappeared, his dyspnoea was relieved, his cough, and all the other symptoms, nearly gone, when he was suddenly attacked with fever, and that of the same character as prevailed among the patients in the same ward. This is, I believe, the sixth or seventh case, in which patients labouring under some other form of disease, have been seized with symptoms of the present epidemic, while lying in the same ward with fever patients. I have thought it necessary to make this observation, because you will find it asserted in medical works, and by physicians of considerable eminence, that in hospitals fever does not spread from one patient to another, and that where it does appear among many individuals in the same house, its spread is chiefly favoured by want of cleanliness and proper ventilation. This, however, we can state to be the fact, that fever will spread among patients in the same ward, independent of any thing connected with filth or foul air, for we have seen it occur in our wards, which I can assert are kept as clean, and as well ventilated, as any in the kingdom.

There is one circumstance connected with this case worthy of remark, with reference to the supposed antifebrile properties of mercury. It has been stated that mercury exercises a prophylactic influence over the system, and several persons who have cultivated medicine with success, but particularly some army surgeons, of high authority, have asserted that the use of mercury not only cures fever, but also secures against it. I am afraid that in this and other cases, mercury has more credit than it deserves. In speaking of cholera, on a former occasion, I have told you that I had seen persons under the influence of mercury take cholera and die of it; and here we find a man, whose mouth is still sore, in whom salivation had not ceased, getting an attack of fever at a time when he had just recovered from another disease. This shows that mercury is not to be looked upon as a prophylactic in cases of fever of a contagious nature. We cannot always cure or prevent fever with mercury; on the contrary, where fever of a particular kind is present, it prevents the constitution from yielding to its influence. Thus, in a case of hectic fever, brought on by suppuration of the liver, it has been found impossible to bring the system under the influence of mercury.

In a preceding lecture, when speaking of the best means of procuring sleep in various forms of acute disease, I alluded to the peculiar narcotic power of the preparations of antimony, and dwelt on the benefits derived from a combination of antimonials with those medicines which are strictly termed narcotics. I told you in that lecture that the good effects of tartar emetic in delirium tremens seem to be totally independent of its action on the stomach; for we had witnessed those effects when it had not excited either nausea or vomiting. I referred also to many instances of delirium tremens, in which opium in every form had failed in procuring sleep, and where a combination of tartar emetic and laudanum had succeeded in tranquilising the patient and producing sound, refreshing sleep. Bearing this important fact in mind, we shall proceed to an examination of the circumstances which require the use of tartar emetic in fever.

There is a peculiar stage in one form of fever, and that exceedingly dangerous and threatening, in which I have derived most signal benefit from the use of this remedy. A patient, suppose, gets an attack of fever,

he has all the ordinary symptoms, as thirst, restlessness, heat of skin, quick pulse, and headache. You are called in about the third or fourth day, and find that he has all the symptoms I have mentioned still present; his face is flushed, his head aching, his pulse from 100 to 110, but not remarkably strong; you find, also, that he has been sweating profusely from the commencement of his illness, but without any proportionate relief to his symptoms, and that he is restless and watchful. You are informed that his perspirations are so great that his linen has to be changed frequently in the day, and that, notwithstanding this, the pulse has not come down, the headache is undiminished, and the patient has become more and more sleepless. Here comes a very important practical question, namely—How are you to treat such a case? The patient has no epigastric tenderness, no cough, no sign of local disease in either the thoracic or abdominal cavities; he has been purged, used diaphoretics, and perhaps mercurials; every attention has been paid to regimen, ventilation, and cleanliness; but still he lies there in a state of undiminished febrile excitement, with persistent headache, quickness of pulse, and sleeplessness.

In such a case as this you have nothing to expect from the sweating; it will never produce any relief. I was called some time back to see a young gentleman in fever, who was placed in similar circumstances to those which I have just detailed. It was about the sixth day of his fever, and I found him with a pulse of about 110, with considerable restlessness and headache, and was informed that he had perspired profusely from the commencement of his illness. On hinting the necessity of more active treatment than that which had been employed, his physicians appealed to the perspirations as decidedly contra-indicating depletion. They said that the profuse sweating pointed out the impropriety of active measures, and that it was a symptom which would be speedily followed by relief. I was convinced that they had taken a wrong view of the case, and stated as my opinion that nothing was to be expected from the perspirations; that when co-existing with a persistent febrile condition of the system, when accompanied by quick pulse, headache, and restlessness, perspirations always indicated the necessity for antiphlogistic measures, and in particular for the use of the lancet. I instanced the case of patients labouring under arthritis with profuse perspirations not accompanied by relief, and said that it was well known that such cases were most successfully treated by a full bleeding from the arm. I accordingly stated that although the disease was of five or six days' standing, and the pulse not very strong, I would advise immediate bleeding. Sixteen ounces of blood were therefore abstracted, with some relief to the patient, and without increasing his debility; and it was then a question what further steps were to be taken. The young gentleman had been actively purged; he had no cough or abdominal tenderness: his symptoms were headache, sweating, and sleeplessness; and to these, nervous agitation had now become superadded. I proposed here what surprised my colleagues very much, and this was, to give our patient large doses of tartar emetic. They said the practice was very strange, but consented to give it a trial, on laying before them the reasons which induced me to prescribe it. I said that in such cases the tartar emetic, forming as it were a part of the antiphlogistic treatment which commenced with general bleeding, would have a tendency to cut short instead of increasing the perspiration, by reducing the inflammatory state of the system on which

it depended. The reasoning seemed rather paradoxical—nevertheless it turned out to be correct. I ordered the tartar emetic to be taken in the quantity and mode in which it is generally prescribed in acute pneumonia, that is to say, six grains of tartar emetic combined with a little mucilage and cinnamon water in an eight-ounce mixture, to be taken in the course of twenty-four hours. After taking five or six grains, the sweating began to diminish; on the second day he scarcely perspired any, and his headache was greatly relieved; he began to improve rapidly in every respect, sleep returned, nervous agitation ceased, and convalescence became soon established.

The next case in which I employed tartar emetic with signal benefit was one of a very insidious character, as many of them are at present; they exhibit no prominent or alarming symptoms, and yet continue to run on day after day without any tendency to crisis. The gentleman who was the subject of this case got an attack of fever, unaccompanied by any remarkable peculiarity, except that he was very nervous, and alarmed about his situation. His fever went on day after day without any decided symptom; he had no distressing headache, no cough, little or no abdominal tenderness; there was no vomiting or diarrhœa; and his pulse was not much above the natural standard. He had been leeches over the stomach at the suggestion of some medical friends, but this was done rather by the way of precaution than for the purpose of combating any actual disease. About the eighth or ninth day the pulse began to rise; he complained of headache, and became restless and watchful. On the eleventh day the headache had greatly increased, he was in a state of great nervous excitement, and had not closed an eye for the two preceding days and nights. This state of insomnia and nervous agitation was immediately followed by violent paroxysms of delirium; his eyes never closed in sleep, wandered from object to object with unmeaning restlessness; his limbs were in a state of constant jactitation, and he raved incessantly; his voice being occasionally loud and menacing, at other times low and muttering. His friends became exceedingly alarmed, and every remedy which art could suggest was tried:—his head was shaved and leeches until they could leech no longer; cold lotions were kept constantly applied with unremitting diligence, and he was purged freely and repeatedly. At this period, that is to say, about the eleventh day of the fever, I was requested by this gentleman's medical friends to visit him. On examining the patient, I found that he was constantly making violent efforts to rise from his bed, and that he had a great deal of the expression of countenance which belongs to a maniacal patient. Under these circumstances, I advised the use of large doses of tartar emetic, in the mode already detailed, except that, in this case, in consequence of the violence of the delirium, I ordered the quantity prescribed for a dose to be taken every hour instead of every second hour. The patient took about ten or twelve grains during the course of the night, and next day his delirium had almost completely subsided. Under the use of the remedy he became quite calm, fell into a sound sleep, and began to recover rapidly.

In the two preceding cases I was guided by ordinary principles, recognised by all physicians, and according to which the exhibition of tartar emetic is recommended in fever, whenever there is undoubted evidence of determination of blood to the head, producing headache, loss of sleep, and delirium. In the cases which follow, tartar emetic was exhibited at

a period of fever, and under circumstances that were, with respect to the exhibition of this remedy, not less novel than important. The principles which led me to this practice have long been established, but, nevertheless, the practice is entirely new, and (I say it with pride, for it has already been the means of saving many lives) it is entirely my own.

Shortly after the commencement of our present session, Mr. Cookson, a pupil at this hospital, and remarkable for his diligent attention to clinical pursuits, caught fever while attending our wards, in which many cases of the present epidemic were then under treatment. His fever was of an insidious nature, not characterised by any prominent symptom, nor exhibiting any local disease to combat, or any tendency to crisis. For the first seven or eight days, with the exception of headache, which was much relieved by leeching, he seemed to be going on very well; his skin was not remarkably hot; he had no great thirst, nausea, or abdominal tenderness; his pulse was only 85; and he had sweating, which was followed by some relief. About the eighth or ninth day the pulse rose, and he began to exhibit symptoms of an hysteric character. Now, in every case of fever, where symptoms resembling those of hysteria come on, you should be apprehensive of danger. I do not recollect having ever met with a single case of this kind which did not terminate in nervous symptoms of the most formidable nature. I prescribed at the time the usual antihysteric medicines, but without any hope of doing good, knowing that these symptoms were only precursory to something worse. I also, as a precautionary measure, had leeches applied to his head. The fever went on, the headache became more intense, he grew nervous and sleepless, and fell into a state of great debility. On the fourteenth day of fever his tongue was black and parched, his belly tympanitic; he was passing every thing under him unconsciously; he had been raving for the last four days, constantly attempting to get out of bed, and had not slept a single hour for five days and nights. Dr. Stokes, with his usual kindness, gave me the benefit of his advice and assistance at this stage of Mr. Cookson's illness, and we tried every remedy which experience could suggest. Blisters were applied to the nape of the neck, the head was kept cool by refrigerant lotions, the state of the belly attended to, and, as we perceived that the absence of sleep was a most prominent and distressing symptom, we were induced to venture on the cautious use of opium. It was first given in the form of hydrarg. c. cretâ, with Dover's powder, with the view of relieving the abdominal symptoms as well as procuring sleep. This failing in producing the desired effect, we gave opium in the form of enema, knowing its great power in the delirium which follows wounds and other injuries. This was equally unsuccessful with the former. He still was perfectly sleepless. We came again in the evening, and as a last resource, prescribed a full dose of black drop, and left him with the conviction that if this failed he had no chance of life. On visiting him next morning at an early hour, we were highly mortified to find that our prescription had been completely unsuccessful; he had been more restless and delirious than ever. Here was the state in which we found him on entering his chamber at eight o'clock in the morning of the fifteenth day of his fever. He had universal tremors and subsultus tendinum, his eye was suffused and restless, he had been lying for some days entirely on his back, his tongue was dry and black, his belly tympanitic, his pulse 140, quick and thready, his delirium was chiefly exhibited in short broken

sentences and in a subdued tone of voice ; and it was now eight days and nights since he had slept. Here arose a question of great practical importance. How was the nervous agitation to be calmed and sleep produced ? Blisters to the nape of the neck, cold applications, and purgatives had failed ; opium in various forms had been tried without the slightest benefit ; if sleep were not speedily obtained he was lost. At this emergency a mode of giving opium occurred to me which I had never thought of before. Recollect what his symptoms were at this period : quick, failing pulse, black, dry, tremulous tongue, great tympanitis, excessive prostration of strength, subsultus tendinum, extreme nervous agitation, constant muttering, low delirium, and total sleeplessness. I said to Dr. Stokes that I wished to try what effects might result from a combination of tartar emetic and opium : I mentioned that I had given it in cases of delirium tremens with remarkable success, and thought it worthy of trial under the circumstances then present. Dr. Stokes stated in reply, that he knew nothing with respect to such a combination as adapted to the case in question, that he had no experience to guide him, but that he would yield to my suggestion. We therefore prescribed a combination of tartar emetic and laudanum in the following form, which is that in which I generally employ the remedies in the treatment of delirium tremens. R. Antimonii tartarizati grana quatuor, tinct. opii. drachmam, misturæ camphoræ, ℥viij. Of this mixture, a tablespoonful was to be taken every second hour. The success of this was almost magical. It is true that it vomited him ; after taking the second dose he threw up a large quantity of bile, but it did him no harm. After the third or fourth dose he fell asleep, and awoke calm and refreshed ; he began to improve rapidly, and soon recovered.

The next case to which I shall direct your attention is that of Mr. Stephenson, a pupil of Mr. Parr of this hospital. This young gentleman, as many of you will recollect, was attacked with fever about the middle of January. On Thursday evening he complained of languor and malaise, and on the following day felt himself feverish, but without any prominent or decided symptom. At night he took a dose of calomel and antimonial powder, which had no sensible effect, and the following day complained of shivering, violent headache, pain in the back, thirst, prostration of strength, and sleeplessness. He was ordered to take a combination of tartar emetic and nitrate of potash in camphor-mixture, which produced a few loose stools and some diaphoresis ; but in consequence of its effect on the stomach, and his complaining much of thirst and epigastric tenderness, the tartar emetic was omitted, and effervescing draughts prescribed. Two days afterwards, the epigastric tenderness still continuing, twelve leeches were applied over the pit of the stomach, followed by blister, which gave relief, and the bowels were kept open by enemata. He commenced a second time the use of the tartar emetic and nitrate of potash, with the addition of five drops of tincture of opium to each dose, but was obliged to give it up again in consequence of the increase in his gastric symptoms. He now became exceedingly restless, and his delirium began to assume a very intense character. Leeches were applied behind the ears, his head shaved, and his temples blistered ; he had also a large blister over the abdomen, which gave him considerable relief, but the cerebral and nervous symptoms became much worse. The delirium went on increasing, accompanied by subsultus tendinum, and picking the bed-clothes ; he was perfectly sleepless ; raved incessantly, and had to be kept

down in bed by force. On the 17th day of his fever he was in the following condition—tongue brown and rather dry, no remarkable thirst or abdominal tenderness, eyes red and ferrety, no sleep for five nights, constant muttering and delirium (which had now assumed the character of delirium tremens), subsultus tendinum and jactitation extreme, urine and feces passed under him unconsciously. I directed the combination of tartar emetic and laudanum to be immediately given, carefully watching its effects. He had only taken two doses when a degree of calmness set in, bringing with it relief to all his symptoms, and before a third dose could be administered, he fell into a profound sleep, from which he awoke rational and refreshed. The mixture was continued every four hours with increasing benefit, he slept long and soundly, and began to improve in every respect. On the second day after he had begun to use the tartar emetic, he took a little porter, which was changed the next day for claret and chicken-broth. In about a week he was able to sit up in bed, and seven days afterwards was able to leave the hospital and go to the country for change of air.

The last case to which I shall direct your attention is that of Mr. Knott, also a pupil of this hospital, a gentleman remarkable for his unremitting attention to clinical pursuits, and from whom I derived much valuable assistance in conducting various post-mortem examinations. This gentleman was attacked with fever about the latter part of January, which went on for some time without any particular symptom, except considerable restlessness and nervous excitement. He then became perfectly sleepless, complained of violent headache and thirst, raved, and became exceedingly irritable. Opium in various forms and repeated doses, either alone or combined with musk and camphor, totally failed in producing sleep, and his condition became daily worse. On the 13th day he was in a very dangerous condition; his nervous agitation had risen to an alarming height, and for many days and nights he had never closed an eye. At this period it appeared obvious that if something were not done to calm nervous excitement and restore sleep, he had but little chance of life. Under these circumstances I proposed to my friend, Dr. M'Adam, who attended with me, to give tartar emetic and opium. After he had taken about three tablespoonfuls, he had a copious bilious evacuation, and immediately afterwards fell into a sound sleep, during which he perspired profusely, and awoke in about twelve hours, with every bad symptom gone. The nervous irritability was completely allayed; his thirst and headache relieved; his tongue moist and cleaning; and his reason quite restored. From that period every thing went on favourably, and he rapidly gained his health and strength.

Since the foregoing lecture was delivered, I have met with several cases of fever, in which I employed the tartar emetic and opium with the same remarkable success. A man named Christopher Nowland was admitted into Sir P. Dun's Hospital, on the 3d of February last, labouring under fever. He had been ill ten days, had raving, subsultus tendinum, and appeared unable or unwilling to answer questions. His wife stated that he had diarrhœa for the preceding three days, and that he dozed occasionally, but never slept. He appeared exceedingly low and prostrated, and lay constantly on his back. A succession of flying blisters were ordered to be applied to the chest and stomach, and wine and chicken-broth prescribed. He also got the following draught every third hour:—

R. Mist. camphoræ, ℥j.
 Spirit. ætheris oleosi, ℥ss.
 Spirit. ammoniæ aromaticæ, ℥ss.
 Moschi, gr. viij.—Misce.

Under the use of these remedies he began to recover from his prostration; but as the sleeplessness and delirium still continued, I ordered him to take the tartar-emeti mixture in the usual way. It produced at first two or three full discharges from the bowels, and after he had taken the fourth dose he fell into a sound sleep, from which he awoke much better, and soon became convalescent.

In the case of a patient named Michael Murray, who exhibited the same remarkable nervous irritability and sleeplessness, this remedy was also employed with very striking effects. This man had been ill of fever for ten days before his admission into Sir Patrick Dun's Hospital, and appeared so much prostrated that I ordered him arrow-root with beer. He raved a little on the night of his admission, and remained without closing an eye until morning. The same symptoms were observed on the following day, and his nervous irritability became increased. On the 14th of February he had been five days in the hospital, and had not enjoyed a single hour's sleep. I ordered the tartar-emeti mixture to be given: three doses produced sleep: he had no other bad symptoms, and recovered completely.

In another very bad case of maculated fever, the same results were obtained. The patient, Mary Farmin, had got an attack of fever after a fright. She had been eight days ill at the date of her admission, February 25th. She had irregular pulse, sleeplessness, headache, and suffusion of the eyes; moaned and sighed continually, and appeared greatly prostrated. She was blistered, had fetid enemata, and took the chloride of soda internally with some benefit; but the sleeplessness and nervous excitement continued. In this case, though the tartar emeti was not followed by speedy convalescence, still it produced remarkably good effects; after taking four doses of it she fell asleep, and did not awake until next morning.

There are many other cases which I could adduce to prove the value of a combination of tartar emeti and opium in the nervous sleeplessness of low fever; the foregoing, however, I trust, will be found sufficient.

I forgot to observe, that all the cases I have spoken of as successfully treated by means of tartar emeti combined with opium in the advanced stage of the disease, were cases of maculated or spotted fever.

LECTURE XIV.

General account of the spotted fever epidemic in Dublin, in 1834-5—Its most remarkable features—Insidious character—Further explanation of the reasoning which led Dr. Graves to the discovery of the utility of tartar emeti in its latter stages.

WHEN I last addressed you, I spoke of a very important topic—the administration of tartar emeti in the advanced stages of spotted or maculated fever. A few observations descriptive of the present epidemic fever, appear necessary. The commencement is frequently by no means violent, in proportion to the subsequent danger, and the patient often appears merely to labour under the symptoms of a common feverish cold, seldom

preceded by violent rigors, but attended by a frequently recurring sense of horripilation. The pulse in the very beginning, seldom exceeds 90, and in nearly half the cases it falls after a few days to 80, 70, or even lower. This slow pulse I observed in many of the pupils, and in all it was found to accompany a very tedious and dangerous form of fever. Mr. Sangster, Mr. Graves, Mr. Harris, and Mr. O'Flaherty, were all so affected; for none of these gentlemen had a pulse exceeding 70 in a minute, for many days before the period of the greatest danger. In other epidemics similar cases have occasionally occurred, but in none near so frequently as in the present. When the pulse was thus tranquil, the skin was not perceptibly hotter than natural, although occasionally a slight degree of the *calor mordax* could be detected. Patients with a slow pulse not unfrequently had little to complain of at first; for the headache, general pains, thirst, and restlessness, generally underwent a notable diminution, in consequence of sweating which came on in the commencement—the appearance and the good effects of which were well calculated to deceive the practitioner into a belief that the fever had terminated. A more accurate examination, however, showed that this was not the case; for the tongue still continued much loaded, white in the centre and red at the tip, and the apparent subsidence of the fever was found to be accompanied by a remarkable increase of debility. As the disorder proceeded, a slight rash, like ill-defined or suppressed measles, became observable in some before the fourth day, but much oftener about the seventh. This maculated appearance of the skin increased rapidly, spreading over all parts of the trunk and extremities, and in many amounted to a well-marked efflorescence of a dusky red colour; in others it was as it were suppressed, and was less obvious, but was still discernible by an experienced eye, appearing beneath as if veiled by the skin. It was not totally absent in one case out of twenty, which induced me to name the disease *maculated fever*. So the patient continued, in general, until the ninth, tenth, or eleventh day, resting sufficiently at night, with a moderate or even a slow pulse, some thirst, foul tongue, little or no nausea, epigastric pain, or abdominal tenderness of any sort, and, in fact, without a single symptom calculated to excite alarm. About this period of the complaint matters began to assume a more threatening aspect; debility manifestly increased; the mind at times was evidently incoherent, particularly after awaking from sleep, and then raving during the night; restlessness; frequent attempts to get out of bed very generally supervened in the course of a few days. The pulse, meantime, rose very suddenly in many, and continued to be frequent during the period of danger. Thus, on the tenth day, Mr. Syms's pulse rose from 85 to 120, and so continued until about the twentieth day, when improvement commenced. The same sudden rising of the pulse took place on the ninth day in Mr. M'Namara, and he died on the fourteenth day. In others, as I have already remarked, the pulse continued tranquil throughout. Thus, it was very curious to see a patient with a skin of a natural temperature, a perfectly natural pulse, tranquil respiration, clear eye, no headache, a soft and fallen abdomen, without the slightest tendency to epigastric tenderness; it was very curious, I say, to see such a patient in a state, nevertheless, of extreme danger, passing both feces and urine under him; raving, incoherent, or with a low muttering delirium; subsultus daily increasing until it became excessive; the greatest possible degree of debility; a dark macular efflorescence, and at length total sleep-

lessness. How many theories of fever were refuted by such a case! Usually, as the disease continued, and when the patient was in a very dangerous state—but seldom or never before that—the intestines began to be inflated, and the belly gradually became tympanitic; a circumstance of bad omen, and which was often the precursor of hiccup. When the symptoms did not yield to the efforts of nature or of art, the congestion of the intestinal mucous membrane, indicated by these symptoms, was soon followed by indubitable evidence of cerebral congestion—such as restlessness, suffusion of the adnata, and contraction of the pupils; this last was the most fatal of all symptoms. In two or three cases—as, for instance, that of Mr. Cookson—the cerebral congestion produced repeated fits of convulsions on the thirteenth day, and yet he recovered. The same happened in a young woman in Sir P. Dunn's Hospital, in whom the convulsions occurred on the fifteenth day, and were more violent on the right side than on the left, producing strabismus and insensibility of the pupil of the affected eye. This girl lost the use of her left side on that day, but recovered it on the following; and eventually, though with difficulty, was completely cured. Frequent fits of convulsions, affecting the right side more than the left, took place on the seventh day in the daughter of a clergyman residing in the Liberty, and were followed by a stupor bordering on coma, which lasted for many hours. All these patients were covered with maculæ.

I am thus particular in dwelling on the symptoms manifestly denoting a combination of primary general nervous excitement with a secondary cerebral congestion; for, on the successive development of these states the treatment during the latter stages hinged. I wish you clearly to understand, that, after the headache and cerebral excitement which accompanied the very commencement of the fever had been subdued, or had ceased, after sleep and calm had returned, and had continued for many days, then a new order of things commenced—subsultus, watchfulness, muttering, raving, involuntary discharges, &c.,—all denoted great derangement of the nervous system; but still there was no proof that this derangement depended on cerebral congestion. After a few, or after many days, however, unequivocal symptoms of the latter set in; the face and eyes became suffused and flushed; the pupils manifested a tendency to become contracted, and occasionally convulsions took place; the patient became totally sleepless. When the latter and dangerous period of the fever was accompanied by the former nervous group of symptoms *alone* they yielded to wine, musk, porter, and opiates; but when the symptoms indicating cerebral congestion were superadded, then it was that the case assumed so great and striking a similarity, as far as the functions of the nervous system were concerned, to the well-known variety of delirium tremens, accompanied by cerebral congestion—to that variety of delirium tremens, in fact, which only can be successfully treated by the judicious but bold exhibition of tartar emetic combined with laudanum. *It is the discovery of the utility of this practice in the advanced stages of spotted fevers, that I claim peculiarly as my own*; for there is not in the writings of any author on the subject, the slightest trace of such a method of treatment to be found. As this method has manifestly saved many, many lives, under a combination of circumstances apparently hopeless, I cannot avoid congratulating myself upon being the first to propose a practice which has not only diminished the rate of our hospital mortality in

a remarkable manner,* but has been the means of saving many of my friends and pupils; for, without its adoption, our class at the Meath Hospital would have been more than decimated, whereas at present we have to regret the loss of but one pupil.

One word more as to the circumstances under which this plan was applicable. They were exactly the circumstances which formerly would have been believed to demand the fresh application of leeches to the head, of cold lotions, and of blisters; for it was formerly argued, and justly, we have in this advanced stage of fever not merely debility to combat—not merely general nervous excitement to overcome—but we have also to contend with cerebral congestion. The latter is the most formidable of the whole: let us meet it boldly; let us leech, let us purge, &c., &c. I need not repeat to you the details of cases illustrating the ill effects of this practice. Suffice it to remark, that you might as well attempt to cure *delirium tremens* with mere leeching, purging, and blistering. Observe, I am now speaking of the advanced stages of fever; for where cerebral congestion takes place in the beginning or the middle of fever, then is there no room for opium—then will the practitioner have recourse to the well-known remedies for active cerebral congestion; viz., purging, leeches, cold lotions, ice to the head, &c., &c. In the preceding sketch of the present epidemic, many important features have been omitted. The outline is only complete in such parts as were required to be filled up for the purpose of illustrating the principles which directed me in devising and employing this new plan of treatment. I shall conclude these observations with a few details of Mr. Thomas O'Flaherty's case.

This young gentleman was seized with the usual symptoms of maculated fever, of an insidious character, and not attended with any appearance of danger during the commencement of the disease. His pulse never rose above 100, and before the seventeenth day of the fever, it had fallen to 70, *at which it remained during the period of greatest danger.* The only circumstance which excited alarm in my mind, at an early period of his illness, was a great degree of mental apprehension manifested in his anticipating an unfavourable result, together with a tendency to sleeplessness from the beginning. On the tenth, abdominal tympanitis was observed, but this was removed in two days by appropriate remedies. On the twelfth day he was very restless, and although he was perfectly rational in his answers to questions, and did not complain of headache, nor had flushing of face, or heat of the integuments of the head, yet he frequently talked incoherently when left alone, and towards the latter part of the day began to make repeated attempts to get out of bed. On one occasion he succeeded, and walked down stairs, from his bed-room to the parlour. His tongue was brown and dry. Under these circumstances, I ordered him the mixture containing four grains of tartar emetic and one drachm of laudanum, in eight ounces of camphor-mixture; of this he took \bar{z} ij. every second hour. The effects produced by this medicine were not very rapid, but still they were decidedly beneficial, for he gradually became calmer, wandered less, did not attempt to get out of bed, and, during the

* Seventy-three fever patients—namely, forty-one males and thirty-two females, were treated in the clinical wards at Sir P. Dun's Hospital during the months of February, March and April. Of these, more than fifty were cases of maculated or spotted fever, and yet we lost but two females and one male. The latter was in a hopeless condition when brought in, and one of the former was attacked by varioloid just after the crisis of long-continued spotted fever.

night, got some sleep. His bowels being confined, the mixture was now laid aside, and purgatives exhibited: I should have remarked that the tartar-emetic mixture caused profuse sweating. On the fifteenth day of the fever, his bowels having been acted on, he was ordered twenty drops of Battley's solution of opium at night, which produced a comfortable night's rest, the first he had enjoyed since his illness. On the sixteenth, the sweating continued, belly was fallen, and he was quite rational, but had marked subsultus; he got another dose of Battley, but it produced no sleep; he had been allowed chicken-broth, beer, &c., for some days. On the seventeenth day, the sweating had ceased, and his skin had become hot and dry; great restlessness, constant muttering, delirium, subsultus, tremors, picking the bed-clothes, involuntary discharges. Porter in small quantities, chicken-broth, fetid injection, and twenty drops of Battley at night. On the eighteenth, he was reported to have had no stool from the injection, and no sleep whatsoever. He answered incoherently, thought his bed was covered with lancets, some of which he collected carefully, and reserved for me; belly not tumid, but obstinately confined; pulse 100. The whole of that day, and the following, were employed in procuring alvine evacuations, preparatory to again giving opium; in the mean time, all his symptoms were aggravated, and when I visited him on the evening of the nineteenth day, his state was anxious in the extreme, as he had enjoyed no sleep for many days and nights, and was in a melancholy state of mental incoherence, raving, tremor, and subsultus. Here came the crisis as to treatment. I remember well the time when a patient so situated would have been again purged, his head would have been shaved, a few leeches applied to the temples, and a blister to the nape of the neck, while perhaps wine and musk would have been exhibited internally. How many persons have I seen so treated by the most eminent physicians, and how unsuccessful was the practice! To have talked of giving opium under such circumstances, and when the marks of cerebral congestion were so evident, would have been regarded absurd; my experience on former occasions, however, determined me to give opium, and, as the danger was imminent, I gave it boldly. To the eight-ounce mixture, with four grains of tartar emetic, we added one drachm and a half of laudanum; of this he took one ounce every second hour, from eight in the evening until he had taken five doses. This produced copious sweating; the skin became cooler, he raved less, but still no sleep; at four on the following morning, his pulse became 70, and respirations tranquil; he got twenty drops of Battley, and at half-past five in the morning, twenty-five drops more. He had now taken, within a short time, about one drachm of laudanum, and forty-five drops of Battley, combined with nearly three grains of tartar emetic. He was tranquil, but did not close his eyes, and muttered occasionally; subsultus less. His pupils now became more and more contracted, his eyes less expressive and duller, and when I came at eight in the morning, he was evidently deeply narcotised, although not yet asleep. I thought that all was lost; but still, observing the respiration to be tranquil, and the pulse regular, I indulged a faint hope that sleep might still supervene. His eyes now became still more inexpressive, the lids gradually closed, his breathing became prolonged and deep, and at half-past eight he was buried in a profound and tranquil sleep, which continued for nine hours, when he awoke, spoke rationally, said he had no pain in the head, took some

drink, and fell asleep again. Next morning not a single symptom of fever remained.

I need scarcely observe, that the proportions of the two powerful medicines which compose this mixture must vary according to the circumstances of the disease, and the age of the patient. In young persons of tender age, the opium must be given in smaller quantities.

In conclusion I shall only mention, that since this practice was first proposed, it has continued to afford me the greatest satisfaction, and that I have reason to believe that those who have employed it in this country, and at the other side of the channel, have had no reason to lose confidence in it.

In a paper on typhus fever, by Dr. Kilgour, we find that the experience of Dr. Dyce, of the Aberdeen Infirmary, is strongly in favour of this practice. He says, "For months together the pulmonic symptoms prevailed almost entirely, then came those marked by gastric and intestinal irritation, and less often, though still continuing for a length of time in succession, those with high cerebral action. The first set, as is too well known, were by far the most intractable and fatal; the last, though sufficiently alarming, and always requiring restraint, were more amenable to treatment than either of the others, if anticipated in their approach, or seen soon after their onset. By the way, the medicine I *solely* relied on in this latter class, you do not include among your list—I mean tartar emetic given as described by Dr. Graves; I have found it eminently successful, and have the greatest confidence in it."—*Edin. Med. and Surg. Journal*, No. cxlix. Nov., 1841.

And in the Eleventh Volume of the *Dublin Medical Journal*, the reader will find an interesting paper on "*Certain Remedies in Typhus Fever*," by Dr. HUDSON, of Navan. Speaking of the treatment by tartar emetic and opium, he says, "It seems best adapted to that restless kind of delirium tremens, in which the patient cannot be restrained from attempting to leave his bed, and walk about his ward; when every muscle is tremulous, the eye is red from want of sleep, the tongue dry, and the patient presenting that kind of spurious excitement which might induce the attendant (injudiciously, no doubt) to order the local abstraction of blood, by leeching the temples, or opening the temporal artery. I could here give reports from my note-book of several cases thus treated, but that I consider it would be rendering tedious a paper already too long. In prescribing this medicine, I find it advisable to use great caution in two ways: 1st, Not to give it *after* it has produced sleep; 2d, To follow it up by the prompt and frequent exhibition of wine, and such nourishment or cordials as the more or less advanced stage of the disease, and debility of the patient may require; as it seems to me that there is increased risk of the patient sinking unless timely supported after sleep thus induced."

There is one circumstance connected with this epidemic, but which I have also frequently witnessed in other sporadic and epidemic fevers, to which I wish forcibly to draw your attention; it is the existence of tenderness generally over the body; and which causes the patient to shrink from the pressure of the finger, applied to any part of the integuments. This tenderness arises from an irritated state of the nervous system generally, and is usually accompanied by severe dorsal or lumbar pain, indicating spinal congestion. Now, in a practical point of view, this tenderness requires attention; for if it be overlooked, and if the physician applies

pressure, in such cases, only to the epigastrium, he will be deceived into the belief that the tenderness he there discovers is confined to that part, and indicates the application of leeches to the pit of the stomach.

Having spoken so much of the salutary effects of opium in certain stages of fever, it may not be irrelevant to our subject to introduce to your notice a remarkable case of violent enteric inflammation, attended, as such cases always are when exceedingly intense, with cholera-like collapse in the very onset of the disease. This case was saved by means of thirteen or fourteen grains of opium, given in the course of twenty-fours, a plan of treatment which I first proposed, and which has since been very generally adopted.

I shall take the liberty of reading to you the following letter, from my friend, Dr. Nolan.

“MY DEAR DOCTOR,—The following is an abstract of my notes,—upon the case of my servant Horan:—

“On Monday evening, 27th February last, he casually complained of pains in his bowels; they had not been freed on that day, and supposing it an instance of mere indigestion, I ordered him five grains of calomel, and a draught of castor-oil. For that night I heard no more of him, but early on the following morning I was hastily summoned by one of his fellow-servants, who reported that he was dying. I found him labouring under severe but intermitting pain of the belly, particularly about the umbilicus, *violent and frequent cramps*, especially in the lower extremities, and occasional vomiting. The surface was perfectly cold; features sunken; eyes surrounded by a dark areola; voice subdued to a whisper; pulse 140, small and feeble; abdomen tender, though not at all tumid. He told me he passed the night in great torture, and that the bowels were still unmoved. I immediately ordered ten grains of calomel, to be followed in two hours by an oil and turpentine draught, a turpentine enema, bathing, &c.

“Three hours subsequently—temperature restored; cramps less violent; vomiting less frequent, but bowels obstinate; face and pulse equally unpromising as before; abdominal pain increased. Was this incipient inflammation? And what is the cure for inflammation? Bleeding? Well, I did bleed; but scarcely had four ounces been taken, when I was very glad to tie up the arm; the prostration alarmed me. Something, at all events, ought to be done, and I ordered a sinapism to the abdomen, a repetition of the enema (for I confess I have not much confidence in frequent or powerful purgatives), a powder, composed of calomel two grains, opium quarter of a grain, to be taken every fifteen minutes. Towards evening, I thought my patient rallied a little; his countenance was better; pulse firmer; his abdominal pain not increased, and he vomited but once; the injection brought away with it a little mucus but no more. *Repetat haustus terebinth.* *Repetat quoque enema.* During the night, there was just a trace of feculent matter, but vomiting returned, and I found him in the morning (the second of his illness) suffering an increase of pain; the abdomen, too, was now not only extremely tender, but *decidedly swollen*; the pulse remained quick and weak as ever. I could not discover that he passed water. Would you not call this inflammation? But would you bleed for it? I did, unfortunately, to as great an extent as I could, which was about eight ounces, and the cadaverous look, the cold clammy surface, in short, the

absolute collapse which succeeded, and *continued for hours*, gave me strong reason to regret it. *It produced no impression* upon the pain. I had read, with great interest, the invaluable observations of yourself and Dr. Stokes, as well as the publications of Armstrong, Griffin, Gooch, &c., wherein the applicability of opium, to certain modifications of abdominal inflammation, is forcibly demonstrated, and I thought my patient precisely in the condition in which you would probably have had recourse to that powerful agent. I therefore commenced exhibiting half a grain of opium, and two of calomel, every half-hour. After the second hour, I substituted for the calomel three grains of carbonate of ammonia, which, with the opium as before, I continued during the day and the whole night. In the morning (the third) I had the satisfaction of ascertaining that the pain and swelling had considerably subsided, and that the *bowels had been twice opened*; his countenance now spoke promisingly, and pulse began to fall. I, however, persevered in my plan of treatment for the day, and, indeed, for the two following nights and days (gradually increasing the interval between each dose, however), until all trace of pain and obstruction had disappeared. The bowels continued to act from time to time, although I never ventured upon another purgative; the dejections were at first largely mixed with blood and mucus, but soon assumed every character of health. Of the sequel (may be the consequence) of this interesting case, you most kindly undertook the management, and I shall add nothing to this meagre statement of *facts*, which Mr. O'Donnel, (of Keane's in Suffolk Street), to whose humanity and care I am deeply indebted, witnessed as well as myself. I shall leave you to speculate upon the propriety of bleeding at all, under such circumstances. I shall also leave you to decide whether the increase of inflammation, which certainly occurred when I first gave up the opium plan (on the first night) for the sake of interposing a purgative, was to be attributed to the change or not. May not the case throw some light on the abuse or use of purgatives? But I am doing more than I intended, and more than is useful.

“I remain, my dear Doctor,

“Yours most truly,

“J. NOLAN.

“April 19, 1835.—10, *College Green.*”

APPENDIX.

FURTHER OBSERVATIONS ON THE USE OF TARTAR EMETIC IN THE DELIRIUM OF FEVER.

[The two following papers on the use of Tartar Emetic and Opium in Fever, were published subsequent to the appearance of my lectures in London, in the 9th vol. of the *Dublin Medical Journal*; I shall therefore make no apology for introducing them in this place.]

ARTICLE I.

The subject of the following observations is treated at some length in the preceding lectures, and I have been induced to notice it again, because subsequent experience has enabled me to collect many additional facts, illustrative of the practice then recommended.

It is well known that delirium tremens requires very different modes of treatment, varying according to the constitution, strength, age, and habits of the patient. In the young and robust it often assumes a form exceedingly resembling that of delirium arising from sudden congestion or inflammation of the brain or its membranes, and then demands strictly antiphlogistic measures, such as venesection, leeching, cold to the head, and very active cathartics. These remedies will often speedily arrest the progress of the disease. On the other hand, we very frequently meet with *delirium tremens* calling for a totally opposite plan, for when it occurs in the old, debilitated and confirmed drunkard, who has been repeatedly subject to its attacks, we are often obliged to exhibit opium from the very commencement, and that in large doses combined with porter, punch, or some other cordial; these two form the extremes, between which there are many intermediate varieties, each requiring a special modification of practice. Thus, some must be treated rather actively, on the antiphlogistic plan at first, and immediately afterwards opiates may be used with advantage; while in others, opiates cannot be given alone at any period of the disease, so prominently marked are the symptoms of cerebral congestion; and yet these cases cannot be cured without narcotics. How then are they to be exhibited? Do we possess any medicine capable of modifying and diminishing their injurious effects when given where cerebral congestion exists? Undoubtedly we do; tartar emetic will accomplish this desirable object, and in delirium tremens the value of its combination with opium is recognised by every practitioner of experience. Tartar emetic, boldly exhibited, often is itself our sheet anchor in delirium tremens, especially when the evidence of active determination to the head is undoubted. Then tartar emetic alone, in repeated doses, often powerfully contributes to produce tranquillity and sleep; but there are other, more mixed cases, where we cannot cure without adding opium, sometimes in larger, sometimes in smaller quantities, to the solution of tartar emetic; and so it is with the delirium and sleeplessness, so often met with in continued fever. Every one is acquainted with the indications denoting the propriety of adopting the antiphlogistic practice when these symptoms make their appearance in the commencement of fever. Then the lancet, leeches, purgatives, cold applications to the head, and finally, repeated doses of tartar emetic tend powerfully to reduce vascular action, and diminish the violence of symptoms depending on cerebral congestion and excitement. Here the lancet and tartar emetic are our best opiates, our best restoratives of tranquillity and sleep. As the fever progresses, and when we have arrived at a more advanced stage of the disease, when maculae make their appearance on the skin, and symptoms of general debility announcing the typhoid type begin to predominate, then we must proceed with more caution, even though our patient is totally deprived of sleep and is violently delirious. The lancet cannot now be resorted to; leeches, indeed, may be applied, but their effects must be carefully watched, as the patient will not bear copious depletion of any sort; tartar emetic may, nevertheless, still be given boldly, and will be found to answer our expectations. But if we have to contend with want of sleep and delirium at a still more advanced period of fever, we now often recognise that very combination of symptoms, the union of general debility, and cerebral congestion, which in certain varieties of delirium tremens we have seen so successfully treated

with tartar emetic and opium; who will refuse to acknowledge the similarity between these cases of fever delirium and many varieties of delirium tremens? are there not in both, the same tremor and subsultus of the extremities; the same trembling of the tongue when the patient endeavours to put it out; the same starting and sleeplessness; the same rambling, delirium or incoherence, combined nevertheless with the power of answering rationally when spoken to; the same character of the mental wandering, for in both they are extremely apt to rave as if employed in their ordinary occupations, and as if surrounded with their usual associates; in short, can any greater resemblance exist between two diseases arising from the operation of remote causes so different? We need not, therefore, be surprised, at finding the same treatment applicable to both.

Since the delivery of the clinical lectures in which the preceding cases are detailed, several others have occurred both in hospital and private practice, to some of which I now beg leave to direct attention, observing that I have in every instance been particular in mentioning the names of other professional gentlemen who witnessed the progress of each case; a precaution tending to prevent exaggeration either in detailing symptoms or describing the effects of remedies.

The case of Mr. William Murphy, an extremely diligent and intelligent pupil at the Meath Hospital, is well worthy of notice. The father of this gentleman, a practitioner of well-known reputation at Fermoy, where he has been Physician to the Fever Hospital for many years, arrived in Dublin the very day his son's state appeared to be hopeless, soon after the consultation, when Doctor Stokes and I agreed to use the tartar emetic and opium; Doctor Murphy admitted afterwards that he never felt so much surprised as he was at this treatment, but having intrusted the care of his son to us, he very properly expressed no opinion on the subject, a mode of proceeding he has never since ceased to congratulate himself on, for had he opposed us, the case was apparently so desperate, that it may be doubted whether we would have ventured to put the plan into execution.

Mr. Murphy, aged 20, having been engaged in the diligent study of the fever cases in the Meath Hospital, was attacked with violent symptoms of fever on the 6th of January last. He took a dose of calomel and James's powders, and went to bed; early next morning he was worse, and although he took a purgative draught which operated freely on the bowels, he complained much of headache, and was very feverish; a copious sweat broke out, but was unattended with relief, notwithstanding that it continued with more or less interruption for several days. His thirst was excessive, and he was very restless, depressed, weak, and nervous; the antimonial powder and calomel were persevered in during the second day, and on the third he took more purgative mixture, and twelve leeches were applied to the temples, but they gave little or no relief to the pain in the head. In short, he grew worse, and was found to be extremely prostrated. On the 4th, his tongue was foul and dry, his stomach irritable, often rejecting his medicine, and producing a vomiting of bilious matter, the pulse quick, and his air unpromising. I saw him on the 5th day, when every thing was still worse, and the pain of head much complained of. I directed a continuation of the James's powder, and effervescing draughts. On the 6th day he was still worse, and was reported to have raved a good deal during the night; his bowels were loose, and

now for the first time the perspiration entirely ceased, and his skin became hot and dry. I gave him small doses of Dover's powder and chalk. On the 7th day his countenance expressed great anxiety, and in addition to an aggravation of all the other symptoms, his skin became covered with a measles-like eruption of maculæ, a circumstance which induced me to give the liquor of the chloride of soda, in doses of twelve drops, every fourth hour, in an ounce of camphor-mixture. He got mild diet, as arrow-root and chicken-broth, with a little stale bread sopped in tea, night and morning. On the 8th day, no improvement; much raving during the night. On the 9th, symptoms as before, except that the occurrence of some abdominal tympanites and slight epigastric tenderness induced me to apply six leeches to the pit of the stomach. The bleeding from the leech-bites was moderate, but seemed nevertheless to exhaust him. It seemed to check the tympanitic tendency. On the 9th day, was still worse, much stupor, incipient subsultus; towards evening a very hurried and laboured breathing supervened, and he lay entirely on his back, helpless and weak, respiring about 45 times in a minute. As he had not the slightest affection of the lungs or bronchial tubes, this hurried breathing excited the greatest alarm in my mind, and induced me to apply six leeches behind the ear, with a view of relieving the now increasing stupor, and the evident cerebral congestion.

On the 10th day, I had the benefit of Doctor Stokes's advice. We found our patient in a state truly appalling. He lay panting on his back, restless and without sleep, every muscular fibre in his face and limbs was agitated with spasmodic twitches, giving rise to the greatest possible degree of subsultus, which distorted his face, caused him to bite his under lip every instant, rendered him quite unable to put out his tongue, although he endeavoured to do so. The subsultus prevented us from being able to feel the pulse, now weak and rapid, at the wrist. In the mean time, though he often moaned and raved, he muttered indistinctly; he evidently understood what was said to him, and as far as we could collect, he seemed to suffer much less from pain in his head. Still the temporal arteries were turgid, and his eyes suffused. He had retention of urine, and since yesterday it was drawn off with the catheter. What was now to be done? Cold lotions to the shaved head had failed—a blister to the nape of the neck had proved useless—we could not venture to rely on more blistering of the scalp—some more powerful remedy must be instantly brought to bear, or our patient was lost. Alvine evacuations had been pushed to the fullest extent; leeches could not even be proposed, so great was the debility. Opium we dared not venture on, seeing that so recently the pain in his head had been urgent, and that the temporal arteries and the conjunctiva still seemed to indicate cerebral congestion; under these circumstances we resolved to try tartar emetic, and we ordered the following mixture:—

R. Tartar Emetici gr. ii. Moschi gr. xxx. Mucilaginis Syrupi Simplicis aā ʒi. aquæ fontis ʒx. M. Sumat ʒss. omni horâ.

After he had taken about six doses of this medicine, he seemed rather better, and the symptoms of determination to the head appeared less marked; we therefore added fifteen minims of patent black drop to the remaining nine ounces of the mixture, and directed small quantities of porter and chicken-broth to be given repeatedly during the night. On

the 11th day, we found a change for the better truly surprising: the pulse had diminished remarkably in frequency, and had become softer and fuller; a warm sweat had broken out, he had raved but little, and had slept tranquilly. We ordered a continuance of the same nourishment and medicines, the latter at much longer intervals; the case need not be further detailed, as Mr. Murphy rapidly recovered and enjoyed a speedy convalescence. Here then is a case which would assuredly have been lost but for the well-tried application of the new method of treatment. I say this emphatically, for Mr. Glysson, Mr. Boyton, Mr. Clarke, and Doctor Murphy, all anxious and competent observers, assured us that from the moment he began the bottle, its good effects were apparent, and increased after each dose.

CASE II.—John Doyle, admitted into Meath Hospital, May 21st, 1835; three or four days ill, a strong young man; the symptoms were attended with considerable reaction at the beginning, his face being flushed, eyes wild, and head aching; he raved much during the night from the 4th day, and had then a full bounding pulse at 105. Venesection was ordered, but he fainted when four ounces of blood had been drawn. Leeches were then applied to the epigastrium. On the sixth day of his illness, his thirst was great, no sleep, skin moist, belly soft, pulse 120, pain in head severe, copious eruption of maculæ. His head was now shaved, and six leeches applied behind the ear, and were repeated three times. He was ordered the liquor of the chloride of soda on the 7th day, as the vascular excitement had then diminished, and the maculæ constituted a prominent feature in his case. On the 8th day he was not worse, but his skin was still very hot. On the 9th day, eyes suffused, face flushed, much thirst, no sleep, bowels free, belly soft, some epigastric tenderness, tongue loaded, but moist, cold lotions to the head. 10th day, delirium violent during the night, strait-waistcoat necessary, eyes suffused, belly soft, skin very hot, pulse 120, respirations 40, considerable subsultus. Six leeches to be applied behind the ear three times successively.

R. Tart. emetici gr. iv. aquæ fontis ℥i. M. Sumat ʒss. omni horâ.

11th. Slept very little, delirium less violent, one very large stool, heat of skin less, eruption copious.

R. Misturæ camphoræ ʒviii. Tartar emetici gr. iv. Tincturæ opii ʒi. M. Sumat ʒss. 2â q. horâ.

12th. Slept five hours, seems better, but still he passes his stools under him; pulse 120, eyes suffused, skin hot, tongue cleaning, belly soft, bowels loose, maculæ numerous. The same prescription, except that the tincture of opium was increased to ʒiiss. in the eight-ounce mixture.

13th. The medicine was continued for several hours, when he fell asleep, and slept so much and so tranquilly, that it was not thought necessary to repeat it. Pulse 110; subsultus not near so violent; does not rave; knows every one, and answers rationally; light nourishment.

14th and 15th. Improvement continues, but still there is much fever, and many maculæ. About the 21st day he was free from fever, but he got no medicine after the night of the 12th.

This case exemplifies the treatment adapted to the three different stages—1st, Bleeding, leeches, cold lotions; 2d, Tartar emetic in large doses,

combined with leeching; 3d, Opium boldly administered in combination with tartar emetic.

CASE III.—The following, communicated by my friend Mr. Knott, whose own case I have already referred to, excited much interest among the practitioners of the neighbourhood:—

On the 20th of July last, I was called to see a comfortable farmer, residing near Boyle, in the county Roscommon, named J. K——. He was aged 30 years, and had been ill 21 days. His fever commenced with rigor, headache, and pains in the loins, the headache being particularly severe. In the commencement of the fever he had raved incessantly; slept but little; had frequent retching; his bowels were confined; for these symptoms, he was purged with black bottle to excess, and bled largely and frequently, but without any permanent alleviation. On the 21st day of his fever he presented the following appearance and symptoms:—his countenance was expressive of great anxiety and ferocity; his eyes were bloodshot and wild; teeth covered with sordes; tongue brown and furrowed with clefts; he raved violently and attempted to get out of the bed several times; great excitement and *subsultus*; his skin was very hot and dry; all the secretions much diminished; urine high-coloured; no eruption; no epigastric tenderness; abdomen slightly swollen and tympanitic, but pressure seemed to give no pain; his bowels had not been open for three days. That night he was ordered 40 drops of the tincture of opium, at the same time that an *enema* was exhibited; the bowels were once opened; he slept none during the night, and the excitement was, if any thing, greater than before. Under these circumstances it was thought advisable to administer the tartar emetic and opium in the manner I had seen it exhibited, whilst acting as clinical clerk under Doctor Graves in the Meath Hospital. He got an ounce of a mixture, consisting of eight ounces camphor-mixture, four grains tartar emetic, and a drachm of laudanum every second hour, and after he had taken the third dose he had a large watery evacuation; after he had taken the fourth dose he fell into a calm sleep, in which he continued for nearly twelve hours; he awoke much refreshed and covered with a profuse perspiration. He was able now to recognise his friends; the *subsultus* and general excitement was greatly, but not entirely, allayed; his pulse, which had been 120, small and wiry, had fallen to 98; he continued his medicine during the next night with the greatest benefit. From this period this man's recovery was rapid and unexpected, and at the end of three weeks he was able to attend to his business.

CASE IV.—(*Reported by a Pupil.*)—Ellen Dowden, aged 18, admitted in the Meath Hospital on the 8th of June, states that she has been ill 12 days. Her illness commenced with the usual symptoms; headache; rigor; loss of rest and appetite: previously to her admission she had been purged freely without any relief. On the day of her admission she was flushed; skin dry and very hot; the whole body was covered with maculæ; she was heavy and stupid; answered questions incoherently; her eyes were slightly suffused; called out continually for drink; her tongue was dry, brown, and rough; seemed to have much pain on making pressure on the epigastrium; the belly was swelled and tympanitic; bowels confined; no cough or headache; pulse 108, wiry; applicentur hirudines octo epigastrio; head to be shaved and cold lotion to be applied.

R. Hydrargyri c. cretâ, gr. x. Pulv. ipecac. comp. gr. ii. M. Fiat. pulv. quater in die sumend.

9th. Much worse to-day ; slept for about one hour yesterday evening ; lies continually on her back ; seems to take no notice of what is going on about her ; raved occasionally during the night ; teeth and mouth covered with sordes ; tongue very dry, rough, and coated with brown ; pulse fallen to 80, very small, but less wiry than on yesterday ; her bowels were opened twice copiously ; belly soft and fallen ; epigastric tenderness much relieved, headache gone, maculæ less.

℞. Sol. chlorid : sodæ gtt. xv. Mist. camph, ℥i. Guttæ nigræ. gtt. i. M. Fiat. haust. quater in die sumend.

To have a pint of beer and arrow-root.

10th. Raved the whole night ; subsultus general and violent ; pulse 120, sharp ; slightly dicrotous ; slept none ; face much more flushed than on yesterday ; eyes suffused, passed under her ; maculæ much diminished ; has no headache ; bowels rather free ; lies on her back with her feet drawn up ; has no chest symptoms ; respiration natural ; ordered ice in bladders to the head, with a mixture composed as follows :—

℞. Mist. camph. ℥viii. Tart. emetic. gr. i. M. Sumat ℥ss. omni semihorâ.

11th. When seen yesterday evening she was very violent ; endeavoured to get out of bed ; screamed loudly, and complained of bad treatment ; she had slept none at this period, her bowels had been freed copiously, but she still continues to pass under her ; she endeavours to throw the ice bags off her head, and requires some violence to hold her in bed ; subsultus extremely violent ; face much flushed ; eyes red ; she was ordered the following :—

℞. Mist. camph. ℥viii. Tart. emetic. gr. iv. Tinct. opium, ℥i. M. Sumat ℥ss. secundis horis.

She had taken but two tablespoonfuls when she began to sleep ; she has continued to doze to the hour of visit ; she is much improved in every respect ; she answers questions rationally ; her face is not so much flushed ; eyes less suffused ; has no headache ; pulse 120, not so sharp ; skin still very hot ; tongue moist and cleaning. She was ordered not to take any of the mixture if she continues better. Enema emolliens statim. Improvement went on steadily until convalescence was established.

CASE V.—“My dear Doctor,—In compliance with your request, I send you an abstract of the case of Stephens. It was one of spotted fever occurring in a young man of temperate habits, setting in with languor followed by rigor. I saw him on the 4th day, when there was unpleasant heat of surface, with general tenderness all over the body, particularly remarkable over the epigastric region ; the chest, and hands, studded with florid maculæ ; headache and pain of back distressing ; light disagreeable ; pulse 108 ; tongue moist. He had an oil draught, followed by small doses of hyd. c. eret. c. pulv. Dover. On the 6th day of his fever, being very restless and sleepless, eyes slightly suffused, and pulse 120, I gave him an eight-ounce mixture, containing four grains of tartar emetic, and a drachm of tincture of opium ; two tablespoonfuls to be taken in the evening, and one every hour afterwards. On the next day the report was, that he had slept a good deal during the night, having fallen asleep after the third dose, three hours after which a fourth was administered. He is dozing ;

pulse 120 ; skin hot and dry ; bowels four times moved ; ordered to continue his mixture, watching its effects. On the 8th day, in consequence of severe purging having set in (he had taken but two doses of the mixture since last report), the epigastrium becoming very tender, and pulse 132, his medicine was omitted, and a cretaceous mixture ordered instead, a small quantity of port wine diluted, and a blister to the abdomen ; the blister was not applied, yet the purging was checked. On the evening of the 9th day, as he complained much of want of rest, and there was no headache, I directed him to have two doses of the tartar emetic and opium mixture, within an interval of two hours. I was compelled at this period to give up attendance on this case in consequence of an accident ; it was, however, taken up by my friend Dr. Grant, who kindly kept notes, and with whom I had daily conferences. He reports our patient, on the 10th day, to have suffered an accession of fever, seemingly caused by abdominal irritation ; he complained much of headache ; the eyes were injected ; skin hot and dry ; tongue brown and crisp ; pulse 144 ; respiration 49 ; throbbing of the temporal arteries ; when undisturbed, raving and moaning, but answers rationally ; abdomen full and tense, tenderness in region of colon, with some tenesmus ; sleeplessness. He was given calomel, gr. iv. ext. hyosciami, gr. iii. followed by an oil draught ; a blister was applied to the abdomen ; cold to the head, and warmth to the feet. The medicine acted well, producing a number of dark-coloured motions, with some relief of the symptoms ; the sleeplessness, however, still continuing. On the 12th, raved considerably the previous night, with great restlessness ; headache, with darting pain ; pulse 120 ; still answers rationally, but raves when left to himself ; abdomen soft ; he was again put on the use of the tartar emetic and opium mixture, to have one tablespoonful every hour for three doses, and then only every second hour. On the following day there was a considerable improvement ; he had slept well, and perspired freely in the night ; no raving ; headache gone ; pulse 96 ; heat of skin less ; to continue his mixture. On the 14th day he was much better ; he wished for food. On the 15th day he suffered a relapse from his appetite having been imprudently indulged ; he was given an oil draught, and directed to resume his mixture when the bowels acted. He continued from this time to improve, the interval between the doses of his mixture was gradually lengthened ; and on the 17th day he was convalescent.

“ In this case, the good effects of this mixture were evidenced by perspiration and rest. This lad’s mother and sister were just convalescent from spotted fever ; the former four weeks, the latter a fortnight. In the mother’s case, I was not applied to till the 10th day ; it went on to the 21st. There was not any organ particularly implicated ; she was treated with stimulants, carb: ammoniæ, porter, and blisters. In the daughter, the fever was very severe to the 11th day, when it terminated by profuse perspiration. She suffered principally from pain in her head and back, with intolerance of light, and was treated with mild aperients, followed by diaphoretics with hyoseyamus. In neither was sleeplessness distressingly remarkable. Another brother was seized with the same form of fever a few days after the subject of this case had taken ill ; he was on the 5th day transferred to Sir Patrick Dun’s Hospital.

“ I experienced marked benefit from this form of prescription in a case of melancholia, occurring in a female aged 45, consequent on a severe

domestic affliction. The exhibition of it here, however, was followed by considerable debility, requiring stimulants. This effect I consider to have been, in some degree at least, attributable to the patient having for some days previous to its exhibition refused food, and possibly been suffered to remain too long under the sedative influence of this medicine without having been offered nourishment.

“ Hoping that you will excuse the hurried manner in which this case has been thrown together,

“ Believe me, my dear Sir, yours,

“ HENRY DWYER.

“ *Camden-street, July 10, 1836.*”

CASE VI.—John Dillon, aged 15, a servant, admitted 5th June, 1835, several days ill. On the day of his admission he had headache, thirst, heat of skin, loss of appetite and rest; his face was flushed and bloated; eyes suffused, red, and prominent; skin hot and dry; he complained of slight epigastric tenderness and violent headache; pulse were 120, full and bounding; his whole body was covered with maculæ; bowels regular; tongue brown, furred, and dry. Ordered,

R. Aquæ fontis, ℥i. Liquoris Chlorid. Sodæ ℥tt. x. M. fiat haustus quartis horis sumendus appl. hirudines, xii. pone aurem, et repetatur applicatio si opus.

7th. The leeches bled freely; head appears to be relieved; he raved a good deal during the night; his pulse has fallen to 100, but still very full; has a slight cough, and some bronchitis. Ordered to repeat the draught, and apply four leeches to the larynx.

8th. Slept very little; does not appear improved; very irritable; raved, and was rather violent during the night; cough better; tongue very brown and dry; bowels confined; pulse 100; respiration rather hurried. Ordered to repeat the draught, and to have an emollient enema in the evening.

9th. Epigastric tenderness much increased; raved continually during the night; slight subsultus; eyes very red, wild and staring; pulse 114, very full; tongue dry and brown; teeth covered with sordes. To repeat the draughts, and apply eight leeches to the epigastrium.

10th. Appears better to-day; epigastric tenderness much relieved by the leeching; his strength is much prostrated; wishes for more food; pulse 100, and still full; slept none. Ordered arrow-root, and to repeat the draughts.

11th. The fever is again much increased; raved violently during the night; great prostration; slept none; subsultus very violent; great thirst; pulse 130; complains of a heaviness, but no pain in head: skin very hot and dry; eruption undiminished. Ordered to repeat as before.

12th. All the symptoms much aggravated, face flushed and red; eyes suffused and ferrety; teeth covered with sordes; lips parched and cracked; tongue black and very dry; subsultus general and violent; does not sleep either by night or day; exceedingly irritable; pulse 130 and jerking; pupils contracted; he lies on his back with legs drawn up; extremities rather cold. He was ordered warm applications to his feet and the following prescription:—

R. Tartar emetici, gr. ii. Misturæ camphoræ, ℥viii. Tincturæ opii, ℥ii. M. Sumat cochleare, i. amplum 2â q.q. horâ.

13th. The nurse reported that after he had taken the mixture three times, he slept calmly for nine or ten hours, the first time for the last week. It operated largely after the second dose, the stools being thin and bilious. He has ceased to rave; the suffusion has quite disappeared; tongue is moist and cleaning. He slumbers continually, subsultus completely subdued; answers questions rationally; pulse has fallen to 98 and soft; ordered to repeat the mixture.

14th. Slept continually since last report; general appearance much improved; perspired profusely during the night. He was perfectly sensible from this day till the 17th. He continued to improve rapidly in strength and appearance. 17th, convalescent.

CASE VII.—Mr. S.—, residing in College, was attacked with headache, on the 3d Feb. 1836, and fever commenced on that or the following day. He was judiciously treated by Mr. Barker, of Britain-street, until the 4th day of the fever, when an increase of headache and pain in or behind the ball of the right eye, induced him to call me in. A bleeding from the arm much relieved the pain, and he spent a tranquil night. He got calomel and James's powders in small doses. On the 5th no change. 6th day of fever, maculæ began to appear, and his state became more alarming. 7th day, maculæ abundant, restlessness, debility, very frequent sighing, thirst, &c., with a sharp pulse, and return of headache. Leeches to head and nostrils were ordered; the latter because of an evident tendency to epistaxis. 8th. Sir Henry Marsh saw him along with us. 9th and 10th. Grain doses of Dover's powders added to his medicine four times in the night, but did not produce rest. 11th. Perfectly sleepless night and day; ordered in the evening, one grain tartar emetic, 4 ounces of camphor-mixture, and one scruple of laudanum; 1 tablespoonful every second hour. 12th. Moisture on skin; began to sleep after second dose, and slept several hours tranquilly; is to-day quite free from muttering and raving, which had commenced on the 10th day, and increased on the 11th; so that when left to himself he lay on his back constantly speaking, but not in a loud or boisterous manner, his eyes being all the time open; when addressed, he answered quite rationally, but on our quitting the room began again immediately to ramble. This group of unpleasant symptoms having disappeared, we did not continue the medicine, but ordered palliatives and mild nourishment; in the evening it was judged right to apply a blister to the nape of the neck. 13th day, maculæ very abundant; was quiet during the night, but did not sleep at all; exhausted and nervous; other symptoms moderate; pulse 104; tongue moist; abdomen a little swollen and slightly tympanitic; turpentine injections; continued palliative diuretic draughts; chicken-broth; claret and water. At 5 P.M. I again saw him, and found him still quite sleepless, but without headache; bowels moved, but still slightly tympanitic. Fearing the continued exhaustion from want of rest, I now ordered a mixture consisting of one ounce of mucilage of gum arabic, seven ounces of camphor-mixture, three grains of tartar emetic, and one drachm by measure of laudanum; half an ounce every second hour until sleep comes on. At ten Sir Henry Marsh and Mr. Barker saw him; he had slept an hour; appeared drowsy, and did not complain of headache; two doses of the medicine had been given; he remained awake until eleven, when another dose caused him to sleep until three; at four another was given, after which he slept until eight, and awoke much refreshed,

and much improved in every respect; his belly had not been moved, and was still slightly tympanitic, a symptom which yielded to the administration of two drachms of castor oil exhibited in the form of an aromatic emulsion. In the evening he was ordered to take four drops of black drop, but this procured no sleep during the night. On the morning of the 15th day we found him somewhat exhausted from a sleepless night, but with much less fever and no headache; pulse 94, soft; for the first time we remarked subsultus; a family idiosyncrasy rendering musk peculiarly disagreeable, or even intolerable, we ordered a draught containing two drops of black drop, and fifteen of Hoffman's liquor, every fourth hour. In the evening he had slept very little, so that I resolved again to recur to the antinomial opiate; two spoonfuls of which produced sound refreshing sleep for several hours. In the morning he again got castor oil; and on this, the 16th day, his pulse was only 70; but still, though the subsultus was diminished, a remnant of it could be perceived, so that he could not be pronounced out of all danger.

The conclusion of this case is peculiarly instructive, and proves how insidious is the progress of fever, and how unsafe the condition of a patient whose brain and nervous system have received a violent shock, even although the immediate consequences of that shock have been averted by the employment of decided treatment. On the 16th day we have seen an abatement, or rather a disappearance of almost every symptom of the disease, save and except a slight, a scarcely perceptible remnant of the subsultus. Great care was taken to prevent his being disturbed, and the strictest attention as to diet was enjoined; indeed he was remarkably disinclined to taking food, and it was with great difficulty that we could get him to consume a sufficient quantity of mild farinaceous diet. On the night of the 16th day he slept tolerably. The 17th day was passed without any change; but he slept none that night. The 18th day he was perfectly free from fever; pulse 70; tongue moist; bowels opened by medicine. That day he conversed too much to his friends about his removal to the country, his future plans, &c.; but nevertheless he slept several hours towards evening. This sleep was disturbed and chequered by dreams, and on awaking about eleven o'clock, he was wandering, and got eight drops of black drop, which procured no rest; on the contrary he got several times out of bed, and spoke incoherently. The raving had all subsided at 10 A.M. on the 19th day, when I was in hopes it was entirely owing to temporary excitement, and would not return; an opinion rendered probable by a total absence of all symptoms of general or local vascular excitement, of headache, &c. In this expectation, however, I was disappointed, for early in the afternoon he became incoherent; raved more and more every hour; complained of headache; could not bear the light; and when I saw him at seven, he was quite irrational; supposed himself to be travelling; and when questioned he seemed not to understand; his pulse had fallen below 60; was soft, irregular, and intermitted very frequently; skin not hot; feet cold; features contracted; tip of nose cold; he had eaten stirabout in small quantity twice during the day, but in a voracious unnatural manner: his eyes were a little red, and every thing wore a most threatening aspect. What was now to be done? In directing his head to be shaved anew, and in applying blisters to his scalp and temples, I felt I was proceeding on sure grounds; but the indications for the internal treatment were less obvious. We had arrived at the 19th day, and he had gone through a debilitating fever, and had been submitted to a very active mode of treat-

ment. Were we to leech the head? were we to apply cold? and should we immediately endeavour to mercurialize the system by means of mercurial preparations, given internally and applied externally? Such would have been the treatment a patient, under similar circumstances, would have undergone at the hands of any practitioner a very few years ago; and I have no doubt that a treatment of this nature would have speedily brought matters to a fatal termination. The writings of Gooch, however, who pointed out the diagnosis and treatment of certain cases, usually confounded with inflammatory hydrocephalus, and the influence of the truth of Dr. Gooch's statement, as illustrated by several examples in our own practice, determined Sir Henry Marsh, Mr. Barker, and myself, to rely on the severe blistering locally, while internally, we ordered a draught consisting of two grains of carbonate of ammonia, twenty drops of Hoffman's liquor, and one ounce of camphor-mixture, to be taken every third hour. Warmth was applied to the feet, and he was supplied with warm whey. Shortly after our visit he fell asleep, slept with little interruption for about seven hours, and awoke perfectly rational; and at eight o'clock next morning, being the 20th day, we found him much better in every respect; the only vestige of this alarming attack that remained being some intermission in the pulse, which had become in other respects much more natural, and fuller. The bowels had not been opened; a circumstance I mention because, no doubt, some would have ordered purgatives on such an emergency, a practice which the fallen, soft state of the belly did not seem to us to call for, and which our view of the nature of the case prevented us from proposing. We ordered farinaceous diet, and a repetition of the draughts, at longer intervals. In the evening of the 21st day the pulse had lost all remnant of irregularity or intermission, and the disturbance of the nervous system had entirely subsided: from that period his convalescence commenced.

One fact connected with the cases just related is very striking, viz. the small quantity of laudanum which, in most of them, was sufficient to induce sleep; a circumstance only to be accounted for by the presence of the tartar emetic, which no doubt exerts, when given in duly regulated doses, a powerfully tranquilizing effect on the nervous system. It is also deserving of remark, that the medicine very seldom gives rise to any of the unpleasant symptoms that so frequently arise when opium alone, or any of its preparations, are given with a view of producing sleep at an advanced period of fever. The addition of one ounce of mucilage, and one ounce of simple syrup to the mixture, seems to render it less likely to disagree with the stomach. Towards the termination of fever, it not unfrequently happens that a sudden or gradual determination of blood to the head arises, and which requires a repetition of a modified system of antiphlogistic treatment, aided by blisters. This state, I have reason to believe, may be often prevented from occurring, by a timely attention to procuring sleep; for a patient in fever, who has passed several sleepless nights, is on the verge of cerebral congestion or inflammation, as is testified by headache, wandering, and the redness of the conjunctiva. Here it is that the treatment I recommend is so advantageous, when timely applied; for if it be deferred until cerebral inflammation has set in, opium in any shape is worse than useless.

I have notes of several other cases, equally strong, in favour of the utility of tartar emetic and opium in the advanced stage of fever, but think

it unnecessary to bring them forward, as the above seem sufficient for my present purpose. The particular state of the nervous system to which this combination of remedies is best adapted, may occur, along with other symptoms produced by functional or organic lesions of various organs, and which prevent it from producing the wished for beneficial result. Thus when the belly is tense and swollen, this remedy will generally fail; but I think that I am warranted in asserting that in fevers, properly treated from the first, tympanitis may commence, but will never become considerable; for, if the attention of the practitioner be applied to this symptom the moment it begins to show itself, he can in most cases succeed in arresting its progress. I have likewise seen several cases of fever, where I expected benefit from the tartar emetic and opium, and in which no good result followed the exhibition of these medicines; such failures must always occur with respect to every remedy we apply in disease, but they do not invalidate the evidence of facts, such as I have brought forward in proof of their frequent utility. In connection with this subject, I beg leave to draw the attention of practitioners to the occurrence of *delirium traumaticum* in fevers, in consequence of the irritation produced by blisters, a species of delirium apt to be mistaken, especially in children, for the delirium ushering in hydrocephalus. It is unnecessary to do more than advert to this subject, as I have spoken of it at some length in the lectures before referred to. To conclude, it is right to remark, that the relative proportions of tartar emetic and laudanum in the mixture must be varied according to circumstances.

When congestion of the brain is known to exist, or is feared, the tartar emetic must not fall short of four grains in the eight ounces, while the laudanum should not exceed half a drachm; but where nervous symptoms predominate, the laudanum may amount to one drachm, and the tartar emetic to two grains: no general rule, however, can be laid down, *and the practitioner must in all cases watch the effects of this medicine, from hour to hour*, until he ascertains whether it agrees with the patient or not. Where a life is at stake, we must spare no pains, and must not reject a remedy because its powers render it an instrument of good or evil, according as it is administered carefully or otherwise.

ARTICLE II.

THE following cases occurred since the publication of the last number of this Journal, and I hasten to publish them, for many reasons. In the first place they prove that tartar emetic, in considerable doses, may be administered with advantage at a period of fever in which it was usually thought to be inapplicable, and to an extent which even now I cannot but consider as remarkable. In my former communications upon the use of tartar emetic and opium, I had not pushed the former remedy with the boldness and decision I have since done, for my experience only gradually accustomed me to a method of proceeding contrary to preconceived opinions, and my views of the powers of the remedy only gradually enlarged as I became more confident of its safety. It is but right to add, and I do it with gratitude, that I received much assistance and encouragement from the views of Dr. Marryatt of Bristol, published in 1788, but of which I and the profession in Ireland, and I may add in England, were generally ignorant until they were noticed in the last April Number of the British and Foreign Medical Review. This notice of a work, of which I

had never before heard, and the testimony it contained that tartar emetic may be exhibited in considerable doses, and with advantage, at advanced stages of malignant fever, led me to attach more importance to this remedy alone, and uncombined with opium, and determined me to adopt a bolder line of practice in future, a determination which the event fully justified.

Some there are who will take occasion to remark that I can have no claim to originality on this occasion. But all who have watched my practice in the hospital, nay, all who have taken the trouble of reading my lectures and successive publications on this subject, will at once acknowledge that I proceeded on this path of investigation with no other guide but an analogy derived from an observation of the effects of tartar emetic and opium in delirium tremens, a disease undescribed in the time of Marryatt. Every one the least conversant with the treatment of fever in private and in hospital practice in Dublin, London, and Edinburgh, will allow that no one during the present century ever taught or practised the exhibition of tartar emetic at the stage of typhus fever in which I have recommended it. Not a single hint at such a treatment is given in any of the numerous contributions on the treatment of typhus, which form the valuable work edited by Dr. Barker and Dr. Cheyne. Where is there even one allusion to this practice in Armstrong, Smith, Tweedie? And what is said of it in Good, Thomas, Mackintosh, or in the *Cyclopædia of the Practice of Medicine*? Where is it mentioned or inculcated in the *Edinburgh Medical and Surgical Journal*, or in *Johnson's Medico-Chirurgical Review*? Nowhere; although the treatment of fever is often the subject of anxious discussion.

So far suffices with regard to the novelty of the matter, for it is useless to argue with persons so stupid as to confound the practice I recommend with the well-known and popular use of tartar emetic as an emetic or a diaphoretic in the commencement of febrile diseases generally. That I did not come upon this method sooner, I regret infinitely, for since its adoption, my practice in hospital and in private has been much more fortunate than formerly. Nay, shortly before Mr. Cookson's illness, I lost several of my friends, relatives, and patients, who would in all probability have recovered if so treated; and among the rest a gentleman, the very week before the first trial I made of the practice in Mr. Cookson's case. I mention this fact as the strongest and most convincing proof that I had never even thought of this method until Mr. Cookson's case occurred, for had I done so I would have surely been inexcusable in allowing my patients to perish without even trying its effects. But it is time to proceed to the cases themselves.

The first case occurred very lately in the Meath Hospital, where its progress was anxiously watched by many students and several practitioners, all of whom concurred in the opinion that the patient must have died had he been treated according to the plan usually followed under similar circumstances. This patient was attended under my directions by Mr. Harnett, who took the following notes of its progress, and visited the patient with unremitting attention both by day and by night.

Joseph Taylor, aged twenty-one, a strong young man, of temperate habits, admitted into hospital on the 7th May, 1836. Ill seven days; sickness commenced with rigors, headache, pains in loins, &c. On admission he complained of headache, tinnitus aurium; face was flushed;

eyes slightly suffused ; was constantly frowning ; skin hot and dry, slightly maculated ; abdomen full and soft ; bowels confined.

Habeat Haustum Rhei.

9th. Slept pretty well ; raved little ; ringing in ears continues ; headache increased ; eruption of maculæ much more copious ; slight cough ; some bronchitic râles over both lungs ; abdomen in every respect natural ; bowels regular ; pulse 100, distinctly dicrotous and sharp ; tongue brown, dry, rough, and furred ; had slight epistaxis three days ago.

R. Pil. Hydrarg. gr. iii. Pulv. Ipecacuanhæ gr. ss. M. Ft. pilula 4tis horis sumenda, applicentur Hirudines ii. naribus et repetatur applicatio hirudinum vesperi si opus.

Tenth day of fever. Slept tolerably well ; bled copiously from nares ; pain in head diminished ; countenance still flushed and hot ; temperature of rest of body lower than natural ; feet very cold ; pulse 112, dicrotous and wiry ; tongue parched and furred, dark brown, great difficulty in protruding it.

Stupes to feet, blisters to præcordial region ; blisters to calves of legs in the course of the day.

R. Mist. Camphoræ ℥i. Liquoris Hoffmanni ℥i. M. Ft. Haustus 4tis horis sumendus.

Eleventh day. Became very violent yesterday evening ; attempted to get out of bed frequently, but when spoken to by the nurse, he remained quiet for a short time : was constantly raving and gnashing his teeth during the night ; had no sleep ; a short time before visit this morning, had a fit of an epileptic character, which lasted about ten minutes, in which he worked violently, and foamed at the mouth ; at the hour of visit, nine in the morning, the countenance was flushed, anxious, and expressive of great ferocity ; eyes wild and suffused ; pupils natural ; complains of dimness of vision ; eye-brows contracted ; breathing hurried ; is constantly tossing himself from one side of the bed to the other, and tearing the dressings off the blistered surface ; skin hot and dry ; abdomen soft ; no tympanitis ; bowels loose ; tongue parched and furred ; he is incessantly protruding and biting it, and gnashing his teeth ; pulse dicrotous, very quick, and somewhat hard, but small.

R. Antimonii Tart. gr. vi. Aquæ Fontis ℥x. Mucilaginis Syrupi Papav. albi āā ℥i. M. Ft. Mistura, sumat ℥ss. omni semihorâ.

Three o'clock, P.M. Has taken half the mixture, was nauseated by the second dose, but not since ; he still continues very violent ; fancies he has a bone in his mouth which he is constantly biting ; is in a copious perspiration since he commenced taking the medicine.

Mr. Harnet ordered ℥i. of the mixture every half-hour.

Six o'clock, A.M. Appears a little calmer ; has taken the whole of the medicine, no nausea produced ; has bitten his tongue and lip severely ; perspiration continues ; has passed a large quantity of urine in bed ; pulse soft and full.

R. Antimonii Tart. gr. iii. Aquæ Fontis ℥vss. Syrupi Simplicis ℥ss. M. Ft. Mistura cujus sumat ℥ss. omni semihorâ.

Eleven o'clock, P.M. Has taken all his medicine without being nau-

seated ; countenance less flushed ; is constantly raving ; pulse 100, full and soft.

R. Antimonii Tart. gr. iv. Mist. camphoræ ℥viii. Tinct. opii. ℥i. M. Ft. mistura ejus capiat ℥ss. omni semihorâ.

12th. Continued raving through the night ; had no sleep ; appears much quieter this morning ; face less flushed ; eyes still wild and staring, but very slightly suffused ; brows contracted ; pupils natural ; speaks rationally ; pulse 80 and regular, has lost the dicrotous tone which it had yesterday ; bowels confined.

Habeat enema emolliens, rept. mistura ; to have one pint of porter and chicken-broth.

Three o'clock, P.M. Having taken the whole of the mixture, containing tartar emetic and opium, the simple tart. emetic mixture was again prescribed ; after taking two doses of which he fell into a tranquil sleep, in which he is at present.

Eight o'clock, P.M. Has slept continually all day, awakes occasionally, but falls into a deep sleep very soon again.

Omittatur tinct. opii.

13th. Slept soundly during the night ; appears calm and collected ; conversation quite rational ; maculæ have disappeared ; pulse 84, soft and regular ; omit medicine ; a glass of porter ; light nourishment.

He has taken more than twenty grains of tartar emetic within thirty hours, and has been nauseated but *once*.

There are some circumstances in this case which require to be considered more at length. In the first place it is well to bear in mind that the patient was affected with genuine maculated fever, the true typhus, in the form many years present in Great Britain and in Paris ; for in the latter city this peculiar eruption, somewhat resembling measles in the crescentic shape of the blotches, is considered quite pathognomonic of typhus.* This is important, particularly with reference to the use of tartar emetic in such large quantities ; again it is worthy of remark, that symptoms of collapse, so alarming as to excite considerable apprehensions, and calling for the immediate application of blisters and the use of stimulants, occurred on the 10th day of the fever. It was immediately after this collapse that the violent cerebral excitement commenced, and certainly this previous collapse left an impression on my mind that no directly evacuating remedies could be borne ; that they would, at least, be attended by great danger of speedily reproducing a fatal degree of debility ; for this reason I did not repeat the application of leeches. The delirium in this patient was extremely violent, requiring the use of the strait waistcoat,

* [This remark of Dr. Graves is certainly erroneous. The eruption of rose-coloured spots on the abdomen and thorax is, it is true, one of the pathognomonic symptoms of the typhoid fever of Paris, but at the same time it is very different from the abundant eruption of maculæ resembling measles which occurs in true typhus fever. The latter covers the whole body, and is not confined to the abdomen, thorax, and occasionally the upper part of the thighs.—W. W. G.]

and the constant superintendence of the nurse; the contortions of face, and the ferocity of his countenance, the constant biting of his tongue and lips, presented a frightful picture of excitement, which evidently could not be controlled except by the prompt and energetic use of powerful remedies. As the blistered surface on his chest seemed to add much to the state of excitement, for he was constantly tearing it, I did not think of applying blisters to the head, being persuaded that they might aggravate the evil, since in many they seem to act so as to produce a sort of *delirium traumaticum*. His pulse being frequent and sharp, together with the evident determination to the brain, seemed to indicate the exhibition of tartar emetic, nor was there any thing in the state of the intestinal canal to forbid its being given in frequently repeated doses. The result more than realised our expectations, for during its use the delirium gradually abated, and the pulse, becoming much less frequent, changed its character from a short and small, to a full soft stroke. This prepared the way for the safe trial of opium, which was not commenced until he had taken twelve grains of the tartar emetic. The opium was afterwards laid aside, and the tartar emetic alone completed the cure; but it may be doubted whether alone it would not have induced sleep.

I have made these remarks for the purpose of rectifying an erroneous impression, which I fear has gone abroad concerning the use of tartar emetic and opium in the delirium of fever, and to prevent, as far as I can, the exhibition of opium, except when certain precautions have been taken by the practitioner to remove or diminish cerebral congestion by means of proper evacuations or tartar emetic. No man can justly be held responsible for the abuse by others of remedies he recommends; but since the publication of my paper, in the last number of the *Dublin Journal of Medicine*, I have had lamentable proofs that I have been misunderstood; and lately was called to see a gentleman in the vicinity of Dublin, who, the practitioner in attendance said, had been treated according to my method, whereas the patient was killed, according to his own, by opium injudiciously given during delirium with evident cerebral congestion.

It has been asserted, that after all, this case was not so dangerous, nor its recovery very remarkable. For a full refutation of so groundless an opinion, I refer with confidence to the written history of the case itself, a history which is far from laying before the reader an adequate picture of the deplorable state of the patient at the time that my treatment was about to be commenced, but which, nevertheless, is still faithful enough to convince every one at all acquainted with the symptoms and progress of fever, that the case was almost hopeless. What! is it possible that any one can be found, who has witnessed fifty cases of bad fever, and who is bold enough to say, that because the patient is young and was previously healthy, he could not be considered in imminent danger, when on the tenth day of spotted fever, a state of collapse requiring blisters and stimulants is followed on the eleventh day by delirium of the most violent description, rendering it necessary to tie the patient down in bed, and accompanied by a fit of convulsions of frightful violence, lasting more than ten minutes, and resembling an epileptic seizure?

This last symptom alone is more than enough to denote extreme danger. For the truth of this assertion, I appeal to my own experience, to the experience of every practical man, and to the writings of every author who has written on fever. Hippocrates has four aphorisms, all testifying

the danger of convulsions in fever; and in his book of prognostics, he says, that various causes may, in fever, produce convulsions in children under seven years of age, without great danger to life; but he adds with great emphasis, in adults, convulsions never take place unless “τι των δημειων προσζηηται των ισχυροτατων τε και κακιστων.” It is scarcely possible to describe the danger of any thing in stronger terms than these.

Those who assert that the possession of previous good health, or of a robust frame, renders violent fevers less dangerous, know little of the matter. The strongest and most powerful men I ever knew, were Dr. Clarke, jun., and Dr. Duigenan; they both died before the end of the third day!

I cannot pass over in silence the remark, that my cases only prove how much the powers of nature are able to bear, an observation involving the insinuation, that I was very culpable in giving such an example to others, and in countenancing the exhibition of strong medicines, such as tartar emetic in unwarrantably large doses. Now with all due deference, I may be permitted to observe, that in acute diseases threatening immediate danger to life, we gain little by waiting for Nature's assistance. Powerful remedies must be employed; but mark, if they are employed judiciously, *their powers are only exerted in controlling the disease*; this happened in all the cases I have related, none of the patients were injured in any way; in truth, the physician who orders one-fourth or one-half grain of tartar emetic to be given repeatedly until the disease yields, and who diminishes the frequency of the dose and the quantity of the medicine, in proportion to the diminution of the symptoms, to curb which was his object, that physician cannot be justly accused of giving heroically large doses of the medicine in question. To give it in smaller and less frequently repeated doses than are found sufficient to make an impression on the symptoms, would be mere trifling. The doses of medicines must be pronounced to be large or small, not according to their weight or measure, but according to their effects, and when confessedly moderate doses are frequently given, and the effects of each carefully watched, surely caution herself can require no more. The same remark applies to my directions concerning opium.

CASE II.—The next case I have peculiar satisfaction in laying before the readers of this Journal, inasmuch as its progress and treatment were witnessed by the Surgeon-General, Sir P. Crampton, who was struck by the benefit resulting from a mode of practice he had never before seen applied, and that, under circumstances which he considered as indicative of the greatest danger. Dr. Campbell too had an opportunity of witnessing for the first time this mode of treatment, and he since assured his class, that when I recommended it, he had scarcely a hope that our patient's life could be saved.

Mr. C., residing in Fitzwilliam-square, a surgeon, formerly an apprentice of the Surgeon-General, a young man of a powerfully athletic make, was attacked with the rigor of fever on Monday, 9th May, 1836. He was attended from the commencement by Dr. Campbell, and had a copious eruption of measles-like maculæ, on the sixth day of the fever, when I first saw him. No unusual symptom occurred on the seventh day, and the headache, of which he complained much at the commencement, had disappeared in consequence of the application of a few leeches. On the morning of the eighth day, we observed that every now and then he

respired irregularly, as if repeatedly and gently sighing, a variety of respiration often indicating a disturbance of the nervous system, and which I have repeatedly observed as a precursor of cerebral excitement, and to which, consequently, I have been in the habit of drawing the attention of my clinical pupils, under the name of cerebral respiration. On the afternoon of the eighth day, we had the benefit of the Surgeon-General's advice, who thought his case a very bad one indeed, for his pulse was almost 140 in a minute, and remarkably shabby, while he lay on his back thickly covered with maculæ; and we found that a rapid tumefaction of the abdomen had commenced within a few hours; a very bad symptom, inasmuch as the belly had been in the morning quite soft and fallen, and there was no cause to account for the sudden development of tympanitis, unless we supposed it, as it too frequently is, a harbinger of dissolution at no very distant period. His tongue was parched, and he complained of thirst. The usual treatment by means of chloride of soda was determined on, in consultation; after which the Surgeon-General expressed to the gentleman's friends, the fears he entertained for the result. Scarcely had the Surgeon-General gone out of the house, and just as Dr. Campbell and I were preparing to leave it, a sudden change took place in our patient, who jumped out of bed, and nearly succeeded in throwing himself out of a garret-window. We found him violently delirious; but this state did not last more than a few minutes, when it subsided into a delirium of a comparatively gentler description. He refused, however, to return to bed, and we were obliged to allow him to walk about in his shirt, supported, for he was feeble, by two attendants; his eyes became at times very prominent and ferocious; now and then he threatened all those about him, in a loud and terrifying tone of voice, and he seemed every moment on the borders of frantic madness. Nothing could induce him to go to bed, or allow even a blanket to be thrown over his cold and naked extremities. Thus, seated on his chair he presented a frightful picture, while his pulse became so quick, that it could scarcely be counted, and was, at the same time, exceedingly weak. What was to be done? The state of his circulation did not admit our endeavouring to control the cerebral excitement by arteriotomy or even leeches, and the last remark the Surgeon-General made was, that a very few leeches would kill him; blisters would be too slow in their action, and might even aggravate the disease; cold effusion seemed inadmissible. In short it seemed that our patient was beyond the reach of all our resources; as to tartar emetic, I felt at first unwilling to order it on my own responsibility, in a case apparently so desperate, and after Sir P. Crampton had left the house; in fact, neither Dr. Campbell nor I thought it probable that our patient would survive twelve hours; yet as I saw no possible means of saving him but the tartar-emetic treatment, and determined at all risks to make a strenuous effort, I did not think myself justified in any longer hesitating about the matter, and ordered a mixture containing one ounce of syrup of white poppies, one of mucilage, and six of water, with eight grains of tartar emetic. Of this solution he was to get half an ounce every half-hour, until a manifest impression on the cerebral excitement was produced.

The medicine was administered by Mr. Ferguson, of Kildare-street, so well known as a skilful and excellent apothecary, and who told me afterwards that he was quite surprised at the treatment adopted, and was sure that neither it nor any other could save Mr. C.'s life. The first six doses

seemed to sicken him a little, but he did not vomit until after the seventh dose; the eighth also produced very copious vomiting of mucous and bilious fluid. After the second vomiting he was prevailed on to go to bed, and was evidently more tranquil, but from having remained up uncovered for so many hours, much trouble was necessary before warm applications succeeded in restoring the natural temperature of his limbs and skin generally.

At 10 P.M. we saw him again, and finding that the medicine had produced so powerful an effect, we ordered it to be repeated only every second hour.

May 18th.—Ninth day of fever; 8 A.M. Has taken five doses since last visit; stomach quiet since the eighth dose. He slept several hours quietly in the beginning of the night (he had not slept for several nights before), but seems more excited now; he threatens some of his attendants, and appears likely to be unruly. It was therefore judged right to repeat the medicine oftener, *i. e.*, every hour and a half.

1 P.M. Has taken eight grains of tartar emetic since six o'clock yesterday evening. A solution of the same strength in plain water was now directed to be given in the dose of half an ounce every fourth hour. He slept a good deal during the day, and the medicine operated on the bowels, bringing down very large fluid stools, consisting of a great quantity of healthy yellow fecal matter. This effect is often produced by the tartar emetic in the advanced stages of fever, and is always a good sign. Although he was evidently more tranquil than before, it was thought advisable still to keep two strong steady men constantly in the room, ready to assist the nurse in case of emergency. He still raved occasionally, and would not allow certain persons, one among the rest, to approach him, having conceived a strong aversion for us.

At 7 P.M., we found that the fever was again rising, and that the cerebral excitement was on the increase; we therefore again had recourse to half-hour doses, until the excitement yielded; after which it was given only every second hour.

May 19th.—Tenth day of fever; 10 A.M. He took six doses during the night. He got out of bed and eluded the vigilance of his attendants at a very early hour in the morning, but walked peaceably about the house, and when asked returned quietly to bed. He slept well afterwards. As so much had been gained, we thought it unnecessary to persevere in the use of the tartar emetic; it was discontinued. He took in all twelve grains; it diminished the frequency of the pulse notably; and what was very striking during the forty-eight hours we employed it, the pulse not only became slower, but much softer and much fuller; the skin became softer and moist; the belly was fallen and soft; and the maculæ much diminished. His fever, notwithstanding, still continued; he spoke incoherently at times, but never again got out of bed.

On the fourteenth day an evident abatement of general fever commenced; the pulse fell, and the respiration, which, when he was at the worst, had been about fifty in a minute, fell to twenty-five. This improvement continued progressive, and on the seventeenth day precisely, all fever left him; his pulse being then 60.

The after-treatment consisted merely in giving a mild aperient every second day, until convalescence commenced. After the use of the tartar emetic had cured the cerebral excitement, he slept almost continually until the termination of the fever.

CASE III.—Mr. M., a gentleman of sedentary habits, full and corpulent, 40 years of age, was lately attacked with violent symptoms of fever. He was very actively and judiciously treated by Dr. Ireland from the commencement. The measles-like eruption appeared about the fifth day. He had been copiously bled from the arm twice, and leeches were repeatedly applied to the forehead for the purpose of relieving pain in the head. He was likewise very freely purged. About the time the eruption appeared, his restlessness and debility increased, and he scarcely slept at night. In the course of a few days his state had become very alarming, and I saw him in consultation with Dr. Ireland, on the ninth day of his fever.

We found that he had raved constantly during the preceding night, and was bathed in an exhausting perspiration, while the pulse rose to about 130; his respiration was very frequent, and his face wore an evident expression of excitement, not of a violent, but of a very restless character. His tongue was parched, and his body thickly covered with maculæ. In short, notwithstanding the active measures of depletion, general and local, applied in the beginning of the disease, it was evident that cerebral excitement had come on, and that too at a period of fever when debility forms a formidable obstacle to the further use of direct evacuants. His exceedingly gross habit of body, and prominent abdomen, were concomitants of the worst omen, for it is well known that very fat people seldom recover from typhus of a bad character. In this state of things tartar emetic was given to about the extent of three grains in the twenty-four hours; it was continued forty-eight hours, or until a satisfactory calm of the nervous system had been produced. Besides diminishing the delirium and inducing sleep, the remedy here brought away numerous and copious bilious stools, and diminished notably the frequency of the pulse and of the respiration. It is worthy of remark also, that in proportion as he came under the influence of the tartar emetic, the useless and profuse perspiration began to abate, and after some hours ceased.

This gentleman's life was evidently saved by the treatment, for though his fever continued many days after, yet he never was in danger except from hiccup, which came on about the thirteenth day, and tormented him day and night. Claret, iced, seemed to have more power in relieving this symptom than any other expedient resorted to. His fever terminated about the nineteenth day.

Doctor Ireland, who has had the most extensive experience in fever, testified the pleasure he felt at witnessing the good effects of a mode of cure to him quite new, and applied in a case he thought almost desperate.

CASE IV.—The following occurred during the time these remarks were in the press, and presents so striking and convincing an illustration of the efficacy of my treatment, that I have thought it right to communicate it to the profession. The progress of this case was witnessed by several practitioners, who all declared, and I myself concurred in this opinion, that nothing could save the patient's life. His recovery was, without exaggeration, a matter of astonishment to us all; while at the same time it was so evidently the effect of the remedies employed, that many who had been wavering in their minds as to the utility of tartar emetic exhibited in the advanced stages of spotted fever, could no longer refuse their assent, and unhesitatingly declared their conviction that by no other plan of treatment could a favourable issue have been brought about. The

patient was most diligently watched by Mr. Rooney, an attentive pupil, who visited him many times during the day and night, and reported to me the effect of the medicines.

Edward Meylagh, a stout, muscular peasant, aged 25, was attacked about the 23d May, 1836, with the usual symptoms of commencing typhus. He was admitted into the Meath Hospital on the 1st of June, after the usual hour of visiting the wards. It was ascertained that he had been repeatedly and violently purged since the commencement of his illness by pills and aperient mixtures. I saw him at 9 A.M. on the 2d of June: he had passed a most restless night, muttering incessantly, and becoming at times so unmanageable, that it was necessary to put on the strait waistcoat. Now he is obstinately silent, will not answer questions, or put out his tongue when desired. His countenance is at once morose and haggard, and at times assumes a suspicious, ferocious aspect; eyes glazed, and slightly suffused; general surface of skin rather dry and hot, but his extremities are cold and livid; pulse 132, small and compressed; respirations 42, irregular; abdomen neither swollen nor tender; he passes urine and feces in bed; his tongue is dry, and dark-brown in centre, moist and red towards the edges. The whole surface of his body is covered with maculæ. Immediate attention was paid to restore the warmth of the extremities, and I directed him to get every hour half an ounce of mixture, consisting of eight ounces of water, four grains of tartar emetic, and two scruples of laudanum.

1 P.M. At mid-day he began to gnash his teeth, knit his brows, screw his lips, and spit at every person that approached his bed. The expression of the face was rendered worse by the rapid motions of the eyeballs and a frequent squinting. In fact he became so ungovernable that the restraint of a strait waistcoat was no longer sufficient, and his legs and thighs were tied down to the bed. His carotids pulsated violently, and he alternately laughed and screamed aloud. Pulse 132, still small and wiry. As no perceptible action had been produced by the medicine, it was ordered in double doses.

6 P.M. Countenance much improved; less morose; he continues, however, to speak unconnectedly, but jocularly; is in a copious warm perspiration: pulse 120, soft and compressible; respirations 36, regular. To continue the double doses.

9 P.M. Has been in a composed tranquil sleep since half past six o'clock; perspiration continues; has passed a large quantity of urine; extremities are now naturally warm and moist; the pulsation of the carotids has subsided. He has taken four grains and a half of tartar emetic since morning, and twenty-three drops of laudanum. The medicine was now directed not to be given at regular intervals as before, but according as the symptoms seemed to require it; it had neither nauseated nor purged him.

3d June. He has slept tolerably during the night, and got three doses of the bottle. About five in the morning he became somewhat restless, when a double dose was immediately administered, after which he slept composedly until nine o'clock, the hour of visit. His tongue is red, dry, and parched, fissured towards the tip; his thirst is increased, and he drinks very freely of cold water; skin moist and warm; pulse 96, dicrotous; respirations 30, regular; he seems inclined to sleep. His ideas are somewhat confused, although he answers rationally; bowels

confined; abdomen a little tumid and slightly tympanitic. Has taken two grains and a half of tartar emetic and ten drops of laudanum since yesterday evening. I now thought it unnecessary to persevere any longer in the use of this mixture, and directed my attention to the state of the bowels, which soon yielded to emollient lavements. The alvine evacuations so procured were very copious, and were followed by immediate subsidence of the belly, and evident amelioration of the symptoms. He continued to sleep quietly during the day; at six in the evening his pulse was 90, soft and natural; respirations 30; skin warm and perspiring; maculæ have nearly disappeared.

7th June. Much natural sleep; pulse 65, soft, of good strength, and without any of the dicrotous character; intellectual faculties rapidly improving; now passes urine and feces voluntarily; abdomen soft and fallen; tongue cleaning, and nearly moist. In fact, convalescence has almost commenced.

CASE V.—A gentleman about 20 years of age, was attacked with measles of an irregular form. The eruption did not come out favourably; and notwithstanding he was treated from the beginning by Dr. O'Brien, so well known as an excellent writer on the subject of fever, his state became daily worse, and Dr. O'Brien pronounced his case hopeless when he sent for me on the sixth day.

It must be borne in mind that Dr. O'Brien has been Physician to the Cork-street Fever Hospital for thirty years. The combination of symptoms which caused him to form this unfavourable opinion, were an exceedingly rapid, shabby pulse, violent delirium, total sleeplessness, and an evident sinking of the vital powers, manifested by coldness of the skin, &c. &c. As he was young, and the disease recent, we ventured to draw a little blood from the arm, but he fainted before many ounces could be obtained; we leached his forehead without any perceptible effect. On the morrow he was worse; I then proposed the exhibition of small doses of tartar emetic, in frequently repeated doses. He took two grains in the course of ten hours; was nauseated or vomited by almost every dose; became more tranquil; finally fell asleep, and in twenty-four hours was out of danger.

Dr. O'Brien expressed to me in the strongest terms his gratification and surprise at the striking and beneficial application of a medicine he had never before seen given in like circumstances.

Another case of spotted fever, to which I was called by Mr. M'Nalty of Britain-street, afforded an equally favourable result within this last week; as did also a very dangerous case of the same disease, which I treated along with Mr. Mulock.

I have thus fully laid before the public the result of my experience on this subject, convinced that I have not deviated in the slightest degree from the strict and naked truth in any of the preceding details. I have not in a single instance related what was not witnessed by other medical men of judgment, well known to the profession. If my treatment be not useful, it has singularly deceived me in curing my patients. If it be not new, it is strange that so many others in Dublin, that the whole body of practitioners should have been fully as ignorant of it as I was myself.

To conclude, I must observe that I by no means wish to recommend tartar emetic as a specific in fever. I only use it in the complication above described. In fever the physician must use an almost endless

variety of treatment according to the circumstances of the individual case before him; and he only will be successful who watches narrowly the progress of the cases intrusted to his care, and applies the appropriate remedies at the proper moment. Bleeding, leeches, purgatives, mercurials, antimonials, absorbents, acids, stimulants, tonics, blisters, chloride of soda, may each be necessary in the treatment of different cases at different stages of their progress, or of different types. To conclude, the treatment of fever will be always difficult—always complex, but it ought to be successful.

Tartar Emetic and Opium in the Delirium of Fever.—I have continued to derive advantage from this treatment, as described in the two last numbers of the *Journal*, and have had the satisfaction of receiving most valuable testimony concerning its efficacy from various members of the profession, among the rest from Dr. Prichard, of Bristol, a physician distinguished by extensive learning and practical knowledge. The annexed letter from Dr. Green, of Youghal, was not intended for publication, but it is perhaps on that very account more valuable. I have taken the liberty of printing it, because it corroborates the views I had advanced on a subject, which our readers will at once perceive derives a new interest from the truly instructive paper by Dr. Kennedy on the use of tartar emetic in the diseases of parturient women.

“YOUGHAL, 26TH JUNE, 1836.

“DEAR SIR—In reply to your letter of 21st, I have to regret that my having to remove to, and fit up a new residence, together with other matters, so pressed upon my time during the late epidemic, that I did not take any notes of cases. I could not hazard a conjecture as to the *modus operandi* of the remedy you mention, but exhibited it in various forms and stages of the fever, and always with advantage. The first case upon which I tried it, was that of a soldier in the military hospital (of which I had charge in the absence of the surgeon), who was reported to be dying; had been fourteen days in fever, lying prostrate with muttering delirium, extensive bed-sores, evacuations involuntary, total sleeplessness and hiccup. In this case it acted like a charm, the third dose producing quiet, cessation of the hiccup and muttering. I then directed an additional grain of the tartrate to his mixture, and to have it taken every hour; after the first dose of this he fell into a sound sleep, which lasted for seven hours, when he awoke, and from that moment steadily recovered. In another case where there was acute bronchitis, I employed it in conjunction with local depletion, with a similar result. It appeared to me, after various trials, that this medicine served not only to allay inordinate nervous excitement, but to equalize the circulation in such a manner as to obviate the mischief that might otherwise result from local determinations. On this latter supposition I chiefly tried it, and in every case hitherto (about seventeen) with decided advantage. All of the fever cases alluded to were maculated: in one the subject was a young lady of robust constitution, six months pregnant; the excitement here ran very high, the delirium violent and heat intense. On the ninth day she had been more than forty-eight hours without sleep, when I commenced the use of the mixture in question; it was continued, with various intervals, until the eleventh day, when the delirium, &c. had completely subsided, and rapid recovery took place. It is strange that in none of those cases did it affect

the stomach. I found advantage occasionally in altering the proportions of the mixture, and giving it hourly when the excitement ran high. The fever here is now on the decline, and of much milder character. I regret very much it is not in my power to afford you more information on the subject at present, but hope at some future day I may be able to furnish you with materials bearing on the point in question.

“Yours faithfully,

“R. GREEN.”

LECTURE XV.

Wine in Fever.

I CANNOT conclude the remarks I have to make on different points connected with the treatment of fever, without directing your attention, in an especial manner, to the *phenomena of the heart's action as an index for the administration of wine*. In the Fifteenth Volume of the *Dublin Medical Journal* you will find a paper on this subject from the pen of my distinguished colleague Dr. Stokes. From numerous observations he concludes that certain phenomena, which I shall presently detail, indicate a *softened* state of the heart, and that as soon as these phenomena present themselves, we should resort to stimulation by wine, &c. Dr. Stokes is of opinion that the pulse is a fallacious guide in fever, and that our attention should always be directed to the impulse and sounds of the heart for guidance either for the administration or withholding of stimulants, and he then details the peculiar characters by which this weakened condition may be recognised. I shall now read out from Dr. Stokes's paper the leading doctrines contained in it:

“We may thus arrange the cardiac phenomena obtained in our typhus fever:—

“1. Impulse and sounds remaining unaltered; the action of the heart corresponding with that of the pulse.

“2. Vigorous impulse, with distinct and proportionate sounds, with absence of pulse for many days.

“3. Diminution of both sounds of the heart, with absence or great diminution of the impulse (fœtal character).

“4. Diminution of the first sound, with cessation or great feebleness of the impulse.

“5. Complete extinction of the first sound, the second remaining clear.

“6. Predominance of the first sound, the second being extremely feeble.

——— “In the great majority of cases, however, the following were the phenomena observed:—

“1. Diminished impulse.

“2. Diminished first sound, particularly of the left cavities.

“With respect to the impulse we arrived at some unexpected results. In most cases, considered through the whole progress, the diminution and return of the first sound were accompanied with the diminution and return of the impulse. So far the phenomena were what we might expect. *But*

in some instances, at particular periods of the case, this accordance between the impulse and sound did not exist. In one case, the sounds became distinct before the impulse returned. In another the impulse became distinct on the eleventh day, while the second sound greatly predominated. In a third case, we found that on the eighth day the sounds were not in proportion to the impulse; and on the tenth, the impulse continued, but the first sound was totally absent. On the next day no impulse could be felt, yet the first sound was feebly audible. In the fourth case, the impulse on the twelfth day was less perceptible than on the day previous, but the first sound had more strength."

Dr. Stokes adds, "It is difficult, or impossible, in the present stage of the inquiry, to offer any satisfactory explanation of these apparent anomalies; but it seems certain, that under the influence of the typhoid condition, the heart may have sufficient force to give an impulse with little or no sound, on the one hand; and on the other, its contractions may be accompanied by a sound, although the impulse be absent. Whether we are to explain these facts by referring to particular states of innervation of the heart, or to organic alteration in the muscular fibres or their connecting cellular membrane, is still to be determined."

Farther on Dr. Stokes says, "That the cause of the want of impulse, and feebleness or cessation of the first sound, is a *softening* of the heart, I have no doubt. The evidence in favour of this opinion may be stated:—

"I. That softening of the heart exists in typhus fever as a local disease, and without any analogous condition of the muscles of voluntary life.

"II. That in our dissections in the last epidemic, we met with this softening of the heart in cases which during life had presented the phenomena in question.

"III. That the physical signs indicate a debility of the left ventricle principally, and it is this portion of the organ which is most often altered in consistence.

"IV. Laennec has stated, that in proportion to the severity of the putrescent phenomena, is the liability to softening of the heart. And the same observation is found to be true of the physical signs now described.

"The average period when these phenomena appear is about the 6th day, and they cease about the 14th day."

Dr. Stokes considers it highly probable that this softened state of the heart depends on an infiltration through its muscular structure, of a peculiar secretion, identical with, or closely resembling that mentioned by Dr. Staberoh, as occurring on the surface of the intestinal mucous membrane in cases of follicular ulceration.

"This occurring in the heart seems to impair its functions to a great degree; but the rapid restoration of the heart to health points out that the disease has not materially impaired its organic condition."

"Finally," says Dr. S., "I would draw the particular attention of my readers to the fact, that in the great majority of these cases, the use of wine was followed by the happiest effects. I may safely refer to the cases in proof of this proposition, and I believe that in the diminished impulse, and in the feebleness or extinction of the first sound, we have a new, direct, and important indication for the use of wine in typhus fever."

I will now read out the conclusions at which Dr. Stokes has arrived :—

“ I. That the condition of the heart in typhus fever must be determined by the application of the hand and stethoscope, the pulse being an uncertain guide.

“ II. That a diminished impulse, or a complete absence of impulse, occurs in certain cases of typhus fever.

“ III. That in such cases we may observe a diminished first sound, or even an absence of the first sound.

“ IV. That both these characters may exist with a distinct pulse.

“ V. That though in most cases the diminution of the impulse and first sound co-exists, yet that impulse may exist without corresponding first sound, and conversely that the first sound may be heard although unaccompanied by impulse.

“ VI. That these phenomena are most evident as connected with the left side of the heart.

“ VII. That when the impulse or first sound are lessened or lost, the return to the healthy character is observed first over the right cavities.

“ VIII. That in some cases both sounds are equally diminished.

“ IX. That in a few cases the first sound preponderates.

“ X. That these phenomena indicate a debilitated state of the heart.

“ XI. That they may occur at an early period of the disease, and thus enable us accordingly to anticipate the symptoms of general debility.

“ XII. That the existence of these phenomena, in a case of maculated adynamic fever, may be considered as pointing out a softened state of the heart.

“ XIII. That this softening of the heart seems to be one of the secondary local lesions of typhus.

“ XIV. That the diminution or cessation of impulse, the proportionate diminution of both sounds, or the preponderance of the second sound, are direct and nearly certain indications for the use of wine in fever.”

Though these doctrines are entirely new, and may appear to some rather fanciful, yet for their general accuracy I can vouch. I cannot agree, however, with Dr. Stokes, in attributing the phenomena of a *debilitated* heart to a *softening* of that organ, much less to the interstitial infiltration of a peculiar secretion, analogous to that which Staberoh states he has observed on the mucous surface of the intestines in dothinerite. On the contrary, I consider the heart, in typhus fever, to be affected with debility from the same cause which induces a debility of the voluntary muscles, and of the bladder and sphincter ani—that cause is a general prostration of nervous energy. That Dr. Stokes has seen the heart softened in the examination of subjects that had been affected with typhus fever, I have no doubt; but I would impute this condition to the effect of putrescence, a process which it is well known sets in with great rapidity in cases where death has been caused by any malignant disease. It seems difficult to conceive how the heart could contract in a case where “ the *right cavities* were softer than natural, admitting the fingers through their walls without much resistance; and in which, in the muscular structure of the left cavities, this change was much more remarkable, the weight of the finger being almost sufficient to penetrate its walls, they were so exceedingly softened: it was very easily torn, and the edges thus separated had no longer the moistened appearance, but seemed as if quite

dry. The septum cordis was equally softened; there was some dark fluid blood in the right cavities."

But the fact cannot be denied, that in many cases of typhus the heart becomes weak, that this weakness is manifested by a decrease in the strength of its impulse, or in the intensity of its sounds, or a change in their relative loudness and duration—and though I have never witnessed these changes without accompanying debility of the entire muscular system, and other evidences of prostration, yet I fully agree with Dr. Stokes, "*that in the diminished impulse, and in the feebleness or extinction of the first sound, we have a new, direct, and important indication for the use of wine in typhus fever,*" and one from which the junior practitioner in particular will derive the greatest assistance.

But I also agree with Dr. Bell, the distinguished American Editor of Dr. Stokes's Lectures, that "important as is the guide thus furnished by the state of the heart for the use of stimulants it may not be in the power of all, without some experience, to avail themselves of it. The practitioner will, therefore, do well to attend to the following points, as directed by Dr. Armstrong, in forming his opinion of the propriety of persevering in the administration of wine to a patient in typhus fever:—

"1. If the tongue becomes more dry and baked, it generally does harm; if it becomes moist, it generally does good.

"2. If the pulse becomes quicker it does harm; if it be rendered slower, it does good.

"3. If the skin becomes hot and parched, it does harm; if it becomes more comfortably moist, it does good.

"4. If the breathing becomes more hurried, it does harm; if it becomes more deep and slow, it does good.

"5. If the patient becomes more and more restless, it does harm; if he becomes more and more tranquil, it does good."

The following observations on the use of wine and opium in fever were published in 1832, in the first volume of the *Dublin Medical Journal*.

"I have long endeavoured to impress on the minds of students, the great importance of studying with attention that stage of fever in which wine and opium are occasionally the best remedies, with a view of learning what symptoms indicate their exhibition. In the commencement of fever, we can decide with a good deal of certainty upon the most proper course of proceeding, but as the disease advances, the symptoms become more complicated, the indications more confused, and the plan of treatment consequently doubtful. In this stage of fever it is that we must rely on the tact acquired by previous experience and reflection, and must often depend more upon a correct estimation of the general state of the patient, than upon the appearance or absence of any particular symptom. It is not my intention at present to do more than prove the truth of this assertion, by showing that the presence of some symptoms, commonly supposed to contra-indicate the exhibition of wine and opium, ought not to deter the practitioner from their use, provided that other circumstances seem urgently to require it:

"1st. In the first place, as to the tongue, *at an advanced period* of fever, I have often derived the greatest advantage from wine and opium, although the tongue was dry, the colour of old mahogany, or else coated with a yellowish brown fur, and protruded with difficulty, while the teeth and gums were covered with sordes. Wine and porter in moderate quanti-

ties seem *generally* to agree better with this tongue than opium; in some cases, however, the latter is indispensable.

“For fear of misleading the reader, I must again remark, I by no means wish to assert that such a tongue uniformly, or even frequently indicates the use of these medicines; on the contrary, this state of tongue and mouth will often be observed at a time when leeches and the antiphlogistic treatment are required. Let it be clearly understood, however, that at an advanced period of fever, this state of the tongue may exist, and yet wine and opium may be given boldly, provided, as I have said before, the general state of the patient seems to require it.

“2dly. The observations I have made concerning the tongue are applicable to *suffusion of the eyes*. The eyes may be heavy, a little red, very much suffused, and may have the singular expression of watchfulness, combined with great redness of the conjunctiva, which is termed a ferret eye, and yet wine or opium may be the only remedy capable of saving the patient's life. It should always be borne in mind, that want of sleep tends to make the eye red, and that this condition is often, when it occurs in maculated typhus, analogous to the similar appearance of the eye which is observed both in measles and scarlatina, in which diseases it is merely a part of the general erythema, and does not contra-indicate the use of wine and opium if other circumstances call for their exhibition.

“3dly. A hot and dry skin does not necessarily contra-indicate the exhibition of wine and opium, particularly where there is at the same time a tendency to coldness of the extremities.

“4thly. The presence or absence of delirium must always excite our attention, when the question of giving wine or opium arises. I believe that these medicines are never applicable when the delirium is violent and continuous, but the patient may rave a great deal, particularly at night; he may mutter and speak to himself, he may point to various imaginary appearances, and may fancy himself surrounded by persons or things which have no real existence; he may be restless and irritable, constantly endeavouring to leave his bed for the purpose of walking about the room, or sitting at the fire; and yet he may be in a state urgently demanding wine and opium. On a more accurate examination, we find that his delusions are not so strong as to leave no room for the exercise of his reason. When spoken to emphatically, he answers in some cases incoherently, but in others, with perfect precision and presence of mind, and does not, for some minutes, relapse into his former wanderings. This state of mind is usually accompanied by an almost total want of sleep, and in many, by a great anxiety about their illness. To procure sleep, as has been well remarked by Latham, in a late number of the *Medical Gazette*, is here one great object, and this can only be done by means of wine and narcotics. In some the mental aberration is scarcely perceptible, and they have all the characters of great excitement of the nervous system, without any actual raving or delirium. There is general tremor and subsultus. The tongue is tremulous when protruded, or when moved in speaking, and consequently the articulation is uncertain and interrupted, while in general manner and mode of answering questions, the patient strongly resembles a person affected with delirium tremens.* This group

* It is in these particular forms of fever that I have, since the appearance of the above paper, discovered the great utility of tartar emetic and opium.

of symptoms is likewise accompanied by want of sleep, and best treated with wine and opium.

“5thly. The appearance of the face has been much relied on by some, as capable of guiding us in forming our decision. Heat of head and face, redness of the cheeks, and strong pulsation of the carotids, are well known as contra-indicating wine or opium; but in the advanced stages of fever, the face, like the eye, may be suffused, it may be seen occasionally flushed; and when flushed, it may be hot, and yet wine and opium may, nevertheless, be our only resource.

“6thly. Headache, when violent, is at any period of fever a decisive circumstance. Sleep cannot be obtained while the pain is unmitigated, and we must, therefore, attempt to conquer it by the most active treatment, by local applications to the head, by depletion from the vascular system, and by purgatives. Sometimes, however, these means fail, and the physician feels that he cannot pursue this mode of treatment any further. Under such circumstances, a dose of opium boldly exhibited, will occasionally succeed in procuring sleep, from which the patient awakes nearly free from headache. Before having recourse to this remedy, the effects of a blister to the nape of the neck ought to be tried. In the more advanced stages of fever, the headache, or rather the heaviness felt in the head, is something very different from the throbbing, acute headache, just spoken of, and constitutes no contra-indication to the use of wine and opium.

“7thly. The state of the pulse requires to be duly considered. Its frequency is not of much importance, for I have seen wine and opium prove highly serviceable in all its varieties, from 70 to 130, or even upwards. No one would ever think of exhibiting these remedies when the pulse is strong, and more particularly when it is strong and hard; but the case is otherwise when it possesses only a certain degree of *hardness*, and is at the same time small and thrilling, not resisting compression with the force the sensation of its hardness leads us to expect.

“Such are the chief observations I have made on the particular circumstances and symptoms supposed capable of throwing light on this important practical question. They may serve to prevent the student from being misled by rules of practice dogmatically deduced from the observations of any single symptom, and may lead him to turn his attention more accurately to the previous progress of the fever, and the general state of the patient. It is almost superfluous to add, that when any doubts exist concerning the propriety of giving wine and opium in fever, they should not be tried unless their effects be carefully watched by the physician himself.”

LECTURE XVI.

Case of long-continued nervous fever—Remarks on.

PERMIT me to make one or two observations on a case of which I have already spoken, and which, as I expected, has terminated fatally. A man, named Lynam, has been lying ill for a long time in the large fever ward; I wrote at the top of his card “Nervous Fever,” and remarked to the

class that his disease was pure fever, of a nervous type, unaccompanied by any symptoms indicating decided local inflammation. You will recollect that his symptoms were heat of skin, quick, weak, compressible pulse, thirst, watchfulness, and low muttering delirium, unattended by any appreciable sign of visceral disease, or any symptoms denoting a putrescent state of the fluids. It was not congestive or putrid, or gastro-enteric, or petechial fever; neither could it be called a cerebral fever; it was only by separating from it the idea of each of these species, and by studying its negative characters, that you could arrive at something like an accurate conception of the type of the disease. It was, as I have already stated, nervous fever, modified by the patient's previous habits of long-continued intemperance. When a patient, addicted to intemperate habits, gets an attack of fever from cold, fatigue, or exposure to contagion, you will generally find the disease will exhibit a compound or mixed character, the phenomena of fever being combined with those of delirium tremens. And so it was in this case; the man had general tremors, with persistent watchfulness, and muttering delirium.

His treatment consisted in the employment of medicines calculated to soothe the nervous system, and I kept a constant watch over the state of the principal viscera. About a week after he came under my care, and about five weeks from the commencement of his fever (for he was nearly a month ill before he came to the hospital), he was attacked with erysipelatous inflammation of the face and scalp. The disease commenced on the face, and, travelling upwards, very rapidly attacked the whole scalp and back of the neck, its progress being accompanied by great aggravation of symptoms. At that time I remarked to the class that I did not entertain any apprehensions of a metastasis of the erysipelas, that I had no fears of the supervention of inflammation of the brain, and its train of alarming consequences; but that no good was portended by this attack of cutaneous inflammation, and no relief of the internal parts could be expected from it, for every symptom appeared aggravated from the moment that the erysipelas commenced. I pointed out the total inadmissibility of any thing like vigorous or antiphlogistic treatment, in a case where the disease had appeared in an individual of broken constitution, labouring under a combination of delirium tremens with low fever; and said that even the remedy which we had found most successful in similar cases, namely, sulphate of quinine and opium, offered but a feeble hope of arresting the malady. It failed, as we expected, and the man died yesterday, worn out by long suffering and exhaustion. Eighteen hours after death we made a most careful examination of all the viscera of the three great cavities; not a single organ exhibited the least mark of inflammation; we could not find any where even the slightest trace of local congestion. The man had all his viscera in an apparently sound and normal condition, and died of pure nervous fever.

Some persons look upon the existence of fever independent of topical affections as purely imaginary, and deem those, who have recorded such forms of disease, as too ignorant, or too lazy, to make the necessary pathological investigations. I have not time at present to enter into this subject, but of nothing am I more convinced, than that fever may exist without any appreciable local lesion, that it may affect every organ and every tissue of the body alike, and yet that the most accurate symptomatologist cannot put his finger on any one single part and say, here is local

inflammation of a decided character. I have met with many instances confirmatory of this fact in hospital practice. I recollect a case which occurred some time ago at this hospital, which was equally remarkable for its extraordinary duration, as for the total absence of any thing like visceral lesion. The patient was admitted into the small fever ward, labouring under an attack of nervous fever; he had thirst, hot skin; pulse from 110 to 120, occasional delirium and watchfulness, and these symptoms went on week after week, and month after month, unaccompanied, during the whole course of the disease, by any phenomena indicating the existence of local inflammation. His treatment was purely expectant and temporising; we had no cerebral, abdominal, or thoracic lesion to combat; there was no organ in which the febrile derangement could be said to have fixed itself exclusively, no threatening disorganization calling for the employment of prompt, new, and energetic means. At last, after the fever had continued for very nearly three months, the man complaining all the time of more or less thirst, hot skin, watchfulness, and headache, with occasional delirium, the disease terminated in a well-marked crisis, accompanied by sweating. He fell asleep, began to perspire, awoke with a pulse nearly reduced to the natural standard, and perfectly recovered. I may observe that I have never seen fever last so long as this, nor have I ever observed a perfect crisis in any case after the forty-second day. Some time ago I attended the brother of a gentleman now present, who had a long and very severe attack of fever; though he never had a remission during his illness, and was in very urgent danger, he got a perfect crisis with profuse perspiration on the forty-second day, and is now in the enjoyment of excellent health.

You perceive then, that the case of Lynam presents some circumstances worthy of notice. His fever went on to its termination without any symptoms of inflammation in any viscus, and his actual condition, as carefully ascertained by an accurate post-mortem examination, affords a useful lesson to the pathologist. His case is also interesting as showing how previous habits will modify in a remarkable degree the character of fever; for in him you have seen fever combined with the phenomena of delirium tremens, a state of things which it was natural to expect in a man of extremely intemperate habits. The termination of the erysipelas without any sign of disorganization within the cranium is also worthy of notice. In such cases you have it frequently followed by inflammation of the brain and its membranes, and an exudation of pus on the surface of one or both the hemispheres; but here you perceive that there has been no extension of the disease or nothing that should have induced us to give up the plan of treatment we adopted, and direct our therapeutic means to the head.

There is another man, named Vero, in the fever ward, whose case I beg you will study with attention. He applied for admission here some time ago, labouring under violent and general bronchitis, accompanied with high inflammatory fever; we took him in at the time, as his case was one of the most urgent danger, but were obliged, by the crowded state of the hospital, to put him into the large fever ward. It is unnecessary for me to detail the treatment employed, as you have all witnessed it. By the most energetic measures, we succeeded in arresting the disease, but his convalescence was rendered tedious in consequence of his having been suddenly affected by a small quantity of mercury. His mouth became very sore, his breath fetid, his gums spongy, the inside of his lips

covered with lymph, and his system exhibited all the marks of mercurial irritation; but, under the care of Mr. Grady, a gradual but decided improvement in his condition was going on, and he was advancing rapidly in convalescence, when, unluckily for himself, he was persuaded to leave the hospital for the sake of voting at the city of Dublin election. In doing this, he was necessarily much fatigued, and was exposed to cold on returning from the heated booth. Now, mark the consequences of this indiscretion. This man just arrived at the period of convalescence from a severe and dangerous inflammatory fever, and greatly debilitated both by the disease and the venesections and other remedies necessarily employed, improvidently exposes himself while his frame was still emaciated and weak, and while his mouth was still sore in consequence of severe mercurial salivation; in this condition he exposes himself to the operation of mental excitement, great bodily fatigue, and cold—and what have been the consequences? Why, that a new attack of fever immediately struck him to the ground with a heavy hand, and, after an absence of ten days, he returned to the hospital on the 24th of January, complaining of rigors, and other symptoms indicative of commencing fever. We saw him next morning, that is, before this new fever had lasted more than twenty-four hours, and we found him affected in a most remarkable manner; we found him labouring under a number of severe symptoms, which would have led the most experienced, if asked to guess how long his fever had already lasted, into the commission of a gross error, for he would answer that it must be at least the eleventh day. It is, indeed, very rare to find fever at once commencing with symptoms such as we observed on the first day in Vero. Great prostration of strength, hot skin, dry tongue, pulse 108, nervous agitation, restlessness, together with *subsultus tendinum*, were present from the commencement. The subsultus was very remarkable, and increased to such a degree, even on the second day, that Mr. Grady found it very difficult to count the pulse at the wrist; and yet, though his muscular system was thus irregularly excited, and its nervous influence deranged, he had not even a tendency to delirium, and he slept soundly; neither had he the least headache.

I called your attention to this circumstance at the bedside of the patient, and I endeavoured to impress strongly on your minds how forcibly this case opposes the doctrines of those who attribute all the nervous disturbance of every part of the system, and, among the rest, subsultus, to congestion or to inflammation of the brain. When the subsultus had attained to a degree of violence in Vero's case, such as we seldom witness, we remarked, nevertheless, that he slept well, had a clear eye, without the least approach to suffusion, and that he was free from headache, heat of scalp, or throbbing of the temporal arteries. Neither were we able to detect the slightest indication of inflammation, or even of congestion, in the chest or abdomen. The breathing was indeed quickened, but only in proportion to the acceleration of the pulse, and there was no cough or thoracic pain or uneasiness. The belly was fallen, soft, and quite free from tenderness; and there were no griping pains, flatulence, nausea, or diarrhœa, and yet the patient was evidently very dangerously ill. Agitated with subsultus, he was in a constant state of restlessness when awake; his skin was hot, his tongue dry, and his weakness was sudden and excessive; in short, he was labouring under intense *nervous fever*. This is a rare form of disease, and one the very existence of which most modern pathologists

have been in the habit of denying; but, as I told you in a former lecture, I have seen several examples of it.

I may remark that, in the present epidemic fever, the termination of the disease by a well-marked crisis never occurs. Now, in the epidemic fever of which I have spoken in a former lecture, and which committed such devastations in 1826, a crisis was observable in the majority of the cases, and was almost always preceded by rigors and a hot fit, attended for a few hours with marked exacerbation of the symptoms, and followed by a most profuse, warm, general perspiration, bringing perfect relief, and often so excessive that the steam of it could be seen issuing forth in vapour through the blankets in which the patient lay wrapped. In the beginning of the epidemic, the critical rigor often took place on the fifth day, and oftener on the seventh, but, as the disease continued, these short fevers, which, by the by, always left the patient very liable to relapse, entirely disappeared; and when the epidemic reached its acme, the crisis rarely took place so early as on the eleventh day, and most generally on the fourteenth or seventeenth day.

You perceive, that in judging of the truth of the doctrines held by the ancients, concerning the existence of critical days in fevers, an observer of the present epidemic might be led into error, and might, by generalising too hastily, arrive at the false conclusion that this doctrine of critical days is totally destitute of foundation. But to return to our patient Vero. It is not very difficult to explain why, in him, the moment fever was excited it assumed the nervous type. He had been debilitated by severe inflammatory fever and by active antiphlogistic treatment, and, above all, his nervous system had been severely tried by an unexpected mercurial salivation, brought on by an unusually small quantity of calomel.

You are aware that various nervous symptoms attended with irregular muscular action, and simulating chorea, or paralysis agitans, are frequently the result of metallic salts, whether lead or mercury. For this reason, I look upon the previous mercurialization as the chief cause of the nervous type of Vero's fever. In spite of all our efforts, he died exhausted on the tenth day.

LECTURE XVII.

Prescriptions in Fever.

I SHALL speak to-day of some prescriptions which I am in the habit of using in the treatment of fever. In the treatment of fever it is frequently of importance to gain time, and periods will occur in every long fever, in which there may be no direct indication for the exhibition of any powerful remedy; at the same time, such is the ignorance of non-medical persons, and the anxiety of the patient's friends is so intense, that they cannot imagine how it is possible for an attentive physician to let twelve hours pass away without doing something. The mere circumstance of seeing the fever going on, is sufficient proof to them of the necessity of making renewed efforts for its removal. This, however, is very excusable. If any of you happened to be ill, I dare say you could scarcely bear to pass many hours without taking something which you supposed might prove

either immediately or remotely useful. Consequently, we could not treat fever in a satisfactory manner without medicines of what may be termed an expectant character, and calculated to fill up the spaces intervening between those periods when active treatment is necessary. You are not to suppose that in ordering such medicines you are acting a dishonest part, and practising a deception unworthy of your profession; on the contrary, your conduct is perfectly just and proper; and though you are convinced that no medicine is required, still it will be necessary to prescribe something, if you do not wish to lose the confidence of the patient and his friends. Again, if at a period when you say that no medicine is necessary, and when the patient has passed twenty-four hours or two days without taking any thing, an unexpected turn in his disorder should take place, people will be very apt to say, either that you did not know what to do, or that you took no steps to obviate the threatened change, and that one or two days were completely lost. Conduct like this has frequently brought down a great deal of censure on medical men. It may be said that these are mere prejudices, and above the dignity of a man of firm and consistent character; but since prejudices are intimately blended with human nature, and constitute, as it were, a part of it, it is much better in many cases to submit to them, particularly when compliance does not involve a sacrifice of principle. In cases of acute disease of any considerable duration, and especially in private practice, there are periods when medicines of an expectant and temporising character must be employed, and hence the introduction of a class of remedies extensively used in fever and other complaints, and generally denominated palliatives. These are remedies which have a general tendency to assuage thirst, act as diluents, gently promote the secretions of the skin, intestinal canal, or kidneys, and which are known to possess at least the negative quality of doing no harm. They are most commonly prescribed in combination with a considerable quantity of fluid, and hence are administered either in the form of draught or mixture. The medicine in most general use among the physicians of Dublin is one which was introduced by Dr. Cheyne. It is prepared by dissolving a drachm of carbonate of ammonia in three ounces and a half of water, with as much lemon-juice as will saturate it; the mixture is then sweetened with syrup of orange-peel, and given in doses of two tablespoonfuls every third or fourth hour. In this way a solution of the citrate of ammonia is formed which possesses the properties of a mild antifebrile, and gently stimulant diaphoretic.

Now it cannot be denied that this mixture answers the purposes of an expectant remedy, calculated to pass away the time, and do no injury; but it appears to labour under one considerable disadvantage, it is not agreeable to the taste. If you taste the citrate or acetate of ammonia, you will find that its flavour is by no means pleasant, and I need not tell you that in cases where there is no actual indication to be fulfilled, it is of importance to have something that will not be disagreeable to the patient. Feeling, therefore, the necessity of altering this prescription, I have lately introduced another, which I am happy to find has been extensively adopted, and which is formed by substituting the carbonate of soda for the carbonate of ammonia. The mode in which I generally employ it is the following:—carbonate of soda, a drachm; water, four ounces; lemon-juice, a sufficient quantity to saturate the alkali; syrup of orange-peel, half an ounce; tincture of orange-peel, two drachms. A little more than an ounce of lemon-

juice will be sufficient to saturate this quantity of carbonate of soda, whereas it would take from two and a half to three ounces to saturate the same quantity of carbonate of ammonia. If you wish to have a weaker solution, and I believe it is the better way, you can dissolve a drachm of carbonate of soda in five ounces of water instead of four. Nothing can be more agreeable in flavour than this mixture. The citrate of soda which is formed, does not, it is true, exert any active influence on the animal economy, but it partakes in the properties of neutral salts, determines gently to the kidneys, tends to keep up a soluble state of the bowels, and forms a most grateful and refreshing beverage. The syrup of orange-peel gives the mixture an extremely pleasant flavour, and this is further heightened by the agreeable aromatic bitter of the tincture. Since I commenced using it, I have found it to answer all the necessary purposes extremely well, and I can recommend it to you with confidence.

A woman, named Anne Scarlet, was admitted on Saturday, concerning whose case it may be necessary to make a few observations. She states that she has been ill for the last eight days, and that her illness originated in cold, preceded by rigors, and followed by feverish symptoms. The general pyrexia had subsided at the period of her admission; but she had some symptoms worthy of attention. Her pulse was 72, and regular; her skin rather cool, and her bowels natural; but she complained of acute pain in the left side, which, she said, came now and then, catching her breath, and preventing her from taking a full inspiration. This pain was so intense, and seemed to affect respiration so considerably, that, looking to its situation and its effects, you would at first sight be inclined to think that it arose either from pleurisy or pericarditis. On examining the chest, however, by the stethoscope and percussion, we found the sound was clear and normal: there were no râles present, and the respiratory murmur was heard distinctly over the whole lung. In fact, auscultation showed that the cause of the pain was not connected with pleuritis, pneumonia, or pericarditis. What then was it? A variety of pleurodynia, well worthy of your attention, as being connected in her case with retention of the milk and engorgement of the left mamma. At the time she was attacked with cold, she happened to be only a few days after childbirth: the feverishness which ensued obliged her to give up nursing, and in this way a sudden and unnatural check was put upon the secretion of milk. When an occurrence of this kind takes place, and proper means are not taken to obviate the mischief, a high degree of local irritation is the consequence, producing inflammation of one or both the mammae, which, if not treated well and energetically, will certainly end in mammary abscess.

What I wish to draw your attention to, however, at present, is this—that inflammation of the mamma, arising from retention of milk, is very apt to be attended with pleurodynia in one or more parts of the chest. The flow of milk to the breasts, three or four days after delivery, is very often accompanied by flying pleurodynia, and the formation of mammary inflammation, from the arrest of the lacteal secretion, is also very frequently attended with fixed pains of a pleuritic character.

The treatment adopted in this case was very simple. In the first place, you endeavour to check the determination of fluid to the breast; and for this purpose you exhibit a purgative of a hydragogue kind, calculated to act briskly on the bowels. We gave a combination of infusion of senna,

sulphate of magnesia, tincture of senna, and electuary of scammony, which acted six or seven times on the bowels, and tended materially to relieve, by derivation, the mammary congestion. In the next place, we directed our attention to the breast, and endeavoured to remove the milk, by the use of the syringe employed for that purpose. The milk may be removed from the breast by means of the syringe, or by sucking with a breast-bottle, and where the tenderness of the part is so great that neither of these modes can be employed, the next best means is diligent fomentation. This produces a constant oozing from the breast, and if the fomentation employed be made with a decoction of poppy-heads, it has considerable effect in abating pain and inflammation. We also applied leeches in this case, not with the view of removing the pleurodynia, but with the intention of removing its cause, mammary inflammation. By the use of means directed to the breast, you will find that we can remove all symptoms of pleurodynia, and that the pain and difficulty of breathing will soon disappear. This is a simple case, but it is one of frequent occurrence, and it requires some tact and management for its successful treatment.

You have probably observed that, in the treatment of all the cases that came before me, I have not prescribed altogether a dozen grains of calomel; that I have very seldom ordered any kind of purgative medicine; that I have been sparing in the use of leeches and cupping, and that I have not ordered a single patient to be bled.* This I am sure will appear strange to the various sects of pathologists and theorists whom I have seen, like so many waves, succeeding each other, and whose doctrines were equally doomed to break on the solid and immovable shore of truth. I recollect how each doctrine arose, and made converts, and influenced practice; how each had its day, and then sank into that obscurity and neglect to which vain and profitless speculations are always destined. I recollect when it was the custom to commence the treatment of fever, by prescribing ten grains of calomel, to be followed by a bolus containing fifteen grains of jalap, or by a large draught composed of infusion of senna, epsom salts, and electuary of scammony. I remember the time when it was the fashion to bleed every case of fever which came into hospital, no matter what the stage of the disease might be, or what the condition of the patient was at the time of admission. I recollect, too, when the prostration and weakness which accompany local inflammation, particularly of the digestive system, used to be treated with wine and stimulants. Every epidemic is peculiar and distinct in its nature, and each consequently requires a distinct and peculiar mode of treatment. Hence the

* [There is no doubt that Dr. Graves is perfectly right in avoiding bloodletting, mercurials or powerful purgatives. None of these remedies is adapted for the treatment of typhus fever. There is no doubt that any one who has seen many cases of the disease would be quickly convinced of the propriety of using all these remedies very sparingly; in fact general bloodletting was not prescribed for a single patient during the last summer at the Pennsylvania Hospital, nor did we see a case amongst the whole number in which it seemed to be indicated. In the typhoid fever a different course is often required, but in true typhus we have no doubt that the physician should carefully abstain from any debilitating modes of treatment.—W. W. G.]

necessity of studying fever unbiased by any preconceived notions, and independent of the trammels of dogmatism. With a person who observes in this way, who studies the disease as it is, and not as it is described; whose practice is regulated, not by the doctrines of the schools, but by the results of investigation, carefully weighed and considered; with such a person, the treatment of fever will be simple and successful, and I believe that there is no disease in which success so much depends on treatment as fever. It is difficult to explain how it came to pass that a contrary opinion could be promulgated in Dublin. Something must be attributed to the neglect or incapacity of those whose duty it was to teach the truth. The chief cause may, however, be traced to the activity and zeal which inspired some, not only to uphold their own branch of the profession, but to decry, I had almost said to defame, that which they were pleased to call *pure medicine*. With characteristic inconsistency, however, these gentlemen, who declared that the treatment of fever was at best useless, readily engaged in its management in private practice, and while they professed openly their disbelief in the efficacy of any medicines, they busily employed themselves in prescribing pills and draughts without number for their own fever patients. That they thought their treatment of some value, might be gathered from their acceptance, their invariable acceptance, of pecuniary remuneration from their sufferers' grateful friends, who little dreamed the while that the hands, which, with automatic movement, so readily grasped their fees, belonged to persons who held, nay, who maintained, the opinion that the treatment of fever was all a farce. Posterity will scarcely give credence to this fact, and will probably refuse to believe that such an opinion could have been advanced in what we are pleased to call an enlightened age, and an enlightened city. They will scarcely think I speak the truth in assuring them that a spirit of medical intolerance existed to such a degree at the time of the discovery of the stethoscope, that whoever in Dublin actively occupied himself in verifying the researches of the immortal Laennec—whoever availed himself of the new resources invented by this great physician was sure to become an object, not merely of dislike, but of animadversion and ridicule, on the part of those who ought to have exerted their influence in endeavouring to advance, and not to retard, the progress of science. Happily for the character of the country, their endeavours have been frustrated, and the cause of truth has triumphed. Happily for the students and their future patients, those teachers are now most followed, who best explain, and most diligently illustrate, the phenomena observed by means of mediate auscultation.

LECTURE XVIII.

Yellow Fever—Account of the yellow fever at Gibraltar—M. Louis's researches—Yellow fever of Dublin—Notes of clinical lectures delivered in 1826 upon this subject—Contractility of efferent ducts.

IN the epidemic of 1826, we had several cases in the Meath Hospital that presented all the characters of yellow fever. This is a very remarkable fact, for this form of fever has not since appeared in this country, nor has

it been observed in any part of Europe, to the north of Cadiz, Gibraltar, and other towns of Andalusia. The last epidemic of yellow fever in Gibraltar is described by Louis, who with Trousseau and Cherrin was sent by the French government to investigate the disease. I shall quote from his report an account of the symptoms and post-mortem appearances which they observed, and compare it with the description of the yellow fever of 1826, printed by myself and Dr. Stokes, for the use of the pupils of the Meath Hospital.

“GENERAL DESCRIPTION OF THE SYMPTOMS OF THE YELLOW FEVER EPIDEMIC,
AT GIBRALTAR, IN 1828.

“The disease spared neither sex nor age; men and women, young and old, were alike its subjects. Those only were exempt from its influence, who had gone through with the disease in a former epidemic.

“It commenced at different hours of the day, sometimes in the night, sometimes fasting or soon after eating, usually with an intense headache, accompanied by chills, shivering, pain in the limbs, and soon after pain in the back. A heat, rarely intense, succeeded to the chills, and was sometimes followed by perspiration. At the same time the countenance became red and animated; and in some cases, as it were, swollen. The eyes were red, glistening, suffused, and in many cases the patients complained of a sensation of smarting in them. The thirst was intense, the anorexy complete. It was rare that the patient suffered any pain in the epigastrium at this period.

“The first symptoms, the headache, the pain in the limbs, the anorexy, the thirst, the heat, the redness, and the pain in the eyes, continued, the headache during half the disease, the pains in the limbs a little longer, and the heat, which in many cases was but slightly increased, continued so during nearly the same time.

“The pain in the epigastrium, so rare at the commencement, came on usually fifteen or twenty hours later. It was generally inconsiderable, and very few patients complained of severe or acute pain. With the epigastric pain came the nausea and vomitings, excited by drinks and purgatives in several cases, spontaneous in others. The dejections were infrequent, that is where no laxatives had been administered. The abdomen preserved its form, was supple and indolent, except in the epigastric region. The sleep was inconsiderable—some patients were restless, in some there was a good deal of jactitation during the night; others, and the smaller number, experienced as early as the third day, a real anxiety, could not remain quiet in any posture, and in some cases there was delirium. But this symptom did not usually come on till the last day of life; and for this reason it is to be considered rather as belonging to the agony than to the disease; otherwise, with few exceptions, there was neither prostration nor stupor. The pulse was moderately accelerated, regular, generally bearing relation to the degree of heat, which was almost always slight, as I have before said. The skin of the thorax was injected in some cases. This redness and that of the eyes, diminished toward the middle period of the disease, or a little later, and new symptoms appeared. To the injection of the integuments of the chest there succeeded a slight yellow tint of that part, and the eyes wore the same colour. When this colour appeared thirty-six or forty-eight hours before death, it became

rapidly brighter, so as to be of considerable intensity at the time of the fatal termination. In other cases where it came on only just before death, it was slight at the autopsy, and commonly limited to the trunk. At about the same period, or a little later, the matter vomited and the discharges from the bowels, which up to that time had presented nothing remarkable, took on a certain character which they have not in the course of the acute diseases of Paris. The dejections were blackish or bluish, and the matter vomited, from being of a yellow colour, became brown or black. At the commencement of this change of colour, the vomit was of a liquid matter, more or less greyish, mixed with a greater or less quantity of mucus, in which were to be seen blackish parcels, like soot.

“At this period of the disease, the uncomfortable feelings and the anxiety continued during different lengths of time, and in different degrees, the strength diminished, the temperature fell, so that the limbs were cold before the agony; in a certain number of cases there was a suppression of urine. Sometimes also we observed a sort of remission, an apparent amelioration of the symptoms, and death took place when it would least have been expected, had not experience taught us to distrust his deceitful remission. In some subjects the violence of the headache, that of the pains of the limbs, the marked febrile symptoms, the numerous vomitings, the uncomfortable feelings, the anxiety, the bright redness of the eyes, gave to the disease a truly serious aspect; whilst in others the mildness of the fever, and of the pains wherever seated, the absence of agitation and delirium, the slight diminution of the strength, impressed on the disease a character of mildness, calculated to deceive at once the patients, their attendants and the physician. It is under this form of the disease that patients died without taking to their beds—on foot, as it was expressed by their friends. Thus Dr. Mathias, who died after an illness of four or five days, experienced no other symptoms but severe pains in the calves of the legs, and a suppression of urine. He had no nausea; he did not vomit; his mind was perfectly clear during the whole course of the disease. * * * * *

“This kind of latent condition of the yellow fever does not distinguish it from the acute diseases of Paris, which also are often obscure, and their symptoms mild; but it is remarkable on account of the rapid progress of the disease, usually fatal from the fourth to the sixth day. And this latent form reminds us at once of certain facts of poisoning by arsenic, in instances of individuals who have retained their clearness and calmness of mind, from the moment of swallowing the poison until their death.

“I add, that the severity of the symptoms does not correspond always with that of the lesions. Of these last, one only was constant, the specific alteration of the liver. The inflammatory state of the mucous membrane of the stomach comes next in frequency, and sometimes explains in a manner sufficiently satisfactory the symptoms that had been observed.”—*Louis on Yellow Fever, translated by G. C. SHATTUCK, JUN. M.D. page 167.*

PRINCIPAL MORBID APPEARANCES DISCOVERED IN FATAL CASES.

The following are the appearances which Louis discovered in the fatal cases of yellow fever at Gibraltar:—*

* I have intentionally omitted the very minute description of the thoracic viscera, the brain spinal cord, &c.; suffice it to say, there was nothing observed worthy of note.

“The stomach was larger than natural in seven subjects, smaller than usual in three. It contained a clear or dark red coloured liquid, a blackish or a perfectly black fluid, in different quantities, in three-quarters of the cases. Its mucous membrane was red through, a greater or less extent, in six cases; rose-coloured or orange in eight cases; greyish, yellowish, or whitish in the others. It was thickened through a greater or less extent of surface in half the cases; softened and yellow to an extreme degree in the same number; at the same time thickened, softened, and red in a third part of the cases; mamelonated in two-thirds; ulcerated in two cases; it was natural in five cases.

“The mucous membrane of the duodenum was red in a little more than half of the cases; softened in the same number; and thickened in one case.

“The small intestines contained a greater or less quantity of reddish, brownish, blackish, or perfectly black matter, in two-thirds of the cases. Its mucous membrane was slightly injected or red in spaces, in a little less than half the cases. Its consistence was more or less diminished through its whole length, or through a part of its extent only, in rather a greater number of cases. It was partially thickened in one case; in no case was it ulcerated; and Peyer’s glands were always natural.

The large intestine was of a greater size than usual in two cases. In fifteen cases it contained a matter of a wine lees colour, or blackish, or brownish, or chocolate-coloured, or entirely black. Its mucous membrane was of a pale or bright red colour in five cases; greyish, yellowish, or whitish in the others. Its consistence was more or less diminished in three-quarters of the subjects. Its thickness was increased in three cases; and twice we found it slightly ulcerated.

“The mesenteric glands presented traces of inflammation in four cases; the cervical glands in one case; in another case one of the glands above the *biliary ducts* was red, softened, and very large.

“The *liver* was of greater size than natural in two cases; a little firmer than usual in three cases; a little less firm in three others. Its cohesion was increased in six cases, diminished in seven. *Its colour was altered in every case, sometimes it was of the colour of fresh butter, sometimes of a straw yellow, a clear coffee and milk colour, sometimes a gum yellow, sometimes of an orange colour.*

“The spleen was softened in eight cases, and to a moderate degree, with one exception. It was larger than usual in five cases.

“The lesions which we have thus placed before the reader, *were rarely considerable, very often insufficient to explain the death*, and when this explanation was afforded, it was by a combination of several lesions.

“These lesions may be divided into two classes, some of them peculiar, or almost exclusively peculiar, to subjects dying of yellow fever; others common to those subjects, and to subjects who have died of other acute diseases. The red or black matter found in the alimentary canal, and the remarkable alteration of the liver, are of the first class, all the other lesions of the second.

“The red or black matter of the stomach or intestines not having been found in all the cases of yellow fever, it cannot be considered an anatomical character of the disease. But it is *not so with alteration of the liver, which was more or less exactly the same in all the cases*, and which, for that reason, ought to be considered as the *essential anatomical character* of the yellow fever of Gibraltar, of 1828.

“Amongst the lesions of the second class, the yellowness and the inflammation of the mucous membrane of the stomach should be especially remarked, as well from their frequency as on account of the rapidity with which they came on. The inflammation of the mucous membrane of the stomach not having taken place in all the cases, and Peyer’s glands not having ceased to be natural, it follows on the one hand, that the yellow fever of Gibraltar, of 1828, is not a gastritis, and on the other hand, that it is not a typhoid fever. This last conclusion is even more strict; for not only was there an absence of the lesions of typhoid fever in the bodies of the victims of yellow fever, but these bodies presented other lesions which are not found in the victims of the first disease, and which are peculiar to the second disorder.

“What, then, is the nature of the yellow fever of Gibraltar, of 1828, and where is the seat of it? If it be neither a gastritis nor a typhoid fever, neither is it a hemorrhage, as it has lately been said to be, for the hemorrhage did not take place in all cases. Is it a disease of the liver? Undoubtedly the liver was the organ principally and essentially affected; still we cannot regard the yellow fever as simply a disease of the liver, because its lesion, at least in the present condition of science, does not explain the febrile symptoms in the cases where this was the only lesion; and in the second place, because it is entirely insufficient to explain the death.

“As, then, a strict analysis of the anatomical appearances of the yellow fever of Gibraltar, of 1828, proves the existence of a cause unequal in its operation, and of which but one effect is constant, the specific alteration of the liver, and as in a third part of the cases, it is directly to this cause that we are obliged to refer the death, we naturally ask, how does this act, through the medium of what system does it exert its influence on the economy? Is it through the nervous system, is it through the blood, in which, however, we have not detected any especial modifications?”—*Louis on Yellow Fever, translated by G. C. SHATTUCK, JUN., M. D., page 160.*

Now we come to the Epidemic of Dublin.

John Gall, aged 35. Admitted about 10th January. Date of illness unknown; probably about seven or eight days. Tenderness of epigastrium chief symptom, and costiveness; skin hot; tongue very dry and brown in centre; edges white; a little moist; much debility; appeared stupid, but no delirium; memory uncertain; at one time he said he was two days ill, at another for several; belly hard, full.—*Leeches to epigastrium, and purgatives with apparent relief.*—Next day he got *effervescent draughts*, and began to complain of cough.—*Blister on the chest on the following day.*—That night he became yellow, being convulsed in belly, and died at 5 A.M. yesterday.—*Dissection 30 hours after death.*—Body well made, strong, muscular; skin and conjunctivæ yellow; posterior parts livid. Dura mater yellow; no fluid between dura mater and arachnoid; considerable quantity of fluid under arachnoid, between convolutions, of amber-yellow colour; brain remarkably firm; substance white; yellow fluid in right ventricle and also in left, in anterior cornua, in considerable abundance, particularly in left.—Abdomen. Liver natural; no obstructions in ducts; bile in gall-bladder; stomach of a dark purple colour universally; mucous membrane increased in thickness; bleeds when torn; is evidently a little softened; villous coat like velvet; when

in water villosities whitish and floating. Near the pylorus we observed a very curious and beautiful appearance; the mucous membrane was here, as in other parts, of a purplish-red colour, marked in many places by rings of a white colour, and perfectly circular, and about half an inch in diameter. These rings, formed by a circle about half a line in breadth, included a space purple like the rest of the mucous membrane; and in many places intersections of these white circles were observed; white serpentine lines were also apparent in this part of the stomach. On placing the stomach in water, we discovered that these white circles and serpentine lines were formed by the extremities of villous processes, which had not a purple colour like the rest. Duodenum was also red, but the redness decreased gradually. *One intus-susception, including a portion of intestine six inches in length, was found in the small intestines. The invaginated portion of intestine was easily withdrawn from within that which had enclosed it, and there was not the slightest mark of inflammation in either.*

Observations.—This is a good example of morbid appearances exhibited by those fatal cases of fever which have been latterly so frequent in the present epidemic. We have lost nearly twenty patients, in whom the symptoms ran nearly the course above detailed. In all the abdomen became hard and tender about the epigastrium and hypochondria, and often without any premonitory symptoms indicative of the approaching danger. This hardness and *knotted* feel of the abdominal muscles, was followed by an appearance of *general jaundice of a bright yellow colour*, accompanied by uneasiness and anxiety of countenance, a very quick and hurried pulse and coldness of extremities. Death generally took place in such cases within twenty-four hours from the appearance of the jaundice, and was preceded in some cases by general convulsions (as was reported, but we ourselves did not observe any general convulsions); in most, by spasms limited to the abdomen, and which obtained among the nurses the appropriate name of “*Twisting of the Guts*,” a name which agrees singularly with the intestinal intus-susceptions found in almost all. Before we enter into the subject of the pathology of this singular form of fever, we shall detail a few more examples of it.

John Rochford, aged 50, was admitted into shed No. 4, with low fever; became convalescent after a few days without any regular crisis; appetite returned, and he continued well for about six days, when he relapsed. Belly a little hard, and tender to the touch; complained only of costiveness; some purgative medicine was directed, which not having the desired effect, an oil draught was prescribed, and having operated freely, patient appeared much relieved at next visit; but between 11 and 12 P.M. was seized with convulsions of belly, but not of extremities; suddenly became jaundiced, and died next morning. The tip of his *nose* became of a deep purple colour. The friends having taken away the body, we had not an opportunity of examining the morbid appearances.

Observations.—We have had several cases in which the nose became purple in fever, and, with one exception, they all proved fatal. When the purple nose is combined with general jaundice, the patient presents a truly frightful appearance; this has happened in five or six instances. Sometimes the purple colour is limited to the tip of the nose, while in other cases it spreads from the nose to the upper portion of the cheeks. The parts about to become purple assume at first a pale appearance; this paleness gradu-

ally is converted into a livid leaden hue, and the part becomes quite purple, generally in the course of 12 or 24 hours. It is to be observed, that the parts thus affected preserve their natural heat until shortly before death, when, of course, the tip of the nose is among the first parts to grow cold. In the case of a girl in shed No. 2, whose nose and cheeks became purple, this change took place more slowly than usual. At first the parts were observed to be covered with broad patches of a wax-like whiteness, somewhat elevated above the surrounding surface, which so much resembled urticaria that it was considered to approach, in its nature, to that eruption; the following day, however, these spots were found to have become of a red colour, and on the next day the redness was converted into a deep purple. During the whole of this time the heat of these parts was not less than that of the rest of the body. She died on the following day. In the case of a woman in shed No. 2, in whom the tip of the nose and the ends of some of the toes became purple, these parts were tender to the touch; this woman recovered. Leeches were applied to the tip of the nose, and tepid stupes or poultices kept constantly applied to the discoloured parts: a small portion of the nose separated and came away in the form of a slough. These facts prove that this purple colour of the nose and other parts, *in many instances, at least*, arises from a condition of the vascular system of these parts closely allied to inflammation. We possess a drawing of a patient in whom, from the effects of cold, the tops of the fingers became purple and excessively tender when exposed even to the common temperature of the wards in winter. Great relief from pain, and some diminution of intensity in the colour was obtained by keeping the fingers immersed in tepid water. This case, which was treated by Mr. M'Namara, had lasted for some weeks before admission, and yielded, but not until the lapse of a considerable time, to the employment of tepid applications, &c.

Patrick Mahon, aged 45, a stone-cutter, strong habit. Admitted into shed No. 4, labouring under fever of a typhoid character. Tongue loaded; teeth covered with sordes; abdomen hard; tenderness of epigastrium and hypochondria on pressure; complained of weakness.—*Twenty leeches were applied to the Epigastrium, and Purgative Injections administered.*—The following morning the skin and conjunctiva appeared slightly yellow. Abdomen still hard; pulse weak and quick; much debility.—*Was ordered some Blue Pill, and to repeat the Injections.*—At the next visit, the yellow colour continuing, the abdomen being still hard, and the epigastrium tender, twenty leeches were again applied, and the former medicines repeated. At 4 o'clock in the evening was seized with convulsions, and died early next morning. The convulsions only appeared to affect the abdomen.—Body not examined.

John Gaven, aged 22. This man's case differed in no material circumstances from the preceding cases.—*Dissection 20 hours after death.* Body extremely well made, strong, and muscular. Nothing morbid in head or thorax, except dilatation of some bronchial tubes.—Abdomen. *Five intussusceptions in small intestines, without any adhesions or marks of recent inflammation;* other parts of the intestines considerably contracted; mucous membrane of stomach, from cardiac orifice to within about two inches of the pylorus of a brownish-red colour. Here the mucous membrane yields readily to the back of the knife, and may be scraped off in a semi-fluid state; it contains several patches of ecchymosis. The whole

of the intestinal tube, with the exception of the duodenum and the lower half of larger intestines, has its mucous membrane of a dark red colour, with numerous ramifications of vessels engorged with blood. In many parts the mucous membrane is very soft, and almost semifluid. *Liver perfectly healthy; no obstruction in gall-ducts.*

Observations.—As our limits will not permit us to detail more dissections of this truly curious and fatal form of fever, we shall merely sum up some of the principal points connected with its pathology. 1st. In none did we find inflammation of the liver, or obstruction of the gall-ducts. 2dly. In *all* evident marks of inflammation were found in the mucous membrane of the stomach, such as redness, softness, &c. 3dly. In almost every instance we found one or more intus-susceptions in the small intestines. 4th. All these were without any mark of inflammation of the serous membrane, and the invaginated portion of the intestine could be always easily drawn out of the other. 5thly. In *several* we found effusion of a yellowish or amber-coloured fluid between the arachnoid and pia mater, at the base of the brain, and sometimes in the ventricles, but in these only in small quantity. 6thly. In none did we find inflammation of the brain or its membranes. 7thly. We have found the spleen very much enlarged in almost all. When the spleen in acute diseases is thus disorganised and distended, it is invariably softer than natural. In but one case did we find a considerable quantity of a dark red fluid in the stomach, together with a good deal of a substance resembling coffee-grounds, and in this case the mucous coat of the stomach was in many places of a very dark colour, and a slimy consistence, so that there could be but little doubt concerning the origin of the contained fluid, and the coffee-ground substance, which must have proceeded from the diseased and almost disorganised mucous membrane. Such have been the principal appearances observed during the dissection of about fifteen fatal cases of fever combined with yellowness of the skin. The following cases will convey a more exact idea of the symptoms which characterise this form of fever than those already related, which proved too suddenly fatal to allow a full development of the symptoms.

Peter Kelly, aged 28, on the 29th of December was admitted into No. 4 fever shed, stating that for two days previously he had severe cough without expectoration. Pulse 110, strong; face flushed. Tongue white, moist; pain across forehead, and general distress; great tenderness of epigastrium and right hypochondrium; costive; thirsty; abdomen hard: on examination no morbid r le was perceptible; respiratory murmur natural.—30th Dec. *Ven sectio ad  xv. Hirudinis xx. Epigastrio. Vesicatorum pectori. Mist. pectoralis.*—1st January, 1827. During last night became jaundiced; considerable distress this morning; black stools; great tenderness of epigastrium and right hypochondrium; cough very troublesome. *Venesection ad  xii. Hirudines xxx. hypocondrio et epigastrio. Abradantur capilli et applicetur vesicatorium vertici. Sumat omni hor  Calomel grana duo.*—2d January. Much relieved; skin not nearly so yellow; tenderness greatly diminished; some sweat last night. *Rep. Pilul .*—3d. Considerably improved; skin nearly natural.—4th. Mouth affected with mercury; skin natural. *Omittantur medicamenta.*—5th. Removed to convalescent ward.—7th. Convalescence continues, having now no complaint but slight soreness of mouth.

Observations.—Here the yellow colour appeared about the 5th day, and

sweat attended with much relief on the 7th day. The symptoms chiefly worthy of notice are, the violence of the febrile reaction, pain of forehead, great tenderness of epigastrium and right hypochondrium; blackness of the stools, and hardness of the belly. We shall just now see the great importance of these symptoms in determining the true nature of the disease.

January 14th.—Thomas Kearney, aged 38, labourer; has been ill for eight days; was first attacked with rigor and pains of loins and limbs, which still continue. He also complains of cough and pain of chest; head first attacked on fifth day; was taken into hospital the following day; got some purgative, which operated powerfully. Present symptoms. Skin dry and hot; eyes and skin *yellow*; great pain of head; tongue dry and white; pulse 60; the colour of stools very dark; epigastrium tender.—January 15th. *Applicentur Hirudines xx. Epigastrio, et Vesicatorium Pectori. R. Massæ Pil. Hydrar. gr. ix. Extracti Hyosciami gr. vi. M. in Pilulas, tres divide. Sumat i. ter in die. Habeat Haustus Effervescentes cum Carbon. Ammonia, et enema Emolliens vesperi.*—Jan. 16. Pain of chest and cough removed, and pain of epigastrium diminished since the application of leeches, which still continue bleeding; ordered to be stopped by the application of caustic; tongue moist; loaded with blackish paste, looking like mercurial ointment: pulse 60; strong; countenance much improved; stools much more natural; yellowness nearly gone; sweated much. *Rep. Pil. Hydr. et Extr. Hyosciami.*—January 17th. No fever; yellow colour quite gone; many loose stools. *Omittantur medicamenta.*—January 18th. Convalescent.

Observations.—The state of the pulse in this case was remarkable. It did not exceed 60, at a time when the existence of many other symptoms left no doubt of the febrile and inflammatory nature of the complaint.

December 30th, 1826. Easter M'Quillan, aged 33. Complains of general pains: has been subject to violent pains for the last three years, after having laboured under fever in Cork-st. Hospital; was there also about four months ago, and was discharged cured.—Present state. Great headache; tongue brown in centre; pulse small and weak; great tenderness of abdomen on pressure; bowels very free; blooded last night for cough and stuffing of chest; finds herself much relieved; blood slightly buffed; no separation of serum; respiratory murmur natural; complains of pain across her back.—*Applicentur Hiruds xx. Epigastrio.*—Dec. 31st. Tongue parched, furred, and brown in centre; tenderness of epigastrium still remains, but much diminished; is very slightly jaundiced; leech-bites bled well; pulse 100, regular; great thirst; pains of joints and small of back excessive, and preventing motion in bed; breathing free; urine very light coloured.—*R. Nitrat. Potassæ ʒij. Decocti Hordei ℥ ii. Acid. Nitr. Dilut. ʒi. Miscæ consumatur in die.*—January 1st, 1827. Colour more yellow; great tenderness of epigastrium and right hypochondrium; pains as before; fever unabated.—*Hab. Calomelanos gr. iij. Opii gr. ½ ter in die Mist. Camph. ʒj. ter die.*—January 2d. Pulse 72, weak; at times almost imperceptible, but regular; respiration easy; yellow stools passed under her; belly very tense; abdominal muscles contracted and hard; tongue black and parched; raves, but is sensible when spoken to; lies on side. *Repr. Pilulæ et Mistura; Appr. Vesicat. Hypochondrio. Vini ʒvi.*—January 3d. A good deal of cough; raves continually; yel-

lowness deeper ; many yellowish stools passed under her ; debility much increased ; thirst continues ; tongue black and parched ; heat natural ; tremor ; pulse 84 ; blister rose but little ; deglutition impeded by a spasm ; just before visit was seized with fit, attended with spasms and rigidity of joints, which lasted about a minute ; *feet cold*.—*Vini Rubri* $\frac{3}{4}$ vj. *Appr. Sinapismi pedibus* ; *Repr. Mist. Camphor.*—January 4th. Sensible when spoken to ; puts out tongue when desired ; but at all other times raving ; seems to suffer extremely when joints are moved ; frequent tremor and shuddering ; rested scarcely any ; other symptoms as yesterday ; some swelling of ankles.—*Appr. Vesicatoria suris. Vini* $\frac{3}{4}$ vi.—January 5th. Moaning and raving during the whole night ; no vomiting ; cough looser ; slept a little this morning ; stools yellow ; tongue parched ; blisters rose well ; drinks abundantly ; less yellowness ; no headache ; eyes suffused ; pulse 84, scarcely to be felt, regular ; no coldness of extremities ; flatulence.—*Repr. Vinum.*—January 6th. Slept well ; no raving ; countenance improving ; fever much diminished in every respect.—January 7th. Tongue clean ; pulse 80 ; stronger than before ; a large purple spot not elevated occupies whole of the outside of right instep ; it is in some places vesicated ; appetite good ; slept well ; smaller spots on other foot ; camphorated spirit to be applied to spots.—*Habeat Sulph. Quininæ granum ter in die.*—January 8th. Edges of large spot more vesicated ; whole surface has a redder and less purple colour ; three stools during night ; little sleep.—*Repr. Pilulæ Sulph. Quininæ et Vinum.*—January 9th. Redness of right eye, not painful ; foot better.—*Appr. Hirud. ii. Conjunctivæ.*—January 10th. Convalescent ; remained for about a week, and was discharged cured.

Observations.—The symptoms of this case were very alarming ; so much so indeed that on the 2d and 3d of January we had little expectation of her recovering. At this period the involuntary discharge of stools, the extreme weakness of pulse, black parched tongue, general debility, raving, tremors, spasmodic affection, which supervened when she attempted to swallow, and finally, the *hard and knotted state of the abdominal muscles*, together with a fit of general tonic spasms ; all these symptoms, combined with the yellow colour of the skin, rendered her recovery very improbable. The treatment was in the commencement antiphlogistic. The nitre was prescribed in order to relieve the rheumatic pains ; but on the following day it was abandoned, and a preference given to calomel and opium for obvious reasons. Nitre does not act favourably in cases where much debility is present, or where the stomach is weak. In several of the cases attended with jaundice which proved fatal, the symptoms were very similar to those just described ; the case of M^rQuillian may be looked on as presenting a good example of this peculiar species of fever. *In her case, as well as in several of the fatal cases, the alvine discharges were of a healthy colour ; and in several of the latter the bile found in the gall-bladder after death was in its properties quite natural.* About one-half of the persons so affected, raved, betrayed great restlessness, and their countenance had a peculiar expression of anxiety ; others seemed in perfect possession of their intellectual faculties to the last, but at the same time appeared in a most nervous, irritable, and desponding state of mind. They could not rest for a moment tranquil, but tossed their arms about, and regarded their attendant with a look expressive at once of *nervous suffering and despair*. Many vomited very often ; all complained of ex-

treme tenderness of the epigastrium. Here we may observe, that in the present epidemic we have opened many bodies, in which peritoneal inflammation might have been expected, judging from the *extreme* epigastric and abdominal tenderness during life; and yet have found no marks of peritonitis whatsoever. The tenderness had been occasioned by inflammation of the mucous membrane lining the stomach and small intestines. The large *purple spot* in the instep seemed at first of a similar nature with the purple colour of the nose and lips before described; it proved however to be erysipelas, and ended in vesication. It differed from common erysipelas in its dark livid purple colour, and in having a well-defined abrupt boundary, and in the colour disappearing but little on pressure. In fact, it seemed to be as it were intermediate between purpura and erysipelas. The advantage of wine and stimulants towards the conclusion of this fever was very apparent.

January 15, 1827.—Robert Farmer, aged 19. Has been ill five days; was employed in a brewery, where he was exposed to hot steam, producing a copious perspiration, during which he drank a great quantity of cold beer; was immediately seized with a violent rigor and fulness of head; the rigor lasted for an hour; a comparative calm ensued. The head, however, still continued uneasy; loss of appetite followed; but he endeavoured to work for two or three days, when he was obliged to remain in bed; has been in a violent heat since, unless he gets a cold drink, which causes a rigor; was admitted into hospital yesterday. *Previous to this* had taken no medicine. Present symptoms. Violent pain or rather fulness of head; throbbing of temporal arteries; pulse 110; thorax free from pain; no cough; epigastrium and abdomen very tense; no tenderness on pressure; skin hot, dry, and tinged with yellow; tongue white and dry; somewhat moist at edges; got some purgative which procured two stools, fetid and of a dark colour; urine natural. *Applicantur Hirudines xx. temporibus. R. Liquoris Acetatis Ammoniae. Aquae Fontanae singulorum ʒiij. Tartari Emetici granum. Syrupi ʒi. Misce. Sumat ʒss. omni hora. Habt. Enema Emolliens Vesperi.*—January 16th. Leeches were applied at 6 P.M.; many still bleeding; eyes and skin less yellow; headache less; pulse 70; regular; a slight tendency to diaphoresis. *Repetantur Medicamenta ut heri.*—January 17th. Not much headache; heat and pulse natural; much debility; tongue clean and moist; countenance improved; no appetite; bowels free. Convalescent.—January 26th. Left hospital the day before yesterday; and that evening experienced rigor, and headache. Tongue white and furred; pulse 100; skin not very hot; abdomen soft; bowels free; great thirst; no headache at present. *Hebeat Haustus Efferves c. Carbonate Ammoniae.*—Jan. 27; Respirations 36. Pulse 120. Abdomen soft and natural, a good deal of headache; thirst; heat of skin; flushing of face; tongue as yesterday. *Applicantur Hirudines xx. Temporibus.*—January 28th. Head somewhat relieved; bled all night from leech-bites; much tenderness of epigastrium; pulse 125; great thirst; no vomiting; some yellowness of skin, but not of eyes. *R. Pilulae Hydrar. grs. ix. Extract. hyosciami grs. vi. Misce. Ft. Pilulae tres. Sumat unam quartis horis.*—January 29th. Fever diminished; was extremely weak last night, and had great distension of belly, with swelling and tenderness; this attributed to taking too large quantities of drink; was relieved by a large oil injection three times repeated. Very little yellowness to-day. *Habt. Haust. Efferves. c. Car-*

bon. Ammonia.—January 31st. Skin hot; pulse 110; rather weak; all the symptoms exacerbated since yesterday; much thirst; tremor; no cough nor tenderness of belly; no headache or raving; but little sleep; respirations 40; bowels free; much nausea, but no vomiting. *Habeat Haustum Oleosum. Repr. Haustus Effervescentes c. Carb. Ammonia.*—February 1st. Face flushed; no headache; a good deal of epistaxis last night; dry burning heat of skin; tongue very red at tip and edges; parched in centre; vomited last night; much thirst; no tenderness of epigastrium; respirations 36; pulse 112; no cough; complains at times of sense of distension of stomach. *Habl. Mist. Camph. cum Magnesia, ʒi. ter in die.*—February 2d. No fever. Pulse 72. Convalesced slowly, and was dismissed cured.

Observations.—Here the crisis of the relapse was better marked than that of the first attack, and occurred on the 9th day of the relapse. One of the most prominent features of this fever was the distended state of the epigastric region, in the first attack unattended by tenderness, but in the relapse accompanied by much epigastric tenderness. It is probable, therefore, that the distended state of the epigastric region proceeded in both instances from the same cause, namely, inflammation of the mucous membrane of the stomach. We have already seen that this inflammation may, and generally does produce very great tenderness; this case, however, seems to prove that inflammation of the mucous membrane of the stomach may occasionally exist without producing tenderness. We have found both the extract and tincture of *Hyosciamus* extremely useful in abating irritability and procuring sleep in the advanced stages of fever. In the fevers attended with jaundice we were induced to combine it with mercurials, from observing the frequent occurrence of intus-susception in the fatal cases—still bearing in mind, that means calculated to abate the inflammation of the stomach and intestines, by lessening the cause, would strike at the root of the spasm, and thus prove the best antispasmodics. This plan has been successful in several instances, but in the majority of the yellow cases, we regret to say, that the progress of the disease was so sudden, mostly terminating in 24 hours after the appearance of the jaundice, that all our efforts proved ineffectual. In our next report will be found the history of the dissection of several of those cases which have occurred since the beginning of February. It is not to be supposed that the present report affords specimens of all the varieties of fever treated during the time it embraces—we have omitted to detail any but those calculated to convey an accurate idea of the general character of the epidemic and its peculiarities, reserving for a future period an account of the more ordinary forms of maculated and typhous fever, which were not unfrequently observed. At present we shall conclude with some remarks on that form of fever which was accompanied by jaundice. Cases of probably a similar nature have been observed by Dr. Cheyne and others in former epidemics, but in no other epidemic were they so frequent or so fatal in this city. Those who are familiar with the symptoms and morbid appearances observed in the yellow fever of America, the West Indies, and of Spain, will at once perceive many striking points of resemblance between yellow fever, properly so called, and that variety of fever we have described. In both the yellow colour depends upon the presence of bile, and in both the absorption of bile into the system, seem independent of hepatic inflammation or obstruction in the biliary ducts. We are aware that

Tommasini, in his excellent work upon the fever which occurred at Leghorn in 1804,* proves that the liver is inflamed not unfrequently in yellow fever, and he supposes that it is inflamed in all cases, arguing that where no very *visible* or *external* marks of hepatic inflammation have been observed, that still inflammation may have existed in the internal parts of the liver, attacking chiefly its vascular system and the *pori biliarii*. (Page 315.) As, however, no such inflammation, to our knowledge, has been detected in those cases of yellow fever which present an apparently healthy state of the liver, and as the most accurate descriptions of the morbid anatomy of yellow fever with which we are acquainted,† report a healthy state of the liver in the majority of cases, we must, for the present at least, consider the jaundice of yellow fever as independent of hepatitis. An inflamed state of the mucous membrane of the stomach, often amounting to its absolute disorganization, is the most constant and the most essential morbid appearance in yellow fever:—a similar state of the duodenum is likewise frequent; now in both these respects our cases agree with yellow fever, except indeed that in the latter the disorganization of the mucous membrane is greater; still, however, this is only a difference *in degree*; and in one of our cases, we have seen that the disorganization of the mucous membrane was fully equal to that described in yellow fever attended with the black vomit; and in that case the stomach contained a matter very similar to, if not absolutely identical with, the black vomit. We should recollect also, in comparing these two forms of disease together, that in many instances of yellow fever there is no black vomit, and the inflammation has in such persons been found to have attained a degree not greater than was observed in our cases. The tenderness of the epigastrium, so prominent a feature in yellow fever, occurred in all our patients; and if space permitted, we could point out many other circumstances of similarity between these two forms of fever. It may appear to many ridiculous to maintain a similarity between these cases and yellow fever, a disease of warmer climates, and which commits such fearful ravages wherever it appears. We need, however, only refer to the works of Tommasini, of Bancroft, and Dr. James Johnson, which contain ample proofs that even in the warmest latitudes epidemics of yellow fever are always mixed with fevers of a bilious character, but of a milder type; a circumstance which renders it highly probable, that were such an epidemic influence at any time, from a particular combination of circumstances, to spread to temperate latitudes, the reverse would happen, and this influence would then produce an epidemic of a bilious or gastric character, with comparatively few cases approaching in violence to yellow fever. Tommasini and the best modern pathologists consider it as now placed beyond all doubt, that yellow fever cannot be considered as a specific disease, but merely as the maximum of bilious or gastric fevers. In proportion to the warmth of the climate these fevers increase in intensity. Thus, in Cadiz and Gibraltar we need not be surprised at the occasional appearance of the yellow fever, approaching in violence to that of the southern parts of North America and the West Indies. At Leghorn the resemblance, although still striking, was not so perfect; and again, in the bilious epidemics of France, Holland, and Germany, the difference, as to intensity,

* *Sullà Febbre di Livorno, e sulla Febbre Gialla, &c.*

† See Lawrence's very accurate Dissections of Subjects of Dead of the Yellow Fever, made at New Orleans during the years 1817-18-19. — *Philadelphia Journal*, Vol. I. New Series.

is still greater (Tommasini, 81, 82, 83), but still the disease, in its essential characters, remains the same in all and the same symptoms, and the same morbid lesions are found;—they differ only in degree. Hitherto we have not made any remarks on the frequent occurrence of spasmodic action to the intestines, as proved by the intus-susceptions so constantly observed in our cases, *a circumstance, we believe, peculiar to those cases, for we have not met with any account of a similar occurrence in other epidemics.* How far such spasms, either by directly causing a temporary constriction of the ductus communis choledochus where it enters the intestine, or by extending to that duct itself, may have contributed to obstruct the passage of the bile and thus produce the jaundice, is a question worthy of consideration.

On looking over my papers I found the following notes of a clinical lecture delivered at the Meath Hospital in the year 1827. As they have especial reference to the subject under consideration, I shall make no apology for introducing them in this place, merely premising that they are printed as they stand in the manuscript, and must be regarded as the *heads* of a lecture, and not as conveying all that I may have said on the occasion.

“ In fact there is not so much difference between the diseases of Ireland and warmer countries, as has been imagined. They differ, it is true, as to *their degrees*, but not as to their pathology.

It was an opinion long ago advanced by Dr. Stokes, senior, that almost all fevers pass into each other—thus intermittent may become continued, and typhus fever, perhaps, but an inferior grade of plague. Be this as it may, each particular epidemic *has a grade peculiar to itself.* The present fever in Dublin, the most worthy of notice we have ever had here—it strongly proves that our diseases differ only in degree from those of warmer latitudes. We have had numerous cases which in their symptoms, and their morbid anatomy, agree essentially with the *yellow fever.* This is an opinion I have never before expressed, as I was unwilling to do so until after careful examination and study. As it is a subject of novelty and great importance, let us for a moment consider the points of resemblance. Passing events always make a deep impression when the attention is *properly directed towards them.* I stand here to improve you, if I can, in the pathology and practice of physic, and scruple not to deviate a little from my course, if that deviation is calculated to awaken your attention to an important subject.

1st. In both, patients become yellow from absorption of bile into the system; but observe, in epidemics of yellow fever, it never happens that all, or even most of the cases turn yellow.

2d. These yellow cases are here equally fatal.

3d. Tenderness of epigastrium, and vomiting in both.

4th. The strongest who die.

5th. Jaundice does not depend on hepatitis in *either.*

6th. Nor on any *permanent* obstruction in gall-ducts.

7th. In both seat of disease is a violent inflammation of mucous membrane of stomach and duodenum; dark purple, soft, semifluid.

8th. Black vomit in true yellow fever consists of a sanguineous fluid, mixed with vitiated secretion of stomach and blood forms coffee-grounds. *This black vomit* we found in one of our patients' stomach.

9th. Enlarged state of spleen.

What is the cause of yellowness in yellow fever? Absorption of bile. But what causes bile to be impeded—there is no obstruction in the liver itself, as in hepatitis, or in ducts, as in gall-stones, &c.?

It has been ascribed to *vomiting*, but this is not the true cause.

1st. It has appeared in yellow fever when there was no vomiting.

2d. We do not find that constant vomiting, as in sea-sickness, however long it lasts, produces jaundice. On the contrary, *vomiting often* used as a cure for jaundice, as it produces a greater flow of bile from ducts.

The opinion of *Broussais* seems most correct, that the yellow colour depends solely on the *violent irritation of the duodenum*, which is propagated to the secreting organ of the liver.

This is nearest the truth, but still does not seem quite satisfactory. If the *irritation* or inflammation of the duodenum was propagated to liver, we must expect to find that organ inflamed. *However no such thing in either case.*

Now our *dissections* have, I think, thrown a new light on the subject, and shown the true nature of the obstruction to the flow of the bile which exists in this complaint. In *almost all* the cases of fever with jaundice which have proved fatal, we have found one or more *intus-susceptions of the small intestines*, without any inflammation of the invaginated part (serous membrane). Now let us consider what aid we receive from the finding of these intus-susceptions, towards explaining the origin of the jaundice; but, 1st, what is the origin of spasm? Inflammation of mucous membrane of duodenum, and small intestines, and stomach. In dysentery we find evident spasm of large intestines from inflammation, tenesmus, &c. Well, then, having rendered it probable that spasm exists, depending on inflammation, how does this bear on jaundice? We have all heard of spasm of the gall-ducts causing jaundice, and best treated by opium, baths, &c.

We must suppose spasm in the duodenum capable of being propagated to ducts, or of directly shutting *duct*.

This spasm constantly occurring, produces every time it takes place a constriction of duct, while quantity of bile is not diminished, the consequence of which is jaundice.

Having thus proved a remarkable coincidence between these diseases, if not their absolute identity, let us see how their treatment agrees. We have found by experience that the only treatment which will serve patients in these cases, is that which has been adopted in yellow fever by the most enlightened and experienced physicians—depletion by lancet and leeches, and large doses of calomel, blue pill, hyoseyamus, &c.”

At the time the above lecture was delivered, I, in common with others, believed that all efferent ducts possessed a vital contractility, because we had observed many phenomena which could only be explained on this supposition. Since then, physiologists have applied themselves to the solution of this question, and it is now generally admitted that these ducts do possess the power of contraction, for which they are indebted to a muscular coat. I shall here quote from the highest authority we possess:

“The *efferent ducts* of glands are lined by a mucous membrane, which has on its exterior an extremely thin layer of muscular substance. The existence of muscular fibres cannot, it is true, be demonstrated anatomi-

cally,* but physiological observations place it beyond dispute. The efferent ducts of most glands have the power of contracting when irritated. The contractile power of the ductus choledochus in birds was known to Rudolphi. By irritating mechanically, or by galvanism, the ductus choledochus of a bird just dead, I have frequently produced a very strong contraction of it, which continued some minutes, after which the duct resumed its previous state. I have often excited strong local contraction of the ureters likewise, both in birds and in rabbits, by the application of a powerful galvanic stimulus. Tiedemann also has seen motions in the vas deferens of a horse, ensue on the application of a stimulus. It appears, indeed, that periodic vermicular motions are performed by the efferent ducts, at least by the ductus choledochus in birds; for once in a bird just killed, I observed contractions of the duct regularly in pauses of several minutes: the tube dilating again in the intervals. *It was here remarkable, that the contractions took place in an ascending direction, namely, from the intestine towards the liver*; which seems to throw some light on the mode in which the bile at certain times, instead of being expelled into the intestines, is retained and driven into the diverticulum of the duct, namely, the gall-bladder, the complete closure of the duct contributing perhaps to this effect.

“The discharge of the bile from the gall-bladder during digestion results probably from the mere pressure of the surrounding parts, and the action of the abdominal muscles, while the mouth of the duct is open: for I doubt if the gall-bladder is contractile: I could produce no contraction of it in mammalia and birds, even with the most powerful stimulus of a galvanic battery; and in this respect it differs from the other diverticula of efferent ducts, namely the urinary bladder, and the vesiculæ seminales, which it resembles in all its characters.

“Dr. G. H. Meyer however states, that by means of a galvanic battery of fifty pairs of plates, he has caused the gall-bladder of an ox to contract so as to diminish its capacity one-fourth.

“How far the contractility of the ducts may contribute to the frequently sudden expulsion of the saliva and tears, is a question which I mention merely, as requiring further investigation. I may, in conclusion, remark, that since the contractility of the ducts of glands is proved experimentally *the spasm of these parts, spoken of by physicians, ceases to be a mere hypothesis.*”—MULLER'S *Physiology*, page 520.

Before I conclude this subject, it may be well briefly to consider how far the Dublin fever of 1826-7, agreed with that since observed at Gibraltar, by Louis.

The prominent symptoms in the yellow fever of Gibraltar were, flushing of the face, headache, suffusion and pain in the eyes, pains in the limbs, thirst, loss of appetite; *it was rare that the patient complained of any pain in the epigastrium at first, but this generally came on 15 or 16 hours from the commencement of the disease, and was then inconsiderable, and very few patients complained of severe or acute pain.* The abdomen preserved its form, was supple and indolent, except in the epigastric region. The yellow appearance of the skin did not come on *till late* in the disease, and

* “This appears to have been done, however, by Dr. G. H. Meyer (*Diss. inaug. de musculis in duct. eff. Glandul. Berol.* 1837). He describes the course which the fibres take in the different layers of the muscular coat of the ureters of the horse and gall-bladder of the ox.”—MULLER'S *Physiology*, page 250.

was seldom very intense, and it was about the same period *that the vomiting and dejections* assumed their peculiar character; the dejections were blackish or bluish, and the matter vomited, from being of a yellow colour, became black or brown. The reader will at once perceive that the symptoms which attended the cases of yellow fever we witnessed in 1826, indicated a more intense disease of the abdominal viscera—in *all* there was tenderness over the epigastrium, which in some was excessive—black vomiting did not occur in all, but even in the yellow fever of tropical countries it is not constant, but the symptom which presented the greatest difference in the two epidemics was the yellowness of the skin, which in the fever of Gibraltar came on towards the latter period of the disease, and *was seldom very intense*, but in our fever it came on suddenly, immediately after the tenderness of the epigastrium was complained of, and was in all very intense. This shows that whatever lesion produced the yellowness in the Gibraltar fever, was either different in kind, or in degree, from that which caused it in ours, and I think we cannot doubt but that it was here produced by spasm of the ducts leading from the liver and gall-bladder.

It is well known to pathologists since the time of Broussais, that jaundice is as frequently produced by duodenitis as hepatitis if not more so—but I do not think that the explanation he gives is applicable to our cases. He concludes that when the mucous surface of the duodenum is thrown into a state of excitement, we may have a consequent affection of the liver, for the duodenum bears the same relation to the liver as the mouth does to the parotid gland, and we know that an irritation of the orifice of the ducts leading from this and the other salivary glands is immediately followed by an increased flow of their secretions. But our dissections have shown that the small intestines were affected not only by inflammation, but were acted upon by violent spasms, producing invaginations of different portions of the canal; and there can be no doubt that the ducts (possessing such considerable vital contractility) participated in these spasms, and thus prevented the flow of bile into the duodenum, as effectually as if they were tied by a ligature, or their canals obstructed by calculi, and this explanation obtained great support from the fact, that the jaundice came on *suddenly*, in most of the cases, *and was always preceded, or accompanied, by violent and convulsive contractions* of the abdominal muscles and intestines.

There is another point to which I am anxious to direct attention.

Yellow fever has only been once observed in this country; and then it occurred in the course of an epidemic of continued fever, whose type was a severe and very fatal form of gastro-duodenitis. Does not this circumstance tend to confirm the opinion of Tommasini and others, that yellow fever is but a more severe form of the gastric variety of typhus? The appearance of the liver described by Louis has not been noticed by any other pathologists, and cannot be considered the essential *anatomical character* of yellow fever generally; for we read that Rush and Lawrence, the learned writers on the yellow fever of America, seldom found the jaundice connected with liver disease, but that in all cases there was inflammation of the digestive surface: and in the late epidemic of yellow fever, which prevailed in Martinique from 1839 to 1841, M. Rufz states, that he observed the yellow appearance of the liver, described by Louis, only in two instances, and that this organ, like the rest of the solid viscera, was very often gorged with blood. In the Martinique epidemic, the principal pa-

thological appearances were the following:—"The stomach contained matter of a black colour, generally in great quantity, and the mucous membrane was coloured by this substance; but when the contents were removed, and the mucous membrane washed, he found that it presented a beautiful rose-coloured hue, extending all over its surface, and not produced by distinct vascular arborizations. In the midst of this redness, he observed several round and distinct spots, produced by the effusion of small quantities of dark-coloured blood, having all the appearance of spots of *purpura hæmorrhagica*. The mucous membrane was neither thickened nor softened, but was evidently much more easily detached than in the natural condition. The small intestines contained a greyish white matter, particularly the jejunum; the mucous membrane presented precisely the same appearance as the stomach, but the hemorrhagic spots were more numerous and much larger. The glands of Brunner were in a few cases enlarged to the size of millet-seeds—but in no instance were the glands of Peyer in the least altered."

During the prevalence of the yellow fever in 1826-7, a captain of a West-Indian vessel was admitted into hospital with the disease. He had had yellow fever in Jamaica, and stated positively that he was, when under our care, affected in precisely the same manner as he had been in Jamaica; and he also remarked that the other patients seemed to labour under exactly the same kind of fever as he had then witnessed.

LECTURE XIX.

Intermittent fever—Account of the Russian intermittent fever—Case of *tertiana sporosa*—Treatment of intermittent fever.

I WILL now read for you the notes of a case of intermittent fever, taken by Mr. Power:—

"Mary Gannon, aged 44, was attacked by intermittent fever about the middle of September last. The paroxysms occurred twice every day, one in the morning, the other in the afternoon, for the space of ten days, after which, owing to medical treatment, the evening one disappeared. On the 10th of October she was admitted into the Meath Hospital, and was placed under the care of Dr. Stokes, who prescribed small doses of sulphate of quinine, under the use of which the fit became tertian, but soon afterwards returned to the quotidian form. On the 1st of November she became a patient of Dr. Graves, and was put on large doses of the sulphate of quinine. On the 7th of the same month, the fit again assumed the tertian form, in which state it continued until the 17th, although the dose of quinine had been increased to a scruple and a half in the day. She was then bled to $\bar{3}$ xvij., by which the duration of the paroxysm was lessened, and the interval between it and the succeeding one increased by twelve hours. She was again bled, and the fit became quartan. Venesection was employed for three times more, but without any other sensible effect than a curtailment of the duration of the existing paroxysm. Her strength now became reduced, and she was ordered to take four drops of the liquor arsenicalis in half an ounce of mint-water, three times a-day. Since she commenced taking the arsenic, the violence of the

paroxysms has been gradually subsiding, and strength and appetite are returning; at present, the fit presents scarcely any other characters than those of a slight shivering."

Let me make a few remarks on this case. In the first place you should look to the definition of a quartan ague. According to Cullen, this consists of "*paroxysmi similes intervallo septuaginta duarum circiter horarum; accessionibus pomeridianis,*" that is to say, the attacks must be similar, there must be an interval of 72 hours between them, and the fit is to come on in the afternoon. Let us examine how far the characters of the present case coincide with this definition. Latterly, she had seven attacks with a precise interval of 72 hours; in the next place the attacks were similar; so far so good; but the accessions of her paroxysms were in the forenoon and not in the afternoon, for they generally came on about eight o'clock in the morning, and in this respect accommodated themselves to our convenience, for we could be here to witness them. It is very true that we generally find the paroxysm of quotidian in the morning, of tertian in the middle of the day, and of quartan in the evening, and also that one may pass into the other, but to this I do not attach much importance. Here the disease evidently terminated by becoming quartan. A question arises as to what was the nature of the fever in the commencement? Was it any variety of quartan? that is, was it quartan disguised under the type of any other species of intermittent? In the beginning, she had two paroxysms every day, constituting what has been termed the *quotidiana duplex*, a disease which is common enough, though it has not been noticed by Cullen in his *Nosology*. The nearest approach which the first form of our case makes to the acknowledged quartan of authors, is to the *quartana triplex*, where we have the fit coming on three times a-day, with every fourth paroxysm similar. But you perceive, plainly, that Gannon's fever, in its first form, is not reconcilable to any known type of quartan ague. Now, what was the effect of the remedies employed? First to make it assume the form of a simple quotidian, and as a still further improvement, resolved this into a *tertian*. Here we have an argument against the supposition of a concealed quartan, for an interval of 48 cannot, by doubling, be converted into an interval of 72. But the effect of remedies, nevertheless, produced this antinological conversion, for the first bleeding in the cold stage made an addition of 12 hours to the tertian interval; and a second bleeding added another two hours, and then we had the quotidian interval completed. This was indeed a *bit-and-bit reform* of a double quotidian into a simple quartan. Let us review the length of the intervals in a series of numbers. First; it was 12 hours for the space of 10 days; next, 24 hours for several days; then, 48 hours for several days; again, 24 hours for several days, then 48 for several days, then 60 for one day, and, lastly, 72 for seven days. From this, I think, we may conclude, that the *unit* from which we ought to set out in calculating intervals should be twelve hours between the accession of one attack and the accession of the next. This is the *atom* on which all our computations must be founded, for its multiples include all the varieties of intermittent fever. It would appear, that instances, where the fit comes on earlier than was expected, or is postponed beyond the customary period, would go to invalidate what I have mentioned. Such cases, however, I look upon as only transition stages to more permanent varieties. In many cases of quotidian, it has been observed by nosologists, that every second

fit is more severe, and hence they have termed this form the tertiana duplex. The chief argument in support of this opinion of quotidians becoming tertians is, that under the salutary influence of our remedies, they become tertians before they cease altogether. In answer to this, it may be observed, first, that this is not always the case; secondly, when it does take place, it is because the days of the least severe fits are of course those on which they soonest cease, in consequence of the exhibition of bark, or sulphate of quinine, for it often happens that these medicines do not remove the aguish fits entirely and at once, but gradually, and, as it were, by wearing down the paroxysms. Thus, then, a quotidian, such as we have described, must, if gradually cured, before a complete cure is effected, observe the tertian interval; but still it is not a true tertian at any period of its duration. Hectic fever, notoriously, has intervals of 12 hours, and it may be observed, that many circumstances corroborate the opinion, that in naming and classifying diseases, it is more consonant with the laws that regulate the diurnal revolutions of the animal economy, to use, as our period, 12 hours, whose multiples give rise to the different intervals of agues, than to assume 24 hours, as the term from which we are to commence our calculations. Thus the state of the pulse, according to the late laborious investigations of Nick, have shown, that a regular revolution, as to its frequency, takes place every twelve hours, and the same result has been made with regard to the intensity of the respiratory process. We all know that there is a considerable difference between the nervous and calorific powers of the body during the twelve hours we spend in active employment and awake, and those which are chiefly passed in tranquillity and repose.

As the average period of day and night respectively is twelve hours, in the same manner equivalent spaces of time seem to be destined for the successive and alternating revolutions of the living system. It would be extremely interesting to consider what influence their adoption might have in our calculations concerning the crisis of continued fevers. We would not then count three days and a half, but seven half-days; we would not say seven days, but fourteen half-days. If this method were adopted, many of the apparent anomalous critical effects and critical terminations, in continued fevers, would, I have no doubt, become strictly conformable to some regular law of periodicity. To arrive at a knowledge of this law would be of the greatest importance, and would tend much to render our knowledge of fevers more accurate, and our treatment more efficacious. Those who entirely deny the critical period must be either very superficial observers or very indifferent practitioners. In private practice, where the precise commencement of the attack can be ascertained, a *crisis*, or an obvious attempt at a crisis, takes place, often on the reputed critical days, occasionally on others; and if the treatment be judicious, it seldom happens that a fever terminates without either. Within the last year I have seen two cases, in which decided and perfect crisis took place on the 42d day. In another case a salutary crisis took place on the 35th day. The first of these cases I saw along with Dr. Stokes; the second, with Dr. Plant; the third, with Mr. Rumley. In another case, which I attended with Mr. Kirby, there was an obvious but unsuccessful effort at crisis on the 7th, 14th, 21st, 28th, and 35th days.

I must admit that I have seen perfect crisis on days not reputed critical; but I am convinced, that if the method of counting by half-days and

not by days were adopted, the exceptions to the occurrence of crisis would be much less numerous. The nature of crisis has never, I think, been truly explained. To me it appears evident, that all the phenomena which attend this curious change prove, that when a continued fever terminates by crisis, *it is by being converted into a fever of a new type and shorter duration.* Well-marked crisis comes on almost like a fit of the ague; it is ushered in by great collapse, coldness, and even sometimes by rigor. This is succeeded by a hot fit, and that again by a sweating stage, copious deposition in the urine, &c., and then the patient is found free from fever. Is it not probable, therefore, that the crisis is not merely the termination of the former fever, but a new fever, as it were, superadded to it for the purpose of exciting a change in the system, attended by such a powerful action of another kind, that the former chain of morbid actions is broken, and the tendency of the new fever to terminate in health is thereby allowed to prevail.

To many, I am aware, what I have said may seem fanciful, but to a close and candid observer of nature this hypothesis may not appear altogether unfounded.

I shall not detain you, gentlemen, in making any remarks on the treatment pursued in Gannon's case. You have seen how the sulphate of quinine changed the type of the fever, and you observed how completely the *liquor arsenicalis* succeeded in removing the disease, after other remedies had failed. It is to be recollected, however, that considerable advantage was derived from venesection in the cold stage, and it is probable that this treatment by the lancet was a useful preparation for that by arsenic. It has been supposed that bleeding, during the cold stage of ague, produces a favourable effect, in consequence of its relieving the internal sanguineous congestion. This hypothesis, however, does not appear well founded, for the utility of venesection is by no means confined to those cases of intermittent fever, whose cold stages are attended by an evident diminution in the external circulation, denoted by a shrunk countenance, cold and pointed nose, and a pale corrugated skin. In such cases it is very reasonable to conclude, that the internal organs must labour under sanguineous congestion, as long as the quantity of blood in the periphery of the body is diminished; but this obvious deviation from the proper balance of the circulation is not observable in every case; and in that related above, the temperature of the external parts was increased at the very moment that the violence of the rigor was greatest, while at the same time the extremities, face, and general surface of the skin appeared to enjoy a more than usually abundant and active circulation. We must, therefore, refer the benefit derived from the venesection to some other cause, most probably its energetic action on the nervous system; it is to this we must attribute its effects in stopping the rigor and lengthening the intermissions.

That the rigor of ague is an affection chiefly depending on the nervous system may be proved by many circumstances, but by none more strongly than by the following fact, quoted from a collection of Notices of Russia, published in the United Service Journal for January, 1833:—

“In Kasan these fevers are quotidian or tertian, very rarely quartan, and they differ from the agues of other countries in this respect, that the patient experiences scarcely any shivering, but feels a violent twitching in the spine, which is soon followed by excessive heat and violent head-

ache, during which the pulse beats like a hammer. For this fever, the Russian physicians resort to no other remedy but bark."

The following description of the Russian province, so fertile in ague, is so striking that I shall take the liberty of reading it to you:—

"The summer in this country is further remarkable, inasmuch as from the end of May to the beginning of September, no rain falls, and thunderstorms are extremely rare. This phenomenon is doubtless owing to the flatness of the country. For five hundred miles and more, around Perm and Kasan, there is not a hill of any consequence, and the whole tract from Kiew to Ural, for a breadth of five hundred miles, may be called a plain, only here and there interrupted by ranges of gentle hills. The extraordinary fertility, especially of the government of Kasan, is occasioned by the inundation of the Wolga, which overflows annually at particular seasons, as regularly as the Nile in Egypt, and converts the whole country, to the distance of ten miles or more from its bed, for five or six weeks, into an immense sea. These inundations of the Wolga, and the other large rivers, the Witjätka, the Kama, the Kinel, the Irgis, &c., which discharge themselves into the Wolga, render the countries through which they flow at once lively and fertile. At such seasons you may sail, either for pleasure or upon business, in large two-masted vessels, carrying from six to ten guns, over pastures and corn-fields, to the neighbouring towns, which on this account, are all situated upon heights; and when the waters have withdrawn into their accustomed channels, the ground forsaken by them is covered, often a yard deep, with a fertilising mud, in which, during the hot season, all vegetables grow rapidly and vigorously as in a hot-house. At the same time pools are left behind in the low grounds, where the water stagnates for several months, becomes putrid and generates malignant fevers in the months of July and August in these otherwise healthy countries. The government of Ufa, particularly, is visited about that time by an intermittent fever, *which attacks the patients every seventh day only*, but is so violent, that it generally proves fatal."

If this account be correct, and indeed there can be little doubt of its accuracy, a new species of ague must be established, and to the quotidian, tertian, and quartan, must be added a fourth type, whose attacks return every seventh day.

In Ireland we seldom meet with cases of ague with paroxysms so violent as to endanger the patient's life. I lately saw, however, a case of this nature. I was sent for in a great hurry to visit a gentleman residing in the neighbourhood of Donnybrook; he had slept well until four o'clock in the morning, when he was awakened by a general feeling of *malaise*, shortly after which he complained of chilliness, some nausea, and headache. After these symptoms had continued about an hour, his skin became extremely hot, the pain in the head intense, and drowsiness was complained of, which soon ended in perfect coma, with deep snoring and insensibility; in fact, he appeared to be labouring under a violent apoplectic fit. He seemed to derive much advantage from bleeding and other remedies, and to my surprise was perfectly well when I visited him in the evening. The day but one after, at the same hour, the very same symptoms returned, and were removed by the same remedies. I must confess that I could not explain, in a satisfactory manner, the perfect freedom from all cerebral and paralytic symptoms, after two such violent attacks of apoplexy; but when a third attack came on, I then saw that it

was a case of the *tertiana soporosa* of nosologists, and I prevented the return of the fits by the immediate exhibition of large doses of sulphate of quinine.

Numerous remedies have been recommended for the cure of intermit-tents; but, I believe, those already mentioned, with salicine, piperine, and ilicine, and venesection, in or before the cold fit, are most efficacious.

LECTURE XX.

Causes of catarrhal affections of the bronchial tubes—On the râles produced by bronchitis—Remarkable disproportion between the frequency of the pulse and the respiration—Use of emetics and chalybeates in chronic bronchitis—Symptoms that contraindicate chalybeates—Case of asthma, and treatment—St. John Long's liniment—Case of chronic cough—Remarks on bronchial secretion—Expectoration never performed during sleep—Effects of catarrhal attack frequently recurring—Account of remedies employed—Great power of nitrate of potash, combined with tartar emetic in subduing inflammation—Observations on the secretion of air from the mucous membrane of the intestines in certain pulmonary affections—Efficacy of sulphur in chronic bronchitis—Sensation of tickling which precedes cough—Cough from worms—Hysteric cough—Pulmonary irritation from a syphilitic taint—Pulmonary irritation connected with a gouty diathesis; with a scorbutic habit; with scrofula.

ALLOW me to direct your attention to-day to the case of J. Jowson in the chronic ward, labouring under an attack of exasperated chronic bronchitis—a disease which derives its chief importance from the circumstance of being exceedingly common. There is no morbid affection of the system more frequent or more general than chronic bronchitis; it is of every day occurrence in dispensary practice; it is one of those cases which you will be constantly called on to treat; and hence the study of its nature and treatment has strong claims on your attention.

Bronchitis is an affection which generally arises from impressions made by cold, either on the skin or on the mucous membrane of the lung. I think it extremely probable that, when a person gets a catarrhal affection from exposure to cold, it is not always in consequence of an impression made on some part of the cutaneous surface. Indeed, it appears reasonable to believe that an attack of bronchial inflammation may be equally the result of an impression made directly on the mucous lining of the lung; and that a person exposed to sudden change of temperature, as in passing from a heated room into the cold air, may get inflammation of the mucous membrane of the bronchial tubes, for the same reasons that, under similar circumstances, inflammation may be generated in the mucous membrane of the eye, giving rise to conjunctivitis. We know well that one of the most common causes of inflammation of the conjunctiva, is the sudden exposure of the eye to cold sharp air, after it has been for some time submitted to the relaxing influences of strong heat and light; and there is no reason why the same rapid change of temperature, under similar predisposing causes, should not originate disease in the mucous membrane of the bronchial tubes. It is true, indeed, that nature has taken especial pains to maintain an equable temperature in the air admitted into the chest at each respiration; the passage of this air through the mouth, nose, and pharynx, where it is warmed by the contact of an extensive mucous surface, and the small proportion which it bears to the residual air remaining in the lungs after an ordinary expiration, are circumstances that must

powerfully counteract the low temperature of air inspired in very cold weather. Still a considerable difference of temperature must exist between the inspired and expired air, and consequently the air-passages are exposed, *more than any other tissue of the body*, to successive and rapid alternations, which never cease from infancy to old age. Nature has, of course, wisely accommodated the vitality of the bronchial mucous membrane to the circumstances in which it is placed, and the force of a never-ceasing habit still further enables it to sustain rapid vicissitudes of temperature with impunity. In this it is probably equalled by the surface of the eyeball, which, alternately covered, warmed, and moistened by the eyelids during the act of winking, and exposed to the cold of the air, increased by a rapid evaporation from its own surface while the eye is open, must, indeed, undergo rapid variations of temperature, and yet it is never frost-bitten.

When inflammation has fastened on the mucous membrane of the air-passages, it makes a vast difference as to the part on which it fixes. The air-passages commence with the larynx, and terminate with the ultimate ramifications of the bronchial tubes. If the disease settles at the entrance of the air-passages, and forms laryngitis, the case becomes a very serious one, laryngitis being in the infant, and sometimes also in the adult, attended with dangerous and even fatal symptoms. If the trachea should happen to be the part on which the disease falls, the inconvenience and suffering are also considerable, but the danger is by no means so urgent as in the former case. The same thing may be said of the larger bronchial tubes; inflammation here is rarely attended with such violent symptoms as those which characterise laryngitis, and it is much more amenable to treatment. But when inflammation attacks the minute bronchial tubes to any considerable extent, and particularly if it happens to be general—that is, if it affects the bronchial tubes in every part of the lungs—we have just grounds for alarm; the disease is one of an intense character, and unless quickly relieved, runs on to a fatal termination with great rapidity.

You perceive, then, that if a patient catches cold, and gets an attack on the chest, it is of great importance to be able to ascertain what the situation and extent of the disease are, and whether the minute bronchial tubes are engaged or not. Now, how do you know this? Simply thus:—You first make a cursory examination of the whole chest, by applying the stethoscope over the superior, middle, and inferior portion of each lung, both before and behind; and, if you every where hear something, you conclude that the bronchitis is general, and not confined to any particular part. You next proceed to examine with greater attention these wheezing sounds; you apply the stethoscope, and if you find in each separate spot many sources of diseased sound—if you hear a wheezing from a great many points close together—you may be sure that the morbid sound proceeds from inflammation of the minute tubes, for the larger ones cannot exist in the small spots over which you apply the stethoscope, in such numbers as to give rise to so remarkable a plurality of sounds. Of this you may be certain, that when you find a great many sounds are audible over a small space, the minute bronchial ramifications are engaged.

It is the custom with those who lecture on auscultation, to enumerate many sounds as connected with alterations in the condition of the bronchial tubes. We hear of the mucous, the sonorous, and the sibilant rhonchus—their varieties and intermixtures. Now I know, by experience, that these names are very apt to confuse and perplex the young stethos-

copist. There is no necessity for studying with great attention the definitions of these words, or the descriptions of the various sounds they are meant to represent: I am always anxious to avoid loading the memory of the student with names. With regard to the râles in bronchitis, all he need bear in mind is, that the nature of the sound produced by air passing through the bronchial tubes will be modified accordingly as these tubes are large or small, dry or moist, or as the moisture they contain is thin or not. The two things of greatest importance in examining a case of bronchitis is to ascertain whether the minute bronchial ramifications are engaged, and, if the tubes contain any moisture, whether it is thin or viscid.

I seldom, therefore, confuse the student by telling him whether the râle is sibilant or sonorous, when asked about the nature of the sounds heard in a case of bronchial inflammation. All I say in reply is this: that the sounds are produced by the large or small bronchial tubes, and that they are either moist or dry.* When the large bronchi alone are inflamed, the sounds issuing from the lung subjacent to the stethoscope are comparatively few in number, seldom exceeding two or three; they are likewise, when dry, of a grave tone, resembling the prolonged note of a violincello, or the cooing of a dove; or when moist, the bubbles are large, scattered, uneven. When the minute tubes are engaged, we hear, on the contrary, not a few, but many sounds, evidently proceeding from a small portion of lung; three, four, or even six or seven sounds may be perceived together, or circumscribed within very narrow limits. These sounds undergo rapid changes of tone during the same respiration, while every moment some of them appear to cease, to be replaced by new ones. The wheezing they produce is, when dry, sharp; but observe, it is very unusual to find every one of them dry: when dry sounds occur they are generally accompanied by others, equally minute, but evidently moist. The moment I find, on applying the stethoscope, that a great many sounds are heard over a small spot, and that these sounds are dry and sharp, or are accompanied by certain modifications denoting the passage of air through fluid, I call the disease inflammation of the minute bronchial tubes, with increased secretion obstructing the free entrance of air. An attention to these considerations is of great importance in ascertaining the nature of acute or chronic bronchitis; for the danger is not only proportioned to the extent of the disease, but also the circumstances of the minute tubes being engaged, and the quantity of fluid they contain. The

* [When the inflammation is strictly confined to the largest bronchi, we sometimes hear no distinct rhonchus. The respiration is often feeble in certain portions of the lung and exaggerated in others, but there is no distinct rhonchus unless the tubes of medium size are either thickened or contain a small amount of liquid secretion; when either of these conditions occurs, we hear the sonorous, sibilant, mucous, or sub-crepitant rhonchus. Frequently, as Dr. Graves says, two or three of these sounds are combined, and are heard at the same time, but as a general rule the liquid rhonchi are most distinct at the lower and posterior parts of the lung, while the dry rhonchi are scattered over the whole extent of it. The sub-crepitant rhonchus of course indicates that the smallest tubes are involved, and when this sound is dry, that is, when it is caused by bubbles of mucus, small in size, and which break in an equal manner, it often shows that the bronchitis is about passing into pneumonia.—W. W. G.]

sound shows that not only the minute tubes are diseased, but also that there is a considerable quantity of viscid fluid in them, preventing the entrance of air into the air-cells, and tending to produce asphyxia.

This man is, as you have seen, about the middle age in point of years, but he is old in constitution. In this country you will find most of the labouring poor exhibiting symptoms of premature old age—the combined result of poverty, intemperance, and hardship. Obligated to work in the open air in bad weather, they get catarrhal affections, which are renewed by repeated exposure, and prolonged for want of proper care. The natural effect of cold frequently renewed and generally neglected is, that a tendency is produced in the bronchial mucous membrane to become congested and inflamed with facility, until at length the derangement becomes permanent, and the mucous membrane no longer returns to its normal and healthy condition during the intervals.

The secretion of the mucous membrane of the bronchial tubes, in a perfectly healthy person, is almost entirely destitute of matter to be expectorated. In the normal state, the secretion of the bronchial mucous membrane, though continually going on, scarcely ever exists in superfluous quantity, for a certain proportion of it is carried off by exhalation or absorption; *a perfectly healthy person, breathing a pure air, has no expectoration whatsoever.* The moisture secreted by his bronchial mucous membrane contains nothing that the expired air cannot carry away in vapour, without leaving any residuum which, gradually accumulating, would at length require to be expectorated. In this respect the bronchial mucus in the healthy state differs from the mucus of other membranes of the same class: but disease destroys this beautiful provision, and gives rise to a secretion of morbid mucus which cannot be gotten rid of in the usual way, and which therefore must be expectorated. Hence it is that persons, in whom a chronic state of congestion of the bronchial membrane has been generated by repeated colds, have a secretion of superfluous matter always going on, and are constantly expectorating. This may continue for several years without much inconvenience; the principal annoyance the patient suffers is in getting up the phlegm in the morning. At this period there is always an accumulation of fluid in the lungs after the night, during which the cough is less frequent, and expectoration less copious.

Here let me remark, that, although a person may cough violently during his sleep, he never expectorates. Expectoration is accomplished by the attention being directed to the chest, by an act of volition being put in force, so as to cause a constriction of the bronchial tubes, and generate a current of air of sufficient strength to expel the mucus. To effect this, the mere act of coughing is not sufficient, and consequently *we do not expectorate during sleep*; for this purpose it is necessary for the patient to be awake.

Frequently recurring catarrhal affections, besides generating a state of chronic derangement of the mucous lining of the lungs, have a necessary tendency to produce other bad effects. Dyspnoea is an ordinary attendant on chronic bronchitis; the vesicular tissue, enfeebled by disease, loses its natural elasticity; and hence the act of respiration is performed weakly, and with considerable difficulty. In addition to this, the stress thrown on the air-cells and passages gives rise to emphysema and dilatation of the bronchial tubes.

When this man came into the hospital, he was labouring under an exacerbation of his chronic bronchitis, from a fresh attack of cold; he also suffered from dyspnœa, with a tendency to emphysema, and had been much debilitated by the frequent recurrence of his pulmonary symptoms. I do not intend to make any particular observations here on acute bronchitis supervening on chronic; it is a dangerous disease, requiring prompt and careful attention. I merely refer to this case to point out the remedies which were employed, and the principles which guided me in their selection.

At the time of our patient's admission, the fever which accompanied the acute attack had subsided. His pulse was tolerably quiet, neither did he present any derangement of the heart's action, and, so far, had escaped one of the consequences of chronic disease of the lung—namely, dilatation and hypertrophy of the right ventricle. Observe, the most important features in this case, so far as treatment is concerned, were these: there was no general inflammatory condition of the system present; he had neither hot skin nor quick pulse; his expectoration was copious; the chest sounded well on percussion, and the only stethoscopic phenomena observed were extensive minute and moist bronchial râles. The case then stood thus: extensive bronchial inflammation with copious expectoration, unaccompanied by fever, and occurring in a debilitated constitution. All weakening measures were therefore contraindicated. It is true that the man had dyspnœa, and complained of tightness across his chest—circumstances which might appear to demand the use of the lancet or leeches; if these means had been employed, he would certainly have experienced some relief; but in the course of a few hours the symptoms of distress would have returned, the weakness superinduced by bleeding would give rise to increased secretion into the bronchial tubes, and the patient would be worse than before. Under these circumstances, we refrained from using the lancet or leeches; but, deeming it advisable to get rid of the last traces of inflammatory action, we gave the following mixture:—

R. Misturæ amygdalarum, ℥xij.
 Nitratis potassæ, ℥ij.
 Tartar. emetici, gr. j.
 Tinctur. opii camphorat. ℥ss.

Ft. mistura pectoralis, sumat cochleare j., amplum omni horâ, vel urgente tusse.

In explaining the rationale of this mixture, it is hardly necessary for me to state why the almond emulsion was used. In all cough bottles it is of importance that the basis should consist of some mild mucilaginous fluid; and hence we generally employ for this purpose demulcent syrups, emulsions made with olive oil, spermaceti, or almonds, or decoctions of mucilaginous seeds and roots. With the almond emulsion we combined tartar emetic and nitrate of potash—both antiphlogistic remedies, and calculated to act with peculiar effect in relieving congestion of the bronchial mucous membrane. You are aware that nitrate of potash in large doses is a powerful antiphlogistic, and you have seen it prescribed with excellent effects in cases of acute arthritis treated in this hospital. Nitrate of potash, when given to the amount of two or three drachms in the day, combined with two or three grains of tartar emetic, is, next to bleeding, the most efficient means we possess of reducing inflammatory action; and were I to be asked what remedies I should employ in combating inflam-

mation—supposing there were no such things as the lancet, or leeches, or calomel—I should certainly say nitrate of potash and tartar emetic. When given in small doses, this combination proves also extremely serviceable in less severe cases, and it was on this account we gave it in the present instance. To this we joined the camphorated tincture of opium, convinced that its stimulant properties could not prove injurious when combined with antiphlogistics, although it would be improper to administer it alone. Experience has taught that when camphorated tincture of opium is given, in cases of chronic cough with expectoration, it will (if much inflammatory action be present) check the expectoration and bring on dyspnoea. But when combined with nitrate of potash and tartar emetic, its bad effects are corrected, while its sedative influence remains unimpaired.

In addition to this, I ordered the nitro-muriatic acid liniment to be rubbed over his chest. This liniment we are much in the habit of prescribing where a rubefacient is required. It is made by diligently mixing one drachm of nitro-muriatic acid and one ounce of lard, by means of a wooden or ivory spatula. When this mixture is complete, two drachms of spirit of turpentine are added; these ingredients soon separate from, and mutually react upon each other, so that the liniment is spoiled; we, therefore, never make it in large quantities. As his bowels were constipated, I gave him a pill composed of three grains of blue pill, quarter of a grain of colchicum, two grains of scammony, and half a grain of capsicum. Colchicum acts on the biliary secretion, particularly when combined with blue pill, and hence promotes the general action of the intestines. With these I combined a little capsicum, in consequence of the patient's complaining of being annoyed by constant flatulence. It is a curious fact, that every chronic derangement of the bronchial mucous membrane is accompanied by flatulence. Whether this arises from the irritation of the bronchial membrane spreading by continuity of tissue, and rendering the tongue foul, the stomach weak, and the digestive function unnatural; or whether the derangement of the bronchial mucous membrane, and the imperfect performance of the function of respiration, cause the secretion of air from the lungs to be diminished, in consequence of which air is secreted from the intestinal mucous membrane by a vicarious action—I cannot exactly state, but I think the latter hypothesis not very improbable. It is well known that the mucous membrane of the stomach and bowels enjoys the power of secreting and absorbing air; it secretes carbonic acid, nitrogen, and also other gases which seem peculiar to it—such as sulphuretted hydrogen. I am not aware that there is any distinct evidence that the last-named gas is ever secreted by the bronchial mucous membrane, but, as there are some cases in which the breath is remarkably fetid, I think it remains for future experiments to decide whether it may not be so under certain circumstances. It is, however, by no means improbable, that when an adequate cause produces considerable derangement in the respiratory function, and alters the nature of the aerial secretion from the lung, the mucous lining of the stomach and bowels may take on a vicarious action, and secrete gases analogous to those which in the normal state are secreted by the mucous membrane of the bronchial tubes. I think I have seen some well-marked examples of this translation of the function of secreting air from the pulmonary to the intestinal mucous system in cases of spasmodic asthma and hysteria. I have seen patients who, previously

to an attack of asthma, had no symptoms of flatulence, and observed that, accordingly as the disease proceeded and the derangement of the respiratory function increased, the bowels became distended with air. In hysteria, also, where derangement of the respiratory function is plainly denoted by the heaving of the chest, sighing, and dyspnœa, there is generally enormous and sudden inflation of the belly, loud borbyrygmi are heard, and there is a constant disengagement of air upwards and downwards.

But to return to our patient. After we had removed all traces of active inflammation, and the case had been reduced to one of ordinary chronic bronchitis, we changed his cough-mixture for the following:—

R. Misturæ ammoniaci, ℥vj.
 Carbonatis sodæ, ℥ss.
 Tincturæ opii camphorat. ℥ss.
 ————hyoscyami, ℥j.
 Vini ipecacuanhæ, ℥ij.

Fiat mistura pectoralis, sumat cochl. j. amp. pro. dose.

The carbonate of soda was given with the view of removing some acidity of stomach which he complained of; besides, it is a fact that alkalies produce good effects in many cases of pulmonary irritation, as must have struck you from witnessing the success of the popular remedy for whooping-cough, recommended by Mr. Pearson. You will observe, gentlemen, how very different this cough-mixture is from the former, it is much more stimulating, and, at the same time, more powerfully anodyne, the opium being here less diluted, and being aided by henbane; the addition of ipecacuanha was intended to prevent a too speedy action on the part of the other ingredients, in diminishing the expectoration and constipating the bowels.

I wish to call your attention to the plan of treatment, not with reference to this case alone, but with respect to chronic bronchitis in general. We first gave a combination of nitrate of potash and tartar emetic, with the view of removing any remaining traces of inflammatory action; we next prescribed the *misturæ ammoniaci*, with camphorated tincture of opium and carbonate of soda, &c.; and, finally, when the cough became entirely chronic, we gave the compound iron mixture, with tincture of hyoscyamus, in draughts, and an electuary, consisting of sulphur, cream of tartar, and senna. I need not repeat what you will find in every treatise on *materia medica*, with respect to the use of the compound iron mixture; it is not to be given until all traces of fever and local inflammation are removed, and never until the secretion from the lungs is copious, and expectoration free. In such cases, the patient is generally weak, and the inordinate secretion adds to his debility. Here the compound iron mixture proves extremely serviceable, but you should commence its use with caution. Some persons are in the habit of giving it in doses of half an ounce, two or three times a-day; this I never do; I begin with a drachm, twice or three times a-day, in an ounce of spearmint water, and add from half a drachm to a drachm of tincture of hyoscyamus. The dilution with mint-water, and the addition of tincture of hyoscyamus, render it more valuable, by causing it to be more easily borne by the system, and less likely to be rejected by the stomach.

Let me now explain my reasons for ordering the following electuary:—

R. Electuarii sennæ, ℥iij.
 Pulveris supertart. potassæ, ℥j.
 Sulphuris loti, ℥ss.
 Syrupi zingiberis, q. s.

Ut fiat electuarium, sumat cochleare, j. parvum bis vel ter quotidie.

In the first place, when giving any stimulant medicine internally, it is essentially necessary to attend to the state of the bowels; in the next place, keeping the bowels freely opened, has a very remarkable effect in diminishing inordinate secretion from the bronchial tubes. Where the patient's strength can bear it, I often diminish supersecretion from the lung by strong hydragogue purgatives, as you saw in the case of a patient in the chronic ward, who had orthopnoea, and such an excessive secretion into the bronchial tubes as to threaten suffocation. The patient being a strong man, and having no symptom of intestinal irritation, I prescribed a bolus, composed of a grain of elaterium, two of calomel, ten of jalap, and five of scammony, forming a powerful hydragogue purgative, which produced several fluid discharges. The man bore its operation well, and I repeated it in two days with the most decided benefit; indeed, he experienced from it more complete relief than he would have done from bleeding, blistering, or any other remedial means. In some cases of bronchitis with excessive secretion, you will be able to produce very striking effects by the use of hydragogue purgatives; this, however, will require both judgment and discretion, and it should be borne in mind, that, in the majority of cases, there are many circumstances which contraindicate their employment.

With respect to the use of sulphur in this case, I was led to prescribe it, in this and many other similar cases, from observing that chronic cough, and long-continued congestion of the bronchial mucous membrane, were more effectually relieved by the use of sulphureous waters, such as the Lucan and Horrowgate Spas, than by any other remedy that could be devised. I may here also observe that the Lucan waters produce very striking effects in diseases of the skin, and that I have seen intractable cases of psoriasis which lasted for years yield to the use of the Lucan waters. It would appear that sulphur, when taken into the system, is either eliminated by the kidneys in the form of sulphates, or exhaled from the skin and mucous tissues in the form of sulphuretted hydrogen, and in this way we arrive at some explanation of its action in diseases of the skin, and chronic irritation of the bronchial mucous membrane. In fact, paradoxical as it may appear, sulphur, although evidently stimulating, is nevertheless very efficacious in curing many diseases connected with, or depending on, inflammation or congestion. Thus exhibited internally and properly combined, what remedy gives such prompt and certain relief in that painful affection, piles? How rapidly does the specific irritation of the skin, termed scabies, yield to its use? These, and similar facts, which might be brought forward in abundance, ought to countenance the use of this medicine in certain chronic inflammatory affections of the bronchial tubes. The celebrated Hoffman was in the habit of adding sulphur to his cough prescriptions in all cases of chronic bronchitis in the aged and debilitated; and I have no doubt that from five to ten grains of sulphur, taken three or four times in the day, is one of the best remedies that can be prescribed in cases of chronic cough, accompanied by constitutional debility and copious secretion into the bronchial tubes. Within the last four years, my

attention has been particularly directed to the use of sulphur in this and other affections, and I can state from experience that it is a most valuable remedy. As it has a tendency to produce elevation of the pulse, increased heat of skin, and sweating, it will be necessary to temper its stimulant properties by combining it with cream of tartar, which is a cooling aperient, and has the additional advantage of determining gently to the kidneys.* The addition of the electuary of senna gives additional value to the combination, and quickens its action on the intestines.

Such, gentlemen, are the principles that guided me in prescribing for this man. The long continuance of the complaint, the serious and extensive derangement of the pulmonary mucous membrane, the age, debility, and impoverished circumstances of the patient, forbid me to hope for a perfect cure; but he has been much relieved, and the same remedies applied to less desperate cases would have produced very striking effects. Still, if fortune were this moment to prove favourable to the poor fellow, if, when he leaves the hospital, instead of returning to hardship and exposure, he had the means of living in comfort, taking proper care of himself, travelling for health and amusement, and using a course of chalybeate Spa waters, I have little doubt that with these aids the reparative powers of nature would succeed in obliterating every trace of pulmonary derangement.

There is in the small chronic ward another case of chronic bronchitis, in a man named Murray. The disease is of very long standing, and has undergone many exacerbations. It is a case in which I am afraid a permanent cure is out of the question, and so far it is unsatisfactory; but it is still necessary to be acquainted with such cases, for it is a matter of some importance to be able to inform a patient whether his disease is curable or not, and how far it admits of being relieved by treatment.

In Murray's case we found, on examining the chest, that the minute bronchial tubes were extensively engaged, and they were obstructed by a copious secretion of mucus producing considerable dyspnoea. We found, however, that this condition had lasted for many months, and that the disease was essentially chronic. He had no fever; his skin was cool; his tongue moist; appetite and digestion good; and his pulse, which had been only 60 on his admission, sank to 46 after he had been in bed for some days. Such extreme slowness of pulse as this is a very remarkable circumstance, particularly in cases of pulmonary disease: it is seldom met with except in cases of cerebral affections. Here was a man breathing twenty-six times in a minute, and with a pulse at 46; whereas, if the pulse was proportioned to the respiration, it would have been much quicker. The relation of the number of respirations to the beats of the artery at the wrist should be as one to four; thus, when we breathe fifteen times in a minute, the pulse should be at 60. But here we find a man breathing twenty-six times in a minute, and yet his pulse is only 46. We had another instance like this, in a patient in the chronic ward, whose pulse was 60, while his respirations were thirty-six in a minute. It seldom happens, when pulmonary disease is in the acute form, and respiration considerably accelerated, that there is not a corresponding increase in the frequency of the pulse; but, in chronic cases of this description, the system becomes gradually accustomed to the derangement; the continued acceleration of breathing ceases to affect the action of the heart; the lung,

* Baglivi has well said, "In morbis pectoris ad vias urinæ ducendum est."

which is obstructed by disease in the performance of its functions, contrives, by working more frequently, to ærate the requisite quantity of blood, and, the heart adapting itself to the change of circumstances, the pulse returns gradually to the natural standard. I have seen many cases of phthisis, in which there was accelerated breathing, with slow pulse, but these were almost cases of a chronic kind. I have never observed the same phenomena coexisting when the disease was acute; it is a state of things which is compatible only with chronicity of disease, in which the system becomes gradually accustomed to the change, and a kind of artificial equilibrium is finally established.

In this case we find that a man of tolerably good constitution, after exposure to cold, gets an attack of bronchitis, which becomes chronic, and extends almost over the whole lung. He has a cough always existing—sometimes better, sometimes worse, occasionally aggravated. This cough is accompanied by a copious secretion of mucus; and this state of things continues for more than twelve months. Now, when bronchitis has lasted so long on persons of his class in life, it is very difficult to be cured; his poverty, his want of proper clothing, his liability to the ordinary exciting causes of bronchitis from the nature of his employment, and the habitual disregard of self so constantly observed in persons of this description, are all circumstances which forbid us to entertain any hopes of giving permanent relief.

There are two points to be attended to in the treatment of this and every other case of chronic bronchitis; first, whether there be any recent attack, and consequently any fever and exacerbation of the local symptoms present; and, in the next place, whether the secretion from the bronchial mucous membrane be copious or scanty. Now, at the period of this man's admission, there was some slight excitement of the pulse, but there was no fever or increase of bronchial inflammation present, and the heart's action was apparently not influenced by the state of the lung. In addition to this, there was no urgent dyspnœa, and the secretion from the lungs was extremely abundant. We therefore commenced by administering an emetic, which was repeated for two or three days, and then prescribed the following mixture: *mist. ferri compositæ*, ℥ij.; *tinct. scillæ*, tinct. *hyosciami*, āā ℥j.; to be taken three times a-day, in an ounce of almond emulsion. In chronic bronchitis, where no fever, no remarkable dyspnœa or acceleration of the pulse is present, and where the bronchial secretion is very copious, you will be able to produce very good effects by giving an emetic every night for two or three nights, before you begin with remedies calculated to arrest the supersecretion from the lung. They are productive of a double advantage in such cases: a large quantity of mucus is discharged from the stomach and lungs, expectoration is rendered more easy, the tongue cleans, and the appetite is improved. It was on this account we gave them in the present case, and as you have perceived, with much benefit. In no disease are we more apt to have a foul, loaded, and furred tongue, than in bronchitis. This state of the tongue, being usually accompanied by loss of appetite and indigestion, is frequently attributed to a bad stomach. Now, the truth is, that in such cases the state of the tongue and the state of the stomach are both produced by one and the same cause—viz., the unnatural state of the bronchial mucous membrane. In the latter tissue the train of morbid actions commenced, and from it was derived that source of irritation which, indu-

cing disease in the bronchial mucous membrane, caused a state of parts rapidly propagated along that membrane to the mouth and tongue on the one hand, and to the stomach on the other. We afterwards had recourse to a tonic and astringent chalybeate—the *mist. ferri comp.*—with the view of improving the general system, and checking the superabundant secretion from the bronchial tubes. The action of a chalybeate is not merely limited to strengthening the tone of the stomach and general system; it is also well calculated to arrest the superabundant secretion from mucous surfaces in many chronic fluxes, and hence its utility in gleet, diarrhœa, and chronic bronchitis. We gave the compound iron mixture in preference to a simple chalybeate, because the other ingredients—namely, myrrh and subcarbonate of potash—have a tendency to produce the same effect. I do not, however, prescribe this medicine in such large doses as I have frequently seen ordered, and I never give it alone. I order a drachm or two to be taken three times a-day, and I dilute this quantity by adding to it half an ounce or an ounce of almond emulsion or mint-water. In this form it is a much safer remedy in the treatment of fluxes depending on chronic inflammation, and its exhibition is much less likely to be followed by sinister accidents. I have, in the present instance, combined with it a small quantity of squill; the reason of making this addition is so obvious, that it is unnecessary for me to do more than notice the fact. I have also added some tincture of hyoscyamus, which is an extremely valuable sedative in the treatment of many forms of pulmonary disease.

However well planned this treatment seemed to be, it did not succeed. After taking the mixture for a day or two, the man began to complain of tightness across his chest, and we were obliged to give it up. I have already stated, that in cases of this description, where the patient is using remedies to arrest secretion, you should be cautious in administering them at first, and attend carefully to their effects. If, after a patient has been using a chalybeate, or any remedy administered for similar purposes, you find that constriction of the chest and dyspnœa is increased, no matter whether the secretion is diminished or not, you may be sure that you are doing more harm than good. When the remedy acts favourably, you may know it by the following signs:—respiration becomes less frequent, and is performed with less distress, the expectoration becomes more free, and the sputa begins to assume the globular form, its quantity is diminished, and it is less tenacious and viscid in its consistence. When you give a stimulant, therefore, in chronic bronchitis, you must watch its effects with care, and if it produces any increase in the difficulty of respiration, or any pain or tightness of chest, you must omit it altogether, and pass to an expectorant of a less irritating character. In this case, we stopped the use of the *mistura ferri composita*, and immediately ordered the patient to take a grain of tartar emetic in a pint of whey. This simple remedy succeeded in a very remarkable manner, producing on the first day a very considerable alleviation of symptoms.

There is another patient about to leave the hospital to-day, on whose case I wish to make some observations. This young man, whom you have seen lying in the chronic ward, in the bed next but one to Byrne's, caught cold about seven or eight months ago, followed by cough, wheezing, and dyspnœa, which, after a month or six weeks, subsided. About two months before he came into the hospital, he renewed his cold, and

with it the cough and dyspnœa returned. On his admission, he complained of difficulty of breathing, which attacked him every night; he went to bed well, and slept tranquilly for two or three hours, and then was awakened by pain and sense of tightness in the chest, with great dyspnœa. When the paroxysms came on, it compelled him to get up and walk about the room, gasping for breath; and, after continuing for two or three hours with great dyspnœa, wheezing, anxiety, and cough, went off with free expectoration and sweating. As soon as the sweating and expectoration appeared, he lay down without any inconvenience, and slept quietly until morning. The only additional symptom he complained of was palpitation of the heart, which sometimes affected him when employed at hard labour. On examining the lungs there was nothing found except a few bronchitic râles. The heart was normal in its action, and no morbid sound could be detected by the stethoscope. In addition to this, you will recollect that the man was in the prime of life, had a full and well-informed chest, a quiet pulse, regular bowels, and a good appetite.

Here you perceive a man from repeated colds gets chronic irritation of the bronchial tubes, and this induces asthmatic paroxysms, which come on, as is usual in such cases, at a certain hour of the night. It was plain, therefore, that he was labouring under a well-marked form of asthma, a disease which, in its pure and simple state, is seldom met with in hospitals, being generally observed in connection with the disease of the heart, or long-continued bronchitis in old persons. Chronic bronchitis is one of the most common causes of asthma; indeed, you will scarcely ever meet a patient who has been subject to chronic irritation of the bronchial tubes, who does not also labour under more or less asthmatic dyspnœa. The disease is generally met with in persons advanced in life, and who have suffered from repeated attacks of bronchitis; it is not usual to find it in so young a man as this patient, and presenting, as he does, such very slight symptoms of derangement of the bronchial mucous membrane.

This case exhibits a remarkable proof of what may be done by simple means in relieving an urgent disease. The man was, with the exception of asthma, in good health; his bowels were regular, his appetite good, his pulse tranquil, and the signs of pulmonary irritation trifling. There was no necessity, then, for administering remedies to improve the tone of the digestive organs, nor were we authorised to use the lancet or apply leeches. I therefore confined my attention to two points: the application of irritants to the neck and chest externally, and the internal use of remedies calculated to relieve bronchial irritation. I ordered him to rub the nape and sides of the neck, and the fore parts of the chest, with a liniment composed of strong acetic acid, ℥ss., spirit of turpentine, ℥iij., rose-water, ℥iss., essential oil of lemons a few drops, and yolk of egg in sufficient quantity to suspend the turpentine. This liniment is an imitation of the celebrated liniment of St. John Long. I gave a bottle of the real liniment to Dr. Apjohn, to analyze, and he thinks it consists of acetic acid, spirit of turpentine, and two animal matters, one containing azote, the other not; the latter probably some species of fat, probably goose-grease. Now this fat did not exist in St. John Long's liniment in the form of soap, it was evidently some kind of fatty matter blended with water, probably by means of trituration with yolk of egg. The active ingredients are spirit of turpentine and strong acetic acid. This liniment

should be applied by means of a sponge. It acts as a rubefacient, and generally induces an eruption of small pimples after a few applications. The spirit of turpentine must be well mixed with the water (which ought to be added to it gradually) by means of yolk of egg, before the acetic acid is added.

With this liniment our patient was desired to rub the fore part of the chest, and the nape and sides of the neck. It was applied to the chest with the view of relieving the bronchial irritation, and we ordered it to be rubbed over the nape of the neck, along the course of the cervical portion of the spinal marrow, and over the sides of the neck along the course of the pneumogastric nerve, because all the organs to which the latter nerve is distributed, are evidently affected in cases of spasmodic asthma. Thus a paroxysm of asthma is not only attended with increased action of the heart, dyspnœa, and hurried breathing, but also with marked derangement of the stomach, particularly towards the termination of the fit, when the patient generally has a feeling of uneasiness in the stomach, with flatulence and a sense of fulness, induced probably by the derangement of circulation in the lung. You are aware of the close sympathy which exists between the stomach and lungs, and you must have been struck with the fact, that stimulant and irritating remedies applied to the epigastrium often relieve affections of the lung more completely than when applied to the chest. Thus in using the tartar-emetic ointment for the relief of hooping-cough, it has been found to act most beneficially when applied over the region of the stomach; and the same thing may be said of Roche's embrocation, which does more good when rubbed over the spine or epigastrium, than when applied to the parietes of the thorax. On these principles, I ordered the counter-irritation to be applied over the course of the cervico-spinal and pneumogastric nerves, over the chest, and subsequently over the stomach.

This liniment in a very short time produces redness and heat of the parts to which it is applied, and it is more than probable that its effects are not limited to temporary rubefacience, but that it also acts on the nervous system. We have innumerable proofs that turpentine exercises a special influence over the nervous system, and we know that it is rapidly absorbed even without the aid of friction. I fear, however, that we shall never be able to confer on our liniment all the wonderful properties attributed to that of St. John Long. You know it has been asserted that St. John Long's liniment never reddened the skin, except over the exact spot where disease was situated. I was assured by a young lady who used this liniment, that she rubbed it all over the chest, and that it produced no discoloration of skin, except in two spots where she felt pain. She at first mentioned but one spot which was painful, but St. John Long, having applied the liniment himself, told her she had deceived him, and that there was pain in another spot. It had other effects equally miraculous. An eminent Dublin lawyer declared that it drew nearly a pint of water from his head, and Lord Ingestre testified that it extracted quicksilver from his brain! These, and other wonderful stories, told by several persons of distinction with a full belief in their authenticity, furnish a useful lesson to mankind, showing that gross credulity is not confined exclusively to the poor and the ignorant, but may be found among the highest classes of society. It is a singular fact also, and illustrative of the tendency which exists in human nature to deceive and be deceived,

that notwithstanding the repeated failure, and even fatal effects, of St. John Long's applications, many persons still regard his opinion as oracular, and look upon his remedies as inestimable discoveries. When I mentioned to the gentleman who brought me the bottle of liniment, that St. John Long himself died of phthisis, and brought this forward as a strong argument against the infallible efficacy of his remedies, he said that this very circumstance was one of the most remarkable proofs of his sagacity, for St. John Long had always maintained that the liniment was not suited to his own case, and that there was something in his constitution which neutralised its good effects; and so it happened, for when he applied the liniment to his skin it did not produce the red spots which usually resulted from its application in other persons. In fact, such was the credulity of St. John Long's patients, that his death passed among them as the strongest proof of the infallibility of his medicines. Indeed he is considered by many of our nobility as a sort of medical martyr, who, having sacrificed life in the accomplishment of his mission, rising from earth, let his mantle fall on the highest bidder!

But to return to our patient. In this case the liniment did a great deal of good, but it was not the only means we employed. We observed that the asthmatic paroxysm came on every night, continued for two or three hours, and then went off with free expectoration and sweating. In order to prevent this, we gave him a draught, which he was to take when awakened by the pain and sense of tightness in his chest. He took this, and it had the effect of arresting the paroxysms, so that he no longer found it necessary to leave his bed. That this remedy had succeeded in averting the disease, was plain from the following circumstance:—one day the clinical clerk had omitted to repeat his draught, and he consequently got no medicine; on that night the asthmatic paroxysm returned and went through its usual course as before. This draught was very simple, being composed of half a drachm of tincture of hyoseyamus, half a drachm of vinegar of squills, and the same quantity of ipecacuanha wine in an ounce of camphor-mixture. It is scarcely necessary for me to explain the intention of the ingredients. The tincture of hyoseyamus possesses narcotic and antispasmodic properties, and ipecacuanha and squill are known to have great efficacy in disease of the bronchial mucous membrane, being both promoters of expectoration, and the latter also acting on the urinary organs. Without, however, attempting to explain the precise mode in which each of these ingredients acted, it will be sufficient to state that the combination had a beneficial effect, and checked the asthmatic paroxysms. We persevered in using it, as well as the liniment, until all tendency to asthma had disappeared, and the normal state of the function of respiration became perfectly re-established.

Permit me, gentlemen, to make a few observations here on what is popularly termed cough. What is cough? A sudden and violent expulsion of air from the lungs, produced by forcible contraction of the diaphragm, aided by the abdominal and other expiratory muscles. What is the cause of cough? Pulmonary irritation. What is the nature of this pulmonary irritation?

Here, gentlemen, is a question which every practitioner should put to himself when called on to treat a case of cough, and what affection is there which so frequently demands our assistance, and tasks our ingenuity? How abundant, how varied, are the examples of cough we

meet with in our daily practice! How obscure do we not find its nature on many occasions, and how difficult and perplexing its treatment! Where the source of irritation is manifest, where the nature of the disease is simple and easily detected, where, after a proper examination, we can point to some part of the respiratory system, and say here is the seat of the disease; in such cases, indeed, our course is sufficiently clear; we may proceed with confidence, and practise with success. But how often are we, after weeks and even months of close and painful attention, baffled in our best-directed efforts, and forced to admit the humbling conviction that all our remedies are inefficient and useless, and that our character, as well as that of the profession, is likely to suffer in public estimation! How often, too, do we discover with surprise, that the cough which we have been treating for weeks as a pure pulmonary affection, depends not on any primary derangement of the respiratory system itself, but upon the irritation of some distant organ, or upon peculiar conditions of the whole economy!

Before I proceed to inquire into the nature of the various sources of pulmonary irritation producing cough, I wish to remark that the exciting cause, or, in other words, that which immediately precedes and seems to give rise to a tendency to cough, is a sensation of tickling in the mucous membrane of the trachea, close to its bifurcation, and opposite the hollow at the fore part of the neck. It is also a curious fact that this sensation of tickling or itching is peculiar to this situation, being never felt in any other part of the pulmonary mucous system. Whether the disease be seated above, as in case of laryngeal affections, or whether it be below, as in case of disease of the lining membrane, or parenchyma of the lung, *it is here alone that the tickling sensation is felt.* Another circumstance equally remarkable, and equally difficult of explanation, is the effect of position in cough. Persons labouring under slight bronchitis, or rather slight inflammation of the trachea, who scarcely cough half a dozen times in the course of the day, will, the moment they lie down at night, be seized with a violent and harassing cough, which may last for several minutes, and sometimes for hours, with little intermission. We can easily understand why empyema or pneumonia of one side of the chest may produce cough in certain positions and not in others, for here we have an obvious physical cause; the accumulated fluid in the pleural cavity in the one case, and the diseased lung, whose specific gravity has been much increased by solidification, in the other, exercise an inconvenient degree of pressure on the sound lung, and hence give rise to irritation and cough, particularly in those positions which favour the operation of such physical causes of irritation. Here, however, the cause of irritation is very obscure. It may (but this I merely offer as an hypothesis) depend on the fluid secreted by the mucous membrane trickling over that part of the trachea where the tickling sensation is felt, the flow of mucus to this part being favoured by the recumbent position. That it does not depend on any supposed temporary congestion and irritation of the lung, from the impression made on the skin by cold bed-clothes, I am quite convinced, for I have repeatedly observed it in persons warmly dressed, from merely lying down on a sofa close to the fire. You will, therefore, bear in mind, gentlemen, that although usually, when coughing is induced by any sudden change of position, we may infer that it is connected with some serious lesion of the lungs or pleura, yet we must not attach too much importance

to this symptom, for cases are occasionally met with, in which mere tracheal or bronchial inflammation is attended with the same symptom to a very remarkable degree.

I may observe *en passant*, that the sensation of tickling or itching appears to be almost exclusively confined to the skin. Here it appears to be dependent on slight causes, apparently incapable of producing that modification of nervous sensation termed pain. In other cases it seems to be connected with the rise and decline of the phenomena which indicate inflammatory action, arising, in the first case (where it is generally less observable) from that nervous modification which precedes inflammation; and, in the second, being connected with some change in the nerves of the part which announces its return to a healthy condition. It does not appear to affect the mucous tissues, except in a very slight degree, and under peculiar circumstances. It is not observed in the pulmonary mucous tissue, except at that part of the trachea which I have already mentioned, and it does not occur in any part of the intestinal mucous membrane. The only parts connected with the intestinal tube, in which it is felt, are the nose and the anus, and here it is within the reach of scratching, the ordinary mode of relief. This is a fortunate circumstance, gentlemen, for if any part of your bowels were to itch as your skin sometimes does, the annoyance would be quite intolerable. If the presence of lumbrici in the small intestines, instead of producing a troublesome itching of the nose—if it produced, I say, a degree of itching equally intense in the mucous membrane of the bowels and stomach, what patient could endure greater torments than a person so afflicted? If ascarides gave rise to as intense a degree of itching within the colon as they occasion at the verge of the anus, how dreadful would be the suffering thus induced!

Passing over the obvious and well-known sources of pulmonary irritation, producing cough, such as bronchitis, pneumonia, &c., the first case to which I shall direct your attention is one of not unfrequent occurrence and where a mistake in diagnosis may lead to a practice useless to the patient and discreditable to the practitioner. The best mode of illustrating this is by giving a brief detail of a case which I attended with Dr. Shekelton. A young lady, residing in the neighbourhood of Dorset Street, was attacked with symptoms of violent and alarming bronchitis. The fits of coughing went on for hours with extraordinary intensity; it was dry, extremely loud, hollow, and repeated every five or six seconds, night and day, when she was asleep as well as when she was awake. Its violence was such that it threatened, to use a vulgar but expressive phrase, to tear her chest in pieces, and all her friends wondered how her frame could withstand so constant and so terrible an agitation; and yet she fell not away proportionably in flesh, had no fever, and her chest exhibited nothing beyond the râles usually attendant on dry bronchitis. She was bled, leeches, blistered, and got the tartar-emetic mixture, but without experiencing the least relief. We next tried antispasmodics, varying and combining them in every way our ingenuity could suggest, still no change. We next had recourse to every species of narcotics, exhibiting in turn the different preparations of conium, hyoscyamus, opium, and prussic acid, but without the slightest benefit. Foiled in all our attempts we gave up the case in despair, and discontinued our visits. Meeting Dr. Shekelton some time afterwards, I inquired anxiously after our patient, and was surprised to hear that she was quite recovered and in the enjoyment of excel-

lent health. *She had been cured all at once by an old woman.* This veteran practitioner, a servant in the family, suggested the exhibition of a large dose of spirit of turpentine, with castor-oil, for the purpose of relieving a sudden attack of colic: two or three hours afterwards the young lady passed a large mass of tape worm, and from that moment every symptom of pulmonary irritation disappeared.

The next kind of cough, in which the cause of pulmonary irritation is often misunderstood, is that which occurs in hysteric females. This cough constitutes one of the most alarming diseases in appearance you can possibly witness; in some, it is loud, ringing, incessant, and so intensely violent, that one wonders how the air-cells or blood-vessels escape being ruptured. In others, it is quite as incessant, occurring every two or three seconds, night and day, but is not very loud, and, indeed, in some it scarcely amounts to more than a constant teasing hem; in general, the pulse is quick, but it is the quick pulse of hysteria, not of inflammation or fever. The patient suffers no aggravation of the cough from inspiring deeply, and her countenance exhibits no proof of malaëration of the blood, on the contrary it is blanched and pallid. She complains of variable or deficient appetite, headache, cold feet, and irregular or absent catamenia, and notwithstanding the cough continues for weeks or even months, she does not emaciate like a person in incipient phthisis, although so much disturbed by the cough, and subsisting on so small a quantity of food.

Here the history of the case, a knowledge of the patient's habit, and the use of the stethoscope, are of great value. You will find that the patient is subject to hysteria, that she is generally pale and of a nervous habit, that the attack came on suddenly, and was superinduced by mental emotion, or some cause acting on the nervous system, or else arose gradually as one of the sequelæ of catamenial disturbance, that the heat of skin and state of pulse are by no means proportioned to the violence of the symptoms, and the stethoscope will tell you that the signs of organic derangement of the lung are absent. You will thus be enabled to arrive at an accurate notion of the nature of the disease, and you will save the patient from the useless and often dangerous employment of antiphlogistic means. Ebleeding and leeching are, generally speaking, injurious; such cases are best treated by stimulants, antispasmodics, and stimulant purgatives, together with change of air, travelling, and the use of chalybeate Spa waters.*

The third species of obscure cough, to which I shall direct your attention is one of deep importance for many reasons. It is that species of cough which depends upon pulmonary irritation connected with a venereal taint in the system. That syphilis may attack the pulmonary as well as the cutaneous, osseous, mucous, and other tissues, is not a discovery

* [The class of cases to which Dr. Graves here alludes, though rare, is sometimes met with. A very puzzling one of the kind occurred some years ago in a young lady, whom I saw, in consultation with Dr. Jackson, of this city. It was a case which resembled in some respects incipient phthisis; there was, however, little emaciation, and none of the usual physical signs of tuberculous disease could be found. We directed for her a good nutritious diet, tonics, and the use of counter-irritants to the spine. Under this treatment she finally recovered.—W. W. G.]

of modern times ; it is a form of the disease long known, and you will find it mentioned by many of the old writers.* Since syphilis has been classed by Willan and others among diseases of the skin, this notion seems to have been either abandoned or forgotten, but, as it strikes me, with very little justice. I entertain a firm conviction that syphilis may affect the pulmonary as well as it does the cutaneous, or mucous, or osseous tissues, and that a patient, labouring under a venereal taint, may have irritation from this cause set up in the lung as well as in any of those organs in which it is usually manifested. The first person who mentioned this circumstance to me was the late Mr. Hewson, and since that time I have had repeated opportunities of confirming the truth of his opinion. Richter, Alibert, and Paget, have well observed, that Willan and Bateman's classification of diseases of the skin is liable to the paramount objection, that it has no reference to the constitutional origin of cutaneous affections. I have the very same fault to find with modern treatises on diseases of the lungs. Pathologists have indeed inquired most accurately into the numerous morbid changes to which the pulmonary tissue is subject, but they have omitted a no less important part of their task, which is to investigate the states of constitution which originated these changes. The agency, indeed, of scrofula has been investigated with care, but how little attention has been paid to rheumatism, gout, syphilis, and scurvy, the fruitful sources of numerous diseases of the chest.

By far the most interesting point connected with this affection is its diagnosis ; on this every thing depends. The great importance attached to the diagnosis arises from the circumstance of this disease presenting symptoms analogous to, and consequently being frequently confounded with, phthisis. A patient comes to consult you for cough ; you find him pale, emaciated, and feeble ; he sleeps badly, and is feverish at night, and has a tendency to sweat. Here there may be a double source of error. If the disease be mistaken for tubercle, and mercury not given, bad consequences will result ; on the other hand, if tubercles be present, the effect of administering mercury will be to precipitate the disease to a fatal issue.

What is the nature of this disease, and how are you to recognise it ? Mainly, I answer, by the history of the disease. If the patient's sufferings have commenced at the period of time, after primary sores on the genitals, when secondary symptoms usually make their appearance ; if some of his complaints are clearly traceable to this source ; if, along with debility, night-sweats, emaciation, nervous irritability, and broken rest at night, we find cough ; and if this group of symptoms have associated themselves with others, evidently syphilitic—such as periostitis, sore throat, and eruption on the skin—then we may, with confidence, refer all to the same origin, and may look upon the patient as labouring under a syphilitic cachexy, affecting the lungs as well as other parts. In forming this diagnosis much caution and care are necessary, and we must not

* The Germans were also aware of this circumstance. " Auch das Quecksilber hat die Empfehlungen einiger Aerzte, und noch neulich Hecker's erhalten. Demungeachtet passt es als ein stark Oxydirendes Mittel in der Lungen schwindsucht nicht, am wenigsten in der Phthisis pulmonalis ulcrosa. Höchstens kann es seinen Platz in der Phthisis tuberculosa finden, wo diese nämlich scrophulösen oder syphilitischen Ursprung ist, jedoch auch hier nur in Anfange der krankheit, und stets nur in Verbindung mit dem opium und dem Hyosciamus." — *Ueber die Erkenntniss und Cur der Chronischen Krankheiten des Menschlichen Organismus von Dr. WILHELM ANDREAS HAASE.*

draw our conclusion until we have repeatedly examined the chest by means of auscultation and percussion ; if these fail to detect any tangible signs of tubercles, or if we discover only a trifling amount of disease in the lungs, whilst the constitutional symptoms are those that usually attend the advanced stages of phthisis, we may then proceed to act upon our decision and may advise a sufficient but cautious use of mercury. Under such circumstances, it is most pleasing to observe the speedy improvement in the patient's looks and symptoms ; the fever, night-sweats, and watchfulness diminish ; he begins to get flesh and strength, and, with the symptoms of lues, the cough and pectoral affection disappear. I am not prepared to say which of the pulmonary tissues is most usually attacked by the venereal poison, but I believe that it chiefly tends to the bronchial mucous membrane, although, like other animal poisons—*e. g.*, those of measles and scarlatina—it may also occasionally produce pneumonia.*

The fourth species of obscure pulmonary irritation, producing cough, is that which is connected with a gouty diathesis. Gout may attack almost every tissue in the body. We may have it in the joints, as you are all well aware ; we may have it in the muscles and muscular aponeuroses, forming what has been termed the rheumatic gout ; it occurs frequently in the fibrous tissues, and I have several times observed it in the cellular substance of various parts of the body, forming either diffuse edema or tumours, which are exceedingly tender to the touch, and are removed by treatment calculated to relieve the constitutional affection. It may attack the heart, giving rise to true pericarditis, or else to a functional disease with palpitations—a sensation of fluttering and sinking about that organ, and very remarkable intermission of the pulse ; or it may affect the stomach, occasioning dangerous spasm or various dyspeptic symptoms ; or it may seize on the intestines, producing irritation, colic, and gouty diarrhœa. I remember a patient, of a confirmed gouty habit, expressing a great deal of surprise at getting an attack of gout in the testicle, for he could not conceive how a disease which generally affects the joints could occur in an organ so different in its nature. I replied, that the matter could easily be explained ; because fibrous tissue, which gout most frequently attacks, enters into the composition of the testicle as well as that of the joints. Indeed, the testicle, with reference to the texture of its envelopes and the extent of motion it enjoys, may be said to be provided with a sac-like joint. In like manner, gout very frequently attacks the

* In page 93 of Dr. STOKES'S celebrated work on the "*Diseases of the Chest*," we find the following passage in confirmation of the views advanced above : " My friend, Dr. Byrne, whose situation, as a medical officer of the Lock Hospital, gives him the greatest opportunities of observation, informs us that he has, in many instances, seen patients who had been formerly diseased, and who had come into hospital either for new sores or for gonorrhœa, attacked with intense bronchitis and fever. This attack would come on suddenly, and the distress was so great, that bleeding had to be performed, the effect of which was, that soon after, a copious eruption often combining the lichenous and squamous forms, made its appearance with complete relief of the chest. In some of these patients, on the day before the eruption, the stethoscopic signs had been those of the most intense mucous irritation ; and yet, when the skin disease appeared *the respiration became either perfectly pure or only mixed with an occasional rhonchus in the large tubes.* The same gentleman has observed the reverse of this, as when a syphilitic eruption has been repressed, the bronchial membrane has become much engaged, and the patient affected with general febrile symptoms. These phenomena subsided after bleeding and mild diaphoretics, which had the effect of restoring the cutaneous eruption. Here," observes Dr. Stokes, " we have an additional evidence in favour of the analogy between this syphilitic bronchitis and that of the exanthemata."

mucous membrane of the trachea or bronchial tubes, causing a dry, annoying, and often a very obstinate cough. Where this cough comes on along with the fit of inflammation of the joints, its true nature is frequently overlooked, and it is believed to have originated in cold and to be mere common bronchitis. No matter what be the cause of inflammation in a gouty habit—no matter what the organ attacked by the inflammation be—it almost invariably assumes the character of true gouty inflammation. If a gouty person sprains a toe or an ankle, matters, after progressing for a time in the ordinary way, are sure in the end to exhibit a change of character; and the inflamed parts are observed either to grow unexpectedly worse, or to become stationary, at a time when a speedy termination of the local affection seemed approaching. This is owing to its being now modified by the constitutional tendency to gout, which localises itself in the affected part. Precisely the same relations may be often observed between common bronchitis, produced by cold in a gouty habit, and the gouty bronchitis it indirectly produces. Gouty bronchitis often becomes chronic, continuing until it is relieved by a regular fit of the gout in the extremities.

The fifth species of pulmonary irritation, in which the source of the disease is more or less obscure, is that which is connected with the scorbutic diathesis. It is important to be aware of this, particularly for those who have charge of the health of the poorer classes, which is almost of more value than that of the rich, for on it their labour and their means of support depend. Among the poor, particularly in cities where the majority live on provisions not sufficiently nutritious, the scorbutic diathesis is very prevalent. It manifests itself either in the form of purpura, or in tendencies to hemorrhage from the nose, stomach, bowels, and bladder. It sometimes attacks the lungs, producing irritation of the bronchial mucous membrane, with cough and spitting of blood, and occasionally gives rise to pulmonary apoplexy. It is evident that pulmonic cases of this nature, originating in a scorbutic diathesis produced by confined air, damp lodging, and insufficient diet, will require a treatment peculiar to themselves, both during the attack and during convalescence.

The last source of pulmonary irritation, to which I shall direct your attention, is that which proceeds from scrofula. You all know that scrofula has a tendency to attack every tissue in the body, but you may not perhaps be aware that it may affect those tissues in very different ways, and that scrofulous irritation may manifest itself in various forms, from the most trifling and transitory to the most extensive and permanent. I recollect a case I attended with Dr. Jacob, in which this fact struck me very forcibly. A fine boy, of high complexion, precocious intellect, and other marks of the scrofulous diathesis, got an attack of scrofulous ophthalmia of an intense character, and it required all the skill and ingenuity of Dr. Jacob to save him from blindness. During the period of our attendance, his brother (who was also of a strumous habit) began to complain of parts of his arm being sometimes a little sore. This circumstance attracted my attention, and on examination I found that several circular diffused swellings, of various sizes, often equaling half a crown in diameter, had successively appeared on different parts of his extremities and body. They evidently depended on inflammation of the subcutaneous cellular tissue, and exhibited a remarkable example of a most transitory local affection, produced by a constitutional cause—for these swellings

arose, arrived at their acme, and subsided in the space of ten or twelve hours: they constituted, in truth, the first efforts of the scrofulous diathesis to localise itself, and, after a few weeks continuance, they were replaced by distinct and *fixed* scrofulous inflammation of the metatarsal bones.

Here was a very curious and instructive fact. A boy, evidently of a scrofulous diathesis, has circumscribed tumours, which arise, come to maturity of irritation, and subside in the course of a few hours. In some weeks afterwards, scrofulous irritation, in a decided and permanent form, fixes itself in the foot, producing inflammation and ulceration. From this it may be inferred, that scrofula (for in this case I am firmly convinced these tumours were connected with strumous diathesis) may attack parts not only in its more permanent and destructive forms, but also in a manner so trifling and so transitory as to subside in a few hours, and leave no trace of its existence. The inferences deducible from this fact are numerous and important; for if the scrofula may thus produce an acute and transitory inflammation of the subcutaneous cellular tissue, surely it may occasionally give rise to somewhat similar affections of internal organs—as the bowels, the lungs, &c.—and thus may occasion an acute bronchitis, a pneumonia, or an inflammation of the mucous membrane of the intestines, totally independent of the operation of cold, or the usual causes of such affections. It has been too much the custom only to refer chronic and fixed local inflammations to the agency of constitutional causes. The example before us proves that even the most transitory may have this origin.

Scrofulous irritation may affect either the lining membrane or the parenchyma of the lung—giving rise in the one case to scrofulous bronchitis, in the other to scrofulous pneumonia; two affections which may exist separately or combined, and either of which may prove fatal, with or without the development of tubercles in the lungs. Tubercles have, as I have elsewhere proved, too exclusively engrossed the attention of those who have investigated the pathology of phthisis; they are a very frequent product of the scrofulous diathesis, but the scrofulous bronchitis and scrofulous pneumonia are still more frequent and more important, and do not, as is falsely supposed, depend upon the presence of tubercles in the lungs. The pneumonia, the bronchitis, and the tubercles, where they occur together, are all produced by one common cause—scrofula. Of this more hereafter.

LECTURE XXI.

Gangrene and Pleuritis.

I HAVE here the lungs of a patient who died yesterday in the fever ward, and to whose case I have frequently directed your attention. They present some pathological phenomena of considerable interest, and I advise you to examine them carefully after lecture.

The patient, who was advanced in life and of a feeble constitution, had been ill for a week before his admission, with symptoms of dyspnoea,

cough, and pain in the left side, which came on shortly after his recovery from an attack of fever. On examining him the morning after his admission, we found the inferior part of the left lung dull on percussion, the dulness extending much higher up posteriorly than anteriorly. On applying the stethoscope, we observed that, over a space about the size of two palms, no sound, morbid or otherwise, could be heard; but above the line which bounded this space there were crepitating râles and bronchial respiration. We had, therefore, a two-fold affection of the lung, pleuritis, as indicated by the pain in the side, dulness on percussion, and absence of all sound over a certain portion of the chest; and pneumonia, as indicated by cough and expectoration of viscid sputa, tinged with blood, dulness of sound on percussion, bronchial respiration, and crepitating râles. It is unnecessary for me to recapitulate all his symptoms, as I have, while visiting the wards, mentioned them in detail, and I shall merely state that our examination showed that this man, in the first place, was labouring under pleuritis, and that it was of that kind which is called dry pleurisy, and where there is no tendency to *considerable* effusion; and, in the next place, that he had pneumonia of the inferior lobe of the left lung, extending up into the middle lobe posteriorly. You recollect that, at the time of our examination, I marked on his skin with a pen the extent of the pleuritic inflammation as well as of the pneumonia, and you will find, by examining this lung, that my diagnosis was correct. You observe the pleura presenting, over its inferior part, latterly and posteriorly, an effusion of lymph, with a very small quantity of sero-purulent fluid; and here is the seat of pneumonia, which occupied precisely the portion I pointed out and no more.

With respect to treatment, it was antiphlogistic, pushed as far as the advanced stage of the disease, and the age and debility of the patient permitted. He was leeches and blistered, and this was immediately followed by the use of calomel and opium, and the application of mercurial ointment over the affected portion of the chest. This treatment appeared to check the disease and stop the progress of disorganization in the lung, at least it certainly arrested the pleuritis. The pulse became more tranquil, and what encouraged us to entertain some slight hopes was, that the difficulty of breathing subsided, and respiration became less frequent, although it was never reduced to any thing like the natural standard. I have already told you, that in studying acute and chronic affections of the chest, the two chief symptoms to be attended to, are the number of respirations which occur in a minute, and the amount of dyspnœa complained of by the patient. Here, though the respiration sank from forty to thirty, still they were nearly double the natural frequency; and this, coupled with the age and debility of the patient, forbade us to hope for a cure. Though the pulse had become more tranquil, and the bloody expectoration had ceased, though dyspnœa was no longer complained of, and the frequency of respiration had become reduced, still the man's countenance exhibited strong marks of suffering and debility, and the stethoscope showed that the disease still continued, and that there was no tendency to resolution in the affected lung. Here the stethoscope was of great value. A person ignorant of its use, observing the tranquil state of the pulse, the diminution in the frequency of respiration and the cessation of dyspnœa, might be led to believe that the man was getting better, and to pronounce that the period of convalescence was near. But the stethoscope told us that

the hepatization of the lung was not receding, and when we observed after a week, that it was still undiminished in extent, we were led to form an unfavourable prognosis. We knew that matters could not remain long in this state; we knew that the disorganised lung acted as an irritant tending to keep up disease, and that the man was every moment liable to a new attack of inflammation.

In the mean time the patient caught a fresh cold, from being exposed to the thorough air of our too well ventilated wards. This fell on his larynx, producing hoarseness, stridulous breathing, and copious expectoration. When an old person, reduced by some previous disease, catches cold, and gets, in consequence, a sudden and remarkable hoarseness, so that he can only speak in whispers; when, in addition to this, he has cough, stridulous breathing, and copious muco-purulent expectoration, you may be sure that the case is a bad one, and the patient in most imminent danger. Inflammation of the larynx in children is, you all know, a violent disease; it terminates in an effusion of lymph which, if not prevented, or remedied, by the most prompt and decided measures, too often produces fatal obstruction to the entrance of air, and death from asphyxia. In the adult, laryngitis does not, except in a very few instances, cause an effusion of lymph; still it is a severe disease, and well calculated to excite alarm. *In the aged it is accompanied by considerable fever, and, what you would suppose likely to give relief, copious expectoration, evidently derived from the larynx itself;—and yet I do not recollect that I have ever seen an attack of this kind that did not terminate fatally.* I have very recently visited a case of this description, which occurred in the person of an eminent country practitioner, who had just come to Dublin. He got an attack of cold followed by hoarseness, which went on for two or three days without being attended to, until one evening he suddenly became alarmingly ill, and was obliged to send for his friend Dr. Evanson, who prescribed and called on me the next day. I found him labouring under hoarse breathing, constant laryngeal cough, prostration of strength, and enormous muco-purulent expectoration. His pulse was very rapid, he complained much of oppression of the chest, and died the following night, more with symptoms of exhaustion than of asphyxia.

The symptoms of laryngitis, which arose thus suddenly in our patient, were quickly succeeded by others. On Saturday morning we found him much worse, his countenance was sunk and livid, and his breath had become exceedingly fetid. His expectoration also exhibited a very remarkable change; it was greenish, ichorous, and had a most intolerable fetor. He now began to manifest symptoms of awful prostration, his distress of respiration became intense, his eyes fixed, his extremities cold, and he expired in about forty hours from the commencement of the attack.

Here, gentlemen, a man, after fever, gets an attack of pleuro-pneumonia, this is relieved to a certain extent by treatment, but the hepatization remains unresolved. At the end of three weeks he gets an attack of laryngitis; in addition to this, gangrene seizes on the diseased lung, and he sinks with great rapidity. Where gangrene attacks the limbs it may creep on slowly, and life may be prolonged for a considerable time, but when it fixes on internal organs its course is rapid, and generally proves fatal in a few days. In the lung, unless the patient's constitution is unimpaired and the disease limited, it will terminate quickly in death, and you have seen that in this case, it only lasted from Saturday until Monday morning,

that is to say about forty hours. After the acute stage of pneumonia had passed away, as denoted by the absence of fever and bloody sputa, and diminution of dyspnoea and frequency of respiration, the case assumes a chronic character, which continues for nearly a fortnight, and then a new order of symptoms appears, manifested by fetid breath and expectoration, sudden prostration of strength, hippocratic face, and cold extremities. Those who have watched this case must have been struck with these three remarkable stages: the first stage of inflammation, the succeeding one of chronic disease, and the termination in gangrene. It is not usual to find gangrene of the lung supervening on inflammation which has arrived at the chronic stage; it is most commonly the result of acute inflammation of intense character, and comes on at a very early period of the disease.

How are we to account for this sudden supervention of gangrene? There was nothing in the nature of the pneumonic inflammation to dispose it to terminate in this way. It had lasted for three weeks, and had arrived at a stage in which inflammation very rarely assumes the gangrenous character. To what, then, are we to attribute it? Partly to the debility of the man's constitution, and partly to an erysipelatous tendency in the air, which is now very prevalent. Except there was something to dispose the lungs to gangrenous disease, as an enfeebled habit and vitiated quality of atmosphere, we could not, under the existing circumstances, have expected such a termination. That this view of the subject is correct, is shown by the simultaneous occurrence of gangrene in another part, which had not been previously diseased, or subject to inflammation, except shortly before the man's death,—I allude to the larynx. If you examine the larynx you will find the mucous membrane at the posterior surface, and where it invests the chordæ vocales, destroyed by gangrenous sloughing. You perceive, then, we had gangrene in the larynx and lung, simultaneously. The gangrene of the lung was not therefore attributable to the occurrence of local inflammation having a tendency to gangrene, but dependent upon a constitutional affection produced by debility and a vitiated state of atmosphere. If this man had chanced to get a wound on any part of his body, I have no doubt but that it would have exhibited a gangrenous character, and, in the same way, if he happened to get inflammation of the bowels, it is most probable that this also would have ended in gangrene. I have frequently, in the advanced stage of fever, where the patient is much reduced, and where signs of a morbid condition of the fluids are present, seen gangrene occur simultaneously in various parts of the body. What I wish to impress on you is, that though the inflammation of the lungs ended suddenly in gangrene, it was not in consequence of the inflammation having in itself any such tendency, but in consequence of a change produced in the man's constitution by atmospheric influence, and which was favoured by his advanced age and great debility.

The inference to be drawn from the sudden occurrence of gangrene in this case is, that it does not depend merely on violence of inflammation. At one time pathologists were inclined to believe that gangrene was invariably the result of excessive inflammation, or at least of inflammatory action disproportioned to the vitality of the parts attacked, and that it was possible to prevent any inflammation from ending in gangrene by prompt and active treatment. But there are certain states of the constitution which have a tendency to convert every form of inflammation into gangrene,

and that wholly independent of the violence of the local inflammatory action. Thus, a person reduced by fever, small-pox, or malignant scarlatina, becomes liable to be attacked with gangrene in various parts of the body from the slightest causes. In all parts which are exposed to any degree of pressure, you will, under such circumstances, have gangrenous sores formed; and, even in parts where no degree of pressure has been exercised, sphacelus is not unfrequently produced, as we see in many cases of confluent small-pox, and in the mortification of the pudenda in female children, which sometimes occurs in bad measles. In such instances, gangrene is not preceded by symptoms of inflammatory action; and, in the present case, it is very probable that no inflammation of the lung, properly so called, preceded the gangrenous affection which terminated life.

Permit me now to direct your attention to the case of a man named T. Kelly, who lies in the upper fever ward, and has been under the care of Mr. Knott. He is at present labouring under an attack of pleuritis and pneumonia, each modifying the other—the pleuritis being here also of that nature which is, by contra-distinction, termed dry. A few particulars in this case demand our notice. In the first place, from looking at this man and examining his pulse, you would never suppose that he was labouring under a formidable disease. A careless observer, finding the pulse to be soft, regular, and only seventy-two in a minute—that respiration was tolerably free, and the skin cool—might here very easily overlook the true nature of the disease, and say this man has no fever, no inflammation of any internal organ. Yet a careful examination shows that the right lung and pleura are extensively engaged. In the next place, we find that the pleuro-pneumonia has attacked the upper part of lung instead of the lower. Pneumonia has a great tendency to attack the lower and posterior parts of the lung; indeed, so frequently do we meet it in this situation, that we look upon its occurrence in the upper part of the lung as a rare exception to a general rule. The third point connected with this case is, that, though the patient is labouring under pleuritis and pneumonia, his blood does not exhibit the slightest symptom of being affected by this combination of violent inflammations. When drawn from the arm, it separated very imperfectly into crassamentum and serum, and there was no deposition of that buffy coat which has been so often noticed by our ancestors, as occurring in pleuritis, and hence termed *crusta pleuritica*. Here, from observing that there was no perfect formation of coagulum—no cupped or buffed appearance in the blood, and that the pulse was soft and regular—some persons would have argued that no inflammation was present; but how false and dangerous such a conclusion would be, any one may convince himself by making a careful stethoscopic examination. The fourth point (which was first observed by Mr. Knott) is, that there is a considerable disproportion in the sides of the chest; the right side measuring two inches and a half more than the left. Now, there must be some cause for this; and as the man has pleuritis on this side, it would be natural to infer that there is a considerable effusion of fluid in the cavity of the pleura, and that the dilatation of the side is produced by empyema. There are some circumstances, however, in this case which forbid us to adopt such a conclusion. In the first place, this great increase of size in one side of the chest would indicate a very considerable effusion. By empyema, I do not mean the effusion of a quan-

tity of lymph, which does not push back the lung more than a line, but an effusion of fluids of various densities, in different patients, and in large quantity, exercising very considerable pressure on the lung, and pushing it back towards its root. There are two circumstances in this case which should be attended to; first, the man is a labourer, and in such persons the chest, measured across the pectoral muscles, is always found to be on the right side half an inch, and sometimes nearly an inch, larger than it is on the left. This is accounted for by the increased development of the muscles of the right side from constant use. In the next place, we find that this man has not only pneumonia and pleuritis, but also a tendency to superficial inflammation occupying the parietes and integuments of the chest, as indicated by a feeling of pain and soreness in various regions of that side, but particularly at the lower part, where the sound is clear on percussion. Now, where the sound is clear on percussion, you are aware that no effusion of fluid exists. The fact is, that, in addition to pleuritis and pneumonia, the man is labouring under pleurodynia, with a tendency to inflammation in the superficial parts of the chest. Under these circumstances, we should not be surprised to find some edema of the parts; and here we have a second cause for the greater measurement of the right side of the chest.

These are the only points connected with this case to which I shall advert at present, except to mention that the treatment was obviously indicated to be antiphlogistic. You might perhaps think that in treating this man it was a matter of indifference whether you had recourse to tartar emetic, either alone or in combination with nitrate of potash, or to calomel and opium; but you may lay it down as a rule now firmly established, that in cases like this, the mercurial plan answers much better than tartar emetic. After bleeding this man, then, we gave him mercury in such doses as to affect his system as rapidly as possible, and we followed up our general means of depletion by the application of leeches, *which, in all inflammatory affections of the chest, are indicated in proportion to the pain and tenderness of the chest complained of by the patient.* Indeed, something similar must guide us in judging how far we are likely to procure relief, *in cases of inflammation of any internal organs, by means of the application of leeches to the surface over the organ affected.* No good is ever obtained by their application, unless tenderness or soreness on pressure be distinctly observable, and the relief is always proportioned to the diminution of this tenderness where it existed; where it does not exist, the application of leeches only leads to loss of time, and we must employ other remedies in such cases.*

There is another symptom in this case which might deceive you into the belief that empyema is present; the motions of the right side of the chest are much more limited than those of the left. When you look at him stripped, you perceive an obvious difference between the respiratory

* [Cups are almost always a better remedy than leeches in the treatment of inflammatory affections of the chest. In fact, leeches are procured with so much difficulty by physicians in the country, and are so often bad, or at least indifferent, that cups should always be substituted for them when practicable to do so. In pleurisy, however, it is not a simple substitution of a bad for a good remedy,—cups are more efficacious as well as much more readily applied.—W. W. G.]

motions on each side ; the motions of the unaffected are free, and much more extensive than those of the diseased side. Now, generally speaking, this is a symptom commonly observed in empyema and a few other diseases. It may also exist where there is extensive hepatization of one lung, for, in proportion to the impossibility of air entering the diseased lung, will the motions of the corresponding side of the chest be diminished. How are we to account for it in this man's case? The pneumonia is not extensive enough to cause it, and we have no evidence of the existence of any effusion into the pleural sac sufficient to explain it. The only way we can account for it is by recollecting that the man has pleurodynia ; and, as every attempt at dilating the chest gives him pain, he endeavours to curtail its motions on that side as much as he possibly can. This is a fact well worthy of notice. It exhibits to us a beautiful provision of nature, which enables a person, by an intense discharge of the respiratory function in one lung, to compensate himself for a limited and imperfect performance of it in that half of the chest where it is limited by pain, paralysis, or disorganization.

As I am on the subject of pneumonia, it may be necessary to make a few remarks on some points connected with it, and first with respect to the expectoration. With the characters of true pneumonic sputa, I suppose, you are sufficiently acquainted ; you had many opportunities of examining the expectoration of the patient who died of gangrene of the lung at the time he was labouring under acute pneumonia, and while hepatization was still going on.

Dr. STOKES does not consider the character of the sputa of much value in pneumonia. He says, " Although the sanguinolent and viscid character of the expectorated mucus is observed in many cases of pneumonia, yet it is any thing but constant. In fact pneumonia may occur with all varieties of expectoration, from a scanty and colourless mucus, to the most different characters of secretion. It often occurs without any characteristic expectoration, and may thus pass even to its advanced stages. Generally speaking it may be said that the *crachats rouilles* of the French, are found in the more active cases of pneumonia, which occur in robust habits ; but I am convinced that in a large proportion of the hospital patients, in whom the disease occurs in feeble constitutions, in the child, or as a complication or sequel to fever, the appearance of the sputa has little value." — *Treatise on Diseases of the Chest*, page 320.

But I wish to observe—and I beg you will impress this on your minds—that *there may be cases of extensive pneumonia without any expectoration from the commencement of the disease to the period of complete resolution.* A case occurred in this hospital, of a young woman, named Mary Nowlan, who had half one lung and the lower third of the other hepatized during a severe attack of pneumonia, and yet it was not accompanied at its commencement by expectoration, there was no expectoration during its continuance, and resolution went on, and the lung was restored to its healthy condition without any expectoration. She remained in the hospital for two months, the lung being extensively engaged ; and during this time she was carefully watched, but we never could discover any thing like sputa from the beginning to the end of the disease. We have lately had under our observation a case of pneumonia after measles, in which a similar absence of the expectoration was observed. This is a very singular but instructive case. Another fact with regard to expectoration.

A man may get an attack of pneumonia, and, in consequence of the rush of blood which accompanies the first access of inflammatory action in the lung, may have at the beginning some bloody expectoration, but after a day or two this subsides; and though the lung is considerably affected, the patient may not have any expectoration whatever throughout the whole course of the disease up to the period of total resolution. I have seen this occurrence most distinctly marked in a case which I attended with Sir Henry Marsh. A gentleman, who had got an attack of acute pneumonia, had bloody expectoration for the first and second day, but on the third, when I saw him, it had ceased, and all expectoration continued absent for five weeks, at the end of which he completely recovered. He was an intelligent and scientific man—knew well what was the matter with him, and entertained the old notion that all inflammatory affections of the lungs resolve themselves by expectoration. Hence he looked day and night for its occurrence with considerable anxiety, but not the least sign of sputa appeared. In this case the hepatization, which was very extensive, became completely resolved in the course of five weeks, and yet it is a singular fact that there was no expectoration whatever, from the commencement of resolution to its termination. Hence you may perceive, that in pneumonia the sputa may be absent from the beginning to the end of the disease; and that though the hepatization may be very extensive, still resolution will occur without the slightest expectoration. Again, inflammation may attack a considerable portion of the lung, and the patient may have bloody expectoration for the first two or three days, or during the stage of congestion; this may cease altogether, and the patient have no sign of sputa of any description up to the period of complete resolution. These are, no doubt, rare exceptions to the general law which regulates the course of pneumonic inflammation, in which we have sputa of one kind or other at every period of the disease; but they possess a considerable degree of interest, and it is of some importance to be acquainted with them.

Allow me to repeat here an observation I have already made. The lung becomes attacked by inflammation, this goes on to hepatization, that is, a certain portion of the pulmonary tissue which had been before pervious, becomes impervious; instead of being a soft, elastic, crepitating, sponge-like body, it becomes solid, inelastic, and very like that organ from which this condition derives its name, the liver. One of the most curious things, the knowledge of which we have arrived at by the discovery of the stethoscope, is, that not only small, but even very extensive portions of the lung may become thus solidified and altered in their texture, so that a return to the normal condition would seem almost impossible, and yet we know that a person may have nearly two-thirds of one lung reduced to this state of solidification, and still become afterwards as healthy as ever. Now, if you read Laennec's admirable remarks on pneumonia, and other treatises on the same subject, you will find that the circumstances which indicate the resolution of pneumonia, are sputa of a certain character, and the reappearance of crepitus. I need not repeat here what I suppose you are all aware of, that crepitus commences before hepatization, ceases on its appearance, and returns again when resolution takes place. The latter kind is what has been termed by Laennec, *crepitus redux*. The crepitus of resolution differs, however, from that heard in the earlier stages, in these particulars, viz., its bubbles are much larger

and moister, and it can be heard during the whole of the inspiration, and in a diminished degree during expiration. But in the other case the first part of the inspiration is pure, and the râle only appears at the termination of the effort, and is of an exceedingly fine and dry character. Nature accomplishes the resolution of pneumonia not only by absorption of those particles which the process of morbid action has deposited in the tissue of the lung, but by secretion into the air-cells and minute bronchial tubes, and it is the presence of this secretion which gives rise to the crepitus redux. Now, the observations which I have made with respect to the total absence of expectoration in some cases of pneumonia, apply here also; for where all sputa are absent, where there is no expectoration from the beginning to the end of the disease, you can have no crepitus redux. The fact which I wish to impress on your attention is, that in some cases of pneumonia expectoration may be completely absent; here the crepitus redux is never heard. Thus, in the case of Mary Nowlan, resolution went on to the re-establishment of the healthy and normal condition of the lung, without the slightest crepitus being heard. The same thing has been observed in two or three cases by my friend Dr. Dwyer. It is not necessary for the resolution of hepatization, that there should be increased excretion into the bronchial tubes, during the time nature is employed in absorbing the matter deposited in the lung. In the ordinary way it is removed partly by absorption and partly by excretion into the bronchial tubes. Sometimes, however, interstitial absorption alone seems to be sufficient for this purpose, and the cases I have mentioned prove that it is in the power of nature to remove the morbid product in this way, without calling in the aid of the bronchial tubes. I may, however, remark that such cases are rare, and that resolution proceeds much more slowly than where free expectoration is present.

LECTURE XXII.

Hæmoptysis — Pulmonary Apoplexy — Phthisis — Treatment of Hæmoptysis — Remarkable instances of recovery.

GENTLEMEN,—We shall now commence the consideration of hæmoptysis. Let us first consider it with reference to the different parts of the vascular tissue of the lungs, which are engaged in its production, and afterwards speak more accurately of the symptoms attendant on each. It may be well to commence with the source of hæmoptysis, because there are some misconceptions respecting it, and I do not think that it has been clearly laid down in books written on this subject; I shall, therefore, devote more time to the consideration of some points of the morbid anatomy of this disease than I usually do in a clinical lecture. Other circumstances, which you will find sufficiently described in written treatises, I shall pass over briefly. In order to comprehend fully the peculiarities of hæmoptysis, it is necessary that you should be intimately acquainted with the circulation of the lungs. Here you have not only the simple circulation, as in other parts, but, as in the liver, we have the vena porta for the formation of bile, and the hepatic artery for nutrition, so in the lungs we have the pulmonary arteries carrying blood, which is to be aerated, while the

bronchial arteries carry blood, for the support and reparation of the pulmonary substance. You are aware, gentlemen, that it has been lately shown that the lung is but a large gland, whose ducts are the bronchial tubes, and whose secreting surface is that of the air-cells. There is this difference in the sources from which blood is furnished to the lungs: the bronchial artery is small, and its blood red; the pulmonary artery immensely large, and carrying dark blood, which is to be aerated; the bronchial arteries follow the course of the bronchial tubes, interlace with and ramify over them, enter them, and are distributed in great profusion to their mucous lining. On the inflammatory action of these arteries, the redness and injection of the mucous membrane, observed in cases of bronchitis, depends. The bronchial arteries, also, send branches to the cellular membrane, connecting the air-cells, and to the surface of the lungs, but it is for the mucous membrane, lining the bronchial tubes, the greater part of their blood is destined.* You know, gentlemen, that if we examine the structure of the lungs, besides their vascular tissue, we observe they consist chiefly of ramifications of the bronchial tubes leading to air-cells. These cells may be represented as so many minute vesicles, each communicating by a minute aperture with an extremely small ramification derived from the bronchi. This fact has been shown and described by Reisseisen. The vesicles which are placed at the extremities of these minute branches, and the branches themselves, present certain differences, the vesicles presenting a greater degree of tenuity, and a strong resemblance to serous membrane. These distinctions between the structure of the air-cells and that of the bronchial tubes, cannot be easily recognised in the very minute tubes of the bronchial ramifications, but become more evident as we ascend towards the larger bronchi. The use of the air vesicles is to aerate the blood in the lungs, and it is on the parietes of those vesicles or cells, the ultimate branches of the pulmonary arteries are distributed.

When we come to speak of discharge of blood from the lungs, and to consider the phenomena it presents, we find that it may take place from the minute extremities of the bronchial, or of the pulmonary vessels. The seats of the ultimate ramifications, as I have before mentioned, are completely distinct, and it is important to recollect that they are so. Inject the bronchial arteries with as much care as you possibly can, and I say you cannot, by doing so, inject the vessels which ramify on the air-cells, nor can you, on the other hand, inject the vessels which are distributed to the mucous membrane of the bronchial tubes from the pulmonary arteries. Of this I am perfectly sure, for I have tried the experiment myself unsuccessfully, and have examined with the greatest care the beautiful preparations in the museum of Dr. Townsend, and neither he nor Dr. Houston could show me one instance of the bronchial mucous membrane having been injected from the pulmonary artery. Even the finest injections, used by Dr. Houston, at my request, in the lungs of dogs, failed to effect what would indeed be easy of accomplishment, if engorgement of the system of the pulmonary artery was capable of producing bronchial hemorrhage. There is, to be sure, a system of capillary vessels in the

* Reisseisen remarks, that by far the greater portion of this blood is returned, not by the bronchial veins to the right side of the heart, but by the pulmonary veins to the left side. Is this peculiarity owing to this blood being dissimilar to other venous blood, in consequence of being aerated in the bronchial tubes? or is it because it may be mixed with impunity with the great mass of aerated blood returning from the lung.

lung, through the medium of which an indirect communication is established between the bronchial and pulmonary arteries and the pulmonary veins. Dr. Law, of this city, in the article "Hæmoptysis," in the *Cyclopædia of Practical Medicine*, has handled the subject of the relative distribution of the vessels in the lungs with his usual ability. I cannot, however, see that Reisseisen, whom he follows, justifies him in considering hemorrhage from the bronchial tubes as a consequence of hemorrhagic engorgement of the system of the pulmonary artery. "We readily account for its frequency," says Dr. Law, "by the facility with which an injection is found to pass from the pulmonary into the bronchial artery." Reisseisen, it is true, points out that the bronchial and pulmonary arteries anastomose with the same system of capillaries on the surface copiously, and more sparingly in the cellular texture of the lung, but his description likewise proves, that the bronchial mucous membrane is exclusively supplied with red blood by the bronchial arteries. It is indeed true, that we can force injection from the pulmonary artery into the bronchial tubes, but even in such cases, the bronchial mucous surface is uninjected, and the injection finds its way therefrom into those tubes by other channels than the bronchial artery, or its ramifications, which would indeed be a retrograde course. I am, therefore, of opinion, from the reasons above stated, that when hæmoptysis, from the engorgement of the system of the pulmonary artery, takes place, it is in consequence of the direct effusion of blood from the branches of the pulmonary artery, which ramify on the air-cells, and that the blood expectorated on such occasions has nothing to do with the bronchial mucous membrane, or bronchial arteries.

When we recollect the peculiar texture of the lungs, and the quantity of blood which is sent through them at each stroke of the heart; when we consider the excessive tenuity and delicate structure of the air-cells, which, when the lung is inflated by inspiration (and that is the very moment when most blood rushes through it), imparts to the touch the feeling of an elastic but almost gauze-like and cellular substance, we are surprised to find that cases of spitting of blood are not much more frequent. The lung, however, is an organ so important to life, that if there was much danger of hemorrhage from its tissue, it would be a greater error in our structure than nature was likely to commit. Cases of this kind are comparatively rare, and we do not meet with them every day in our hospitals. Compare with the patients afflicted with dangerous and copious hæmoptysis the number of cases of bleeding from the nose, hæmatemesis, discharges of blood from the bowels, and hemorrhage in general, and you will find that the lungs are not more liable than other parts to sanguineous effusions.

When speaking of the vascular arrangements of the lungs, we mentioned that the bronchial mucous surface is supplied with blood from the bronchial arteries, and the air-cells from the pulmonary. Hence we can divide these discharges into two kinds, those which come from the pulmonary, and those which are derived from the bronchial arteries; and these will be found to be distinct, not only in their pathology, but also in their characters and the symptoms by which they are attended. We shall go through this minutely. Let us suppose that the pulmonary artery is disposed to bleed, what will take place? Its ultimate ramifications, which are distributed over the air-cells, get a hemorrhagic tendency, and blood escapes from them in two different directions, into the air-cells, and into the cellular tissue which connects them. That portion of blood which gets into the air-

cells will also get into the bronchial tubes, and may be spit up. That portion which gets into the intervesicular cellular tissue has no such exit: there it must remain and become coagulated and solidified. Now, as either of those effects may happen, we may have spitting of blood, or else effusion into the cellular texture, without hæmoptysis.* It is to the union of these two diseases the term *pulmonary apoplexy* has been applied, in which we have blood effused into the cavity of the air-cells, and outside their cavity into the cellular tissue. Now, what is the result of sanguineous effusion from the pulmonary branches? In the first place the blood is black, as you can perceive when it is spit up. It is also clear, that if this blood be detained for some time in the air-cells and bronchial tubes, it will become coagulated, and be spit up in clots. Many of the worst cases of spitting of blood are attended with this symptom; and it is not a mistake to suppose, as you see it mentioned in books, that blood expectorated from the lungs should be florid and frothy. You are told, gravely, that you can distinguish blood discharged from the stomach from that which is discharged from the lungs, by the difference of its colour, consistence, and the presence or absence of air bubbles. No, gentlemen, you cannot. If you see blood spit up which is dark and coagulated, and, from stethoscopic examination, have reason to think that it comes from the lungs, you will be convinced that the effusion is from the pulmonary artery. I do not mean to say, that when blood comes from the pulmonary artery it is always black and clotted; but I assert, that it is so in a great majority of cases; and in many cases of pneumonia, we find the sputa partake more of the venous than the arterial character, a circumstance which indicates its formidable source. It is obvious, that the blood spit up in those cases may also have a florid tinge where it has been imperfectly aerated, by the imperfect action of air bubbling through it before it is expectorated.†

* To establish the correctness of this explanation, it is necessary we should see the occurrence of pulmonary apoplexy *without* hæmoptysis, and here I feel happy in being able to quote a case which was witnessed by three accurate observers—Dr. J. C. Ferguson, by whom it is related, Dr. Law, and Dr. Hunt, of this city. The case is as follows: A man named McCleary, of intemperate habits, who used to apply at the Coles Lane Dispensary, for purgative pills, appeared there June 29, 1829, complaining of costiveness, severe cough, oppression of chest, and expectoration tinged with blood since the day before, pulse 90, feeble. Two days after, while in the act of putting on his shoes, he complained to his wife of loss of vision, seemed to faint, and died without a struggle. He had expectorated no blood for fourteen hours before death, nor in the agony was there any escape of blood from the mouth or nares, which might lead to a suspicion of the real seat of disorganization. *Post-mortem.* The left pleural sac contained about three quarts of blood; the serum supernatant to a great degree, as in blood allowed to stand after venesection, and the clot in considerable quantity, but very soft, occupying the most dependent portion of the cavity. The superior lobe of the left lung was one mass of the most perfect pulmonary apoplexy; the structure of the lung seeming to be absolutely broken up by the excessive effusion of blood into it. The appearance differed from that which Laennec has observed in similar cases, so far from resembling the firmness of an hepatised lung, the apoplectic mass was exceedingly soft and flabby, much more like a clot of blood. There was no rupture of any large vessel.”—*Dublin Medical Transactions.* New series, page 13.

† This subject requires further investigation; for not only is it possible, as is stated in the text, that black blood may be changed in colour, after effusion into the bronchial tubes, by the rapid bubbling of air through it, but also it is extremely probable that if arterial blood oozes out very slowly from the bronchial surfaces, and remains for any considerable length of time in the air-passages, mixed with their mucous secretion, it may, before it is expectorated, change its hue, and become dark, as happens where red blood is long exposed to the action of the secretions of the alimentary canal, *e. g.* in melæna. These views have been since confirmed by the experiments of physiologists, as the following extract will show:

“When arterial blood is kept at rest in a living vessel, it gradually acquires the properties of venous blood, as may be seen on slackening a tourniquet after an amputation when the first

There are some hemorrhages, also, from the bronchial artery, which are very copious; but, generally speaking, where there is much cough, constriction of the chest, and fever, it is the bronchial mucous surface which is affected; and the spitting of blood which, in such cases, comes from the bronchial arteries, is but scanty, and is seldom dangerous. The blood will be found to be effused from small spots, as in epistaxis, and the quantity is generally small. You will, however, sometimes find an instance of a person spitting up, very copiously, blood of an arterial colour; for it must be borne in mind, that a very small surface of mucous membrane may often bleed most copiously, as is seen in some cases of epistaxis, when the blood issues from an insulated and small spot. Such cases of copious bronchial hemorrhage occur occasionally, are unconnected with bronchitis, and depend on some peculiar hemorrhagic tendency.

We have thus drawn a distinction between these two kinds of hemorrhage; let us trace it further. Suppose you have a case where blood is effused into the cellular tissue of the lungs; the blood so effused is immediately submitted to a peculiar action of the animal economy. It is first, by coagulation, separated into two portions, serum and crassamentum. The serum is rapidly absorbed, and as soon as this is accomplished, the crassamentum becomes solidified, and remains there with its colouring matter, as you have it represented in this plate of Cruveilhier, where you perceive, as it were, balls in the substance of the lung, of a solid consistence and red colour, formed by the colouring matter and clot. The first effect of effusion of blood into the cellular tissue is a tendency to solidification, one chief consequence of this disease, which has not been noticed by those who have written on pulmonary apoplexy. Nature, gentlemen, is anxious to stop the effusion of blood, as, in this instance, it threatens that life which she watches over, at all times, with so much care. Now, what is the consequence of this solidification? First, all the air-cells of the part are closed by the pressure of the coagulum, that portion of the lung which has been bleeding becomes impervious to the air, and this circumstance alone is sufficient to arrest the hemorrhage. And why is this the case? Because the blood which flows through the pulmonary arteries cannot pass into the veins, unless in its passage it be aërated. It is its aëration, which, at the first moment when the infant respire, causes the blood to rush through the pulmonary vessels in ten times the quantity it did before birth. If you asphyxiate an animal, or by any means put a stop to the process of aëration, you will find that in proportion as the air in the lungs becomes deficient or impure, the blood ceases to pass from the right to the left cavities of the heart, because it cannot pursue its natural course unless it be properly aërated. Hence, when a part of the lung becomes impervious to the air, the passage of the blood, so far as that part is concerned, will cease, and consequently the tendency to hemorrhagic effusion.* You see, gentlemen, in this case, two causes

blood that issues from the divided arteries is of a dark colour. If arterial blood is placed *in vacuo*, or is exposed to nitrogen, hydrogen, or carbonic acid, it loses its florid hue.

“Extravasated arterial blood remains florid for several minutes; after an interval it is found to have coagulated, and to have acquired a dark colour.” Mayo's *Physiology*, p. 21. Fourth Edition.

* By the *passage of the blood* is here only meant the rapid and unimpeded circulation from the pulmonary artery into the pulmonary veins, for it is evident that a part of the lung, impervious to the air, may be the seat of sanguineous engorgement, as happens in the posterior parts of the lungs of those who die after a long agony, or in the various stages of pneumonic engorgement and hepatization.

in operation to prevent effusion of blood, mechanical pressure, and such a state of that portion of the lung which had been bleeding, that less blood goes to it in consequence of its no longer performing its share of the respiratory function.

A great deal has been written about the ulterior effects of blood thus effused. It is evident that when the effusion takes place into the air-cells, it may be spit up and produce no further harm; and if the patient recovers without any effusion into the intervesicular tissue, there is no trace of the disease. The danger, therefore, arises from the quantity of blood poured into the cellular texture, which, by obliterating the air-cells (if the extent be considerable), may destroy the functions of the lungs, and in this way produce death, as you may have observed in the case of hæmoptysis above stairs, where the cessation of the spitting of blood was a bad symptom. The disease was going on for some time, and not confined to any particular part, but extending over the whole of one of the lungs, and you can now conceive the reason of this man's death. It was because by effusion and solidification to a great extent he was deprived of the use of his lung. Yet you will find instances where a person has more than half the lung filled with a clot of this kind, and still survives; and you may observe parallel cases in the prolonged life of some patients who labour under organic disease of the lungs. This is generally seen where the quantity of blood circulating in the whole system is small; for when the power of aëration is diminished, it is necessary that the quantity of blood which passes through the lungs should be reduced below its average amount, or its course will be arrested.

Now, gentlemen, where we have solidification of the lung, and obliteration of the air-cells, from such effusions, what is the consequence? Sometimes we have sudden death from dyspnœa, sometimes the fatal termination is of a slow character. It is stated by some authors, that blood of this kind acts as a foreign body, as an irritant, and excites inflammatory action. Others say that the effused blood not only produces inflammation, but also gangrene and softening of the affected portion of lung. With respect to this, I may be permitted to express very strong doubts. We do not see effusions of blood in other parts of the body attended with such consequences. I would ask any one, who has seen a case of ecchymosis under the conjunctiva, where that membrane is raised high over the eyeball by an immense clot of blood, whether this clot, though in such close juxtaposition with an extremely sensitive organ, ever produces inflammation? How often have we seen blood effused into cellular tissue from wounds, or contusions, remain quietly in its new situation, and be absorbed, without producing any inflammation? But, with respect to this question, the admission of all pathologists, that many such portions may exist in the lungs together, without the least solid appearance of inflammation in the pulmonary substance immediately around them, seems quite conclusive. Thus in Cruveilhier's plate, now before you, the section of the lung showed that the cells were uninfamed quite to the very edge of the various solidified portions, although they had existed for many days before death. Again: do we not know, that even in the brain itself, blood may be effused and sudden paralysis produced, and that the patient may quickly recover, and a clot remain in the cerebral substance without producing inflammation. It is true that blood effused into the lungs is, in many cases, attended by pneumonia, and that extravasations

in the brain are frequently accompanied by softening. This I do not deny ; but I think that both are simultaneous effects of the same cause, and that in the one case pneumonia and sanguineous effusion, and in the other, extravasation and ramollissement, are only different parts of the same process.

If a person recovers after the discharge of a large quantity of blood into the lungs, what is the consequence ? If the constitution be sound, and the hemorrhagic tendency does not recur, it is probable that this portion may be submitted to the action of absorption, and ultimately rendered healthy. This I believe may happen, for the phenomena of absorbed hepatization in pneumonia gives it probability, though I have not seen it verified. I have, however, ascertained satisfactorily, that this portion of the lung may remain solid for a considerable length of time, without producing any particular symptoms. Two cases of this condition of the lung, remaining in one instance for a year and a half, and in another for three years, without subjecting the patients to any inconvenience whatever, have come to my knowledge, and, after death (which was caused in each by a different disease), I have been able to detect those solidifications by dissection. It has been stated that persons who have portions of the lungs solidified, are liable to phthisis. Where scrofula exists, tubercles may be precipitated into suppuration from this cause ; but where the constitution is not scrofulous, the consumption which follows solidification of the lung is certainly not tubercular. I remember having attended, some time ago, a young man who had an attack of pulmonary apoplexy, and who afterwards got all the symptoms of phthisis except diarrhœa ; I watched this case through all its stages, month after month. On examining the lungs after death, I could not detect a single tubercle ; the matter was extensively diffused through the cellular tissue, constituting that disease to which the name of suppurating pneumonia has been given. In the case of a young gentleman residing in Gardiner Street, who was attended by Mr. Colles, the symptoms above mentioned were present, and it was generally thought that he was dying of tubercular consumption. I was called in to see him, and, on inquiring into the history of the case, I gave it as my opinion, that it was not tubercular consumption, but extensive suppurating pneumonia, an opinion which was borne out by the necroscopic phenomena. You see, therefore, gentlemen, that a man may live for a considerable time with a portion of his lung solidified in consequence of this disease, or that he may get pneumonia, which may go on to interstitial suppuration, and present all the symptoms of tubercular consumption ; or, if his constitution be scrofulous, he may get true tubercular phthisis. It is obvious, that in a person whom this disease would render obnoxious to pneumonic inflammation, if scrofula exists, you will have the tubercular instead of the pneumonic action developed ; for in scrofulous habits you will find that every cause which produces irritation, or a tendency of blood to the chest, produces also a tendency to consumption. Dr. Stokes and I attended, some time since, a gentleman who had pleuritic effusion in the right side of the chest, with engorgement of the lungs and dyspnœa. During the course of the disease he got tubercles, and where, do you think ? Not on the side where the pleuritic effusion existed, but in the upper part of the left lung. You should not be surprised at this ; it was a consequence of the disturbance of the respiratory functions, and you may be assured that every thing which deranges the

pulmonary circulation in scrofulous persons, has a strong tendency to the development of tubercles.

There is a question in Laennec's work, to which Dr. Law has also alluded in his treatise on Hæmoptysis, in which it is asked, can spitting of blood be considered as the cause of consumption? To this I will answer, that I have seen more than one case of pulmonary apoplexy in which the patient died of the first attack, and yet not a single tubercle could be found in the lungs. It may certainly produce a tendency to consumption, but is not a necessary cause of it. The same may be said of bronchial hæmoptysis. Any one who has witnessed the dissections of the lungs of tuberculated patients must have frequently observed, that tubercles are accompanied by an inflamed state of the bronchial mucous membrane. It is notorious, also, that this state of the mucous lining, with the hard, dry cough which it occasions, is one of the first symptoms of tubercles in the lung; and we therefore find, in many instances, that bronchial hæmoptysis is a consequence and not a cause of tubercle.*

Having hitherto dwelt chiefly on the general pathology of hæmoptysis, I shall make some additional observations on the causes of this disease, and then proceed to the treatment, without entering into an accurate description of the particular symptoms, which you will find sufficiently detailed in the works of Mason, Good, Laennec, Mackintosh, and in the excellent article "Hæmoptysis," in the *Cyclopædia of Practical Medicine*, by Dr. Law, and the valuable essay of Dr. Townsend on Pulmonary Apoplexy. You recollect I differed from Dr. Law, with respect to the source from which the blood is derived in bronchial hemorrhage. Dr. Law is of opinion, that any thing which produces engorgement of the system of the pulmonary artery, occasions hemorrhage from the bronchial tubes; but this, for the reasons before stated to you, is impossible. I have also endeavoured to explain to you the manner in which pulmonary Apoplexy may be followed by extensive disease of the lung, interstitial suppuration, and death; or, on the other hand, how a coagulum may be formed in the substance of the lung, and the person affected remain in a state of perfect health. I have proved, from dissections, that after the lung has been solidified, in consequence of pulmonary engorgement, it may remain in

* [There is no doubt that Dr. Graves is perfectly right in stating that hæmoptysis is not a necessary cause of consumption. Phthisis, indeed, is more frequently a cause of the hemorrhage than an effect of it. In most cases, it would seem that the same morbid change in the lungs which favours the development of tubercles, renders them disposed to pour out a large quantity of blood, either under the influence of slight causes of hemorrhage, or when no obvious external cause can be discovered. Hæmoptysis is, however, an important diagnostic sign of consumption, because it is known to be produced in patients who are labouring under confirmed phthisis, or at least a strong predisposition to it, oftener than in any other class of patients. At the same time it is not a necessary sign of phthisis, especially in women in whom an arrest of the catamenia often gives rise to abundant expectoration of blood. In men, Andral used to say that hæmoptysis occurred in patients attacked with phthisis, or at least strongly threatened with it, four times out of five, but in women only twice out of three times. This is about the proportion of the cases.—W. W. G.]

that condition for years, or if a scrofulous diathesis exists, such an occurrence may be followed by tubercular consumption. I have mentioned that kind of consumption supervening on effusion into the cellular tissue of the lung, where there is extensive interstitial suppuration, and not a single tubercle can be discovered. You will recollect my statement that I could adduce instances in which pulmonary effusion took place, and the clot remained in the cellular substance without producing any irritation, and that, on dissecting such lungs, I found those organs perfectly sound up to the limits of the clot, and this in cases where the effusion had existed for several months.* Now if this remained in the substance of the lung, as a harmless body, for so long a space of time, I cannot conceive how a similar effusion could in any case become a stimulant. I differ also from those who think that the effused blood may become corrupted and a cause of gangrene.

We will now proceed to the consideration of some of those constitutional tendencies, which render persons liable to spitting of blood. It has been frequently remarked, that bleeding from the nose, during the periods of infancy and adolescence, is a symptom of frequent recurrence in those who are obnoxious to this disease, and in such persons without any apparent cause, and unaccompanied by any proper fever, the attack comes on with a hemorrhagic excitement of the circulation, sense of constriction in the chest, anxiety, dyspnœa, cough, and expectoration of blood, of an arterial colour and frothy appearance. As soon as the expectoration, which is sometimes copious, sometimes scanty, takes place, the patient gets relief. There is not much preceding or following cough. Such are the characteristics of this hemorrhage, which does not prove the existence of tubercles, or engorgement of the system of the pulmonary artery, and has no more reference than epistaxis to disease of the lungs. I knew seven gentlemen of the same family, most of whom were in the army, and residing in different climates, who were all subject to sudden expectorations of blood, without any particular antecedent or subsequent cough, or other symptoms of chest disease. Now I need not tell you that as long as the hemorrhage preserves this character, and confines itself to the bronchial mucous membrane, there is very little mischief done. Persons thus affected will have repeated attacks of this kind, and though their lives are not the best, may attain a good old age. It is only when the extreme branches of the pulmonary artery take on the hemorrhagic action that danger is to be apprehended; and so it was with one of the gentlemen just mentioned. He had, during a period of twenty years, many sudden and often violent attacks of hæmoptysis, which never lasted more than a few days, and always subsided without leaving a trace behind. So long as the hemorrhage was bronchial, it was comparatively free from danger: at last its seat was changed; it occupied the air-cells and inter-vesicular cellular tissue of the lungs, and he died of pulmonary apoplexy. When the latter takes place, you must be on your guard, for I have seen cases of melæna, where the customary discharge of blood from the intestines was considerable, and instances of piles, where the bleeding from

* It is not meant that the effused blood occupies the texture of the lung, without becoming organised. This is certainly not the case; all I mean to assert is, that the portion of the lung originally rendered solid by the clot, remains solid, in some cases, for a great length of time constituting an insulated mass impervious to the air itself, but not a source of irritation to the surrounding parts.

the rectum was great, from being suddenly arrested, produce pulmonary apoplexy and death. In such patients, gentlemen, nature attempts to establish a vicarious discharge for that which has been suppressed. This is a frequent occurrence in females, particularly those of a robust habit, in whom the general vascular action is not diminished at the catamenial period. In consequence of the suppression of the menstrual flux, blood is discharged from various parts of the body, but particularly from those tissues which bear the closest analogy to that from which it is naturally derived. Hence we have one kind of bronchial hemorrhage arising from suppressed menstruation, and which is not usually either preceded or followed by cough or other pulmonary symptoms. Now, this discharge in females is not dangerous; it goes away as it appeared, without any bad effects; and the same may be said of hemorrhage from other parts resulting from the absence of the catamenia. Such, you will recollect, was the case of a woman in the Chronic Ward, who had regular attacks of hæmatemesis at the periods in which the menses should naturally appear. Nothing is more common than to find this vicarious gastric hemorrhage in women, and yet how rarely do we see it preceded or followed by organic disease, or producing the least permanent lesion or even dyspepsia. Such hemorrhage may be generally said to be devoid of danger. As I mentioned before, the translation is commonly from the mucous membrane of the uterus to a similar surface of the nose, lungs, stomach, or bowels. It seldom or never appears in a parenchymatous tissue; and hence, in the lungs, rarely terminates in pulmonary apoplexy. There is this freedom from danger, however, only in those cases where no disease of the lungs, or tendency to pulmonary engorgement, previously existed. Thus, in the case of Eliza Hens, in whom, at the usual period of her menstrual evacuation, a vicarious epistaxis and hæmoptysis occurred; the source of hemorrhage was not confined to the bronchial tubes, but extended to the air-cells. The blood she expectorated was, at first, of a florid arterial colour, and was copious; it afterwards became dark-coloured, and less abundant, and its source, as was evident from the stethoscopic phenomena, was derived from the ultimate ramifications of the bronchial tubes and the air-cells. *She had been subject to cough and expectoration of mucus for a year previously.*

With respect to the hæmoptysis which attends pulmonary apoplexy, I shall only remark (as its symptoms are well known), that here you have the cough, dyspnœa, and other symptoms, following the hæmoptysis, and very frequently pneumonia, and even gangrene. I have stated before, that I considered the two latter occurrences as resulting from the same cause which produced the pulmonary engorgement, and not as a consequence. I will pass over this subject at present, and proceed to give you a few general hints on the hæmoptysis which accompanies tubercular consumption. You remember I remarked that it is a disputed point whether this spitting of blood be the cause or consequence of phthisis. When we come to consider this subject dispassionately, and leave out theories, we find, that on examining phthisical hemorrhage, we invariably perceive that the discharge is bronchial, and that it presents the usual characters of arterial blood. It is because the irritation is bronchial you have so many bronchial râles in phthisis; and hence, if you find bronchitis at the top of both lungs, and none at the bottom of either, and this condition is permanent, your suspicions are naturally awakened, and you are led to the

detection of tubercles.* I mention this fact, because it proves that one of the permanent characteristics of phthisis is the presence of more or less bronchitis. As the bronchial hemorrhage in phthisis is generally small, and finds a ready exit, it will not be easy for you to confound it with pulmonary apoplexy. The bronchial engorgement which occasions this hemorrhage often sets in at an early period of tubercular phthisis. When this happens, a copious hæmoptysis may occur, and may be the first symptom which attracts attention to the state of the lungs. Hence hæmoptysis is often erroneously considered as the cause of the consumption. I beg you to remark, that the bronchial tubes are also the principal source of the puriform expectoration which attends consumption, and that we are not to suppose that it comes exclusively from the cavities in the lung, for the quantity expectorated is by no means in proportion to the size of such cavities. Again, where the hæmoptysis happens to be copious, it is thought to arise from ulceration, or erosion of the coats of the arteries which accompanies the tubercular destruction in the lung. An occurrence like this is, I believe, extremely rare indeed. Such an injury is too serious, and would be followed by too rapid a fatality. Nay, you will even find, on dissection, that the bronchial tubes may be cut across by ulceration, and every other part of the tissue of the lung destroyed, while the coats of the artery remain comparatively uninjured, and its cavity obliterated, so that you can trace it passing like a string through the abscess. Neither have I observed that the hæmoptysis which arises in phthisis is produced by ulceration on the mucous surface of the bronchial tubes, though I do not know whether this might not cause it, when the ulceration is high up near the trachea.

I shall detain you no longer on the symptoms of phthisical hemorrhage (only remarking that it is generally in the advanced stage that it appears, frequently from induced bronchitis and hard cough, in which case it is generally scanty, or from abscess, although here, also, from the obliteration of the arteries before mentioned, it must usually be slight), as the symptoms of this, and the symptoms which accompany common severe bronchitis and pneumonia, are easily recognised, and have been sufficiently described in books. You will find that Cruveilhier instances diseases of the heart as a great cause of pulmonary hemorrhage. No doubt this is true in many cases; for if there be a serious impediment to the return of blood to the left auricle, it will induce pulmonary disease, and you can readily conceive how the valvular structure of the heart may bring on hemorrhage from the lungs. Now, gentlemen, while on this subject, I shall make one observation. Since Corvisart wrote his great book on Diseases of the Heart, and Laennec published his admirable discoveries, it has been the custom to call all hypertrophied hearts diseased. We must bear in mind that there are considerable enlargements of the heart in which we are not to look on the hypertrophy as a disease, but as a wise provision of nature for the prolongation of life. If a person be born with asthma, his heart will become enlarged, because, during each fit, a greater degree of stress and labour is thrown on the right ventricle, and consequently that portion of the heart becomes enlarged, and is hypertrophied in the course of time. The same takes place, to some extent, in hooping-

* A bronchitic r le confined to the upper lobe of one or both lungs, resisting treatment, and accompanied or followed by dulness, at first, slight, but gradually increasing, are as valuable physical signs of phthisis as any we possess.

cough, in bronchitis, or emphysema, which lasts for a considerable time. If an old man has constant cough and expectoration, and his lungs become emphysematous, hypertrophy takes place, and you will find his heart enlarged on examination after death. And are you to look on this as disease? Not at all; it is the means of prolonging his life. The practical bearing of the question is, that you should be very cautious in giving digitalis, and similar remedies, in such cases; for if you thereby weaken the heart's action, the obstacle to the transmission of blood remaining the same, you do your patient a great injury and contravene the wise purposes of nature.*

I shall say nothing at present of the other diseases which produce hæmoptysis, for, when speaking at a future occasion on the subject, I shall be able to show you how it may proceed from engorgement of the liver, purpura, or scurvy; at present let us proceed to the treatment. This, of course, must vary according to the source of the disease, for when it arises from the causes last mentioned, your treatment must be very much modified. Into a description of these passive hemorrhages I do not mean to enter, and shall only remark, that it is in such cases that opium should be given from the beginning, and in no other kind of hæmoptysis. In common cases you may, towards the termination of the disease, particularly where bleeding and other antiphlogistic means have been premised, employ this remedy with advantage. We know that there are many cases of hemorrhage where opium, by its action on the nervous and vascular systems, proves a powerful styptic. Instances of this are seen in its power of arresting the flooding of parturition, and in another kind of hemorrhage to which I would point your attention, I mean, that bleeding from the gums which sometimes follows the use of mercury. I remember a case of this kind, in which the bleeding from the gums was excessive, and all remedies failed in arresting it. The medical gentleman who attended it had employed every means in vain, and came to me, at twelve o'clock at night, to see if I could tell him of any thing that might be of service. I said to him, "go home, and give two grains of opium immediately, and then half a grain every hour until the bleeding stops." He seemed a little incredulous, but, however, made trial of the remedy, as I directed, and before three grains of opium had been taken, the bleeding ceased. This cursory explanation will, I trust, prove useful to you in practice. In books you will find, that when you meet a case of hemorrhage, you should give immediately acetate of lead, with opium and other styptics; but remember, that in nineteen cases out of twenty, you should not give opium with or without acetate of lead in the beginning. When venesection has been performed, and the bleeding continues, then you may give it, and give it in large doses.

The remedies which I have spoken of are fitted for cases of slight hemorrhage, as that which occurs in phthisis; but when a person spits up a large quantity of blood from an affection of the bronchial tubes, or in consequence of pulmonary apoplexy, what will you do? Commence with bleeding your patient; and here a depressed state of the vascular system should not deter you from the adoption of an energetic practice. The person who gets an attack of this kind is frightened at the quantity of blood he spits; his face becomes pale, and his heart weakened in action, a for-

* Doctor Corrigan has made some admirable observations upon the injurious effects of digitalis in cases of permanent patency of the aortic valves.

tunate occurrence, as it tends to diminish hemorrhagic excitement. In all cases where bleeding is required, after venesection, the next remedy in which I place confidence is ipecacuanha, to be given two grains every quarter of an hour, until there is some improvement, and then every half-hour or hour until the bleeding stops. Here I must remark that it is a mistake to suppose, that it is the nauseating effects of ipecacuanha, which alone produce a cessation of the bleeding; tartar emetic nauseates too, but it will not so effectually arrest the hemorrhage. Richter, the author of the German *Elements of Surgery*, was the first who pointed out this anti-hemorrhagic effect of ipecacuanha, and Dr. Sheridan of this city has shown that it may be given with success in hæmatemesis, although it may affect the stomach so far as to produce vomiting; it exerts the same influence over hemorrhage from the bowels, as I have frequently proved in this hospital; I prefer it to acetate of lead. I may be asked, do I reject the latter remedy? Certainly not; I give it, but only at the time I give opium; that is, towards the termination of the disease. Before I commence with the ipecacuanha, I generally prescribe a purgative injection and a powerful saline purge, such as infusion of roses, sulphate of magnesia, and a little sulphuric acid. The purgative is intended in this case to act as a derivative from the lungs. We see every day the great sympathy which exists between the mucous membrane of the bowels and lungs, and we observe that in cases of phthisis, and the chronic cough of old men, where purgatives have been administered in the latter disease, or where diarrhœa occurs in the former, that the discharge from the lungs is lessened. I had an old gentleman, some time ago, under my care for one of those chronic coughs; he got tired of me, and went to Leamington and consulted an eminent physician residing there. He was purged very actively, for a considerable time, and the expectoration and other pulmonary symptoms began to decline, and finally were entirely removed. He wrote several letters to his friends in Dublin, detailing the improvement in his disease, and abusing Dr. Graves for being unable to do any thing for him. He returned to Dublin, the shadow of his former self, cured of his cough, and died in about a month afterwards. His case strongly evidences the remarkable influence which discharges from the stomach and bowels produce on discharges from the lungs and gives you a reason for the powerful effects of purgative medicine in hæmoptysis. With respect to digitalis, I must confess, that I never use it. There is another agent which you may employ in this disease, I mean the popular remedy of giving the patient a tablespoonful of common salt, and making him swallow it without water. I have seen this stop hemorrhagic effusion in the case of a friend of mine, when I was in the university, who was attacked with spitting of blood late at night. At that time the good old custom of shutting the college gates at twelve o'clock prevailed; we were in great alarm, and could get neither physician nor medicine. We gave him salt, which he chewed and swallowed, and, after three or four spoonfuls, the bleeding stopped. We may, perhaps, account for this by considering that the action of the muriate of soda on the mucous membrane of the mouth and throat is propagated to the air-passages and lungs; you may, therefore, if you like, while you are tying up your patient's arm, in order to draw blood, give him a spoonful of salt, as it may produce a favourable effect.

I have but little to add to what is generally known respecting the termination and treatment of hæmoptysis. It is strange to what extent a

spitting of blood may proceed without being fatal. I attended a gentleman from Belfast, along with the late Mr. King and Sir Henry Marsh, who expectorated blood most copiously every day for more than two months; and yet he finally recovered, and has continued to enjoy perfectly good health for five years since. Another gentleman had repeated attacks of most violent hæmoptysis, for which he was frequently bled, and subjected to the usual treatment; he had likewise accompanying pleuro-pneumonia often recurring, and which produced permanent dulness of a great portion of the upper lobe of the right lung; his pulse was at all times quicker than natural, and naturally extremely tall and slender he had gradually become quite a skeleton, while the action of the heart was violent, and could be felt and heard over the whole chest; the upper portion of the right lung was not only dull but flattened, and in this portion respiration was very feeble, and during the attacks of hæmoptysis mixed with crepitus. In this state he continued for two years, at times better, at times worse, rallying a little during the summer, but for the greater portion of his time confined to the house. At the end of that period I was again called to see him and was astonished at the alteration in his countenance, an alteration produced by the total cutting away of all his teeth, the consequence of the long-continued and enormous doses of mineral acids taken for the purpose of checking the hæmoptysis which had so often returned. I felt quite surprised at finding him still alive, for I had believed that he had several months before died of consumption. Under the circumstances I advised a voyage to *Australia*, but on consulting Dr. Stokes and Sir Henry Marsh, I quite agreed with them in thinking his case too hopeless to allow us to permit such an experiment to be tried. Another year passed away, when we were again called to see him, and found matters apparently unaltered—no improvement, no aggravation either of the physical signs or constitutional symptoms; we now all agreed in thinking that as he had so unexpectedly survived, the voyage to *Australia* might be permitted. Accordingly he sailed in September, and perfectly recovered in *New Holland*; at a subsequent period, he unluckily became ardently engaged in an attempt to convert some of the *South Sea Islanders*, by whom he was killed and devoured. His was in truth a remarkable recovery, not only from repeated and terrible attacks of spitting of blood, but from many of the constitutional and physical symptoms of advanced phthisis.

In the case of another gentleman attended by me and Dr. Stokes, suffocation had nearly resulted in a manner not hitherto noticed by authors. This gentleman had been ill for many days, had been very often bled, and was much exhausted. I had visited him in the morning and had but just left him, when a fresh burst of blood took place. Contrary to my orders he was again bled, and when Dr. Stokes arrived, in about three-quarters of an hour afterwards, he found him collapsed, almost asphyxiated, and struggling for life. The right side of the chest expanding and contracting energetically, *the left almost fixed and motionless*. Dr. Stokes immediately changed his position, and gave him a glass of wine, when he made one more effort *and violently expectorated a coagulum consisting of fibrin, in some parts nearly colourless, forming a complete solid mould, answering to the left bronchus and its ramifications, down even to some of the minuter tubes*. After this he rallied, and for the time was tranquil.

In violent hæmoptysis medical men are too apt to have recourse to venesection, over and over again, bleeding from the arm every time the

spitting of blood returns.* Strongly as I advocate the necessity of using the lancet boldly when a patient is suddenly attacked with a copious discharge of blood from the lungs, yet I conceive that much injury is frequently inflicted by a too frequent repetition of the venesection: if after two or three free venesections, performed in the commencement of the disease, the pulse still retains its hemorrhagic character unsubdued by the loss of blood, and hemorrhage still exhibits a tendency to return (usually at a certain hour), the practitioner may rest assured that he will not be able to prevent that tendency by further venesections; in cases, then, where bleeding from the arm is found neither to prevent nor diminish pulmonary hemorrhage, we must not add to our patient's exhaustion by repeating it, and must steadily refuse when pressed to do so by the patient himself or his friends; *for the prejudice is general that bleeding from the arm is proper whenever a patient spits blood in quantity.* It is true that the cases which are not benefited by bleeding are invariably of a most dangerous nature, and will terminate in most instances fatally, no matter whether we bleed or not; still when we have once convinced ourselves, that bleeding has ceased to be *evidently beneficial*, either in arresting or preventing the fits of hæmoptysis, we must not hazard our patient's chance of recovery, however slight; we must, on the contrary, husband his strength, and use the means generally recommended in so called passive hemorrhage. Acetate of lead in frequent doses, two grains every hour, with one-sixth of a grain of opium, large doses of sulphuric acid, with or without alum, small doses of spirit of turpentine (ten drops every quarter of an hour, given in cold water, while the spitting of blood continues), and finally, in unmanageable cases, ipecacuanha, given in nauseating doses, constantly repeated until full vomiting is produced over and over again. Such are the means which the physician will employ internally in these almost desperate cases; when much debility ensues from repeated loss of blood, wine and opium may be given boldly. No topical bleeding has appeared to me so useful as a constant oozing from the hollow of the throat just above the sternum. The efficacy of leeches applied to this situation in bronchitis and other diseases attended with harassing cough, was long ago pointed out by Dr. Osborne; and last winter I was induced, from frequently observing the admirable effects of this practice, to extend its application to cases of hæmoptysis, and I am happy to say that it has proved a most excellent *adjuvant* in arresting the progress of this frightful complaint. When the cough is very teasing, and the quantity of blood expectorated very large, six leeches should be applied every sixth hour, until decided relief is obtained; in less severe cases, a smaller number applied daily will be sufficient. When the dis-

* [We agree most fully with Dr. Graves that venesection is often a doubtful and sometimes an improper remedy in hæmoptysis. In fact, although we are fully aware that bloodletting is, in these cases, often a most necessary remedy, we are not in the habit of always ordering it in hæmoptysis: we restrict it to those cases in which the patient has tolerable strength of constitution as well as a considerable increase of the action of the heart and arteries. In cases in which the patient's health has been deteriorated very much before the hemorrhage, we think that, although cupping is often useful, general bleeding should be entirely avoided.—W. W. G.]

ease is obstinate, a succession of large blisters to the chest may be applied with advantage.

With respect to the danger of phthisis supervening in cases of spitting of blood, it is remarkable that in recent cases of hæmoptysis we cannot predict the event with any degree of certainty, for it often happens that the chest is every where clear on percussion, and free from morbid râles,* the pulse natural and cough trifling, in the very individuals that at some future period become subjects of phthisis. In other persons a violent attack of hæmoptysis recurs over and over again during several weeks and then ceases, leaving them, however, much debilitated, but without cough, morbid stethoscopic phenomena, or fever. The medical attendant must in such cases be very guarded, for however flattering the appearances may be, convalescence will scarcely appear to have commenced, when the pulse will begin to rise, cough set in, and in a few days afterwards, manifest dulness and crepitus will be discovered under one of the clavicles; in fact rapid consumption has commenced. In other patients, after an attack is apparently perfectly recovered from, and no symptom of phthisis exhibits itself, until the constitution is worn out by repeated losses of blood; then tuberculization commences suddenly and proceeds rapidly.

LECTURE XXIII.

Pathology of Phthisis—Formation of Tubercles.

GENTLEMEN,—Phthisis is a disease of the highest importance, and calculated to excite a very deep interest, whether we view it in relation to the insidious nature of its origin and progress, the selection of its victims, or the number and frequency of its attacks. From calculations founded on the tables of mortality and other data, it has been computed that sixty thousand persons die annually of consumption in Great Britain; but as this computation has not been made with reference to the great increase of population within the last few years, it is probable that the average amount of deaths from tubercular phthisis may, without exaggeration, be eighty or ninety thousand in the year.† Phthisis is a disease which, more

* I cannot agree with the author of the article *HEMOPYSIS*, in the "Library of Medicine" (Dr. George Burrowes), who, speaking of the difficulty sometimes experienced in distinguishing between hemorrhage from the lungs and that from the stomach, says, "This difficulty, however, is considerably lessened by the physical signs of disorganization of the lungs being readily detected by auscultation." *Library of Medicine*, vol. v. p. 27. I should have concluded that this opinion was derived from theory rather than experience, but the writer tells us further on, that he has paid considerable attention to this lesion.

† From the following table it appears that the mortality has not increased to the extent mentioned in the text. It, however, only refers to the year 1837. This extract I have taken from a work which has lately appeared, viz., "GILBERT *On Consumption*."

"The total number of deaths registered in England and Wales, from July 1 to December 31, 1837, both inclusive, amounted to 148,701. Of this number 27,754 were the result of consumption of the lungs, of whom 12,968 were males, and 14,786 were females. We, therefore, find, according to this authentic report, consumption caused twenty per cent. of the total number of deaths, thus confirming Dr. Abercrombie's opinion, that one-fifth part of all the deaths are the consequence of this fearful malady. But if we take away 12,691 deaths from old age, and 4,845, which were violent, in all 17,536, we shall then find that consumption produced upwards of a fifth part of all those which resulted from the disease, thus bearing out the opinion

than any other, demands the sympathy and excites the commiseration of the friends and acquaintances of the sufferers. Some diseases are borne in silence and concealment, because their phenomena are calculated to excite disgust; to others, the result of vicious courses, the stigma of disgrace is attached; unsightly ravages of the human frame, or the wreck of the mental faculties, inspire us with horror rather than with sympathy; but consumption, neither effacing the lines of personal beauty, nor damaging the intellectual functions, tends to exalt the moral habits, and develop the amiable qualities of the patient, and, from its melancholy character, gives to our feelings of commiseration a more than ordinary intensity. Most persons die of consumption in the bloom of youth, at a period when hopes are brightest, and the capacities for enjoying life are in full vigour and maturity; most of its victims are remarkable for the early unfolding and brilliancy of their mental accomplishments; and many a family has to regret, that, by tubercular phthisis, some of the fairest and best of its members have been hurried to an early grave.

I am not, gentlemen, going to treat of the subject of consumption in detail; I do not intend to enter into a description of its symptoms from their origin to their termination, to exhibit its various phases, or to enumerate the stethoscopic phenomena observed during its progress. To do this would require a very long time, and many lectures; my purpose is merely to give a general *coup-d'œil* of its pathology and treatment. The occurrence and development of tubercles in phthisis, constituting the most remarkable phenomena of the disease, have engrossed, almost exclusively, the attention of medical men, and consequently they have attached an undue degree of importance to them as the cause of phthisis. Here I beg leave to state, that I do not intend to enter into a description of the different forms of tubercle, whether they occur as separate and distinct productions, or in the shape of tubercular infiltration; this has been treated at large by Laennec, Andral, and various other writers; but will only remark, that, with regard to tubercles, I am inclined to limit their influence in producing consumption. I grant that tubercles, in either state, occurring in very great numbers, or very rapidly developed, will occasion

of Dr. Young and Dr. Woolcombe, that one-fourth part of the deaths occurring from disease is the result of phthisis. The whole evidence is, therefore, singularly unanimous."

"Extract from Table A, contrasting the rate of mortality from consumption with that from sixteen other diseases:

Diseases.	Males	Females.	Total.
Cholera	246	214	460
Influenza	220	364	484
Small-pox	3,050	2,761	5,811
Measles	2,340	2,392	4,732
Ague	39	37	76
Typhus Fever	4,439	4,608	9,047
Hydrophobia	13	3	10
Hernia	150	102	252
Colic	39	19	58
Diseases of the Liver	1,618	891	1,909
Stone	161	19	180
Rheumatism	221	216	437
Ulcers	37	45	82
Fistula	39	12	51
Mortification	305	276	581
			<hr/>
CONSUMPTION	12,968	14,786	26,881
			<hr/>
			27,754

very serious inconvenience and danger by diminishing the power and extent of the respiratory apparatus. If, instead of a pervious lung, you have one-half of this organ obstructed in its function by tubercles, the injurious effect on respiration is evident. Cases of this kind are of no uncommon occurrence; I have seen tubercles, to an extraordinary extent, make their appearance in the lung in the space of two or three weeks, and have known persons to die of the suffocation caused by this rapid development without the usual symptoms of phthisis.* We had, some time ago, an instance of this, in a young woman, in Sir P. Dun's hospital, who died, in fact, of what may be termed tubercular asphyxia, arising from the rapid and general formation of those morbid productions. She had scarcely any of the common symptoms by which consumption is characterized; her death was the result not of the suppuration which attends phthisis, but of the suffocation which arose from imperfect respiration; and this is a distinction which I wish to draw strongly and broadly. It is, I believe, a generally received opinion, that tubercles, by producing inflammation and suppuration, are the cause of phthisis. This I doubt, or even deny. I look on tubercular development and consumption as the consequences of that particular state of constitution, which occasions what is falsely termed tubercular inflammation, a state of constitution in which we have three distinct processes, attended by corresponding morbid changes, each different in itself, but depending on one common cause. Every form of consumption, which has hitherto come under our notice, is referable to one common origin, and this is that debilitated state of constitution which has been termed the scrofulous habit. One of the first tendencies of this habit is to the formation of tissues of an inferior degree of animalization, among which I class tubercles, whether occurring in the lungs, brain, or liver, whether they exist in a minute or granular form, or in large, soft, and yellow masses, or in the state of tubercular infiltration. I look on them as one of the first of those morbid changes depending on a peculiar constitution of body, and most commonly found to accompany it. The weaker the constitution is, the greater tendency is there to generate tissues of a lower degree of vitality, and, on this principle, I think we can explain the occurrence of entozoa and hydatids. There are some cases in which you will never be able to prevent the generation of intestinal worms, until you direct your attention to the source of the evil, which lies in the weakness of the constitution, for, in such a state of the system, all animals are liable to the formation of parasitic productions and tissues imperfectly animalized. I look on tubercles in this light, and not as the consequence of inflammation, nor do I consider that it has been proved, that tubercular development is the cause of phthisis. Many cases come under our observation, in which most of the symptoms of phthisis, and its attendant hectic, are manifest and striking, and, when the injury done to the lung is very great, still no tubercles can be detected. That the mere presence of tubercular matter does not occasion inflamma-

* [Examples of this variety of tuberculous disease are not very uncommon amongst the blacks in the United States. This class of patients is more subject to various tuberculous disorders than whites, and they sometimes die of acute tuberculous disorder, producing suffocation, without their having had any violent symptoms of an earlier disease of this nature.—W. W. G.]

tion of any kind, may be inferred not only from the lungs, in which this fact is of every day occurrence, and a matter of every day observation, but also from finding them frequently in the spleen, liver, kidney, and muscles, where they must have existed for some time, and yet we cannot perceive any inflammation of the surrounding tissues. On the other hand, as we may have tubercles without any phthisical pneumonia or suppuration of the lung, so we may have also the latter without the former. Thus, in a man of middle age, who died lately in this hospital, the lungs were extensively solidified, black, and ulcerated, containing several sinuous cavities, filled with pus of a scrofulous character, but not a single distinct tubercle. There was not the slightest vestige of the chief kind of tubercle—the yellow one, nor could we find any of the small miliary transparent kind; the whole mass was solid, except where it was suppurating, evidently the result of phthisical pneumonia of a chronic nature. Occurrences such as this have been frequently observed (and particularly in the phthisis of persons advanced in life) by Professor Alison and others; but the preconceived opinion, that the solidification of the lung was the consequence of tubercular deposition, made them overlook its real nature. The most important thing for the student to impress on his mind, with regard to all cases of phthisis, is, that the pectoral symptoms, of whatsoever nature they may be, are caused by scrofulous inflammation. If you trace the phenomena of external scrofulous abscesses, you will be struck with the close analogy they bear in their manner of appearance, their progress, and terminations, to the ulcerations of the lungs in phthisis. The same slowness, the same insidious latency, the same gradual solidification and gradual softening, the similarity of the puriform fluid secreted in each, the analogous occurrence of burrowing ulcers and fistulous openings, the close approximation in the form of their parietes, and the difficulty in healing remarked in both, make the resemblance between them extremely striking. Compare scrofulous inflammation of the hip or knee-joint with phthisical suppuration of the lungs:—have we not the same kind of hectic fever, the same flushings and sweats, the same state of urine, the same diarrhœa, the same state of appetite, and the same emaciation?

I mentioned before, that one of the first morbid changes we generally see arising from the scrofulous habit is the formation of tubercular matter. I have also alluded to another of those morbid changes, namely, the production of scrofulous pneumonia, in which we cannot detect the existence of a single tubercle. There is another process in which the scrofulous inflammation is seated in the bronchial mucous membrane. This latter form of phthisis is sometimes associated with phthisical pneumonia; but it often exists without it. Although, in this disease, the inflammation is seated in the bronchial mucous membrane, it differs very much from common bronchitis: its symptoms are different; it does not run the same course; and it is unlike common bronchitis in its mode of termination and cure. Its fever presents all the material phenomena of phthisis—and emaciation,—frequently the same incurability; the same means tend to its aggravation or benefit, and the same scrofulous pus is secreted. It has been urged, in opposition to the last analogy, that the matter expectorated is not the same, because it is not found mixed with broken tubercles, as in cases of true phthisis; but this is an accidental and not a real difference, and does not disprove their identity. We have instances of this species of inflammation affecting other mucous tissues; as, for in-

stance, the scrofulous inflammations of the eyelids and conjunctiva, which we see sometimes going on for months, or even years, secreting a scrofulous pus, and requiring constitutional as well as local remedies for its cure.

In like manner, we have frequent occasion to observe scrofulous sore throat, and scrofulous inflammation of the mucous membrane of the bowels. The latter is very common in children, and manifests its tendency to hectic in what is termed the remittent fever of children. Its true scrofulous nature has been scarcely perceived by practitioners; and yet its treatment and cure contain manifest proofs of its origin, independently of the subsequent disease of the mesenteric glands, observed in all fatal cases, and by all acknowledged to be scrofulous. It is scrofulous inflammation of the mucous membrane of the bowels which causes *tabes mesenterica*, which occasions the swelling and puriform contents of the mesenteric glands, in such cases. The disease of the glands has been falsely regarded as the cause of the chief symptoms: where it occurs, it aggravates and adds to them; but it is itself occasioned by irritation of the lymphatics distributed to the surface of the diseased bowel, on the same principle that a bubo, or a chain of diseased glands in the groin, may be occasioned by inflammation on the surface of the penis or lower extremities; in the axilla, by sores on the hand, arm, or chest; and in the neck, by cutaneous eruptions on the face or scalp, or by inflammation of the mucous membrane of the throat. In all such cases, if the original source of irritation at the extremities of the lymphatics leading to the gland be scrofulous, these glands will undergo precisely the same changes which we observe in the mesenteric glands in *tabes mesenterica*.

These analogies being considered, you will, gentlemen, be more disposed to agree with me, in thinking that many of those cases of chronic bronchitis which induce a fatal hectic fever, and are accompanied by a copious purulent expectoration, are truly of a scrofulous nature, and consequently not so distinct from tubercular phthisis as is generally believed. This view of the subject leads to most important practical results; for the practitioner who is aware of the true scrofulous nature of the pneumonia which occurs in phthisis, whether with or without tubercles, and who does not regard either the inflammation of the lung, or of the bronchial tubes which accompany tubercles, as genuine simple inflammations caused by the presence and irritation of tubercles, acting as foreign bodies, such a practitioner, I say, aware of the scrofulous nature of these affections, will pursue a line of practice very different from that too generally adopted, on the supposition that they are true inflammatory affections.

You will remember, then, that we have three distinct forms of disease in the lungs, all arising from scrofula, namely, scrofulous pneumonia, scrofulous bronchitis, and tubercular development. We may, therefore, have tubercles without either the pneumonia or the bronchitis; and we may have scrofulous pneumonia often ending in slow burrowing suppuration, and proving fatal without any tubercles being formed. In like manner, a person may die of scrofulous bronchitis without the occurrence of either tubercles or pneumonia. Of these three effects of scrofula, it may be remarked, that, owing to their cause and origin being the same, they are most frequently found in combination. The same diathesis which produces one may give rise to the others; hence the frequency of their association; hence it is that they generally occur together.

I have stated, that I doubted, or even denied, that tubercles were the cause of suppuration in the lung;—you will ask me for proofs. In the first place, how many lungs will you find, on dissection, filled with tubercles, and yet there is no inflammation? Out of one hundred cases of tuberculated lung, dissected by Laennec, you will remark that nearly eighty were found to be in the latent stage, and yet there was no vestige of inflammation. Now, how could this happen if tubercles acted like foreign bodies, as they are considered to do by many writers? If a grain of sand happens to get into the eye, it will excite inflammation. If tubercles were capable of producing inflammation, we should discover some traces of it in every lung where they are found to exist, and yet you will meet many cases in which you cannot detect the slightest trace of it down to the very edge of the tubercular mass. I instanced before the occurrence of tubercles in the liver, spleen, kidney, and muscles, without any accompanying or surrounding inflammation. Indeed, I am adverse to allow that any animal product gives rise to inflammation. I do not speak here of unorganised calculi. I do not include those animal productions which are transferred to a part different from that in which they originated, as the matter of an hepatic abscess into the cavity of the peritoneum; these are occurrences for which nature is not prepared. But no animal matter produces inflammation of the part in which it is deposited; nor can I call to mind a single instance of such an effect. Extravasation of blood in the brain or lungs, or into the cellular tissue, does not give rise to inflammation, neither does effusion of lymph into serous cavities. I look on tubercles in the same point of view, and consider them as productions incapable of developing the phenomena of inflammation. The inflammation and suppuration of the lung, to which the name of phthisis is applied, is dependent on a scrofulous habit, and this leads us to inquire, what is it that gives rise to the scrofulous diathesis? In many cases it is hereditary; persons may be born with it; and tubercles are frequently detected in the lungs of the fœtus. We may, therefore, say, that under some circumstances it is an hereditary disease. But it is not merely hereditary and existing in the fœtus in utero, but may be developed at any period of life. It is of great use to study and investigate the causes which produce this disease in the lungs of persons who have lived for years without any manifestation of tubercles, as it furnishes us with a key to understand why persons who have not originally either tubercles or scrofulous bronchitis may sometimes die of phthisis. It is too much the fashion to say that phthisis is an hereditary disease, and it is often useless and erroneous to lay too much stress on this opinion and on the result of an inquiry into the habits of the parents and relations of a patient who is supposed to labour under consumption. That the predisposition may be generated in utero,* I grant, is often the case, and, *cæteris paribus*, a person with such a predisposition is much worse off; but I believe that it often happens that a man will get consumption from confiding too much in the purity of his blood, and I have known some cases of neglected cough terminate in debility and consumption, because the patient was not apprehensive of any danger, from the circumstance that none of his ancestors ever had the slightest taint of phthisis. There are several facts in proof of this. If a tiger from the wilds of Africa, who can boast of a line of ancestors as free from phthisis as any of us, be brought into this country, and debilitated

* BILLARD has detected tubercles in the lungs of fœtuses.

by confinement, impure air, and a climate to which he is unaccustomed, you will frequently find that he will die phthisical. Negroes, none of whose progenitors laboured under any form of phthisis, will get consumption in Great Britain. The same occurrence takes place with respect to monkeys and other animals, who are naturally inhabitants of a climate having a striking difference in temperature from that into which they are imported. You recollect the dromedary carried about for exhibition, which died in this city; and was dissected at the College of Surgeons: this animal died of consumption. The white bear of the north of Europe, and the Esquimaux dogs, brought into this country, die of liver disease, though, I dare say, there is no instance of hepatitis among those who dwell in their native wilds. Here we have instances of disease not at all hereditary, acquired from the action of the same cause that favoured its development when hereditary, and tending to justify the opinion that phthisis may, under certain circumstances, occur in a habit in which the slightest predisposition to this disease does not exist.

You will expect me, perhaps, to enter into a disquisition on the origin of tubercles; this, for obvious reasons, I must refuse. Much labour has, I think, been fruitlessly expended in attempting to systematize this subject. The consideration of tubercles has been lately treated, with his usual ability, by my excellent friend, Dr. Rogers, in the *Edinburgh Medical and Surgical Journal*, and from his paper you will derive a great deal of useful information. I am persuaded that there is much of error and misconception in the manner in which many persons consider the nature of tubercular formation. I am convinced that many of the propositions laid down as tenable and well-grounded may be subjected to revision, or even doubted and denied. It is supposed, for instance, that the yellow solid tubercle, one of the best defined of those which are found in the lung, commences in one form and terminates in another; that in the beginning it is small, solid, and transparent; that as it grows larger it becomes more and more opaque, and afterwards, under the inflammatory process, becomes softened in the centre and suppurates, the suppuration extending towards the circumference. This I am inclined to doubt. When you find, on dissecting a scrofulous lung, tubercles with fluid matter in their centres, I can scarcely think you are authorized in saying they have been at any period of their existence completely solid. Twelve years ago, while perusing Laennec's descriptions of tubercular formation, I wrote on the margin of the copy I was reading, "Might not tubercles have been originally fluid, and might not the change they undergo be from a soft into a consolidated mass?" I have seen this passage of fluid scrofulous pus into solid tubercular matter beautifully exemplified in a case of psoas abscess; the neighbouring lymphatics were loaded with this pus; in the lymphatic glands to which it was next carried it was much thicker; in those at a greater distance it was of the consistence of curd, and when its fluid particles had been still more completely absorbed in more distant glands, it was found to be as solid as any yellow tubercle. May it not happen, that many of those yellow tubercles (and this is the opinion of Cruveilhier and others who have written on this subject since Laennec) at their commencement consist wholly of depositions of scrofulous pus in the tissue of the lungs. One of the supposed tendencies of the scrofulous diathesis is to modify nutrition in such a manner that, instead of the ordinary depositions, a secretion of scrofulous pus takes place in circumscribed spots. It

has been universally acknowledged, that we may have dépôts of pus without inflammation. Now, if those dépôts be excessively numerous and very minute, and if they continue for any length of time, they will be exposed to the action of the surrounding absorbents; and as absorption will go on with greater activity at the circumference than at the centre, it is obvious that the solidification of the circumferential parts will precede that of the central, and they will present the appearance of tubercles softened in the centre. These facts I bring forward, not for the purpose of laying down any fixed theory concerning the growth and origin of tubercles; not for the purpose of asserting that the generally received opinion is wrong; but to show you that it has been too hastily adopted, to the exclusion of other explanations drawn from causes probably not less operative in giving rise to these morbid productions. With regard to the more minute forms of tubercular matter, as the granular and transparent tubercle, and the tubercular infiltration; these I look upon as the effects of vitiated nutrition, a species of parasitic growths of a lower degree of organization, having their origin in an hereditary tendency, or in a debilitated state of constitution. These may, and frequently do occur along with the yellow purulent tubercles, and they may have purulent points deposited in their centres, or at the circumference; but it may be doubted whether there is a true conversion or growth of one into the other, or, speaking more precisely, whether greyness, transparency, and minuteness of size in tubercles, necessarily precede opacity, yellowness, and considerable bulk. The nearest resemblance which exists between the two kinds is in the case of tubercular infiltration, the grey species being imitated in its mode of diffusion by the purulent infiltration of the yellow kind.

The next subject for consideration is the examination of those causes which, acting on the constitution generally, or locally on the lung, give rise to the development of tubercles, scrofulous pneumonia, or scrofulous inflammation of the mucous membrane of the bronchial tubes. A great deal has been said concerning the badness of our climate, but it is necessary to know the comparative frequency of consumption in Great Britain in order to ascertain the influence its climate may exercise in producing this disease as compared with that of other climates. If you examine the records of the German, French, Italian, and other continental hospitals, you will find that the occurrence of phthisical cases is not less frequent in those institutions than in the infirmaries of Great Britain. I do not mean to say that in those countries so many persons die in proportion to the extent of the country as in Great Britain, or that so much of the population, taking town and country into consideration, are cut off by phthisis as in Great Britain; but of the town population, where numbers are equal in both, I believe the proportion of victims is nearly the same. The prevalence of phthisis is found statistically to depend on confinement, poverty, and vice; and as these are most abundant in the condensed population of towns, we can perceive why consumption is so frequent in this kingdom. In consequence of the great manufacturing prosperity of England, no nation in Europe possesses so many considerable towns in proportion to its entire population or extent. Now, when we compare the frequency of consumption in persons residing in large towns, and in those who live in the country, the difference is very great indeed. This is not strange, nor unaccountable. Compare the peasants of any, even

those shires which are believed to have the worst climates, in England, or even Scotland, and you will be at once struck with the contrast between them and the sallow artizans of large towns, who are crowded together in manufactories where ventilation is imperfect; where they are obliged to work in confined postures for many hours together, and the time devoted to amusement and healthful exercise is scanty and insufficient. It is scarcely credible, the length of time even very young persons are made to work. From investigations made by a parliamentary committee during the last year,* it appears that in some towns of England and Scotland every principle of humanity has been violated. Children of six years of age have been crowded together by hundreds, in badly ventilated apartments, and obliged to work for seventeen hours in the day; and when these ill-fed and sickly creatures dropped asleep over their work, as they frequently did, from fatigue, exhaustion, and the curtailment of their natural rest, they were kept awake by strapping them with a leather thong over the back. And can we be surprised that this should make them, as they are, spiritless, pale, and emaciated; and that they should sink rapidly into that state which tends to scrofulous development? Is it wonderful that in such creatures every disease of debility should manifest itself in tenfold vigour; that we should have phthisis in the lungs, and tabes mesenterica in the abdomen, and chronic hydrocephalus in the brain? What applies to those of tender age is applicable also to the adult: the same mode of life is equally destructive to both; nay, it even fixes its stamp on the race, and you can recognise at once the pale unhealthy hue, and the stunted growth, of those whose progenitors have been manufacturers and artizans for generations. If the population of these countries lived in one great London, or one great Manchester, deprived of the benefit of pure air and wholesome exercise, I verily believe that they would all become scrofulous—that nine-tenths of them would get phthisis, and that scrofula, in its various shapes, would sweep them off in the course of a few centuries. Cholera or plague would be preferable to this. But no manufacturing town supplies exclusively its own population; it generally draws from the country to support the losses it sustains by the natural decay and exclusive mortality of its members. It is the habits and circumstances of those persons who live in towns that produce the frequency of phthisis in Great Britain, for its climate is not more unhealthy than others. I mention this particularly, because a very prejudicial preventive method has been founded on the supposed inflammatory origin of phthisis. Confinement, heat regulated by the thermometer, flannel, low diet, and venesection, have been recommended as the best mode of managing phthisis. Now, if we complete the above catalogue by the liability to cold to which it brings on, the mental anxiety, and other circumstances, we have what in due time would make many persons phthisical. It is of great importance to know how to make a man phthisical, as, by pursuing an opposite line of conduct, we will be able to prevent it.

I have stated, that I considered tubercles not as the cause of phthisis, but as the result of a certain diathesis, to which the name of scrofulous habit had been given; I should, however, be conveying an erroneous idea of the peculiarities of the disease, if I were to omit mentioning that whatever produces a tendency to the lungs gives rise to phthisical development. You will find in the works of Laennec, that he states that bron-

* This lecture was delivered in 1832.

chitis never hastens the development of tubercles. I must, in the most positive manner, deny the truth of this statement. It is a very dangerous thing for a person of a scrofulous habit to get an attack of cold, producing catarrh, or inflammation of the lungs, as it has a direct tendency to bring on tubercular development and suppuration. If persons be weakly, unhealthy, and of a scrofulous constitution, and get cold and inflammation of the lungs, they are more liable to have consumptive suppuration of the congested than of any portion of the lung; for the same reason that a simple injury, producing inflammation of the hip or knee-joint in a scrofulous habit, may degenerate into true scrofulous ulceration of these parts. Hence common bronchitis in a scrofulous habit may become true scrofulous bronchitis, and common pneumonia may end in the scrofulous consolidation and burrowing ulceration of the lung peculiar to phthisis.

I am afraid, gentlemen, that you will think me tedious and guilty of repetition on this subject; but its importance is paramount, and I wish to impress on you that every form of phthisis is connected with scrofulous inflammation of the lung. Compare scrofulous and long-continued inflammation of the knee or hip-joint and their attending symptoms with the symptoms of phthisis. Have we not the same fever, the same sweats, the same diarrhœa, the same emaciation, the same state of urine and pulse? Are not all the symptoms which attend these diseases, I mean the general and constitutional symptoms, identical? Let me observe that there is not one of those cases in which you will not be able to trace the existence of scrofula, and I trust that you will assent to this proposition, that the inflammation of the lungs in phthisis is scrofulous. You may be inclined to doubt that there is such a thing as scrofulous bronchitis, but let me remind you, that there are cases of persons in the decline of life who have long-continued cough, purulent expectoration, emaciation, sweats, hectic fever, and diarrhœa; and when you dissect one of those persons, you find the mucous membrane of the bronchial tubes red and hypertrophied, and a great quantity of purulent fluid in the lungs, but not the slightest trace of tubercle. You may say, I have made here a good diagnosis, this person has died of chronic catarrh; but this is improper; many of those cases are scrofulous inflammation of the bronchial mucous membrane. You will generally observe that those cases are much more difficult of cure than mere bronchitis; that the same treatment, the same regimen, the same attention to change of air, and tonic and strengthening diet, will not do. No one dies from an attack of common bronchitis except the very aged, or persons in whom it is very general and very acute; and here its rapid termination sufficiently distinguishes it from the form I have described; but we have repeated instances of bronchitis lasting for months without destroying the patient, and capable of being removed by the ordinary means, except when it occurs in a scrofulous diathesis. It is obvious that phthisis may prove fatal by the rapid and extensive development of tubercles without any of the peculiar phenomena of pneumonia or bronchitis; yet it most commonly happens that owing to their being produced by the same cause, we have the three different forms of scrofulous inflammation in the same phthisical patient, although it is by no means rare to meet with them in a separate and distinct state.

I have mentioned on a former occasion that I did not consider inflammation as the cause of tubercular development; nevertheless, I must not omit stating, that it greatly increases the tendency to it by bringing more

(generally unhealthy) blood to the lung, and thus encouraging the formation of morbid deposits; and this leads us to the consideration of another question, why are tubercles so common and so copious in the lung more than in any other tissue? I believe there has not been as yet any satisfactory solution of this phenomenon; but it may tend to throw some light on this obscure subject, if we call to mind one of the most striking peculiarities of the lung, namely, that it is the only organ through which the entire mass of the blood circulates. Through other organs, a portion only of the blood is transmitted; but the whole current of the circulation passes through the lungs. It is in the lungs also that the change which the blood undergoes takes place exclusively, and its particles experience that mutation which renders them subservient to the purposes of life. Whatever has been added or subtracted from the blood by the processes of sanguification or secretion is corrected by the operation which it undergoes in the lungs, and hence they stand in relation to the blood differently from other parts. They receive, transmit, and produce changes in the blood differing from those it experiences in any other organ, and this may perhaps account in some way for the frequency of tubercles in the lungs. Tubercles are a disease of nutrition, a process which depends intimately on the blood; and it may not seem strange that they should be most frequent and numerous in an organ which has a more intimate connection with the sanguineous circulation than any other. I have stated that in persons of scrofulous habit, whatever produces congestion in the lung is liable to bring on phthisis, and hence it is that tubercles are found to succeed the different forms of chest disease in which congestion of the lung is a general feature. It is not that more blood passes through the uninflamed portion, or that it receives more than the sound part. On the contrary, perhaps one hundred times as much blood is transmitted through the healthy part, but the mode in which it passes is very different. It passes rapidly and freely through the uninflamed portion of the lung, and is aerated on its passage; but in the inflamed part the blood is retarded in its progress, and comparatively speaking, stagnates: it is, as it were, out of the general current of the circulation, *hors de la route*; it becomes diminished, both in its velocity and quantity, because the unsound and disorganised portion of the lung is unable to effect those vital changes which depend on the perfect state of its functions. Hence, you perceive, that whatever increases the stagnation of blood or the engorgement of the lung brings on a state of that fluid in which there is both detention and imperfect aëration, circumstances which are apt to produce, not the nutrition of the organ in which they occur, but the formation of morbid depositions, and this appears to be the reason why inflammation and engorgement occasion tubercular development.

With regard to the time of life at which phthisis is found to occur most frequently, Lombard, Alison, and Andral have corrected some important errors in the opinions previously existing on this subject. From their investigations, it appears that, from one to two years of age, tubercular consumption is very rare, that its frequency increases from four to five, that it then remains nearly stationary until puberty, when the tendency to tubercular development is suddenly revived. As old age comes on, this tendency diminishes, and tubercular consumption is of comparatively rare occurrence, but scrofulous inflammation of the lungs is then also not unfrequently noticed. In the consumption of young persons we most com-

monly meet with tubercles on examination after death, but in old people tubercles are seldom found, and in dissections of those who die of phthisis at an advanced age, we generally observe ulceration, abscesses, fistulous communications, and consolidation of various parts, with quantities of scrofulous pus. Such was the case of the man who died here some time since, in whom the ravages committed by scrofulous ulceration were very extensive, but there was not a vestige of tubercle. This form of phthisis is also frequently noticed in persons of middle age who have lived intemperately and weakened the system by dissolute causes.

I wish to make some additional observations now on the phthical habit, and the circumstances which increase the liability to consumption. There are many circumstances which tend to the development of phthisis through the medium of their influence on the constitution. In the first place, persons who have had debilitating and protracted fevers, particularly if there be any affection of the lungs, are very apt to fall into what has been termed galloping consumption after the subsidence of the fever. In the next place, you will often find symptoms of phthisis coming on in females of a weakly habit when they attempt to nurse. In many females, of delicate constitution, you are aware that the progress of consumption is checked by utero-gestation. As soon as the female becomes pregnant, the phthical symptoms disappear; but when she begins to nurse, they return again in an aggravated form. When such persons begin to nurse you should watch the effect of this new drain on the constitution; you should observe whether their strength diminishes; and if you find them becoming pale, thin, and emaciated, you should make them give up nursing, particularly if there be a tendency to phthisis in their habits. Among the male sex, nothing more frequently produces phthisis than syphilis and the abuse of mercury. There is no receipt more infallible than this for producing consumption. Take a young man, even with an excellent constitution, who is labouring under syphilis, shut him up in a close room, dose him with mercury, put him on low diet, and prevent him from the enjoyment of fresh air, wholesome exercise, and enlivening conversation, and you will certainly make him phthical, if this process be often repeated. Other diseases, such as diabetes, cancer, diarrhœa, insanity, hypochondriasis, and hysteria, have also a tendency to bring on consumption. If you consult Laennec, you will find enumerated among its causes, mental anxiety, depression of spirits, and such diseases will frequently lay the foundation for phthisis. In speaking of some of the religious orders in France, particularly those to which females are attached, he says that it is to be lamented that they were so unreasonable in their mode of life; for the confinement, want of recreation and exercise, which attended their mode of living concurring with their rigid abstinence, produced consumption in a few years. You should bear those circumstances in mind, and remember that there are various causes which tend to the development of phthisis, among which you are not to forget those which operate on the system through the medium of the mind. Analogous to this is that ill-judged pursuit of knowledge, which we often with regret observe to cut short the earthly career of the industrious medical student. No matter how vigorous a young gentleman may be, he will make himself consumptive in two or three years if he chooses. Let him remain constantly in the dissecting room, or in attendance on lectures, keep his mind intently and anxiously engaged, let him snatch a hurried meal, for which he has no

appetite, take no exercise, and abridge his natural portion of sleep, he will quickly bring on that state of constitution in which the consumptive tendency so commonly appears. By pursuing this course of life, many young men fall victims to phthisis at an early age, and give melancholy proofs of the power of a combination of mental and physical causes in producing this disease.

You will ask me what is to be done, in order to avert this phthisical tendency? It was formerly thought, that consumption arose from inflammation of the lung, and, on this erroneous reasoning, was founded its preventive treatment; the patient was confined to his room, and kept in an equable temperature, wrapped up in flannel. I well remember this mode. If a family lost one of its members by consumption, these were the means employed to avert its occurrence in those who remained. This absurd plan was followed with rigorous exactness, and the constitutions of the survivors were so debilitated thereby, that they became similarly affected, and in time the whole were swept away. All these precautionary measures generally tend to the same purpose, to make the constitution delicate, and consequently more liable to the inroads of phthisis. A rational physician will endeavour to prevent its occurrence, not by confining his patient, and wrapping him in flannel, but by hardening him against cold. Any one, who wraps himself up and confines himself within doors, takes cold in ten-fold proportion to the person who dispenses with superfluous covering, washes his chest with cold water, and rises early in the morning. Habits such as these, with a good nutritious, but not stimulating diet, and exercise, are the best preventives of phthisis. Make your patient lay aside slops and tea; let him take wholesome fresh meat, bread, and good beer; let him rise early and breakfast early, let him dine also early; when the weather permits, let him remain in the open air for four or five hours, taking exercise on a jaunting-car, or on the top of a coach. The good diet will invigorate the system, and, so far from producing inflammation, will do exactly the contrary. No superfluous muffling should be used, nor would I recommend young gentlemen who wish to avoid cold, to come to hospital in the morning with a boa round their necks. Exercise should also be taken on an open vehicle, close carriages avoided, and the patient should commence cautiously the plan recommended by Dr. Stewart, of Glasgow, of washing the chest with vinegar and water, beginning with it warm, and reducing the temperature gradually until it can be used completely cold. You will have great success in preventing phthisis by following this plan. In all cases, also, where phthisis is hereditary, I would strongly recommend the insertion of issues or setons* in the chest, before or after puberty, and I am of opinion

* [For some years I have been very little inclined to advise the employment of issues or setons in phthisis. In some cases these remedies are of great value, but in many instances I believe they do a positive harm to the patient, not only by the direct irritation they occasion, but also from the more important indirect mischief they produce by diminishing the power of the patient to take abundant exercise in the open air, which is all-important in the management of phthisis. I now use these remedies very seldom in the treatment of phthisis. Blisters, or the irritation caused by the application of croton oil or tartar emetic to the chest, seem to me to be generally preferable remedies.—W. W. G.]

that if you happen to have an application made to you for advice before the disease commences, you will certainly avert its occurrence by this practice. You should, however, employ this mode of treatment with due consideration; issues and setons are very unpleasant things, and you should not make your mode of prevention more powerful than necessary. The only cases in which you are authorized to have recourse to them, *as preventives*, are those in which there is a family predisposition to phthisis. I look on issues and setons as one of the most important means in the prevention, if not in the treatment of phthisis. Their utility in diseases of the hip-joint and spine has been long acknowledged. It is the knowledge of this fact which induces me to recommend them in phthisical cases; I consider their value very great; and when I employ them, I generally recommend a nutritious diet, which is of advantage where there is an outlet for matter from the system. I never treat a case of decidedly incipient phthisis without inserting, at least, two setons under the collar-bones. The following observation, made by an intelligent medical friend, is deserving of attention. "I had inserted a seton over the left mamma, where bronchial râles, diminished respiration, and commencing crepitus, indicated advancing tubercular inflammation. These stethoscopic phenomena were much increased every time he caught cold in his chest, and he felt sensibly, by the wheezing and uneasiness in that part of his chest, that whenever he caught cold, the lung there was most engaged. The effects of the setons were such, that, in the course of three months, having contracted a severe cold, that part of the lung was comparatively free from the bronchitis." For the accuracy of this fact I can vouch.

Concerning the climate to which we may find it necessary to recommend a patient to remove, either for the prevention or alleviation of phthisis, I shall now offer a few remarks. When you enjoin a change of climate, and make persons leave the country in which they have lived from infancy, you should not send them to the same, or nearly the same, climate; the change should be to a completely opposite one. Italy, the south of France, or Madeira, are not sufficiently different. It is absurd, in my mind, to send a patient from the British islands to any part of the continent of Europe. Towns on the sea-coast of any part of it will not do; I would prefer the East or West Indies, South Carolina, or Florida, the northern states of South America, or Egypt. Many improvements in the social condition of the last named country tend to render it a desirable place of residence; and if the present enlightened Pacha continue to promote the advantages which it has gained within the last few years, it will become as agreeable a place of residence as any person can desire. Moreover, Clot Bey has confirmed the statement of Savary, that in Egypt pulmonary diseases are almost entirely unknown.

I come now to speak of the treatment of phthisis itself, and shall make but very few observations on this subject, for you will find the history of its general symptoms, stethoscopic phenomena, and method of treatment, amply detailed in books. With regard to the cough, I may remark, that in the first stages of this disease it presents great varieties, being generally, in the commencement, baffling, and consequently scarcely noticed either by the patient or his friends. In some it precedes, in others it follows, a notable degree of emaciation and debility; and it is worthy of notice, that it is not unusual for the patient to complain of increased perspirations at night, long before the pulse is at all accelerated, long before

the symptoms of hectic fever have commenced. These night-sweats are, at this period of the disease, the result of that debility, to whose presence the subsequent development of phthisis itself is mainly owing. At a subsequent period, the sweats are increased by the hectic fever, whose paroxysms end in cutaneous perspiration. Still, however, the original debility aids in their production, a fact which, in the treatment of this disease, should be borne in mind, for it may be considered as always proper to check this tendency to perspiration in phthisis, particularly in its commencement, for it uselessly debilitates the patient, and renders him much more liable to cold. Hence, when a patient applies to me, complaining of some debility, and a slight degree of emaciation, and fading of healthy appearance; if he has had a slight, but by no means troublesome, cough for several weeks—a cough, indeed, which he scarcely observes himself, but which excites the fear of some anxious friend; if, in addition to this, he sweats rather more than usual at night, then, although his pulse be quite tranquil, although there exists no trace of hectic fever, yet I immediately direct my treatment with a view of checking this tendency to night perspiration, as well as the other more prominent symptoms. To such persons I generally recommend some such draught as the following, to be taken three times a-day.

R. Infusi cascarillæ, ℥vij.
 Sulphatis quininæ, gr. ss.
 Acid. Sulphurici dilut., gt. xv.
 Tincturæ hyosciami. ℥ss.

These draughts, together with constant gestation in the open air for an hour and a half at a time, and several times a-day, with nutritious diet—meat, bread, and beer, for breakfast, meat for luncheon, and a dinner, with one or two glasses of wine, and no tea in the evening, will soon check the perspirations, diminish the cough, and rapidly recall the patient's strength and vigour. Many German physicians have an aphorism, that sulphuric acid tends to increase pectoral affections. So it occasionally does; but given, combined with hyosciamus, as above recommended, its beneficial action, in giving strength and tone to the constitution, soon enables the patient to shake off the cough.

In the month of January last, I recommended this prescription and general treatment to the eldest son of a gentleman of rank. His state was exactly what I have above described, and several of his mother's family had died of consumption. In a few days, his mother-in-law called at my house, and, in the course of our conversation, it became clear that she entertained very strong prejudices against the treatment I had recommended. Such persons, gentlemen, are all well acquainted with sulphate of quinine; ladies of fashion use it constantly to wind themselves up, when reduced to a little below par, by dissipation and late hours. What use could sulphate of quinine be to a cough? Might he not catch fresh cold from driving out at this season? Would not the meat diet tend to increase the pectoral affection? Luckily for me, this lady lived at the time in a country house, the nearest place to which had, many years ago, been the residence of one of our richest merchants, a gentleman with a very numerous family, eleven of whom have since died of consumption. My answer to the lady was, therefore, obvious. I replied, to prevent consumption, or remove its first stages in that family, the most eminent

physicians recommended a certain regimen and mode of treatment. They were anxiously confined within doors during winter, kept wrapt up in flannel in rooms maintained at a *Madeira* temperature, were not allowed animal food, and were bled to the amount of a few ounces at each accession of fresh cold. You, yourself, know the result, madam:—they all fell victims to the complaint, and appeared to droop more rapidly in consequence of the treatment. I am pursuing, in the case of your son-in-law, an opposite course. She was satisfied, and the young man is now strong and healthy. In spring, 1832, I was consulted by a young barrister who was affected in nearly the same manner, but, in addition, had a hoarseness and much more violent cough, and was more emaciated. The same regimen; the same medicines; the solution of nitrate of silver applied to the tonsils and pharynx; early hours; removal to Bray, and driving through the open air twenty miles a-day, restored him to health. Being now aware of what injures him, he avoids every thing debilitating, never neglects exercise, and is now strong and able to pursue his professional avocations. Again let me repeat it, that if the disease be at all more advanced than it was in these two cases, I immediately insert one or two setons over the most suspected part of the lungs. When the preparations of hyosciamus are well made and good, they are extremely useful, and, like digitalis, exert a retarding influence over the pulse when it is accelerated.

When the pectoral symptoms are accompanied with evident fever and a quick pulse, I generally combine these two substances as in the following formula:

R. Sulphatis quiniæ, gr. jss.
 Acid. sulphur. dilut. ℥j.
 Tincturæ digitalis, gt. xx.
 —————hyosciami, ℥j.
 Syrupi papav. albi, ℥ss.
 Aquæ fontanæ, ℥iv.

Fiat mistura, sumat cochl. j. amplum 2a. q.q. horâ.

As the disease advances, the difficulty of producing a favourable result increases in tenfold proportion; and I do not think that I can offer any remarks upon its treatment or mitigation which you will not find detailed in the various treatises on this disease lately published.

But, before I conclude, let me impress on you strongly the necessity of never abandoning cases of consumption as hopeless; for I have known several apparently desperate cases cured, even when puriform matter had been expectorated, and cavities existed. In a preceding part of this lecture, I have stated that the premonitory cough of phthisis is generally trifling, and scarcely attracts the notice of the patient himself. This, however, is not always the case. Thus, the lamented Mr. Wolf, the author of the celebrated stanzas on the death of General Moore, had, for a year before emaciation and hectic commenced, a frequently-repeated, single cough, exceedingly loud, ringing a metallic—in fact, a *tussis firma*: during this time his pulse was natural and his breathing tranquil. Nothing that the ingenuity of Dr. Cheyne could suggest was of the least service in allaying the violence of the cough: nothing softened it, until it passed into the usual cough of true consumption, and then we too truly anticipated the loss Mr. Wolf's friends must prepare themselves to sustain.

I have seen a *tussis firma*, such as I have described, perfectly dry, un-

interrupted except during sleep, and very harassing in young ladies shortly after the age of puberty, and in whom the menstrual evacuation was scanty and irregular. In such cases the stethoscope discovers no disease; a full breath can be drawn; and during sleep the respiration is not hurried. The tonic treatment consisting of large doses of carbonate of iron; the occasional exhibition of the spirit of turpentine, repeated for several days so as to act on the bowels, and given in as large quantities as can be borne,—these medicines, I say, combined with active exercise, the occasional use of aloetic purgatives, and finally the exhibition of tincture of cantharides, compound tincture of bark, and camphorated tincture of opium, according to the formula I have given for the cure of hooping-cough in the Dublin Medical Journal, will succeed in removing the disease. This mode of treating this species of cough is quite new, and suggested itself to me after all the usual remedies had failed. Dr. Nalty, of Clare-street, witnessed a case of this nature which yielded to these remedies, and which had baffled the most judicious exertions of several eminent practitioners in the country.

SYPHILIS.

LECTURE XXIV.

Dr. Roe's Report on Syphilis — Treatment of Gonorrhœa — Mr. Hoskins on Purulent Ophthalmia.

I SHALL NOW, gentlemen, proceed to lay before you some observations on syphilis. Bell, Hunter, Matthias, Pearson, Carmichael, Rose, Hennen, Colles, Wallace, and Ricord, have so diligently investigated the history, symptoms, and special pathology of venereal affections, that I consider it unnecessary to touch upon these matters at present, and consequently I mean to confine my remarks to a few controverted subjects connected with the general pathology and therapeutics of syphilitic diseases.

I hold in my hand a report, by my friend Dr. Roe, containing a return of the venereal patients treated in the 38th Regimental Hospital, from the 11th of June, 1836, to the 15th of November, 1837; giving in separate columns, the names, ages, forms of disease, periods of admission and discharge, duration of the treatment, and remarks. The compiler, Dr. Roe, was a fellow student of mine, educated in Dublin, and always noted for his intelligence, accomplishments, and steadfast zeal for his profession. Under Dr. Colles, and the surgeons of the Lock Hospital, he had ample opportunities of witnessing the effects of the mercurial treatment of syphilis. He has treated the disease in the East Indies, the Ionian Isles, and at home, and from his habits of observation, sagacity, and attention, any statement coming from him must be very valuable. During the period from the 11th June, 1836, to the 15th December, 1837, the number of patients treated in the hospital of the 38th Regiment was 231. Of these, 80 were affected with gonorrhœa, 87 with chancre, 36 with bubo, 23 with hernia humoralis, and 4 with chancre and bubo. 90 were under 20 years of age; 95 from 20 to 25; 23 from 25 to 30; and 17 from 30 to 40, and

upwards. Several caught the infection more than once during the space of time mentioned. Thus, Henry Carter was admitted for gonorrhœa on the 11th of June, 1836; again for gonorrhœa, on the 25th of February, 1837; and again for the same on the 4th of May, 1837. John Adams, twice for gonorrhœa; Arthur Nesbitt, twice for chancre; John Williams, twice for chancre; William Bexham, twice for chancre; John Jess, once for gonorrhœa, and a second time for bubo. With respect to the duration of these cases, treated wholly without mercury, Dr. Roe gives the following summary:—The cases of gonorrhœa were on an average 15 3-7th days under treatment; chancre, 21 4-11th days; bubo $27\frac{3}{4}$; swelled testicle, or hernia humoralis, 11 3-5th; severe cases of chancre with bubo, $18\frac{1}{4}$ days. The following was the general plan of treatment pursued by Dr. Roe, and first with regard to gonorrhœa. The men on admission having been washed with warm water and soap, were ordered to take an aperient mixture, composed of sulphate of magnesia and tartar emetic, every third hour, until the bowels were freely opened. A small piece of lint was applied to the orifice of the urethra, and a short roller soaked in cold water was passed round the penis, to keep the parts cool and clean. If there was much ardor urinæ, the patient was ordered to foment the part, and syringe with warm water every second hour. As soon as the ardor urinæ abated, an injection of sulphate of zinc (gr. ij. ad $\bar{3}$ j. aquæ) was used four or five times a-day; as the smarting in passing water abated, the proportion of sulphate of zinc was increased to five grains to the ounce. He then commenced bathing the parts with cold water, and took balsam of copaiba, turpentine, or cubebs. The patients were invariably confined to bed while under treatment, used only spoon meat or milk diet, and barley water for drink. Every third or fourth morning a dose of Epsom salt, with or without tartar emetic, was taken to keep the bowels free. In a few obstinate cases, injections of sulphate of copper or nitrate of silver were employed, with the occasional use of the bougie, or a small blister over the track of the urethra.

Gonorrhœa

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From this simple but excellent and efficacious plan of treating gonorrhœa, we come now to the treatment of chancre. This is a point deserving of your attention, and peculiarly important with reference to the subject at present under consideration. The patients, on admission, were purged with Epsom salt and tartar emetic, and were ordered to apply a bit of lint wet with a solution of sulphate of copper to the chancres, renewing the application every second hour, and using the moistened roller to keep the parts cool and retain the dressings. Milk diet was prescribed as before, and a dose of salts, or salts and tartar emetic, taken every second morning. The parts were frequently bathed with cold water, particularly if there was any pain in the groins, and the chancres were occasionally touched with nitrate of silver, or sprinkled with red precipitate to expedite the cure. Calomel was rarely given: and when administered, not for the purpose of affecting the mouth, but merely as an alterative, and in combination with tartar emetic. The men were all confined to bed, the most perfect cleanliness insisted on, and the bowels kept in a soluble state.

Syphilis.

Buboes were treated in a similar way, but with a more rigid observance of the antiphlogistic regimen. Buboes are often seen without any ulcers on the penis, or they have appeared after the ulcers have healed. They are constantly bathed with cold lotion, and by this means, aided by the

I have seen resolution of mercurial bubo, obtained by blistering, the swelling — this treatment is adopted by Dr. Johnson & the Richardson & Professor. A blister often is productive of cure in heretic humors as Dr. Wollaston has seen. solution of tartar emetic and salts, they were frequently dispersed. If, in spite of these measures, they become enlarged, red, and tender, a warm poultice, three times a-day, and frequent fomentations, were employed. If there was still any chance of resolution, small doses of calomel and tartar emetic were administered, and the poulticing continued, care being also taken to keep up a loose state of the bowels by saline purgatives. In general, these means were followed by the desired effects. If, notwithstanding these measures, the buboes increased in size, became softer, and exhibited proofs of fluctuation, Dr. Roe opened them by applying the kali purum to the diseased surface. He then continued the fomentations and poultices, dressed the ulcer with red precipitate, and when it began to assume a healthy appearance, applied a compress and roller to keep the edges of the ulcer together, and keep down exuberant granulations. At the same time the patient took decoction of bark with sulphuric acid, or sarsaparilla with nitric acid; these, with a more generous diet, and a moderate use of porter, generally succeeded in producing a speedy and permanent cure.

Among all Dr. Roe's patients there was only one case of secondary syphilis. This man, who laboured under buboes at the time of his admission was in bad health; the buboes were extremely chronic, and difficult of cure. He was treated during the winter, and returned, some time after being discharged, complaining of cough and sore throat, with a papular eruption over the breast, back and thighs. He was treated with alterative doses of calomel, combined with tartar emetic and opium, and used the warm bath three times a-week. His bowels were kept open, a generous diet, with porter, was allowed, and he took the decoction of sarsaparilla with nitric acid. He recovered completely, and is now stronger and in better health than he has been for many years. A solution of alum, as a gargle, and the use of volatile liniment, with flannel, externally, was all that was found necessary for the cure of his sore throat. He was about a month under treatment.

Such was the plan of treatment followed by Dr. Roe, and that it proved eminently successful is shown by the result, for out of 231 patients, of whom 87 had chancre and 36 bubo, there was only one case of secondary syphilis. Of these facts I have been myself a witness, and they are certainly of great importance. I do not think that more gratifying results could have attended the best-regulated mercurial treatment. I may observe, however, that soldiers enjoy many advantages which civilians of the lower class are, in a great measure, deprived of. They are not left to their own discretion as to the time they should apply for advice, as to the mode in which they should conduct themselves during the course of treatment. Soldiers are generally inspected by the medical officer once a week; the glans, prepuce, orifice of the urethra, and groins, are carefully examined, so that any trace of disease cannot escape detection.

In this way the disease is attacked at its very commencement, and checked at once; a circumstance which, for reasons hereafter to be explained, has an important influence on the proportion of the cases of secondary syphilis.

Again, during the process of cure, the men are not allowed to walk about, take exercise, indulge in the use of intoxicating liquors or stimulant diet, or expose themselves to the vicissitudes of the season. It may be also observed, that soldiers, from the care employed in the selection

of the recruits, from their mode of life, diet, exercise, and regular hours, are some of the healthiest members of the community; and therefore enjoy, in a very remarkable degree, the advantage of resisting infectious diseases, or getting rid of them sooner than persons of feeble constitution.

There are some points in Dr. Roe's treatment to which I shall now advert. In gonorrhœa he begins, internally, with cooling antiphlogistic medicines, and afterwards passes to the use of internal stimulants. He also applies local antiphlogistic means in the commencement, directing the patient at first to syringe with tepid water, which is exchanged for a mild astringent injection as soon as the ardor urinæ abates; and he afterwards employs stronger and more astringent injections. When neglect or an injudicious treatment have allowed gonorrhœa to attain the second stage (that of inflammation), it will be always right to apply the antiphlogistic method, generally and locally; but this does not preclude the use of injections: they must be skilfully administered, for fear of injuring the inflamed urethra, and at first should merely consist of one drachm of mucilage dissolved in seven of water. After using this two or three times, one grain of sulphate of zinc may be added. On the morrow and day after the same may be continued, and then it may be rendered more active by increasing the quantity of sulphate, and adding other matters, of which more hereafter.

In order to prevent you from misunderstanding my meaning, it is necessary to explain that gonorrhœa may be considered as exhibiting three different stages. In the first, immediately succeeding the period of incubation (during which the infection has as yet produced no perceptible symptoms), a very slight oozing of whitish mucus takes place from the urethra, and a little tingling is felt in that passage, whose mucous membrane then exhibits an incipient redness. No pain is felt in passing water. This stage seldom lasts more than two days; but occasionally it does. When gonorrhœa is to be violent, it is of short duration; when mild, of longer. It passes gradually into the second or inflammatory stage, with its well-known *profluvium*, ardor urinæ, and other symptoms; and this again, in due time, is succeeded by the third stage, or that of decline. The first and last stages are peculiarly suited for the employment of astringent injections.

I do not know any practical point on which greater diversity of opinion exists than the administration of injections in gonorrhœa. In Dublin, students are generally taught that their use is improper and dangerous. The following are the chief objections to which they are said to be liable:—1st. They do not diminish the urethral inflammation though they dry up the discharge, and consequently they lay the foundation for stricture, or more immediately occasion the inflammation to descend along the urethra, until it extends to the membranous portion, the prostate, or even the bladder. 2dly. Their use renders swelled testicle and sympathetic bubo more frequent. 3dly. It is argued that the use of any measures, except such as are purely antiphlogistic, must be improper in a disease accompanied by so many indubitable signs of inflammation. Let us closely examine this last objection, and we shall find it to possess more apparent than real weight, for analogy proves that the principle on which it depends is by no means universally applicable, particularly in cases of specific inflammation. When surgeons placed their sole reliance on antiphlogistic

measures, local or general, in the treatment of purulent ophthalmia, the results were truly disastrous; and however exhausted the patient became from excessive bleeding by the lancet and leeches, aided by large and frequently-repeated doses of tartar emetic internally, the local inflammation proceeded in its rapid and destructive course, scarcely influenced, never effectually checked, by the treatment adopted. I have seen a man treated (in the Meath Hospital, by myself and the late able ophthalmic surgeon, Mr. Hewson) with bleeding, general and local, employed, I might say, to excess, and aided by rapid and profuse mercurial salivation: I have seen, in the patient referred to, both eyes destroyed by purulent ophthalmia in a few days. Not long ago, I was called during the night to visit a young gentleman in a hotel; he had gonorrhœa, and went to bed without any complaint of the eyes, but was soon awakened by pain in the left eye. It was evidently purulent ophthalmia, and was cured in the course of a few hours by relays of leeches, and a strong sulphate of zinc collyrium, carefully applied. After thousands had lost their vision from the effects of this disease, it was at length discovered that some who adopted a totally different mode of practice, and who treated the purulent ophthalmia in its very commencement with strong astringent and corrosive applications, were eminently successful. This led many army surgeons, more especially Mr. Guthrie, to investigate the subject with care. You are aware of the important practical results at which he arrived, and of the great improvement which has consequently taken place in ophthalmic surgery, leading to the application of solid nitrate of silver, or its concentrated solution, of sulphate of copper, &c., &c., to the mucous membrane of the eye in the first stages of purulent ophthalmia—a mode of treatment which our predecessors would not have hesitated to pronounce most hazardous and destructive.

That astringent and stimulant collyria are applicable in the incipient stages of some other species of ophthalmia, as well as the purulent, is now familiarly known to surgeons. The following example of its utility occurs in a work lately published, on the Oases of the Libyan Desert, by Mr. Hoskins. It is necessary to remark, that the ophthalmia described by Mr. Hoskins, and so common both among the natives and foreigners in Egypt, is essentially a purulent ophthalmia, which, however, attacks with very different degrees of intensity, being in some mild and chronic, in others most acute, and suddenly destructive of vision.

“Nov. 5th, 1832.—I was confined to my tent the whole of this day by a painful attack of ophthalmia; and although in the morning it was very severe, yet by double doses of the contents of an inestimable bottle, I have nearly subdued it. As some of my readers may wish to know what this wonderful vial contains—what this infallible remedy for such a baneful complaint can be—I will tell the history of it, though I cannot fully gratify the desire of the curious. The purser of the French frigate, the *Luxor*, which was built for the purpose of removing one of the obelisks from Thebes, was the fabricator of this extraordinary water. He informed me, when in Egypt, that his father had been attached to Napoleon's expedition to that country, and had then discovered this miraculous cure. From fear of its being analyzed, he had never allowed any person to possess more than a very small quantity; but he cured without fee all who came to him, Christian and Mussulman, French and English, Turk and Arab. When this liquor was applied in time, it was found always to stop the

most virulent attacks of the disease, and generally relieved in a very few days even those who had been for several months martyrs to the complaint. A Turk, who had suffered for years, was completely cured in a fortnight; and in gratitude to his benefactor, gave him a horse richly caparisoned. The Frenchman's fame was spread throughout the country, and many came to him as far as from Keneh and Esneh. Even the surgeon of the Luxor was so sensible of the value of the remedy, and of its producing no subsequent bad effects, that he sent all the officers and men of the vessel suffering from that complaint to the purser or to the *hakim* (doctor), as the natives called him. The application was easy to the hakim but most painful to the patient. He let fall a single drop of the water on the ball of each eye, which immediately spread, and from its pungent nature caused, if much irritation existed, the most inexpressible torture. In twenty minutes, or half an hour, this pain subsided, and a little clammy matter was seen to ooze from the eye. The remedy, although violent, did not weaken the eye in the slightest degree, nor in any manner injure the sight. Knowing that I purposed to go into Ethiopia, the hakim had the kindness to sell me, for about its weight in gold, a small bottle of this water; but under the express condition that I would neither directly nor indirectly allow it to be analyzed. He said that it was his intention to return again to Egypt, and that he expected to be able to make his fortune; but whether he does or not, I feel most grateful to him for having saved me from so much torture, as I have often been obliged to have recourse to the water, and have kept my promise in not allowing it to be analyzed. As this person has now left the country, and no further supply is to be obtained, I prize the water most highly, and cannot afford to use it for the relief of mere strangers. The remedy which we generally find to succeed with the natives, when applied to by them, is sulphate of zinc in strong doses—ten grains being dissolved in an ounce of water, and a drop of this being put in each eye two or three times a-day. This is by no means so certain a remedy as the hakim's water, but in nine cases out of ten I have found it to succeed. When, however, the inflammation and swelling are so great that the eyes are closed, *cupping* is the only effectual remedy. Mr. Ponsonby, who travelled with me in Lower Nubia, was attacked with this description of ophthalmia. He sent without delay for the hakim, alias barber, of the village. It was fortunate that the eyes of Mr. P. were quite closed, for had he seen the hakim he would scarcely have reposed sufficient confidence in his skill to submit to the operation. The man was actually in rags, and of the most unprepossessing appearance, without a single ray of intelligence in his countenance. His cups were made of the horns of a cow, and his instrument was an old razor, not so decent-looking nor so sharp as a tolerably good stick knife. I offered him a lancet, but he said that he did not know how to use it. Thinking that it would be less painful for Mr. P. to be sacrificed with a sharp than a blunt razor, I gave the man one of my own; but being unaccustomed to so fine an instrument, and not aware of the much less force it required than his own blunt knife, he cut too deep; I therefore thought it best to allow him to finish the operation in his own way. I must confess, indeed, that he did it very expertly, and I may add successfully; as he effected a very sudden and almost miraculous cure of Mr. P.'s ophthalmia. At Thebes I had two severe attacks of this disease, which incapacitated me from either reading, writing, or drawing. Thanks to

the hakim's water, these attacks were fortunately short; but they were painful while they lasted, and most irksome to support. To be debarred from all mental enjoyment and bodily exercise—to be in the world and yet see nothing; and to be without the general resources of the blind, particularly society, this was indeed tiresome. A Turk might probably have amused himself with his beads, but even a Mahomedan's philosophy would have forsaken him in such a situation, especially as the regimen necessary for this complaint requires the sacrifice of the all-consoling pipe. The Arabs and Turks having frequently asked me for medicine to relieve them from attacks of ophthalmia, the water that I applied to their eyes invariably caused them extreme pain; which, however, they bore with great courage and resignation, having implicit faith in the skill of a European. When, however, I desired them to give up their pipes (smoking being extremely injurious), "Inshallah!" (please God!) they replied, but never had the resolution to do so. An opium-eater may refrain from his weed, a drunkard may resign his glass; but I soon found the absurdity of asking an Oriental to abandon his shibouk. Like ice to the Sicilians, macaroni to the Neapolitans, and grog to the British sailor, they consider it as their staff of life, and conceive it impossible to get through the day without it."

With respect to the objection that the treatment of gonorrhœa by injection lays the foundation for strictures, I beg most distinctly to deny the truth of the assertion; whatever diminishes the intensity, and shortens the duration of the urethral inflammation, must tend to diminish, and not to increase, the liability of strictures. Compare the violence and duration of a gonorrhœa skilfully treated from its very beginning, by injections, with a case where no injections are employed—the physician's reliance being exclusively placed on perfect rest, confinement, fasting, and cooling medicines; compare two such patients, observe how the one is perfectly cured of his disease in a few days, without confinement, and without any deviation from his usual diet and habits (I speak now of two cases coming under treatment in a day or two after the appearance of the very first symptoms); and then watch the other through sufferings protracted week after week, until his constitution is debilitated by confinement and low diet: how often do we find the discharge from the urethra increasing daily, in spite of the general and local antiphlogistic remedies employed, until it is profuse in the extreme, and accompanied by great ardor urinæ, painful erections, irritation of the bladder, and chordee. Now I will fearlessly assert that a medical man who gets the care of a *recent gonorrhœa in a healthy constitution*, is grievously to blame if he permits this series of bad symptoms to supervene. I do not deny that these symptoms will at length give way to the antiphlogistic treatment, leeches along the perinæum, stupes, inunction of the skin covering the urethra, with mercurial ointment and belladonna, &c., &c. These remedies will in the end get rid of the disease, but then at what a loss of time and strength! I again repeat the assertion, and I do it emphatically, that a gonorrhœa treated by injections *from the beginning*, can generally, in persons of sound constitution, be cured in a few days. When a gonorrhœa has been allowed to continue several weeks, it often so alters the vitality, and probably the structure of the affected tissues, that a cure is uncertain, and frequently the treatment becomes both perplexing and tedious; when a gleet supervenes, then remedies even the most judiciously selected frequently fail

altogether : these facts prove the necessity of curing the disease, in every instance, as soon as possible.

But, gentlemen, we must here enter into details, and first as to the manner of injecting the urethra. Many believe that the inflammation produced by the specific poison of gonorrhœa is seated chiefly, if not exclusively, in the portion of the urethra near the orifice ; and hence they are only anxious to introduce the injected fluid a short distance in that canal. Nothing can be more unfounded than this opinion, and nothing more injurious than the practice to which it gives rise. The inflammation which gonorrhœa produces in the urethra is by no means confined to the third of the canal near its orifice, but even in recent cases it extends much farther, and it cannot therefore be efficiently treated by injections, which do not come into contact with the whole extent of inflamed surface. Unless you yourselves teach your patients how to inject, not one in ten of them will do it properly. Of this, an extensive experience has convinced me. Over and over again have I been told that there was no use in trying injections in a particular case, as they had been already tried in vain ; and on accurately inquiring into the patient's mode of injecting, the result has been the discovery that he was quite ignorant of the proper method. The pewter syringe or squirt used must be in proper order, so as to work easily with the pressure of one finger ; otherwise when the end is in the urethra, and the patient tries to inject the fluid contained in the syringe, the point is very apt to be hitched against the urethra, in consequence of the force thus suddenly applied. The point of the syringe must be carefully introduced at least half an inch within the lips of the urethra, and the forefinger and thumb of the left hand must then be so applied as to press the lips of the urethra gently on the syringe, so as effectually to prevent the reflux and consequent escape through the orifice, of the injected fluid. When the fluid is thrown in, the patient will feel it in the urethra, which it will gently distend as far down as the membranous portion, if a sufficient quantity be injected. Some persons have an idle fear about the ill consequences which would arise were any of the injection to arrive at the bladder. An ordinary pewter syringe does not contain more than a drachm and a half, which is about the quantity required for one injection. When the fluid has been injected, the point of the syringe is to be withdrawn, and the lips of the urethra kept closed with the finger and thumb, for at least two minutes, when, the pressure being removed, the injected fluid will be thrown out from the urethra with considerable force, in consequence of the elasticity of that canal. These directions, gentlemen, are by no means unnecessary ; indeed, I never treat a patient without seeing that he knows how to inject, for I find that many say they know the right method, who are quite ignorant of it, and who consequently do themselves more harm than good by making the attempt.

It is not my object to enter at present into the especial therapeutics of gonorrhœa, and consequently it would be foreign to my plan to speak of the various substances which may be used in injections ; for an account of these I must refer to authors who have written at large on these subjects. As a general rule, you ought to commence with weak solutions of the astringents you prefer, which solutions may be used five or six times a-day, and may be daily increased in strength. *An injection should seldom be used so strong as to cause at the time any thing like severe pain of the urethra.* In this respect we must not closely imitate the example of

eye-waters, such as that used by the Egyptian *hakim*. I have, indeed, often known very strong injections used at the first trial, and which, though they produced great pain for many minutes after their introduction, yet were very effectual in rapidly curing the disease, and that without any bad consequences. (This is more especially the case with nitrate of silver, which, although a powerful remedy, I have found unmanageable, and therefore not to be recommended.) Still, however, by far the safer and more prudent practice is to commence with astringent injections, so weak that, when used, they may produce merely a sense of titillation, or of very inconsiderable smarting. It is often difficult at first to hit off, if I may use the expression, the precise strength required; and therefore I always give my patients particular instructions, and desire them, if the injection is at all too irritating, to dilute it with water to the desired degree of strength. The sensibility of the urethra diminishes very rapidly when an injection of proper strength is applied to the inflamed surface, so that the solution may be daily rendered more astringent. I have told you that astringent injections are suited to every case of gonorrhœa at the commencement of the disease, and that, when properly used during the first, second, or third day, they almost always cut it short. It is not so when the disease has attained its *acme*, and the inflammation is at its height, accompanied by profuse discharge, chordee, &c., &c. Even then, however, injections properly managed will tend to assist the local antiphlogistic measures; but in such cases we must always commence by using more mucilaginous warm water, and must add the astringents at first very sparingly, and must increase their proportions very cautiously. I omitted to observe, *that always, before using an injection, the patient ought to clear the urethra by voiding a little urine*. Such directions, gentlemen, may appear to many prolix and unnecessarily minute; but not knowing any author who has condescended to give accurate accounts respecting these matters, I have thought it my duty to lay them before you, being convinced of their utility.

Before I conclude, it is right to put you on your guard about the mischief which may ensue if you attempt to prescribe astringent injections during the secondary or inflammatory stage of gonorrhœa, without previously having ordered such general and local antiphlogistic treatment as is required to diminish the existing inflammation; nor will even this be sufficient to insure success, unless you take care that your patient remains quietly at home for a few days, and observes a spare vegetable diet. A person who will not follow your directions in these matters, cannot use astringent injections during this stage of the disease with benefit or even impunity. In the first stage, and in the third, it is not absolutely necessary to enjoin rest and abstinence; it is, indeed, better and more prudent that the patient should remain in his room, and should observe low diet for a day or two; but in some cases this is impracticable, and then he must, as far as possible, avoid stimulant food and much walking exercise.

LECTURE XXV.

Gonorrhœa—Injections, combined with general and local Antiphlogistic Means—Gonorrhœal Rheumatism and Ophthalmia—Postscript.

GENTLEMEN,—In the remarks I have hitherto made on gonorrhœa, I have merely sought to elucidate its general pathology and treatment, and, accordingly, have avoided all details connected with complicated cases, where the disease does not occur in its simple form in a constitution and urethra previously sound.

Where strictures, and previous diseases of the urethra, bladder, or prostate, exist, the simple treatment I have recommended is no longer applicable; and the same observation applies to cases badly treated, neglected, or of long standing, and to patients with a weak or scrofulous constitution.

At our last meeting we spoke of the mode of using injections: to-day I shall add a few particulars concerning their strength. We should trust in the beginning to weak solutions, such as one or two grains of sulphate of zinc to the ounce of water: which may be used five or six times in the day. When we increase their strength they must be employed less frequently. It is seldom necessary to use a solution stronger than three grains to the ounce. I am in the habit of employing such a solution combined with one or two drachms of mucilage, and about ten grains of prepared Lapis calamaris in powder; the mucilage veils the astringent and irritating qualities of the metallic salt, and renders it more likely to become entangled and be detained in the urethra. How the Lapis calamaris acts, unless on a mechanical principle, it is difficult to explain; but of its utility I am certain, having long used this combination, as recommended in Thomas's Practice of Physic. Some add a little balsam of copaiba; but it has the disadvantage of betraying the patient's secret by its odour.

As I am now only engaged in explaining the general principles on which the cure is to be conducted, I need not enumerate the great variety of astringents which may be employed. One important piece of advice I can give you on this point is, to confine yourselves, as far as possible, to the use of the same astringents. Two or three will suffice for all necessary combinations. By doing this, you will become accustomed to their effects, and will, by habit, be enabled with great accuracy to judge whether it is proper to increase or diminish the strength of the solution in any particular case.

Another rule of practice is, that you must make the patient leave off injecting at intervals, say every second day, for a certain number of hours, for instance twelve, before you examine him, in order that the immediate effects of the astringent may have subsided so far as to allow you to estimate the actual state of the disease. It often happens that the improvement is scarcely perceptible, until the injections have been intermitted. This observation leads to another rule, viz., that when you are using strong injections, and have made an evident impression on the disease, you may leave them off every second or third day, according to circum-

stances, so as to insure their not being continued beyond the time they are actually necessary. With these precautions, I can confidently recommend the use of injections, and maintain that they do not render the patient more than usually liable to strictures, sympathetic bubo, or swelled testicle.

Strictures often occur in men who have never had a gonorrhœa, and swelled testicle and sympathetic buboes are frequently met with in cases of clap, where injections have not been used at all. I do not mean to deny that injections, imprudently or unskilfully managed, may give rise to these accidents. Of this there can be no doubt, nor is the cause very obscure; for we can readily conceive that an injection, ill adapted to the sensibility of the parts, may increase the urethral inflammation. Of all matters recommended for injections, the nitrate of silver seems most liable to this objection.

When gonorrhœa degenerates into gleet, which it is most apt to do in badly treated cases, and particularly in scrofulous habits, the cure is uncertain and troublesome; but as I have nothing to add to the practical precepts which your class-books contain on the subject, I shall not detain you by any further observations.

With respect to the gonorrhœal virus, I entirely concur in the modern opinion, recently confirmed by the experiments and inoculations performed by Ricord, that the poison which causes clap is different from that which gives rise to chancre, and secondary symptoms; and that, consequently, it is quite unnecessary to make use of mercury in order to guard against constitutional sequelæ.

It is well that practical men have at length made up their minds upon this subject. Twenty years ago, when I commenced practice, we often concluded the cure of a gonorrhœa by a fortnight's course of morning and evening inunctions, employed for the purpose of protecting the patient against the danger of secondary symptoms.

Ricord employs injections of zinc, or lead, or nitrate of silver, in gonorrhœa, as soon as the acute stage has been removed, or its violence diminished by rest, antiphlogistic regimen, and twenty or thirty leeches to the perinæum. He seems to employ the astringent injections generally after three or four days of antiphlogistic treatment, or from the very beginning, where the inflammation is slight. My experience has amply confirmed the assertions of our predecessors, that the same astringent applications which are proper after the diminution of the urethral inflammation, are also proper before it has completely formed itself. I should not have entered so largely on this subject, were I not aware that many practitioners condemn the use of injections altogether, and trust to rest and antiphlogistic measures alone—a method of treatment not only tedious, but in many respects most injurious.

It may be well to remark, that for many years I have not, *in recent and uncomplicated cases*, ordered cubebs, copaiba, or any such medicines internally, having succeeded to my entire satisfaction in the treatment of gonorrhœal patients by means of *general and local antiphlogistic measures combined with injections*. I differ in one point, and one only, from Ricord, who always begins by employing the anti-inflammatory diet and treatment. I have no objection to his method, except the inconvenience to which it necessarily puts the patient; for the loss of a few days, and confinement to his room, would in ordinary diseases, be of trifling conse-

quences; but in cases like the present the patient is always most anxious to avoid measures which could not be adopted without exciting suspicion.

To such an anxiety I would never yield, when my so doing could in the slightest degree retard or compromise the safe and speedy cure of the disease, neither of which risks are incurred by the prudent application of the plan I have recommended for the treatment of nascent gonorrhœa, and which is sanctioned by older writers, although repudiated and censured by the modern antiphlogistic school.

There are two affections said to be connected with gonorrhœa and which consequently demand some consideration. I mean ophthalmia and arthritic rheumatism. There are many and highly respectable authorities in favour of the existence of such a disease as gonorrhœal rheumatism. Bacot says that the most usual form consists in a painful and swollen state of the knees and ankles, which seldom comes on until the decline of the gonorrhœa, and is most commonly met with in young men of a florid complexion and a delicate strumous habit; the articular affection is sometimes suddenly relieved by the appearance of an eruption of papulæ in clusters, or of pustules in very minute patches.

Vetch describes this form of rheumatism as most intractable; I must refer you to his work and Bacot's for an account of the proper treatment, as I have not myself had sufficient experience in the disease to enable me to speak decidedly on the subject. Very lately I saw with Dr. Nalty, of Clare Street, a gentleman about 35 years of age, who was afflicted with his fourth gonorrhœa, and in whom the ardor of symptoms was very remarkable and deserving of notice. In him each gonorrhœa ran the usual course until the period when the running and urethral inflammation began to decline; then invariably (and that each of the four times he was attacked) his eyes became very painful, red, watery, and intolerant of light, presenting at first all the appearance of simple acute conjunctivitis the result of cold. The conjunctiva covering the sclerotic soon became very much affected, but exhibited no tendency to secrete pus or become swollen, so as to form chemosis.† In these important particulars the inflammation manifestly differed from the purulent form. In a few days the sclerotic, and afterwards the internal tissues of the eyeball, were inflamed, and vision thus seriously impaired for the time. It does not, however, appear that the pupil was ever disfigured or the iris engaged, so far at least as concerns its margin and anterior surface. The redness of the eyeball was diffused and general, and not restricted, as in some cases of true internal syphilitic ophthalmia, to a zone at some distance from the cornea. This ophthalmia required very active local depletion, and yielded to treatment with much difficulty.

At our second visit we found that a very minute ulcer had formed on the cornea. The measures advised consisted of colchicum internally, slight scarifications of the inner surface of the lower eyelid, and on the next day a drop of the solution of nitrate of silver, four grains to the ounce, to be applied to the eye itself.

It is to be particularly remarked, that during the increase and acme of the ophthalmia, the urethral discharge was always lessened, but by no means cured; and if at any time this discharge increased, an immediate diminution of the violence of the ophthalmia ensued. On this point our patient was quite clear. So far, then, respecting the ophthalmia; let us now follow the further development and succession of symptoms.

Invariably after the ophthalmia had lasted for some days, one or other of his joints became affected with very acute inflammation, and when this was about to subside in the joint first attacked, a new inflammation was set up in some other joint; thus the knees, ankles, elbows, &c., became successively and violently engaged, each in its turn being red, tender, painful, hot, and refusing to allow its ordinary motions. The arthritic inflammation was sometimes so violent as to leave an impairment of motion, and a stiffness of the joint, which continued for months after he had otherwise perfectly recovered. When I saw him he had sciatica of the left leg, as well as the usual arthritis.

This case, gentlemen, is very instructive, and proves beyond a doubt the existence of an arthritis and an ophthalmia, the consequence of a gonorrhœa; as the ophthalmia had all the characters of rheumatic ophthalmia, we must attribute its origin to an impression made on the constitution by the gonorrhœa; here, as the articular inflammation and the ophthalmia had one and the same character, and as the affection of the joints could not of course be produced by contact of the urethral discharge, we must admit that this could also have nothing to do with causing the inflammation of the eye. This is important, and demonstrates that at least one species of ophthalmia is caused by gonorrhœa independent of direct infection. The existence of sciatica is also very remarkable.

Sir Philip Crampton, who afterwards saw this case in consultation, says that he has met with several similar, and he is of opinion, that some of them essentially consisted in a gouty inflammation of the eye and joints, excited and called into action by the gonorrhœa.

Sir A. Cooper, who was the greatest of British surgeons, says, that gonorrhœal rheumatism is not an unfrequent disease. He describes a case very similar in details to that I have already laid before you:—"I will give you," says Sir Astley, "the history of the first case I ever met with; it made a strong impression on my mind. An American gentleman came to me with a gonorrhœa, and after he had told me his story, I smiled and said—do so and so—(particularizing the treatment), and that he would soon be better; but the gentleman stopped me, and said, "Not so fast, sir; a gonorrhœa with me is not to be made so light of—it is no trifle; for in a short time you will find me with inflammation in the eyes, and in a few days after I shall have rheumatism in the joints; I do not say this from the experience of one gonorrhœa only, but from that of two, and on each occasion I was affected in the same manner." I begged him to be careful to prevent any gonorrhœal matter coming into contact with the eyes, which he said he would. Three days after this I called on him, and he said, "Now you may observe what I told you a day or two ago is true." He had a green shade on, and he had ophthalmia in each eye; I desired him to keep in a dark room, to take active aperients, and apply leeches to the temples. In three days more he sent for me rather earlier than usual for a pain in one of his knees; it was stiff and inflamed; I ordered some applications, and soon after the other knee became affected in a similar manner. The ophthalmia was with great difficulty cured, and the rheumatism continued many weeks afterwards. This case struck me very forcibly, and I asked Mr. Cline whether he had ever seen the rheumatism proceeding from gonorrhœa, and he replied, several times. The next case did not surprise me so much, and now and then, ever since, I have met with similar ones. It is by no means an unfre-

quent occurrence for gonorrhœa to produce a rheumatic and painful affection of the joints; whether it be by the absorption of the poison, or the constant irritation produced by the irritation of the urethra, I do not know, but certain it is that gonorrhœa produces ophthalmia and rheumatism, and that when not a single drop of matter has been applied to the eye. The inflammation generally attacks both eyes, and is of long duration; it requires the same remedies as are used in gonorrhœa; balsam of copaiba or some form of turpentine, must be exhibited; either the spirit of turpentine, balsam of copaiba, or olibanum. † I do not recollect to have met with a description of it in any surgical work, but whoever has practised at all must have frequently met with it.”

Such, gentlemen, is the information which this celebrated man has given us on this subject. From this it is quite clear that he does not define or point out the different species of gonorrhœal ophthalmia and their different exciting causes; neither is his description of the American's sore eye very full and explicit; it is enough so, however, to prove that his ophthalmia was not purulent, but rheumatic.

It does not seem necessary to assume the absorption of any poison to account for arthritis and ophthalmia occurring in gonorrhœa. Of all parts of the body the joints are most liable to be associated in inflammation with distinct parts, and hence ordinary arthritis so often gives rise to pericarditis, hepatitis, ophthalmia, &c. &c. We do not think it necessary to assume the absorption of poison when a urethral stricture occasions ague—an occurrence quite as remarkable as the production of arthritis by gonorrhœal irritation of the urethra.

When any important part of the body becomes inflamed, there is no saying in what organ diseased action may commence as a consequence. Thus I have seen an inflamed state of the œsophagus, caused by a clumsy probang roughly passed, give rise to inflammation of the mucous membrane of the bladder.

When Sir Astley Cooper published his Lectures in 1823, the subject of gonorrhœal ophthalmia had not received the attention its importance merits, and opinions of surgeons were very varied and contradictory, of which I can offer no stronger example than the fact, that in part of that very course of lectures, Mr. Green, who lectured for a time during Sir Astley's absence, expressed himself in a manner quite opposed to the opinion of Sir Astley, who had said that gonorrhœa is capable of producing an ophthalmia through the medium of the constitution. In fact, gentlemen, nothing satisfactory was published on gonorrhœal ophthalmia until Mr. Lawrence's Treatise on the Venereal Diseases of the Eye appeared in 1830, of which work 127 pages are occupied with a description of the three different species of gonorrhœal ophthalmia, with numerous cases.

This distinguished surgeon and physiologist has done more than all who preceded him to illustrate his subject, and I most cordially recommend to your attention the above invaluable treatise. He denies (and in this I agree with him) the assertion, hereinafter to be noticed, that the matter from a gonorrhœal urethra cannot by contact produce disease in the eyes of the patient himself, and he brings forward many examples to prove the contrary. He divides the disease into three species:—1st, acute or purulent and destructive gonorrhœal inflammation of the conjunctiva; 2d, mild gonorrhœal inflammation of the conjunctiva; 3d, gonorrhœal inflammation of the external tunics and iris.

It is of importance to recollect that this latter species does not exactly deserve the name of metastatic, for it often comes on without any, or, at least, a very partial subsidence or diminution of the urethral discharge.

Some authors, as Scarpa, Boyer, Pearson, and Beer, deny the possibility of a severe purulent ophthalmia being caused by the contact of any gonorrhœal fluid, and assert that its application to the eye merely gives rise to a trifling and temporary irritation. More recent writers do not, however, acquiesce in this opinion. Thus, Mr. Middlemore sums up the matter with the two following conclusions:—"1st. That by far its most usual mode of production is by the contact of gonorrhœal matter, proceeding from the urethra or vagina of some other person, not from that of the individual himself. 2d. That it is extremely improbable that any individual can communicate the disease from his urethra to his conjunctiva, by touching the latter membrane with the gonorrhœal discharge."

Were this latter position established on a secure and firm basis, I would regard it as one of the most interesting and curious results of modern investigation. I must, however, confess, gentlemen, that I feel very doubtful of its accuracy, and that for the following reasons:—In the first place, I have seen a case where a gentleman was most probably infected with purulent ophthalmia, in consequence of matter from his own urethra being brought into contact with his eye. I say most probable, for the nature of the case almost necessarily precludes the attainment of certainty with regard to such matters, for very obvious reasons. In the second place, Ricord's experiments proving the facility with which a chancre can be produced in any part of the skin by means of matter taken from a chancre in the same individual—these experiments, I say, throw a heavy shade of doubt on the probability of the general doctrine, that an infectious fluid produced by one part is innoxious to the same person in other parts.

The poison of itch manufactured by one part of the skin is often transferred by the nails to another part, and the clothes worn by an itchy patient are capable of not only producing the disease in another, but in himself when cured. Many other similar examples might be brought forward, but enough has been said to show that the general analogy is not favourable to an opinion which I cannot help thinking has been founded on facts and experiments not sufficiently numerous or varied. Dr. Vetch, indeed, "took matter from the eyes of persons labouring under acute purulent ophthalmia, and applied it in each case to the urethra of the same individual. No disease was excited. But when he applied the same matter to the urethra of a different individual, it produced a violent gonorrhœa; hence he argues that a person cannot infect himself, but may another."

You observe, gentlemen, that this is pre-eminently a practical question; for if we agree in Dr. Vetch's conclusion, it is quite needless to impress on our gonorrhœal patients the necessity of scrupulously guarding against the danger of infecting their eyes by the matter secreted by their urethras. Where the danger is so great, and where, should such an infection be possible, the loss of one or both eyes may be the result, I would never trust to mere habits of cleanliness; I would enforce them by the fears of infection.

With respect to the production of a violent and destructive purulent ophthalmia, in consequence of the application of gonorrhœal matter to the eye, there can be no doubt whatsoever. Mr. Lawrence cites many exam-

ples, and I have seen several. Thus, some years ago, a poor woman made use of a vessel soiled by gonorrhœal matter, to wash her own face and two of her young children. They all got purulent ophthalmia, and two left this hospital blind. On the whole, gentlemen, I think that we can very safely draw the following conclusions concerning gonorrhœal ophthalmia:—

1st. A species of severe ophthalmia may be produced through the medium of the constitution, in persons liable to gonorrhœal rheumatism or arthritis. This species attacks the conjunctiva, sclerotica, and internal tissues, and resembles gouty and rheumatic ophthalmia.

2d. Another dreadfully violent species of ophthalmia is produced by the contact of gonorrhœal pus. This closely resembles Egyptian ophthalmia.

3d. It is probable that another and a much milder species of conjunctivitis is produced by the contact of gonorrhœal discharge of less violence; and such was the opinion of the celebrated Beer. The fluid taken from the variolous pustule or the vaccine vesicle during their early stages will not communicate their proper infection; in the same way the discharge from an incipient or declining gonorrhœa may act very differently on the eye from the puriform fluid secreted by the urethra during the acme. The only doubt which remains on my mind with respect to this milder conjunctivitis is, whether it, too, may not be produced through the constitution. We have seen that a violent ophthalmia and arthritis may thus arise, and consequently we can easily imagine it possible for the same cause to give rise to a constitutional impression capable of originating a mild ophthalmia unaccompanied by arthritis.

In the gentleman whose remarkable case I have related, and who was once treated for the ophthalmia by Mr. Wardrop, the very first gonorrhœa he had, ended in the formation of bad deep-seated stricture, although the plan of cure adopted had been from the beginning antiphlogistic, and he had been confined to bed for the greater part of the time, and kept on low diet, on account of the arthritis. This, with numberless other similar facts, proves that the chances of stricture are augmented by whatever prolongs the duration of the urethral disease, particularly in strumous habits, such was that of the gentleman referred to. No doubt, injections injudiciously applied, may increase or prolong urethral disease, and thus occasion strictures; but if they diminish or cut short inflammation, I cannot conceive on what principle they can originate strictures.

POSTSCRIPT.—Since the preceding remarks on purulent ophthalmia were prepared for the press, I have conversed with Dr. Staunton, who accompanied Colonel Chesney in the celebrated expedition to the Euphrates: Dr. Staunton says that in Egypt acetate of lead, under the name of *English sugar*, is in great request for making eye-water. The late essay, by Mr. Tyrrell, on a peculiar operation successfully employed by him to prevent destruction of the cornea in violent purulent ophthalmia, is of the greatest importance, and well worthy of attention, for it must be confessed that hitherto, when intense, this disease has baffled every effort of art, unless it happened to be placed under treatment within a few hours from its first appearance—a very rare occurrence indeed. A remarkable confirmation of the *rationale* of Mr. Tyrrell's operations may be found in a paper, published by Mr. Griffiths, in the *Calcutta Medical Transactions*, on a similar

mode of operation resorted to by the modern Persians in chronic opacity of the cornea.

Having mentioned the discoveries of Ricord in the preceding lecture, I think myself bound in justice to the character of the late Mr. Wallace, of Dublin, to state that the latter gentleman has claimed all or nearly all Ricord's alleged discoveries. Mr. Wallace published in the London Medical Journal for November 16, 1833, a paper entitled "The discoveries of Dr. Ricord, of the Hôpital des Vénéériens, of Paris, respecting the Venereal Disease, claimed by William Wallace," &c. &c.

In this paper Mr. Wallace goes *seriatim* through the whole list of Ricord's discoveries, and proves that he had anticipated Ricord in all and each. As the question is one of great importance, it would be well to investigate the matter a little more closely; this I have not time to do myself, but to facilitate the matter to others, I send Mr. Wallace's reclamation, which the editor of the Medical Gazette may perhaps judge it right to publish on a future occasion, with remarks on the subject.

The application of escharotics to the eye in purulent ophthalmia was first introduced into practice by my late esteemed friend Surgeon Melin, of Malta, in 1811. The same plan was afterwards most extensively tried by Dr. O'Halloran, at Gibraltar; both wrote of this plan long before it obtained the advocacy of Mr. Guthrie, whose reputation soon brought it into general use. In Dr. O'Halloran's work, published in 1824, he makes the following observations:—"A solution of lunar caustic of ten grains to an ounce of water, is an excellent remedy in purulent ophthalmia. It may be used at all periods, and, next to the bluestone, claims precedence over all others. Its action, when resorted to at an early period, tends to change and lessen the discharge, and to remove the pain and irritability without causing any of the unpleasant symptoms which have been attributed to its use."

LECTURE XXV.

On the pathology and treatment of syphilis.

GENTLEMEN,—The pathology and treatment of the venereal disease have engaged the attention of our ablest men since the days of Hunter, and have of late years, as you are all aware, undergone considerable modification and improvement. Still, however, much variety of opinion exists respecting both these subjects, as may be proved by the following facts: in this city, for instance, Mr. Colles and Mr. Carmichael profess opinions very different from each other, and the high reputation these distinguished surgeons enjoy, insures to each a numerous host of followers; we have here consequently, two rival schools, whose teachers disseminate opposing doctrines. This want of fixed opinion is felt in London as well as Dublin, and displays itself in a not less marked manner amongst the practitioners of Paris, Hamburgh, Vienna, and Berlin. If you compare together the modes of practice pursued by that highly-instructed and intelligent class of medical men—the surgeons of the British army—you will find the same want of unanimity, and consequently the inmates of the venereal

wards of one regiment are often treated in a manner the very reverse of that pursued by the surgeon of the other regiment stationed in the same barrack ; of which I have seen some striking instances in the Dublin garrison. Matters are quite as bad in the Prussian army. In a letter which I lately received from Dr. Robert Froriep, the distinguished pathologist of Berlin, he says, "I have taken advantage of the vacation to examine the Medical Reports of the Army, having obtained the kind permission of the physician-general, Doctor Lohmeier, for that purpose, but I could not make out any thing likely to assist you in your researches ; in fact, these documents furnish *data* apparently the most contradictory. Thus, one report praises the mercurial, and another the non-mercurial treatment ; while in almost no case do we find the symptoms, treatment, and results, detailed with sufficient precision to enable us to arrive at any thing like satisfactory conclusions."

In the following lectures I do not propose to solve the difficulties which embarrass this important question, neither do I come forward as an advocate on either side ; my time is too much occupied to allow an examination of this subject in all its details ; and without such an examination it would be premature, nay, impossible, to arrive at a satisfactory conclusion. My object in touching on the matter is less ambitious ; and I come forward merely as a contributor of materials, chiefly derived from German sources, and partly my own ; which materials may perhaps prove useful to others employed in the elucidation of this important subject. From an extensive correspondence with practitioners in various countries of Europe, I find that every where a great division of opinion exists ; and we have reason to believe the same of North America. In the latter country, however, the non-mercurialists are gaining ground, as appears from articles published in the American journals. Under these circumstances, and in this embarrassed state of opinions, some attempt ought to be made to obtain more accurate data. If the matter was taken up, as its importance deserves it should be, by some medical body or association of eminence, individuals might be encouraged to inspect the chief hospitals of Europe and America, and thus obtain accurate information. Were application made, from a proper quarter, to the heads of the medical department in the English, French, Prussian, and Austrian armies, it would no doubt elicit much important matter : such an application, coming from the Medical Section of the British Association for the advancement of Science, could not fail. Until some public body, or some enterprising and zealous individual, collects from every quarter that information which is so easily attainable on the spot, but so difficult to acquire at a distance, this great practical question must still remain unsolved ; for its solution will be only then possible when the results of the opposing methods have been ascertained and contrasted, in various climates and among various races of mankind.

It is allowed by all continental writers of celebrity, that British practitioners have the credit of having been the first to point out the benefit of the non-mercurial treatment, in many cases where mercury was supposed to be necessary. Matthias deserved great praise for the discrimination and judgment he evinced in distinguishing the effects of mercury acting injuriously on the constitution, from the effects of the venereal poison.

Mr. Carmichael, of Dublin, was, however, the first who materially

improved this important practical branch of our profession, and taught, in a clear and scientific manner, when mercury ought or ought not to be exhibited. Mr. Green, of Bristol, has published, in the second volume of the Transactions of the Provincial, Medical, and Surgical Association, an excellent *résumé* of the history and progress of opinion on the non-mercurial treatment, and has added many interesting cases observed by himself. From what he has seen and read he draws the following inferences: that every form and stage of venereal (except iritis) can be completely and better treated without mercury than with it; that in some cases, mercury not only fails altogether to cure, but aggravates the disease, and therefore is not a specific; and what have been considered as some of the worst secondary causes of syphilis, result from mercury itself, from the very means used to cure the disease. Dr. Thompson, of Edinburgh, zealously advocates the non-mercurial treatment, and supports his views by 400 cases treated without mercury.

Mr. Green thinks Mr. Abernethy's test between true syphilis and pseudo-syphilis (namely, that the former requires mercury for its cure) erroneous.

Mr. Rose, surgeon to the Guards, says he succeeded in curing all ulcers on the parts of generation, with the constitutional symptoms to which they give rise, without mercury. He treated 120 cases without any unfavourable result.—*Med. Chir. Trans.* vol. viii.

Mr. Guthrie treated nearly 100 cases of primary sores without mercury; and thinks it an established fact, that every kind of ulcer on the genitals is curable without mercury—thinks, in some cases, a gentle course will expedite the cure, but does not consider it a specific for the venereal.

Dr. Thompson remarks that in his cases treated without mercury, there were not any of those deep and foul ulcers of the skin, of the throat, of the mouth and nose, or the painful affections of the bones, which are stated by every writer on syphilis, as the general products of that disease.

Dr. Hennen treated 105 cases of primary sores without mercury; secondary symptoms followed in 11 cases: all were cured without mercury, except one obstinate and anomalous case.

Report from the Army Medical Department, from December, 1816, to December, 1818.—There appear to have been treated, for primary venereal ulcerations on the penis (including not only the more simple cases, but also a regular proportion of those with the most marked characters of syphilitic chancre, as described by Hunter), 1940 cases; that, of these 1940 cases, 96 have had secondary symptoms of different sorts; of these 96 cases of secondary affections, mercury was had recourse to in 12, for various reasons, as stated in the report. In the 1940 cases of primary symptoms, mercury was used in 65, for reasons also assigned. If we deduct the 65 and 12 cases in which mercury was used, from 1940, 1863 cases remain *completely cured without mercury*. The average time required for the cure of primary symptoms without mercury, when bubo did not exist, has been 21 days, with bubo, 45. Average period for cure of secondary symptoms, without mercury, has been from 28 to 45 days. In the same period, 2827 cases of primary symptoms were treated with mercury; secondary symptoms occurred in 51 of them. The average period for cure of primary symptoms without bubo, was 33 days— with bubo, 50 days; and for the cure of secondary symptoms, 45 days.

Mr. Green treated 100 cases without a particle of mercury, either internally or externally. The primary sores were treated with sedative and astringent lotions, or simple ointment; all these sores possessed some of the characters of the true Hunterian chancre: from 14 to 30 days was the time in which they were generally healed. One case of chancre resisted all applications for four months, till the person was removed to the sea-side, where it was healed in three weeks. Of these 100 cases, buboes supervened in 16: of these, 6 only suppurated. Constitutional affections, of one kind or another, followed in 9 cases; these were, cutaneous eruptions, papular in 3, pustular in 2, vesicular in 1, vesicular and scaly in 2. These eruptions, at their commencement, were generally accompanied by pains in the limbs, and more or less fever. One of the cases of pustules closely resembled small-pox—has generally seen this particular form occur in persons of strong constitution. The vesicular and scaly eruptions occurred in delicate persons, and were very obstinate; sore throat occurred in 4 cases; in 3 conjoined with eruptions. Periostitis occurred in 2 cases, which yielded to counter-irritation. There was not one case of iritis.

In 154 cases, treated by Dr. Thompson, without mercury, iritis followed in 1. In 417 cases, similarly treated by Doctor Hennen, iritis occurred only in 2.

Mr. Green thinks that the use of mercury in primary symptoms, should be given up altogether; but that in some cases of *secondary* it may be of use. From a comparison of facts, primary sores are sooner cured where mercury is not given. As far as the Army Medical Reports go, secondary symptoms followed more frequently where mercury had *not* been given, but they were not so severe as those which occurred after mercury had been given. The cases, in which he thinks mercury of use, are those in which the symptoms get into an indolent condition, and become a chronic disease. The superficial ulceration of the throat, which he considers truly syphilitic, frequently becomes changed by mercury into the deep excavated ulcers of the tonsil.

There can be no doubt, gentlemen, that mercury may be given to a person previously healthy, in such a manner as gradually to undermine the constitution and destroy health; of this the workmen employed in quicksilver mines afford a melancholy example: and it is a striking and remarkable fact, that the *mercurial cachexy* thus produced, resembles in many respects the *venereal*. Emaciation, night-sweats, pains in the bones, nodes, and osseous caries, cutaneous eruptions and ulcers, redness and ulceration of the throat, loss of appetite and debility, are common to both. It is quite certain that these cachexies, when pure and unmixed, may, by an experienced examiner, be distinguished from each other with facility; but the case is widely different when they coexist in the same constitution, each modifying and deteriorating the other. These two cachexies, combined in the same individual, occasion, according to the predominance of either, and the simultaneous and sinister presence of a weak, scrofulous, or scorbutic habit, those endless varieties of deplorable suffering, which we are so often called on to witness in cases, injudiciously, ignorantly, or negligently treated. I must refer you to authors for a more detailed and accurate account of the ill effects of mercury. Dr. Hennen has written with great clearness on this subject: he concludes by remarking, "but the most troublesome of all its effects, is the

phagedenic ulceration, which it often induces both in chancres and open buboes ; and the disposition to fresh ulcerations of a spreading and intractable character, which it gives rise to in parts where the skin had not been previously broken ; in the throat most severe ulcerations are excited by it, erosions of the gums and palate are produced ; and the papulæ and other eruptions of the skin, which so often appear as a secondary form of the disease, are frequently exasperated into open ulcerations. I have not seen a single case of ulceration succeeding to a cutaneous eruption, in the military hospital, since the non-mercurial treatment has been adopted, except where mercury had been long and irregularly tried."

The example set by British surgeons was soon extensively followed on the Continent, and many reports of the success of the non-mercurial treatment were published in France ; several of these have appeared in the English periodicals ; and some important documents of this nature have been lately cited by Mr. Carmichael, in a paper published in the 12th volume of the *Dublin Medical Journal*. As you can all refer without difficulty to French publications, I shall not detain you by quoting their contents, but shall at once proceed to submit to your consideration a translation of certain German writings, which contain important data connected with our subject, but which are not easily procurable, and cannot be understood without a very accurate knowledge of the German language and German pharmacy.

To the first document I attach great value, having myself witnessed the progress of the treatment in the splendid and admirably-arranged hospital at Hamburgh, under the care of that able surgeon, Dr. Fricke, whose assistant, Dr. Günther, took all the cases, and afterwards tabulated the results. Of course I cannot do more than present to you the general plan of treatment adopted, and the general conclusions arrived at. In the work itself numerous examples are given of each variety of primary and secondary affection, and the details of the treatment are accurate and full. As the non-mercurial plan excited much interest among German physicians, its details were watched with the most scrupulous accuracy, both by the medical men of Hamburgh, and by many who came from different parts of Germany to witness the progress of so important an experiment. That the details and results have been given, by Drs. Fricke and Günther, with the strictest fidelity, I know, both from what I myself observed, and from what I heard from Dr. Oppenheim and others.

I shall, in the first place then, lay before you copious extracts from Dr. Fricke's work, and afterwards communicate information I have recently obtained from this eminent surgeon, on this subject.

After I have laid before you the later German authorities in favour of the non-mercurial treatment, I shall proceed to speak of those who bear testimony against it.

From Fricke's Annals of the Surgical Department of the General Hospital, Hamburgh.

Treatment of Syphilis, during the years 1824, 1825, 1826, and 1827. By Dr. GÜNTHER, Assistant Surgeon.

"The treatment of syphilis in our hospital may be divided into two periods. During the first, mercury was employed as the chief remedy ; during the second, the disease was treated after the non-mercurial plan. The former comprises, with males, a space of eighteen months and a half

(from January, 1824, to July, 1825); with females, of twenty-two months (from January, 1824, to October, 1825). The latter includes, with males, a period of two years and five and a half months; with females, of two years and somewhat more than two months."

FIRST PERIOD.

Treatment of Syphilis with Mercury.

"I shall now communicate the principal facts and results of this mode of treatment, as the profession can have no particular interest in the more minute details, which can be useful only in the way of comparison. The forms of disease observed during the first period, may be seen in the annexed tables. On looking over them a considerable difference will be seen between them and those of the second period: syphilis having exhibited itself in a much more malignant form in the first period. Nocturnal pains, caries of the nasal, palatine, and other bones, obstinate and cutaneous eruption, general lues, syphilitic cachexy, &c., were among the ordinary phenomena; while in the second period they were of rare occurrence, and observed only in those who had been subjected to long and injurious courses of mercury.

"If we compare the forms of disease occurring in the same individual, at different times, before and during the first period, we shall not unfrequently perceive a certain gradation from a favourable to an unfavourable constitution of disease; that which commenced with superficial ulcers of the genital organs subsequently appeared as bubo, then as ulceration of the throat, next as an extensive cutaneous eruption, which often gave rise to ulcerations, then harassed the patient with nocturnal pains, nodes, caries of the bones of the face and loss of the hair until it terminated in syphilitic cachexy, general and incurable lues, consumption, emaciation, and dropsy.

"The mode of treatment employed during this first period was various, and regulated by the peculiarities of each individual case. No undue predilection was shown for any particular preparation of mercury. The soluble mercury of Hahnemann was chiefly employed, in doses of a grain twice a-day; in a great many cases calomel was used in the same proportions. Corrosive sublimate was given in solution (gr. iij. ad $\frac{3}{4}$ vj.) generally in combination with a little opium or with the decoction of columbo; a table-spoonful three times a-day. In obstinate cases calomel and corrosive sublimate were administered alternately, in the form and doses already mentioned; and this mode of administration was looked upon as very powerful and efficient. On one occasion calomel was given in large doses (ten grains); and 33 cases were treated with mercurial frictions, after the manner recommended by Rust. The latter, which were employed in the cases of 13 females (in some individuals twice), were had recourse to only in obstinate and extensive forms of the disease. When syphilis was attended with distinct inflammatory symptoms the antiphlogistic treatment was put into operation before mercury was administered.

"With respect to the duration of treatment a remarkable difference will be perceived on inspecting the tables of both periods. I have taken an average of the number of days spent in hospital, as well by patients labouring under peculiar forms of syphilis, as by the general class, and added it to the tables. The relative proportion of this cannot be always easily

stated, for no general law can be deduced from a few cases; but, on comparison, a difference in favour of the non-mercurial plan of treatment is readily perceived.

“With regard to the certainty of cure, so far as the mercurial treatment is concerned, we must say, with many of our unprejudiced colleagues, that we are convinced by bitter experience that syphilis very often returned, in the secondary form, after the most cautious use of mercury, the most careful selection of the preparation, the strictest attention to diet, and a proper observation of precautionary measures. Of 573 patients, treated during the first period, 165 (*i. e.* nearly one-third) were attacked with secondary symptoms. All these were treated with mercury for the primary symptoms, although it is to be observed, the smallest portion of them had been under our care. Of those patients treated during the second period, who were attacked with secondary syphilis, by far the greater portion had, at an earlier period and before admission, or while in hospital, used mercury for the cure of the disease. Many patients, in whom the disease was supposed to have been eradicated, came back (particularly after the use of mercurial frictions) with caries of the bones of the face; some of these were afterwards cured without mercury, others are still under treatment.

“On examining the bodies of those who died while under treatment, particularly during the use of mercurial frictions, and while the mouth was affected, we did not find the parotid, sublingual, or pancreatic glands enlarged; they were, however, harder than usual, and, when slit open, had in a remarkable degree the unpleasant odour attendant on salivation. In one case the submaxillary glands were enlarged, but, with the exception of some slight induration, otherwise unchanged. In the case of a young woman, who had frequently used mercury, and who died twenty-two days after a protracted course of frictions—on boiling some portions of the thigh-bone (the head, neck, and trochanter) and of the tibia for an hour in water, we found somewhat more than half a drachm of mercury. In two or three similar cases, where so much mercury had not been employed, we could not detect any.”

SECOND PERIOD.

Treatment of Syphilis without Mercury.

“When this mode of treatment was introduced into our hospital by Dr. Fricke, he at first submitted only a small number of patients to it, and selected chiefly those whose future prospects depended on their being cured in the speediest possible way. Having afterwards discovered, contrary to his expectation, that the disease was cured more rapidly in this way, and relapses much fewer and slighter, it was extended to all cases, with such modification as experience suggested.

“At this present time (February, 1828), after a trial of two years and a half, and the successful treatment of more than a thousand patients, the results of this treatment have proved so favourable, that there appears no reason for lightly abandoning it, or returning to the former plan of treatment. As already stated, patients are cured in a much shorter time than before, and leave the hospital with much healthier looks. All the unpleasant phenomena attendant on salivation no longer harass them. Formerly, notwithstanding the greatest attention and cleanliness, it was

impossible to remove the foul smell from the venereal wards, or to keep the rooms or beds clean; the air was tainted with the offensive odour of salivation and syphilitic caries; and filth was the order of the day in all the wards occupied by patients under full salivation. At present there is not a trace of this air in a ward containing constantly 60, 70 and sometimes 100 patients; and the venereal department of the hospital rivals the other divisions in purity of air and cleanliness. Syphilis, too, seems to become gradually more simple; at least it never appears in the same malignant form as before, where little or no mercury has been used. As every medical man is allowed to visit the hospital, any one may convince himself of the truth of these statements.

“From the strict surveillance over prostitutes observed by the police, the attention and experience of the surgeons appointed by the government to inspect them, and from the circumstance that such females come to our hospital for the relief of all diseases under which they may happen to labour, we are enabled to keep a strict control over their diseases. Those who live in the town, constituting three-fourths of them, under the jurisdiction of Hamburg, and those who live in the suburb named Hamburgerbery, are examined twice a-week by two government surgeons. Every female is obliged, each time, to bring a book, in which her state of health is entered. Those who are found diseased are immediately sent to the hospital. Unfortunately, we cannot exercise the same control over males, and with the same accuracy and precision. A large portion of the males under our care leave Hamburg, and many of them, when they get fresh infection or secondary symptoms, apply to other physicians of this city, and are generally treated with mercury. Hence, of course, in such cases, the accuracy of the result is disturbed and rendered uncertain. Many who are cured and remain well, do not keep the promise which is exacted from all who are dismissed cured, namely, to let us see them again. Some, in fine, lose patience, and leave the hospital before their cure is entirely completed. This, however, has not occurred for the last half-year. All these circumstances combined render it extremely difficult to ascertain the truth in each individual case. There remains, however, a number of male patients whom we keep constantly under observation.

GENERAL TREATMENT.

“Four conditions we endeavour to fulfil, viz. cleanliness, rest, a strict diet, and (in a therapeutic point of view) an antiphlogistic plan of treatment.

“*Cleanliness* is of the greatest importance towards a speedy and successful termination to the cure; several patients were cured by the use of warm baths and ablutions. On the other hand, a neglect of this precaution has been the cause either of the origin or of the deterioration of many forms of disease. On entering the hospital, all syphilitic patients, unless perfectly clean, are put into a warm bath. With women this is seldom requisite, with men almost always. The diseased parts, and those in the vicinity, are frequently washed with warm water. This operation requires to be looked after more carefully in men than in women, the latter being naturally more cleanly. Again, places on which ulcers, condylomata and exanthemata, are seated, the glans and prepuce in gonorrhœa, and all carious bones, are cleaned of pus, mucus, and dirt, by frequently washing, sprinkling, rinsing, and syringing with warm water. Pus is never allowed

to collect on ulcers, or on the prepuce or glans in gonorrhœa. A most important rule is, to prevent excoriations, chancres, and condylomata, from coming in contact with the healthy mucous surface or skin; as for instance, in the angles between the carunculæ myrtiformes and nymphæ, between the labia, between the testicle and the upper part of the thigh, &c. as in course of time not only the sound parts become excoriated or ulcerated, but also the disease protracted and often very much exasperated. We also take care to prevent excoriation, exanthemata, and condylomata, from forming in the angles and folds of the genital organs from the matter of gonorrhœa or ulcers. To accomplish this end we put pieces of linen or charpie, wet with spring water, saturnine lotion, or black wash, into each fold or angle, changing them three or four times a-day, and sometimes oftener, according to circumstances. This attention to cleanliness is also of the greatest importance after the cure is finished, because the cicatrices are apt to become raw and turn into excoriations or ulcers when neglected. This has frequently occurred in patients discharged cured, who on being admitted a second time, have been again cured by strict attention to cleanliness.

“*Rest* is necessary, particularly during the first period, and where the disease exhibits an inflammatory character. Hence, all patients, on admission, are confined to bed. In women this regulation was enforced throughout: on the other hand, males were generally permitted, and with advantage, to walk about during the later period, where a chancre or opened bubo had healed up to a certain point and then become stationary. The reason of this difference between the treatment of males and females was partly this, because in the latter, the diseased parts are not so easily protected from contact with the sound skin or mucous membrane, from friction, or from becoming wet with pus, mucus, &c. Pregnant women were permitted to walk about a little.

“With regard to *diet*, each patient at first received every day four ounces of bread, three pints of gruel, and six spoonfuls of vegetables, at noon; the latter varying according to the season of the year. They were not allowed to drink beer, brandy, or water, their common drink being thin gruel. As soon as the characteristic appearance of the ulcers began to vanish, or an improvement took place, the diet was gradually made more nutritious, according to the state of the constitution and the wants of the patient; and when matters went on favourably in this way, meat was allowed. We have departed from this rule in the case of very weak individuals, and persons who had been debilitated by mercurial courses, allowing these a nutritious diet from the commencement. In the case of females, who seldom remained in hospital longer than three or four weeks (some not more than fourteen days), and who require less food than males, the first kind of diet was generally continued until the termination of the cure; in males it was usually changed a fortnight or three weeks after the character of the disease began to improve. The appearance of those who were dismissed after a long stay in hospital, was that of men in perfect health, and (where the strict diet had not been continued too long) not at all deficient in bodily strength.

“The *therapeutic* measures employed were by no means complicated, and have been latterly rendered more simple. At first every person who could bear it, whether male or female, was bled to eight, ten, or twelve ounces. Experience, however, has taught us that in most cases general

bleeding may be dispensed with, and that the end in view may be accomplished in as short a time, and with equal success, by observing the rules already laid down. Hence venesection is at present confined to cases of plethoric habit or high local inflammation, and consequently not very often employed. In some peculiar forms of disease leeches were used. In cases of secondary syphilis, particularly where the disease came on after the non-mercurial treatment, venesection was occasionally employed. The treatment was generally commenced with the following medicine:—

“R. Sulph. Magnesæ, ℥iss.; Aquæ Fœniculi, ℥vij. M.

“Of this a tablespoonful was administered three times a-day, or oftener, so as at first to produce several stools, and afterwards one during the course of the day. Occasionally a collection of bile in the primæ viæ, which sometimes occurred under the continued use of this mixture, required the administration of an emetic. The mixture was given to pregnant women, merely in such doses as to keep the bowels regular. In secondary syphilis the decoction of the woods and nitric acid were also employed. After a long and copious use of the laxative mixture, aphthous excoriations of a circular shape, and from three to four lines in diameter, were sometimes observed on the inside of the lower lip and mucous membrane of the cheeks. These had a flocculent appearance, were painful, and surrounded with slightly swollen edges. Frequently they were combined with small tallow-like sloughs of the mucous membrane at the angles of the mouth, frequently with raw surfaces. Persons of a scorbutic or scrofulous diathesis were very subject to them. They were often very obstinate, and required the use of acid or astringent gargles, touching with solutions of caustic, and the omission of the laxative mixture.

“In a few cases we have seen a more than usually copious flow of saliva after the use of nitric acid, frequently a slight increase in the cutaneous transpiration, or an increased secretion of saliva, after decoction of the woods had been employed for some time. Nitric acid was exhibited in the following form:—

“R. Acidi Nitrici, ℥ss.; Syrupi Simplicis, ℥j.; Decoct. Avenæ, ℥xij. M.

Of this mixture a tablespoonful was given every second hour, and sometimes every hour. From eight to twelve ounces of the decoction of the woods were administered every day. Saponaceous baths were ordered for the sake of cleanliness, as also in some forms of eruption; in others, baths containing muriate of soda, or mineral acids, or corrosive sublimate, or (in cases of pains in the bones) caustic potass. Many kinds of lotions were also used for moistening the charpie and linen used in dressing the sores.”

LECTURE XXVI.

IN continuation of the subject spoken of at our last meeting, I shall resume the translation of some of the most important parts of Dr. Fricke's

work. The great length of the extracts I am about to lay before you sufficiently attests the value I attach to that work, and I have no doubt that you will concur in the favourable opinion I have formed of the merits of this celebrated surgeon.

Let us now return to Fricke's treatise.

“ CHANCRES ON THE GENITAL ORGANS.

“ Of chancres (differing from excoriations by an excavated base, and corroded edges), we have observed seven different species, distinguished from each other either by their appearance, their degree of intensity and extent, or by the mode of treatment they require.

“ *1st Species.*—Chancres with a clean, and in general, copper-coloured base; the base deeper than the edges, the edges sharply cut, but not raised above the epidermis; diameter from one to four, and six lines. They constitute the transition from the third species of excoriations.

“ *2d Species.*—Chancres with an ash-coloured, and usually soft base; the base deeper than the edges, the edges cut, but not raised above the epidermis; the diameter from one line to one or two inches.

“ *3d Species.*—Chancres with an ash-coloured, and in general, hard base; the base deeper than the edges, the edges sharply cut, indented, raised above the epidermis, everted, often of a dark red colour, and inflamed; diameter from one to four or five lines. (The Hunterian chancre.)

“ *4th Species.*—Chancres with a depressed base covered with an adhesive, viscid, greyish-green matter. The base is irregular, in many places deeper, in others shallower. The edges cut, raised above the epidermis, everted, often intermixed with livid black (gangrenous) spots; the circumference inflamed; diameter from three or four lines to an inch or two. They are always in connection with great destruction of the neighbouring parts. (Carmichael's phagedenic chancre.)

“ *5th Species.*—The base scarcely deeper than the epidermis, but much deeper than the edge; the edge raised above the base and the epidermis, not sharply cut, rounded off towards the base, which is surrounded like a rampart. In general the base was not ash-coloured, but for the most part of a pale reddish colour, without any appearance of commencing granulations. These chancres were usually attended with a copious discharge, and very apt to produce excoriations of the first species on the parts in their immediate vicinity. With the edge they generally measured from four to six lines in diameter. They were frequently covered with a scab. (Transition to the semiglobular condyloma.)

“ *6th Species.*—The base raised above the epidermis, of a spongy and in general bluish-red appearance; no distinctly formed edges; the surrounding skin not inflamed.

“ *7th Species.*—Hemorrhoidal chancres. Raw surfaces formed on hard hemorrhoidal tumours, with a whitish but not ash-coloured base. The tumours themselves were flat, compressed, and full of fissures. The tumours often exhibited excavations with an ash-coloured base and corroded edges. These chancres were attended with a copious discharge, and were extremely painful. (Transition to the quadrangular condyloma.)

“ We have frequently observed a transition from chancres of the first

species to the second, third, and fourth, produced by neglect, improper diet, constant bodily labour, and want of attention to cleanliness. We very rarely observed ulcers of the fourth species among females, except in a few cases of maid-servants who had venereal ulcers for a long time without having any thing done for them. In men we generally observed them behind the glans, in the angle between it and the prepuce. The transition from the first to the other species was sometimes very slow, sometimes exceedingly rapid. Artificial ulcers, formed three times with corrosive sublimate on females, and twice with lapis infernalis on males, resembled chancres of the third species.

“ With respect to the origin of chancres, those of the four first species were formed in a threefold manner. In the first place, the well-known vesicle, filled with clear pale lymph, formed on the sound or inflamed skin. The circumference became inflamed, the lymph changed into purulent matter, the vesicle burst, and gave rise to a chancre of the first species, which after the lapse of twenty-four or forty-eight hours became converted into a chancre of the second species, and under the operation of the circumstances already mentioned, into one of the third or fourth species. We observed this mode of origin very often in men, particularly in chancres of the glans, but very seldom in women. In the second place, from excoriations particularly of the third kind, chancres of the first species formed; these either remained in this state, or changed into one of the other three species. The change was generally very slow. Sometimes, however, a slight excoriation of the third kind, from neglect on the part of the patient, before admission into hospital, became converted in the space of three or four days into the phagedenic ulcer of Mr. Carmichael. This mode of origin we have frequently observed in both sexes, particularly in chancres behind the glans. In the third place, chancres formed in the mucous follicles of the inside of the nymphæ, the openings of which are very distinct, particularly in young females. These small follicles inflamed, suppurated, and, when the openings closed, and the pus went deeper, formed abscesses. When the matter was discharged externally (a much more frequent occurrence) either by the pus escaping through the natural opening, or by the breaking of the abscess, chancres were formed most commonly of the second species. In this manner fistulous and chancrous ulcers formed, which, on account of their minute size and concealed situation, repeatedly escaped an unpractised eye. We frequently found ulcers on one and the same spot in prostitutes, and this spot proved to be the seat of a fistulous follicle: when this was destroyed with caustic, the tendency to have chancres on one and the same spot ceased. These fistulous ulcers looked like a small, thin, dark red follicle, darker than the surrounding healthy membrane, with a small opening in the centre, permitting the escape of a small quantity of pus on pressure, and with their edges inverted. This origin of chancres was extremely frequent among females; on the other hand, we have seen only a few examples of it among males, on the inner lamella of the prepuce. These mucous follicles often closed, and seemed to be healed up, but always broke out again in a short time.

“ Chancres of the fifth species, in cases where we had an opportunity of observing their mode of origin, formed from semiglobular condylomata, which having first secreted a fluid, and afterwards been exposed to friction, gave rise to excoriations.

“On the origin of the six species, we had no opportunity of making any observations. Hemorrhoidal chancres formed where hemorrhoidal tumours were exposed to friction, and to the contact of leucorrhœal or gonorrhœal matter.

“Chancres of the first four species in women were most commonly situated on the fossa navicularis, the remains of the hymen, the internal wall of the nymphæ, in the angles between the nymphæ and carunculæ myrtiformes, and on the anterior edge of the labia; less frequently in the urethra, and around it, in the angles between the labia and nymphæ, on the outer surface of the nymphæ, on the frænum itself; more rarely still in the space between the urethra and vagina, or between the urethra and the clitoris, on the outer surface of the labia, or in the vagina. In the latter case, we always observed a smaller or greater protrusion of the walls of the vagina, on which a chancre of small size was discovered. Chancres on the anus (which were observed only in a few cases) were the result of unnatural coition.

“In men chancres were situated on the glans, behind the corona glandis, on the frænum, on the inner surface of the prepuce, in the urethra, and at the junction of the external with the internal lamella of the prepuce; less frequently on the outer lamella of the prepuce, on the dorsum or under surface of the penis, and on the scrotum; still more rarely, on the perinæum, anus, pubes, and inside of the thigh; the latter from contact with the organs of generation.

“Chancres of the fifth species were situated in women on the labia, the outer surface of the nymphæ, the inner and upper part of the thigh, and frequently on the perinæum; in men on scrotum and penis, particularly the under surface, the perinæum, and the upper and inner part of the thigh. All ulcers occurring on the scrotum exhibited this form.

“Spongy chancres (sixth species) were seated on the inner lamella of the prepuce, and sometimes in the angle between the prepuce and glans.

“Hemorrhoidal chancres of course were naturally seated on the circumference of the anus.

“With respect to the prognosis of chancres, we were always able to make it invariably good. None of the different species extended to any remarkable degree either in depth or circumference, when once submitted to treatment. Even phagedenic chancres, which had in many cases committed great ravages before the patients' admission, healed in such a manner that a considerable portion of the devastation was repaired by healthy granulations. In one case only, a large portion of the glans which had been lost before admission was never reproduced. All the ulcers healed, and all the cicatrices were firm and good. With respect to each individual species the following was our experience.

“1. On the whole, chancres of the first species healed in the shortest space of time. Those of the second and third healed more slowly, those of the fourth most slowly. The spongy chancre (6th species) occupied an intermediate rank; the condylomatus (5th species) and the hemorrhoidal chancre (7th species) were often extremely obstinate.

“2. Hunterian chancres so small as to measure only a line in diameter, were (proportionally to their small size) extremely slow in healing.

“3. Chancres around the orifice of the prepuce, on the scrotum and perinæum, were generally slow in healing; those behind the corona glandis, on the glans and on the labia, required for the most part but a short time

for their cure. Ulcers on the frænum in males were very slow in cicatrizing.

“4. Chancres produced and kept up by a mucous follicle, usually did not heal until the follicle was destroyed.

“5. Chancres healed in the best and speediest manner with patients who had used nothing for the disease before admission: they were most obstinate in patients of a scorbutic, scrofulous, or phthisical habit.

“6. Chancres with a brownish base were generally tedious.

“7. Some chancres proved remarkably obstinate, without any sufficient cause that we could discover.

“8. Chancres made by art required the same time for their cure as Hunterian chancres of similar size.

“With respect to treatment, the following details exhibit the course pursued:—

“In all cases where chancres were seated in the folds of the organs of generation, as, for instance, between the labia and nymphæ, the latter and the carunculæ myrtiformes, &c., the lips were separated, the angles cleared, frequently washed, and covered with charpie dipt in water or saturnine lotion, and the dressing renewed two or three times a-day. If the ulcer suppurated freely, the dressing was used oftener. If there was no advance in the healing process, the lotions were changed, and lime water, aqua phagedænica nigra, a solution of four grains of sulphate of zinc in eight ounces of water, decoction of elm bark, a scruple of the oxide of zinc in eight ounces of saturnine lotion, were then employed. Or recourse was had to ointments, which were used chiefly in cases where the chancres had become very small, and suppurated sparingly. Zinc ointment, or the following, were in general preferred:—

“R. Unguenti Zinci, ℥ss.
 Balsam. Peruviani, ℥j.
 Pulv. Lapidis Infernalis, ℥j.
 M. Signetur—the black ointment.

“This was found extremely serviceable in cases where the ulcer was healed up to a certain point, but would not cicatrize. The ointment was allowed to remain unchanged for two or three days, until it was thrown off by pus, or with a scab. If the new skin exhibited any roughness or chafing, so as to threaten to break, and become raw again, we were in the habit of smearing it with zinc ointment for several days successively.

“In case of ulcers with a copper-coloured base, marsh-mallow ointment did more service than any thing else. Often we were obliged to try many ointments before we could hit on a good one.

“When the healing process was advancing, pencilling the edges of the sore with a weak solution of lapis infernalis, greatly promoted diminution of the chancre.

“Condylomatous (5th species) were treated in the commencement, partly by frequent ablution with soap and warm water, partly by applying pledgets dipped in saturnine lotion. After this they became drier, the central portion of the base became elevated, and the edges began to approximate and unite. The semiglobular elevations also diminished, but they were rarely removed by these means alone. They were then pencilled over with Plenck’s liniment, according to the following recipe:—

“R. Mercur. Sublimat. Corrosiv. Camphoræ, āā gr. xij.
 Alum. Crud., Sacch. Saturni, āā ℥j.
 Miscæ, terendo et adde Acet. Concentr. ℥ij.
 Solutioni vitro immissee adde Æther. Sulphur. ℥j.
 Conquassa. Signetur “Plenk’s Liniment.”

“When the elevations had been pencilled for a few days with the white sediment of this liniment they began to exfoliate, shrink and diminish in size. If they resisted this application, they were touched for several days in succession with fuming nitric acid, or cut off with the scissors. This kind of ulcer, however, was very apt to return again where attention to cleanliness was omitted.

“The spongy ulcer (6th species) was covered with charpie dipt in the following lotion:—

“R. Aluminis Crudi, Cupri Sulphatis, āā ℥ss.
 Aquæ fontanæ, ℥xij. M.
 Signetur “the green lotion.”

“If this happened to be too strong, the decoction of elm bark was substituted. The ulcers were treated in this way until the base became reduced to the level of the skin, a small palish blue film surrounded it, and the raw surface in this way diminished in size.

“Hemorrhoidal chancres were also treated with saturnine lotion; in many instances hard hemorrhoidal tumours were cut off with the scissors.

“On many occasions we have attempted to destroy with caustic the small vesicles from which chancres often arise, in order to prevent the formation of chancres; but a much larger sore was produced in this way, than if they had been allowed to run their course as usual. Sometimes, however, we succeeded in preventing them from passing into chancres by smearing them with zinc ointment as soon as ever they were observed on the glans. Under this treatment they sometimes dried up without forming sores.

“Cataplasms were very often employed; under the following circumstances they were very efficacious:—1st. Where the edges of the sore were very hard, callous, and everted. 2d. Chancres would frequently heal up to the size of a millet-seed, and then become stationary, or even get worse, from the formation of excavations under the edges. In such cases we applied charpie dipped in decoction of elm bark over the ulcer, and over the latter a poultice. These measures in general answered our expectations. 3d. When the base was covered with a firm, dense, ash-coloured layer. 4th. Fistulous ulcers of the mucous follicles were often healed up completely by cataplasms. 5th. We also found them extremely serviceable in softening hard, callous, and chapped cicatrices. Finally, when cicatrices broke out afresh a few days after healing, we applied cataplasms either immediately over the raw surface itself, or previously touched with zinc ointment, black salve, or the lotions above mentioned.

“We observed that the four first species of chancres were accustomed in healing to pass through the four stages already mentioned, in succession. Often a phagedenic chancre after three or four, and sometimes after eight or ten days, began to change its character, the edges became softer, flatter, less elevated, and less everted, and the surrounding inflammation assumed a milder aspect. The ash-coloured layer which formed the base became thinner, the gangrenous parts were detached, the ine-

qualities of the base disappeared, and new red and healthy granulations sprang up among the ash-coloured spots which formed the base. The edge then sank on one side (rarely at different spots simultaneously), the base became elevated in the same direction, suppuration went on healthily, and small but not well-defined patches of epidermis became visible on the surface of the ulcer. The remaining edges sank down in a similar way, the base became elevated, the small cicatrized points approximated, and the ulcer completely healed.

A very large deep phagedenic ulcer, with or without phymosis, required from four to six or eight weeks, and sometimes more, to heal.

“ ON THE PREDISPOSITION TO CHANCRES.

“ We have often been able to verify the observation, that many men, and young women especially, are extremely liable to venereal infection, and in particular to the formation of chancres. The following are the results of our experience on this point:—

“ 1. All young women not attentive to due cleanliness were very easily infected. We have seen this observation confirmed in numberless instances. From some brothels, young women labouring under syphilis, and particularly under chancre, were sent to us much more frequently than from others; from the former the greater number of patients affected with itch were admitted, and much less cleanliness was observed than in the others.

“ 2. Young women with very narrow vaginæ were very readily attacked with excoriations of the nymphæ, the carunculæ myrtiformes, and fossa navicularis, which subsequently became chancres. Whenever we meet with this state we endeavour to dilate the vagina with bougies gradually and cautiously employed.

“ 3. The shorter the period elapsed since defloration, the more readily did chancres and excoriations form; since prostitutes who had been a long time on the town were much seldomer infected.

“ 4. Young women of scrofulous habit, or very delicate skin, were very apt to get chancres.

“ 5. But above all, those who had the mucous follicles of the vagina highly developed were peculiarly liable to the formation of chancres or abscesses. The mouths of these follicles, particularly in young women of full habit, may be seen very distinctly on the inner surface of the nymphæ. They are sometimes so large as to admit the end of a probe with ease. When inflamed, the parts around are of a darker colour, and the mouth of the follicle somewhat elevated. As we have already stated, they become very readily converted into abscesses, but more frequently into chancres. Sometimes, on dismissing a female patient, we have been able to determine beforehand the spot on which a chancre would be found on the next infection, viz., the situation of mucous follicle with a large opening. Hence we have often thought it necessary to make an incision through the follicle, and then burn it out completely with lapis infernalis; after which, we never found a chancre to form on the same spot.

“ CONDYLOMATA.

“ Condylomata, which are so rarely seen in this country (at least in proportion to the other forms of primary syphilis), constitute one of the

most common forms of the disease in Germany, and are looked upon as extremely obstinate, slow in healing, and very apt to return. Six different species have been observed by Dr. Fricke.

“1. Conical condylomata.—These resemble grains of peeled barley, of a whitish colour aggregated, and more commonly observed in females. Their situation was on the inside of the nymphæ, between the nymphæ and labia in the vagina, behind the corona glandis, and on the inside of the prepuce. They required excision and cauterization, and were very apt to return: they sometimes appeared spontaneously during the period of the catamenia.

“2. Scollop-shaped condylomata.—These sometimes resembled a cockscomb in shape, sometimes they were more like a strawberry or a cauliflower, but the original form was that of a scollop or cockscomb. They grew to the height of half or three-quarters of an inch in some instances. When small they were generally of a white colour, and covered with a whitish exudation. They were of a delicate texture, hollow, and when tied, appeared full of bright red blood. When cauterized superficially they increased in size, and became indurated on the surface; they were in general aggregated, and occurred more frequently in men than in women. Their situation was for the most part the same as that of the foregoing. Sometimes they projected from the urethra and were occasionally found in the vagina. They required excision and full cauterization, but often disappeared of themselves, or under very simple treatment. They were treated with lapis infernalis, Plenck's liniment, calomel and powdered savine, a solution of corrosive sublimate (gr. i. ad ℥i.), and excision.

“3. Polypoid condylomata.—These were fleshy, roundish, soft, and somewhat redder than the mucous membrane of the vagina. The base was as broad as the summit; they were seldom observed, occurred only in females, and on the perinæum between the labia and nymphæ, and on the clitoris. When removed by excision, and cauterized, they seldom returned.

“4. Urethral condylomata.—These were observed in females at the opening of the urethra, and differed but little from the polypoid condylomata. They were sometimes cured by excision and cauterization; sometimes they were so obstinate that it was found useless to apply any remedies. Several prostitutes were known to have them for a considerable time and follow their avocation without injury to others.

“5. Semiglobular condylomata.—These were seated on the skin, with a broad surface, and varied from the size of a split pea to that of half a musket-ball. They were pale or whitish, covered with moisture, somewhat excoriated, and became converted by neglect into condylomatous chancres. They were generally situated in the vicinity of, but not on, the mucous membrane of the organs of generation. They were extremely infectious, and readily gave rise to similar condylomata or chancres on the parts with which they lay in contact. Their treatment was very simple; cleanliness and isolation were the principal requisites. When reduced to certain size, by use of simple astringent washes, they were completely removed by caustic applications.

“6. Quadrangular condylomata.—These were seldom observed, were more common among males than females, and were always situated round the anus. Their form was square or trapezoid, compressed on the surface,

lying close together, and separated by fissures, from which a considerable quantity of moisture exuded. They were somewhat paler than the epidermis, and in some cases seemed to have owed their origin to old indurated hemorrhoids. They required more active treatment than the foregoing, and were slower in disappearing.

“Condylomata of all kinds occurring in pregnant women were treated with caution, and excision or cauterization was seldom employed.

“VENEREAL SORE THROAT.

“(Chancres in the throat—Chancker im halse.)

“Venereal sore throat appeared in the form of ulcers of the tonsils, the arches of the palate, the uvula, the soft palate, or the posterior wall of the pharynx.

“With respect to their origin and course, ulcers of the tonsils exhibited the three following forms.

“In the first form the tonsils swelled, acquired a deeper red colour, produced slight pain in swallowing, either at the commencement or subsequently, and gave a kind of nasal tone to the speech. The tonsils then increased in circumference and depth, and exhibited on the surface white purulent vesicles which burst, became gradually deeper and formed ulcers which at first had nothing characteristic, but by neglect, became greatly enlarged, and assumed an ash-coloured appearance; when the tonsils happened to be greatly enlarged and swollen, the base of the ulcer appeared hollow; the edges were sharp, corroded and everted. The base was often of a greenish colour and the circumference inflamed. In this way these ulcers would pass through the four first stages of ulcers on the genitals, with this exception, that they never became truly phagedenic. When the ulcers went on unchecked, they became larger, and involved the neighbouring parts (this, however, rarely occurred), or new ulcers formed in the vicinity, and coalesced with the latter. The healing process went on as in the case of ulcers of the genitals, with this exception, that it was often difficult to determine with precision whether the tonsillar ulcer was really healed or not, because the cicatrices looked deep and angular at first, or even for a considerable time, and were often covered with whitish streaks, which might be easily mistaken for ash-coloured ulcers.

“Ulcers of this form appeared almost as frequently after the mercurial as the non-mercurial treatment, and were generally observed on men of robust habit. They healed slowly, and were very apt to return.

“The second species of ulcers of the tonsils formed without tumefaction or inflammation. The first appearance was a broad patch of excoriation, the base of which exhibited nothing like excavation, but on the contrary was often elevated. It was either not at all, or very slightly ash-coloured, the edges indistinctly cut. This excoriation extended over the whole tonsil, and had this peculiarity, that it very seldom affected the voice, and only in a very slight degree. Ulcers of this description were most common after the non-mercurial treatment. They were cured easily and rapidly, and often healed spontaneously.

“In the third species of ulcer, the tonsils swelled greatly, but were neither inflamed, painful, nor altered in colour. Circular excavations formed, secreting a muco-purulent fluid, and of which it was impossible

to say with certainty, whether they were real ulcers or the mouths of the enlarged mucous follicles. These swellings affected deglutition, but did not in general interfere with speech; they appeared most frequently after the mercurial treatment, did not get worse, and when they had attained to a certain height, generally resisted all applications, so as frequently to require excision. Enlargements of the tonsil, without any ulcer-like cavities were not unfrequently observed; these either formed of themselves, or remained after the healing of ulcers of the third species, and often required excision.

“Ulcers of the arches of the palate and uvula were frequently observed. They were always ash-coloured, surrounded by an inflammatory border, interfered greatly with speech, and generally appeared after the mercurial treatment, but were not refractory to treatment.

“Ulcers on the soft palate commenced in the form of vesicles situated on an inflamed base, containing, the first day, a transparent fluid, which became thicker on the third and fourth day, when the vesicle burst, and became converted into a Hunterian chancre. Frequently a number of them formed simultaneously, increased in size, coalesced, and in this way gave rise to ulcers of very considerable size.

“Ulcers on the posterior wall of the pharynx had always an ash-coloured base, altered the speech greatly, were in general covered with a viscid greenish mucus, a portion of which flowed down when the mouth was opened, so as to render it a matter of difficulty to recognise them. Ulcers of this kind always appeared after long mercurial courses, and healed very slowly but with certainty.”

LECTURE XXVIII.

“Different forms of syphilitic eruption—Methods of treatment—Affections of the bones—Memorandum of Dr. Fricke's practical observations on the nature and treatment of syphilitic diseases.

“THESE were found by Dr. Fricke so various and complicated, as to render their classification a matter of difficulty. Most of them, however, exhibited in general the characters of one of the following classes.

“1. Pimples, at first discrete, of a bright liver colour, on a level with the skin in the commencement, but afterwards somewhat raised and indurated; they appeared first on the forehead, and then on the breast and back, but rarely on the extremities; they were not in general covered with scales, or surrounded with an inflamed areola; often formed small purulent vesicles, and rarely exceeded in size the head of a large pin. They generally appeared after non-mercurial treatment, and disappeared quickly and completely.

“2. Brown spots, at first light, but afterwards darker, and of a copper hue, from two to six lines in diameter; roundish or angular, raised somewhat above the skin, flattened, shining, and covered with scaly laminæ. They appeared at first on the back, breast, and nape of the neck; then on the arm and fore-arm; and afterwards extending over the face, forehead, scalp, and lower extremities, so as to give the patient a mottled appearance. When the disease went on unchecked, the spots increased in size,

became harder and more elevated, engaged the skin more deeply, and when neglected passed into ulcers, or into the following class. This form of eruption was generally seen on patients who had taken mercury for the primary disease.

“3. Very large purple spots, from one to two inches in diameter, or more, somewhat indurated with outlines imperfectly circular, in consequence of their angular projections, generally single, seated on the extremities and shoulders, raised above the surrounding skin, partly raw, partly covered with crusts, and frequently changing into deep ulcers. They often appeared with the colour above mentioned, or formed small, hard, deep-seated purple spots, which increased in size, sometimes were formed from spots of the second description. They never appeared on the face, but always on the shoulders, and on the upper and lower extremities, were extremely obstinate, and always left behind them a discoloration of the skin. This form of eruption was observed only in cases where large quantities of mercury had been used.

“The second and third forms were the only ones that ended in ulceration. These ulcers were of various kinds, but in general were characterised by an unequal base, imperfect granulation, corroded edges, and an inflamed areola. A third form of ulceration was also frequently observed; this was the result of chronic abscesses, and generally occurred in syphilitic cases of long standing.”

“TREATMENT OF SYPHILITIC ERUPTIONS.

“The treatment was extremely simple. It commenced always with ablutions with soap and warm water, and the purging mixture of Epsom salts; by these means alone the eruption No. 1 was generally cured. In cases of the eruption No. 2, after a few days we proceeded to the use of nitric acid baths (from one to two ounces of the acid to each bath), along with the internal use of the decoction of the woods, to the extent of eight or twelve ounces in the day. The diet was at first low, but was afterwards gradually improved. During the first period, the patients were confined to bed; but when the eruptions became milder, they were allowed to walk about their rooms. When the spots became pale, the skin smooth, and the face and forehead clean, exercise in the open air was regarded as a means calculated to complete the cure. The spots on the face were moistened frequently in the day with a solution of corrosive sublimate (twelve grains to twelve ounces of water), or of nitric acid (a scruple to twelve ounces of water), and in milder cases disappeared so much in the course of four weeks as to allow the patients to take exercise in the open air.

“The spots described at No. 3 came much less frequently under our notice, but they were of the most obstinate description, and were very slow in disappearing. In some cases, after employing the foregoing and other external remedies in vain, we have derived remarkable benefit from covering each individual spot with small blisters. As soon as the blister rose, and a raw surface formed, marsh, mallow, or zinc ointment, was applied, and cicatrization promoted as speedily as possible. After this application, the spots became much paler, smoother, and more like the sound skin; they also became less prominent, and exhibited fewer raw patches.

“In general, we considered the use of baths as the most valuable means of cure in syphilitic eruptions. The following were those chiefly employed:—

“ Fresh water baths were used as well in the commencement of the cure, with the view of trying their effects on the eruption, as also at a later period, for the sake of cleanliness, particularly where there was a copious detachment of scurf. Soap baths (in the proportion of a pound of yellow soap to each bath) always constituted the first steps of treatment in every form of eruption. Partly, we were able to draw a tolerably fair conclusion from their influence on the eruption, as to the quickness or brevity of its course, and partly they were found sufficient in many cases to effect a cure without any other remedy. From six to eight baths were in general found sufficient for the removal of the eruption marked No. 1, and from twelve to sixteen for that of some others resembling No. 2; in the commencement, at least, they exerted a favourable influence over all. Saline baths (composed of two pounds of common salt to each bath) were used only on a few occasions, and without any remarkable effects.

“ Vitriolated zinc baths (consisting of two ounces of sulphate of zinc to each bath) were prescribed with good effects in the eruption marked No 2, but were very seldom employed. Of nitric acid baths we have already spoken.

“ Sulphuric acid baths (consisting of two ounces of the strong acid to each bath) exerted a favourable influence on the eruptions.

“ Corrosive sublimate baths (half an ounce of the sublimate to each bath) were often employed, and were of great service, particularly when preceded by soap and nitric acid baths. They seemed to remove the eruption more speedily than even the nitric acid baths. In the eruption marked No. 3 they did not answer our expectations.

“ Bran baths operated with remarkably good effects in the eruption marked No. 1; they also rendered the third description milder, and thereby contributed to diminish it.

“ During the year 1827, the venereal patients took on the whole 14 saline baths, 38 zinc baths, 103 bran baths, 302 sublimate baths, 314 nitric acid baths, and 330 soap baths.”

“ AFFECTIONS OF THE BONES.

“ *Caries of the bones* was never seen in any case which had been treated without mercury throughout; the bones which were most frequently attacked with caries were the nasal, palatine, maxillary, sternal, and tibial.

“ *Pains in the bones* were of various kinds. The following varieties were those chiefly observed:—

“ 1st. Fixed pains in the centre of the bones. These were generally felt in the bones of the shoulder, forehead, and fore-arm, but chiefly in the tibia. The pain was dreadful; increased by the heat of the bed at night, and by the slightest touch: it in general deprived the patient of all sleep, and was accompanied by nodular swelling, which sometimes terminated in abscess and caries.

“ 2dly. Fixed pains in the ends of the bones. Sharp, lancinating pains were felt most frequently in the knee, ankle, and shoulder-joints, more rarely in the hip, elbow, and wrist-joints. These were sometimes slight, sometimes intense, and of an inflammatory character. They were aggravated by cold, great heat, pressure, and on the approach of night, but

relieved by warmth and moisture, particularly the latter, which produced local perspiration. They were frequently combined with anasarca swellings of the parts, and, when neglected, sometimes terminated in effusions of water or pus into the synovial membrane of the joints.

“3. *Fixed pains in tendinous parts.*—Tense lancinating pains were felt in the tendinous expansions and ends of the muscles, particularly those of the head, nape, back, and shoulders; sometimes, but not always, increased by pressure, relieved by warmth and moisture, and exasperated by cold, particularly cold draughts of air. They resembled rheumatic pains, were extremely obstinate and harassing, and sometimes ended in partial paralysis.

“4. *Flying pains.*—These were felt in various parts of the body, in the head, the joints, arms, femur, and tibia, and generally appeared where the patient had been exposed to cold after mercurial frictions. They sometimes disappeared of themselves, and sometimes became fixed, but seldom harassed the patient so much as the foregoing species.

“The treatment of the first species of pains was much easier than that of the second or third. In the first species the only thing which was found to be productive of certain and permanent relief, was to make an incision over the painful part down to the bone. As soon as this was done, and a poultice applied, the pain ceased and never returned. The incisions varied from one to two inches in length. The periosteum and bone were in general swollen, and the latter was often found carious, or covered with sanious pus. Leeches, cataplasms, and alkaline baths, were of little use except at the commencement, or in very slight cases. Pains of this description generally came on after the use of mercury, but were also observed in two instances at the termination of gastro-rheumatic and rheumato-nervous fever. Pains of the second description were treated antiphlogistically. When of an inflammatory character, leeches, cataplasms, rest, and the free use of opium at night, in general proved successful. Warm or sulphur baths were frequently given, and the patient took nitre or the acids by day. Pains of the third kind were treated with alkaline or sulphur baths, tartar-emetic ointment, warm clothing, frictions, and when on the decline, exercise in the open air, and a cautious use of the cold bath. Flying pains generally yielded to warm baths, but sometimes required the line of treatment applied to pains of the third species.

“Iritis and alopecia were observed only in a few cases, and invariably in patients who had been treated with mercury.”

Such, gentlemen, are the conclusions at which Dr. Fricke had arrived when he published his *Surgical Annals*, in 1828.

As ten years have since elapsed, during which Dr. Fricke has continued to conduct the treatment of the venereal patients in the Hamburgh hospital, I took the liberty of writing to him, for the purpose of ascertaining whether subsequent experience had induced him to alter his views. His answer was, that instead of altering his views, experience had confirmed them. Dr. Fricke, at the instance of Dr. Oppenheim, had the kindness to discuss some of the most important topics connected with syphilis, in the presence of a well-informed and intelligent young surgeon, a friend of Dr. Oppenheim, who took notes of what Dr. Fricke said, and transmitted them to Dublin for my use. These notes I now proceed to lay before you; and, in doing so, I beg leave to observe emphatically, that Dr. Fricke cannot be held responsible for them, inasmuch as though

I believe them to be in every respect accurately taken, yet allowance must be made both for misconception of Dr. Fricke's meaning, on the part of the gentleman who took the notes, and of errors on the part of the translator. The latter I have endeavoured, if possible, to avoid ; for the translation, made originally by Dr. West, has been since carefully revised by Mr. Swift and myself, and I think, therefore, I can answer for its fidelity.

It is scarcely necessary to add how much I feel obliged to Dr. Fricke for the readiness with which he complied with my request, and the trouble he has taken to fulfil my wishes. The great hospital of Hamburgh, under his care, affords one of the best schools for medicine and surgery with which I am acquainted, and affords the best opportunity for the study of venereal complaints. In truth, I strongly advise students who wish to obtain a knowledge of Continental practice, to go to Hamburgh in the first instance. Half a year, or a year, spent in that city, will afford them more chance of obtaining sound practical information, than if they had repaired to Paris or Berlin.

DR. FRICKE'S PRACTICAL OBSERVATIONS ON THE NATURE AND TREATMENT OF
SYPHILITIC DISEASES.

(Being the substance of various oral communications in the month of November, 1838.)

Among the German writers who have contributed to advance the rational treatment of syphilis, Dr. Oppenheim has mentioned Brunninghausen, of Wurzburg, Pokkels, of Brunswick, Von Walther, of Bonn, and more particularly Fricke, of Hamburgh,* who published several papers on the subject in Rust's Magazine for 1826 and 1831, and in Casper's *Wochenschrift* for 1834.

Subsequently, Dr. Fricke communicated, in his "Surgical Annals" for 1828, his very important observations on the rational treatment of the disease. G. Handschuh (On the Forms of Syphilis and their Treatment, Munich, 1831), who has given an elaborate and critical history of the pathology, prophylaxis, and treatment of syphilis, with a view to the more extensive diffusion of a harmless system of treatment (a task subsequently executed with more accuracy by Bonorden), often refers to these observations of Dr. Fricke, and attempts also to prove that under the name of syphilis are comprised a number of diseases, which have probably no mutual relation, and in the treatment of which mercury is usually employed. Even at the present day, German practitioners in general repose the highest confidence in mercury. No one appears to concern himself about its *modus operandi*, or why it should be preferred to all other remedies in the treatment of syphilis, every one pursuing with respect to it the same reasoning in a circle as with respect to Peruvian bark. Bark cures intermittent fever, but intermittent fever cannot always be cured with bark.

Dr. Fricke, however, has had no reason to abandon his new method of treatment ; on the contrary, further experience has not only confirmed his previous observations in every instance, but also a series of cases, now

* Dr. Oppenheim himself has indirectly, but powerfully, assailed the mercurial treatment in his work, "Behandlung der Lustseuche ohne Quecksilber, Hamburgh, Hoffmann, and Campe, 1837 ;" which contains an erudite and accurate list of all the remedies which up to that time had been successfully employed in the treatment of syphilis.

amounting to several thousands, has forced upon him a conviction of the superior efficacy of what has been termed (but incorrectly), the antiphlogistic method, and at the same time has led him to new views with respect to the nature of syphilis, a disease exceedingly complicated in itself, and rendered still more obscure by the hypotheses put forward with respect to it, some with more, others with less, foundation. As the result of his investigations it may be stated :—

That syphilis has two constituents, namely, *contagion* (a source to which attention has been almost exclusively directed), and *disposition*, an agent of equal importance, at least so far as the origin, reproduction, and treatment of the disease is concerned.

“ I. PATHOLOGICAL PROPOSITIONS.

(a) *Contagion.*

“ 1. Numerous experiments in which the pus of chancre was mixed with mineral poisons (as for instance, chlorine, corrosive sublimate, arsenic, &c.), or with vegetable (as cicuta, belladonna), or with the matter of itch or small-pox, have invariably afforded the same result, viz., the production of genuine chancre. Hence we may conclude, that contagion is something extremely subtle, and capable of maintaining its own vitality, and consequently that it must be very difficult to invent a preventive against it. Even the application of ice or heat to the inoculated spot fails in arresting the development of chancre.*

“ 2. The syphilitic, like all other contagions, has a tendency, when its course is not disturbed, to develop itself on the membranous tissues, particularly on the confines of tissues, of different kinds, as for instance, on the prepuce (the normal secretion of which allows us to class it as intermediate between skin and mucous membrane), around the anus, at the terminations of the intestinal and bronchial membranes, on the conjunctiva, a membrane which holds an intermediate rank between the mucous and serous. The most obstinate form, condyloma, generally selects such transition spots or intermediate tissues. The history of contagion informs us, that in prevalent and severe cutaneous affections, it is the result of contact between individuals in different states; and the practice of medicine teaches us that attention to the skin, or, in other words, cleanliness, is beyond doubt one of the most efficient remedial agents, and its observance a main condition of cure. Mercury, with its pseudo-syphilitic cutaneous affections, as well as all other antisiphilitic remedies in repute, promote or produce directly an excitement of cutaneous activity. Nodes, independently of being the reflex action of the disease on the periosteum (a membrane which belongs rather to the secreting than the dry fibrous tissues), form no argument against this position.

“ 3. True crises are scarcely to be expected or observed in chronic diseases of the skin. We should, however, always bear in mind, that the constitution requires a certain degree of power to react against contagion, and resist the morbid process which the latter endeavours to establish; and that this power is least of all to be interfered with where the existence of a morbid predisposition, but more particularly of the scrofulous diathesis

* “ Eisenmann asserts on some occasions, but, erroneously, that the admixture of corrosive sublimate destroys the syphilitic virus. Fire certainly destroys it, but still it is not an antisiphilitic.

is likely to destroy its due balance. In such cases mercury is positively injurious.

“4. The contagion of syphilis seems to possess a certain degree of protective power against the same disease. Thus if an infected person be inoculated with the virus, he is much less likely to take the disease than a healthy uninfected person. In this, however, the local and general condition of the system which occurs during coitus, and strongly disposes to the reception of contagion, plays an important part. If, however, a person affected with chancre were inoculated with the matter of that chancre on a fresh spot, and from this on a third and so on, it will be found that this process can be repeated only a few times with success. The individual becomes, as it were, habituated to the virus, and less susceptible of its influence. In the same way no secondary affections are capable of being propagated by inoculation. May we not, then, look upon these affections as a salutary effort of nature to check the progress of the disease? The relative immunity, too, enjoyed by some females, seems to depend upon the constitution being, as it were, stimulated to reaction, and spontaneous cure by a second contagion. In persons of this kind, an inveterate lues, that is, a modification of their whole organic system by the syphilitic contagion, may exist for a long time without offering a single point of attack for therapeutical agency. Even connection with such individuals, provided they are free from local sores, is not dangerous to others.

“5. How long the period of incubation of the contagion may last, is by no means determined; there are cases in which a connected series of symptoms of alternate improvement and aggravation points out the struggle of the constitution against the contagion, the latter ultimately gaining the ascendancy and exhibiting itself more and more in fresh secondary affections. Often, however, these affections breaking out after a number of years, are not of a truly syphilitic character, but the result of a cachexy produced in a system already undermined by previous attacks of syphilis, and by a variety of noxious influences which develop morbid diathesis, or bring into play acquired predispositions. Hence, in all localities favouring the production of cachexies, we find peculiar forms of disease which we are forced to look upon as syphiloid, inasmuch as they present the same modified forms of scrofulous and impetiginous disease in which syphilis is known to have the initiative—a property shared by it in common with measles, small-pox, and all other contagious affections. In such a case as this, to attribute the whole series of morbid phenomena to the previous syphilis would be as incorrect as to regard growth as the sole cause of phthisis. Growth merely develops an original disposition, viz., the phthisical; and we have only to suppose that the disease existed in a latent form to avoid all error on the subject.

“6. The original seat of contagion is either the mucous membrane of the genital organs and its mucous follicles, or the chancreous, *i. e.* a portion of external skin brought into the condition of a mucous membrane.

“7. No advantage to the treatment of syphilis results from making distinctions between its primary forms, and particularly between gonorrhœa and the syphilitic virus. They all get well under the (so-termed) antiphlogistic treatment. The mucous membrane of the male genitals, which occasionally becomes violently inflamed, and secretes copiously and obstinately from the mere introduction of bougies, or the matter of non-syphilitic blepharophthalmia, is irritated by the syphilitic virus just as it is by

these foreign chemical or mechanical influences. Gonorrhœa, however, for the most part has its origin in other morbid sources (leucorrhœa, the period of menstruation, before and after the same, &c.) which are modified solely by coitus, by it produces a noxious effect on the system, and without it are to be looked upon as harmless. We have not hitherto been able to tell by the appearance of the discharge from what source it arose. The conjunctiva is much more frequently observed in a purely inflammatory state than the mucous membrane of the urethra.

“8. Sometimes, but very rarely, we observe a transition from gonorrhœa to chancre. In 200 cases in which inoculation with gonorrhœal matter was performed, there were only two instances of chancrous sores as the result. A greenish yellow discharge from the uterus produced by inoculation genuine chancre, and gave rise to gonorrhœa when introduced into the male urethra by means of a fine bougie.

“9. The importance of bearing in mind the disposition is still further shown by Richter’s supposition of the existence of a gonorrhœal lues (*Darstellung der Scheinbaren Aehnlichkeit und wesentlichen Serscheidenheit Zwischen Tripper und Chancker*, Leipsig, 1819), and Autenrieth’s of a gonorrhœal scrofula (*Tübinger Blätter für Naturwissenschaft*, &c. Band I Aest 2). Every disease affecting the whole system, and syphilis and gonorrhœa among the rest, is capable of awakening dormant predispositions; hence syphilis or gonorrhœa may give rise to tumours of the joints and nodes in persons of a rachitic, or rheumatic constitution. The sympathy between the kidneys and urethra is remarkable in one point of view, namely, *that in gonorrhœa the urine is found to contain a large quantity of albumen*. What the consequences may be of the removal of so much albumen from the system, whether it be a species of natural antiphlogistic, or whether chemical analysis can prove the existence of a deficiency of albumen in the blood, is not yet determined; it is a condition, however, which has been observed in connection with many forms of cachexy. The mental impression caused by gonorrhœa—the almost incurable hypochondria syphilitica—indicate some important alteration in the admixture of the fluids. The interesting observations of Gueterbock, Wood, Vogel, and Henle, on mucus and pus, establish for mucus (inasmuch as it is now to be distinguished from pus) a high rank among the organised fluids, and, in fact, the albumen ovi, which bears an analogy to the mucus of the genitals of the mammiferæ, is a species of pus or mucus secreted by the oviduct, and of great importance in the generation of the bird.

“(E.) DISPOSITION.

“The state of the system, and in particular of the cutaneous tissue, is deserving of consideration, not only during coitus, but also during the whole course of the disease. Many persons will not take the disease either by coition or by inoculation, and in general, persons in a tranquil healthy state will not receive the contagion even when the virus is brought into contact with abraded surfaces. Dr. Fricke on one occasion, while examining a gonorrhœal patient, had the whole contents of an urethral lacuna squirted into his eye; simple abluion of the part prevented all bad consequences.

The delicate skin of fair persons and that of the negro favours the reception and spread of contagion; the same is the case with persons of a

dirty greasy skin, or where the functions of the skin have been injured by an unquiet life or by change of climate. Hence the inhabitants of northern climates, who in general seem to exercise a stronger reaction against contagion, suffer much more when they visit more southern regions. Hence also the rich suffer less than the poor. Persons of a sanguine temperament are in general the most susceptible; the whole system in such persons, and the mucous membrane in particular, being in a state of excitement. France would suffer less from this disease were it not for the slight attention paid to the skin, and the use of mercury.

“The scrofulous and rachitic, the rheumatic and gouty diathesis, the predisposition to lupus and herpes, have alike an influence in determining the form of what has been termed secondary syphilis. As there exists in some individuals a complicated predisposition to sore throat, probably depending on a scrofulous diathesis, the predominance of the mucous tissues and gastricism, the eruption of ulcers of the throat, may be apprehended under the following circumstances:—The throat is narrow, the tongue arched, and with difficulty pressed down in the mouth; the back of the throat cannot be seen without exciting nausea, the mucous membrane secretes copiously and is covered with moisture; the soft palate is of a more or less deep red colour, the arches of the palate hang very low down, the glosso-palatine higher than the pharyngo-palatine; the uvula, which in the normal condition has only a red stripe down its centre, is of a uniform red colour, covered with mucus, and adheres readily to either of the tonsils; the latter stand near each other, are red, and covered with a viscid mucus; the whole mucous membrane of the throat is very sensitive, secretes more copiously when the mouth is kept open, and becomes redder as if new vessels became suddenly developed in it. Under such circumstances we may naturally expect ulcers in the throat; under opposite conditions we look for them in vain. Sometimes the mucous membrane of the choannæ becomes indurated, applies itself to the tonsils, and produces excoriations, which however heal under the use of emollient injections. The occurrence of fresh catarrhal and gastric derangements seem to have a considerable influence in bringing about all syphilitic metastases, or at least direct the force of the morbid process to parts already weakened and predisposed. The predisposition to buboes depends upon other causes as well as scrofula; among these we may mention much walking or bodily exertion. Women are more liable to these glandular affections than men; persons of spare habit and firm fibre, as also persons labouring under hernia, in whom the parts subjected to constant pressure from a truss, seldom suffer from them unless they happen to be in a highly cachectic condition. Not unlike bubo in many respects is the disease termed orchitis blennorrhagica (inflammation of the epididymus, and infiltration of its substance with organised lymph, owing to the extension of urethritis sympathetically or by metastasis) an occurrence which may be expected when we find the vas deferens becoming swollen and painful. The testicle itself remains during the whole time unimplicated; it is, however, frequently displaced, and hence, in order to detect it, the part must be examined very closely. The lymph is infiltrated so completely, and becomes so intimately combined with the substance of the epididymis, that the consequent hardness in many instances will not yield to any remedial agency, and though it may be somewhat reduced by compression, it remains quite perceptible even after the lapse of twenty years.

There exists naturally a sympathy between the mucous membrane and the skin. An exanthema is sometimes produced not only by balsam copaiba, but also by turpentine, for the cure of gonorrhœa. The syphilitic cutaneous affections depend partly on the virus being either wholly neglected or imperfectly cured, or, as is frequently the case, aggravated by the abuse of mercury, partly on the sympathy already alluded to. The peculiar form of the eruption depends partly on the condition of the skin, and partly on what has been termed the acrimony of the fluids or dyscrasy. Persons of a dark complexion and a dirty freckled skin are most liable to these eruptions. Itch appears to have less power in modifying the eruption than other dyscrasies, as, for instance, the herpetic. The occurrence of gonorrhœal ophthalmia and of syphilitic iritis furnishes strong proofs of the existence of a species of elective affinity, of an unknown metastasis from one diseased tissue to another predisposed to disease. The former affection, if it be produced by infection from contact, should be more frequent. Interruption of the urethral discharge is never the cause of epididymitis (on the contrary, inflammation of the epididymis and the parts in its vicinity acts as a derivative on the gonorrhœa, and arrests its flow), much less can it be exclusively the cause of inflammation of the remote conjunctiva. Hence we must ascribe to this membrane (forming as it does a transition membrane between the mucous, serous, and cutaneous tissues) a greater predilection for the virus of clap, than to the mucous membrane of the ear or nose. It is quite plain that iritis arises without contagion, and without any other metastasis than that common to all syphilitic affections. Indeed, it comes on frequently after a protracted treatment either with or without mercury. The iris conducts itself here like the fibrous periosteum; it is not affected until some time after the external tissues of the eye, which afforded, as it were, a kind of point of attraction for the disease. There exists also a peculiar disposition to condylomata as pseudo-products, among which the conical condylomata, as being parasitic productions endowed with remarkable vitality, present the characters of the contagion in the highest degree. Whether the pathological process by which they are generated be the same as that by which the fungosities of ulcers are formed, and whether their bases be a structure intermediate between polypus and wart, remain still undecided. Dr. Fricke saw them appear as the harbingers of more serious affections, as, for instance, of fungus medullaris of internal organs. Prof. Otto (in his *Dänischer Zeitschrift*, 1838, Heft 2) relates an instance of their production as the result of unnatural coitus between two persons perfectly free from syphilis. Rognetta (*Gazette Médicale de Paris*, June, 1836) describes a species of warty growth from the anus, which might have passed for condylomata had not the chastity of the individuals been well known; hence we are not in all cases of condylomata to assume the pre-existence of syphilitic contagion. Again, with the tendency to form condylomata there coincides a tendency in the skin to form warts and corns—a tendency the source of which is probably seated in the mucous membrane of the kidneys, or of the digestive apparatus in general. The flat condylomata heal readily, but the conical can by no means be destroyed, so that we are forced to leave them alone and let them wear themselves out. They prove themselves to be a mere secondary syphilitic formation by this fact,—one cannot produce chancres from them: the moisture exuded by them produces only excoriations and condylomata of the parts with

which it comes in contact, just as all acrid secretions do, and any secretion may be regarded as acrid to all parts to which it is not the natural stimulus. The primary and secondary condylomata are very similar; the circumference of the former, however, is less than that of the latter, and their secretion not so copious.

“ With regard to affections of the bones (the occurrence of which indicates that the system has yielded to the morbid influence of the syphilitic poison), affections, too, which make their appearance in persons disposed to cachexies, who have scarcely escaped rickets, and who have already a tendency to rheumatism and gout, even here mercury is not free from all blame as a cause. This opinion is supported by the power which mercury has of destroying vitality, and hence of destroying the vitality of pseudo-products, by the circumstance of mercury in the reguline state having been found in the bones (*Chirur. Annal. loc. cit.*), and the fact that these affections disappear on the occurrence of symptoms of salivation.

“ It is an undeniable fact, that syphilitic affections, and even ulcers resembling chancres, or the sores produced by inoculation with the matter of chancre, may be congenital; but it rarely happens that infection takes place during birth, much as the condition of the child's skin might seem to favour the reception of the virus. Women labouring under syphilis in a very high degree, give birth to children which are healthy, and continue so, just as occurs with mothers affected with herpes and other morbid predispositions. Where discharges or eruptions of a syphilitic character appear immediately after birth, they have already lost their contagious property (they cannot be reproduced by inoculation), and this seems to favour the opinion that the syphilitic contagion acts much more than others as a mere morbid stimulant, producing no peculiar cachexy, and merely maturing or modifying pre-existing morbid diathesis. Thus a scrofulous person, by means of syphilis, becomes more or less truly scrofulous, and, in many cases, for the first time only at a late period, and where his health has been disturbed by other causes, after the actual cure of the syphilitic affection. It is then not syphilis, but the original morbid diathesis modified by syphilis, which becomes propagated. Hence, in deciding on a plan of treatment, this diathesis, or, as we have termed it, *disposition*, is the chief point for consideration, and hence also results the curability of syphilis by so many different means. The same thing holds good with respect to what are termed relapses, which occur under every form of treatment, and more frequently under the mercurial, because where there is hereditary predisposition, a new morbid stimulant will be given to scrofulous, herpetic, rheumatic, and gouty affections. Hence, too, the origin of those exceedingly obstinate chancrous ulcers of the prepuce, constantly reappearing after imperfect cicatrization, and consequently after detachment of the cuticle. The edges, for instance, remain callous,* hence slight motion is sufficient to break open again the badly healed ulcer. In the latter case cataplasms, in the former astringent applications, to diminish the sensibility of the prepuce, produce the best effects.

“ II. THERAPEUTICAL PRINCIPLES.

“ To establish the rationale of treatment, it would be necessary to attain a knowledge of the origin of the contagion; the mere treatment, it is true,

* It is a mistake to regard this callosity of the edges as foreboding the occurrence of secondary symptoms.

does not require that any regard should be paid to the contagion ; it can be cured without it, and mere experience will lead to the establishment and proof of a counter-poison and a real poison. But the theory of treatment requires this consideration. How, then, are we to ascertain the nature of the virus ? The period of its origin may be more certain than the place, but the period is as remote as the persons who first observed the disease, and the constitutions which presented themselves for observation.* The following facts, however, demand our attention :—

“ 1. The contagion results from the contact of different individuals, and of the external skin or semimucous membrane of the male with the mucous membrane of the female ;

“ 2. It is promoted by the mucus of the female, which is inclined to acrimony, and which, as well as the seminal fluid of the male, is a highly vitalized product, and looked upon as contributing to vital development ;

“ 3. By the mixture and mutual neutralization or solution of different spermata, as well as by their predominant constitutional influences ;

“ 4. It is received when the sensibility of the part is in the most exalted state ;

“ 5. It shows its action more especially on all the sensible organs of reproduction, modifies (as has been already stated) every morbid disposition, or matures and stimulates the existing disposition to increased action or pseudo-production.

“ Now, if bearing in mind what we learn from physiology and therapeutics, we call the contagion a *pseudo-sperma*, or in other words, a peculiar albumen, the result of the exercise of the generative function, we thence get an explanation, 1st, of the congestion which it produces in the generative organs, as in gonorrhœa ; 2d, of its tendency to attack and involve all the reproductive tissues, especially the skin ; 3d, of its tendency to the formation of pseudo-products ; † 4th, of its tendency, proved also by the history of the embryo, first to attack sensible parts ; 5th, then to develop itself according to certain antithesis (poles or metastasis) ; 6th, the indications for treatment, the happy results of which afford a further conclusion as to the nature of the disease, as well as an explanation of the success of other methods, and particularly of mercury.

“ The method of treatment to be employed deserves the name of the *antiplastic*. Sudden weakening of the system by venesection is, with a few exceptions, wholly unnecessary ; on the contrary, the constitution may at first require a generous diet to enable it to sustain the reaction ; if during its continuance the sores increase, they disappear so much the more speedily afterwards, when the abstinence cure is commenced. This, however, need not be made a complete hunger-cure, and perhaps it has been laid down too strictly in the *Chirurg. Annalen* ; the severity of it should be lessened in proportion to the patient's improvement. On the other hand, a too careful or solicitous attention to cleanliness cannot be shown. ‡ Rest is an excellent antiplastic. During its observance, chymification and

* Pitschaft (Hufeland's Journal for March, 1838) quotes some old German verses of 1472, about king Wenzel, in which it is stated, that after drinking mum, he was attacked with putrefaction of the genitals, and died.

† The well-known Kleeblatt, so often found in the ovary, the hair, fat, and teeth, probably bear some analogy to syphilitic diseases of the skin, mucous membrane, and bones.

‡ “ From this cause, as Dr. Fricke has often convinced himself, the rational method often fails in private practice. We are not able to enforce cleanliness, which is generally attended with pain, and we are obliged to trust too much to the patient's statements.”

assimilation are less active ; all the functions are carried on with less energy ; and thus the contagion, neglected, as it were, and limited in its seat, dies out of itself. Of itself it possesses naturally but little power, and where cleanliness and regulation of the diet are attended to, as well as a proper regard paid to the peculiar disposition of the patient and the course of the disease, rest may be less strictly enforced after the lapse of a few days. A plentiful meat diet is apt to bring on buboes, while a strictly vegetable diet tends to give rise to condylomata. Internally, it will be sufficient to administer Epsom salts in such doses as to produce a few evacuations daily, and even in this point we may abate a little in our original strictness after a few days. Decoction of sarsaparilla, infusions of senna or *Carica arenaria*, and the acids, particularly the nitric, are also employed with advantage. Hydriodate of potass, either with or without decoction of sarsaparilla, is an admirable remedy, and greatly esteemed in many parts of Germany.

“Mercury, even supposing that it did not exercise a more injurious effect on the system than Peruvian bark, must, as a specific, militate against a sound knowledge of disease (for all specifics lead to a false system of therapeutics), and particularly of syphilis, in which every thing depends on individualizing and accurately examining the morbid predisposition. The secondary forms in particular require a regulation of those functions whose disturbance constitutes the source of the disease, and consequently a regulation of diet in the strongest sense of the word. The stomach and skin are the two organs which are chiefly deranged. The same plan of treatment which we would follow in treating cases of herpes, scabies, scrofula, gout, rachitis or periostitis, depending on ordinary causes, must be also followed where these diseases have been called into existence by the syphilitic virus. On the whole, however, secondary syphilis is rarer than is generally imagined. Neither secondary symptoms nor relapses require treatment different from that which is adopted in the cure of primary symptoms ; a treatment, the chief features of which are, that it is external, not opposing or obstructing nature, but rather assisting her by cleanliness, &c. Fresh air often cures cutaneous affections in a short time ; condylomata disappear after the lapse of a certain time under the use of a variety of escharotics, without our being able to fix on one as a specific. At all times regard should be paid to morbid states of the constitution, and morbid temperaments, and we should take especial care not to excite any cachexy in the patient. A mild limitation of vital activity is sufficient to cut off all support from the morbid parasitic action, or at least to obviate all unfavourable influences.

“A minute account of the modifications which have been made in the treatment described in the *Chirurg. Annalen* would require a treatise as long as that in which they were originally set forth. We must therefore refer to this work, as it would require a whole book to give the results of a thousand registered cases.”

LECTURE XXIX.

Dr. Struntz's observations on the non-mercurial treatment of syphilis—Result of Dr. Oppenheim's inquiries—Opinions of Dr. Staberoh—Further remarks on the venereal disease.

At our last meeting I gave you the results obtained at Hamburgh, by Dr. Fricke, respecting the non-mercurial treatment of syphilis. To-day I shall commence with extracts from a paper published in the *Berlin Medical Gazette*, by Dr. Struntz, and although I cannot agree with the learned doctor in all the conclusions he has drawn, yet his facts are too valuable to be passed over in silence.

The following is the sum of Dr. Struntz's observations on the non-mercurial treatment of syphilis in the venereal wards of the Charité Hospital at Berlin. These observations extend over a space of twelve months, and were made under the direction of Professor Kluge.

Of 741 patients (some of them greatly neglected), Dr. Struntz has not met with a single case in which the non-mercurial plan has not succeeded, when combined with a rational consideration of the peculiarities of the local disease. On the other hand, he has seen many out-patients treated with mercury for weeks and months together without any advance being made towards the healing of primary sores, or, in many instances, without any effect in arresting their destructive progress. The primary symptoms more particularly alluded to, are chancres and acuminated or broad condylomata.

In the Charité Hospital at Berlin, not only primary sores, but all forms of the disease, from the slightest to the most intense, have been treated for the last half-year without mercury. It might be objected to the non-mercurial plan of treatment, that it does not afford any protection against a recurrence of the disease—that it does not ward off secondary symptoms. This may be very true, but neither does mercury. Among the many hundred patients who came under Dr. Struntz's notice during the course of a year (and to this point he paid the most particular attention), there was not a single case of secondary syphilis in which he did not discover, either from personal examination, or from an inspection of the prescriptions brought by the patients, that mercury had been used for the primary affection. If mercury, then, will not secure the patient from secondary symptoms, it is not unreasonable to have recourse to another plan, which, at most, cannot be attended with more unfavourable results, and which is free from the disadvantages of generating a double poison in the system. It is true that by proper attention to diet, rest, cleanliness, the avoidance of exposure to cold, and other precautions, most of the bad effects of mercury may be obviated; but how are we to secure the fulfilment of these conditions among the poorer class of patients outside the doors of a hospital?

Again, is the diagnosis of syphilitic ulcers so easy, that a man can pronounce at once that this or that ulcer is a true venereal chancre? How much observation and experience are required to enable a man to decide this apparently simple question! Is it not well known to every practical and experienced surgeon, that sores are frequently seen on the genitals,

not produced by syphilitic infection, and yet presenting almost all the characters of syphilis?

“The results obtained at the Charité were most satisfactory. All cases of primary sores, including condylomata (two-thirds of which are looked upon as primary symptoms), were treated successfully without mercury. The number of patients discharged cured, was 733, and of these Dr. Struntz had not met with a single case of secondary symptoms up to the period of publication (Sept. 30th). Many of these patients were prostitutes, and constantly under the surveillance of the hospital surgeons. Dr. Struntz does not wish to intimate that he places implicit reliance on the non-mercurial treatment pursued at the Charité, or that the method is infallible; all he wishes to say is, that of all the primary cases treated in this way at the hospital, not a single one was followed by confirmed lues, or even by those milder forms of the disease which have been described by Bonorden and others as secondary syphilitic exanthemata. Both modes of treatment were followed at the Charité, but it was found that under a similar management of the local affection, those patients who were treated with mercury could not be discharged for two or three, or even four weeks later than those who had not taken any mercurial preparation. It is true that condylomata are apt to return, but this occurrence takes place as often under the mercurial as under the non-mercurial treatment, particularly when the local treatment has been commenced before the condylomata have completed their development, or where they have not been completely eradicated at first. In cases of syphilitic exanthemata, psoriasis and impetigo, where corrosive sublimate and red precipitate had failed, Zittmann's decoction was used with good effects; latterly, however, Dr. Struntz has been in the habit of giving the Decoct. Sarsaparillæ, Caricis Arenariæ, Specierum Lignorum, āā ʒij. ; Fol. Sennæ, ʒj. Of this decoction a pint was administered daily; and, in conjunction with warm baths, and in more obstinate cases with nitric acid, he succeeded in accomplishing the desired effect. “It may be observed,” says Dr. Struntz, “*en passant*, that in many cases, after, and during a course of mercury, particularly, red precipitate and corrosive sublimate, I have seen psoriasis guttata and impetigo sparsa arise; the former disappearing after the mercury had been omitted. Latterly we had also some cases of ulcerated throat, and commencing ozæna with mercurial complication. It may appear somewhat bold in cases of this kind to exchange an old and esteemed remedy like mercury for sulphate of magnesia; but in our patients, the racking pains of the head and nose were relieved, the discharge ceased, and the ulcers healed in a remarkably short space of time. About the commencement of July three young men were admitted into the venereal wards. One of these had been under a course of calomel and corrosive sublimate previous to his admission; the others had also taken a considerable quantity of mercury, and were labouring under ozæna and periostitic pains. By the use of sulphur baths, the hospital decoction, and a nutritious diet, all were greatly improved in the space of a fortnight, and their improvement went on so rapidly that one was dismissed cured at the end of the month, and the ulcerated sore throat was beginning to cicatrize. A case of syphilitic iritis is deserving of notice.

“A servant girl had been admitted in the August of the preceding year, for condylomata, which extended from the orifice of the vagina to the anus. She had been treated with calomel, and afterwards with

corrosive sublimate, and the condylomata were either cauterized or removed by excision, but still returned as fast as they were destroyed. She then took Zittmann's decoction without benefit, and after some time reverted to the use of calomel. Scarcely had her mouth become fully affected (she had taken 7 doses of 10 grains each), when she was attacked with an impetiginous eruption of the face, and soon after with iritis, bearing all the characters of a syphilitic inflammation. Bloodletting, leeching, and antiphlogistic measures were employed, but in spite of every precaution, an abscess formed on the iris. The calomel having proved useless, was discontinued, and the patient ordered the Decoct. Lignorum Specierum of the *Pharmacopœia Militaris*, combined with a mild antiphlogistic treatment. Under this treatment, the pus, which lay at the bottom of the anterior chamber, was reabsorbed in the space of a fortnight, the pupil resumed its natural form; in a word, all the traces of iritis had so completely disappeared, that many professional men could not distinguish the sound from the previously diseased eye unless it was pointed out to them. She was completely cured of her obstinate primary symptoms by the non-mercurial plan. I cannot decide what share mercury may have in the production of these secondary affections, but I cannot believe that it is wholly without influence on their origin."

Such, gentlemen, are the facts recorded, and the observations made, by Dr. Struntz, to which I shall now add the contents of a letter which I have lately received from my friend, Dr. Oppenheim, of Hamburgh,—a gentleman, whose extensive practical experience, derived from upwards of a thousand cases, entitles his opinions to the most attentive consideration:—

“Hamburgh, Nov. 26, 1838.

“My dear Graves,—On receiving your letter I endeavoured to fulfil your wish, and the result of my endeavours is the following sketch. I fear it will not give you full satisfaction, being rather theoretical than practical, but it was impossible for me to examine all the Hospital Reports and cases in so short a space of time. I have, therefore, commissioned a very industrious young physician to communicate the points held in view in Fricke's treatment, and the following manuscript is the result:—*

“In Hamburgh the number of non-mercurialists increases daily; among the young physicians, who have been practitioners for the last eight years, there are only two or three mercurialists. In fact, I very seldom meet with truly malignant and inveterate cases, and these are always cases in which a great deal of mercury has been taken previous to admission into hospital. For such cases, as exanthemata or lepra syphilitica, broad condylomata, nodes, tophes, syphilitic gout and rheumatism, I know but two remedies, which I employ alternately, according the constitution, age, season of the year, circumstances of the patient, &c., viz., Zittmann's decoction, repeated if necessary at intervals, and the external and internal use of hydriodate of potass (ʒss.—ʒj. in the 24 hours).

“Disease of the bones, or of the periosteum, I have not met with in any case, in which the patient had not taken any mercury.

“With respect to chancres, when in the first stage (the chancre-vesicle), I touch them with caustic; afterwards the treatment is regulated by the degree of inflammation (painfulness) present. Rest (the recumbent

* This manuscript has been published in the preceding lectures.

position) and diet are most important means; the large mound-like indurations are best treated with poultices. One of the best applications for promoting the healing of chancres is *copper*, in the form of Köchlin's solution, diluted according to the sensibility of the patient.

“Recent buboes I endeavour to disperse by abstraction of blood and compression; when these means fail, and they become chronic and indolent, with an inclination to suppurate, the superincumbent skin is covered with *Lap. caustic. chirurg.* (more rarely a blister), which produces either dispersion and reabsorption, or healthy suppuration.

“With respect to the frequency of secondary symptoms, private practice affords us no information. From our hospital experience, they appear to be not more frequent than under the mercurial treatment; but the form is different; that is to say, there is less venereal sore throat than exanthemata.

“Gonorrhœa is a most annoying form of disease—it is cured, and is not, by every plan of treatment. *Copaiba*, in various forms and combinations, after the inflammatory symptoms are removed, prove more serviceable than cubebes. In gleet most advantage is derived from keeping a bougie in the urethra.

“*Melancholia syphilitica* is a frightful disease, one for which there is often no remedy to be found, and under which the patients pine away.

“This, my dear Graves, is the substance of my brief communication; but I shall always feel most happy in answering any questions you may propose. With respect to Copenhagen or Berlin I cannot give you any information, except, that in the *Charité*, Kluge has renounced mercury.”

To render the subject more complete, I shall now give the opinions of my respected friend, Dr. Staberoh, of Berlin, as communicated in a letter.

Extract from a letter from Dr. Staberoh to Dr. Graves, dated October 25th, 1838.

“In the hospital at Berlin, called the *Charité*, syphilitic patients are still treated without mercury; even in the worst cases its employment is less frequent than in Hamburg, under Fricke. According to the published reports, the results of this treatment are very favourable; these reports you will find in detail in *Rust's Magazine*, and also an extract from them in *Kleinert's Repertorium*. But, however favourable these reports may be, one curious circumstance must be borne in mind, viz., that secondary syphilitic affections are not usually admitted into the hospital destined for venereal patients, but sent into the wards of the surgical clinic, so that in the venereal department, the great majority of cases which come under treatment are primary affections. These patients are dismissed as soon as cured, and they scarcely have in the *Charité* any means of ascertaining the frequency of secondary affections. The published reports naturally take a colour from the opinions of the physicians who are opposed to the use of mercury, and those who visit the wards have seldom an opportunity of watching accurately the progress of the cases. I am not aware that any comparative trials have been made between the mercurial and non-mercurial plans. Such may have been instituted formerly, but certainly on an insufficient scale. No persons could have better opportunities of making them than the army surgeons, particularly since the inspection of the genitals, directed by law, brings the syphilitic affections

of soldiers under their observation from the very commencement. In order to obtain as accurate an account as possible of the treatment of syphilis in the army, I addressed myself to the 'General Arzt,' Lohmeyer. However, strange to say, there is no printed account of the matter, and the reports which are in existence are of such a nature as to preclude the possibility of stating any thing definitely. Most of the old army surgeons treat syphilis with mercury, but many of those lately appointed, and who were on the Hospital Staff when Professor Kluge followed the non-mercurial plan of treatment, do not employ mercury. They are also satisfied with their treatment, although it is said that in some instances they have had recourse to mercury in consequence of the failure of the simple method. Even were it in my power to give numerical statements they would prove nothing, since the decision of the question would depend on submitting an equal number of cases to the two modes of treatment.

"As the army surgeons are not bound to any particular mode of treating syphilis, it would be easy for them to institute such comparisons, if they were conducted without prejudice. In England, physicians and surgeons in extensive practice are generally connected with hospitals also; the case, however, is quite different at Berlin. I cannot refer to Dr. Kluge's private practice, for he does very little in town; and I am acquainted with only one eminent physician who treats syphilis without mercury—and after all, his private practice is not large enough to warrant our drawing from it any conclusion. Medical men are divided on the treatment of syphilis; the physicians, however, in largest practice use mercury without looking on it as a specific. I know a physician who tried the non-mercurial plan on a small scale, without its results inducing him to change his plan of treatment. After all, if the want of confidence in the non-mercurial treatment expressed by the physicians here proves nothing, it says but little in favour of the results obtained at the Charité, and which even have been adduced by some as instances of an inefficient method. In conclusion, I shall just sum up the results of these imperfect statements, which I have not attempted to render complete, knowing that they will arrive too late to be of service.

"1. The syphilitic patients in the Charité take no mercury, while in the venereal wards under Dr. Kluge's care.

"2. In the surgical wards where most of the cases of secondary syphilis are found, and to which no primary cases are admitted, the patients are treated with mercury.

"3. Any statement of the proportion of relapses in the cases treated at the Charité after the non-mercurial plan, must be very uncertain, if not impossible to be ascertained.

"4. In town, the mercurial is employed in preference to the non-mercurial treatment.

"You are, without doubt, acquainted with the publications of an army surgeon, Dr. Bonorden, at least through the abridgment in *Kleinert's Repertorium*. He, too, seems not averse to the non-mercurial plan of treatment; and most practitioners speak of it with respect, although they do not follow it. Professor Krukenberg, of Halle, was, at least a few years since, a strenuous defender of this plan, and alluded to the employment of mercury as an instance of prejudice. Many of his pupils have brought these ideas with them into practice, but I have not as yet seen any brilliant results from them. The case may be the same as with all absolute

methods; every practitioner has seen primary sores cured by simple cooling treatment."

Notwithstanding all that has been done to illustrate the pathology and treatment of syphilis, it must be confessed that these subjects are still involved in much difficulty and doubt. A fact so incontestable, and so much to be regretted, makes it the imperative duty of every clinical lecturer to contribute whatever materials his experience may supply in elucidation of questions so important. For this reason, I have been induced to lay before you these observations on detached points of interest connected with the venereal disease. I shall, therefore, beg leave to direct your attention at present to the case of a woman, lately admitted into our wards, labouring under syphilitic iritis. From the history of her symptoms we learned, that, after a primary venereal affection, she got pains principally affecting the joints of the upper extremities, and aggravated at night. About a fortnight after admission, she was attacked with papular eruption and syphilitic iritis. I beg you will recollect the character and order of this woman's symptoms; at first, she would not admit the existence of a venereal taint, stating that her pains were only rheumatic, and that she knew no cause for them, except cold. Now, in her case, the arthritic affection was seated chiefly in the smaller joints; one of her wrists, and the hand and finger-joints, were swollen, tender, and painful, and, at the first glance, had a very strong resemblance to the hand of a person labouring under rheumatic arthritis. It is generally believed that pains of a syphilitic character occupy chiefly the shafts and ends of the long bones; but in this instance we find that syphilitic inflammation may give rise to swelling, tenderness, and pain of the small joints, corresponding in many points with what has been regarded as rheumatic inflammation. We have another case of syphilitic inflammation of the synovial membrane and joints in a young woman in the small wards; but in this case, the larger joints are chiefly affected. It is absurd to suppose when a general disease like syphilis produces pains and inflammatory swellings, that they should be always limited to the long bones or their periosteum, for we find many instances in which the synovial membranes are also engaged. A point worthy of notice in this case is the manner in which the iritis appeared. We were treating the woman for the pains I have just alluded to, when she was attacked with iritis in a very insidious manner. There was scarcely any pain over the orbit, vision was but slightly impaired, there was no remarkable alteration in the state of the pupil; in fact, with the exception of some intolerance of light, and some conjunctival redness, there was scarcely any thing to indicate the occurrence of iritis. But whenever a person suspected to labour under syphilis gets inflammation, particularly if limited to one eye, no matter whether it commences in the internal or external tissues, you should watch it closely, for the chances are, that it will prove syphilitic ophthalmia, endangering vision. And such was the result in this case; for in four or five days the woman exhibited symptoms of decided iritis. It has been very properly remarked, that the name syphilitic iritis is calculated to mislead: for the iris, in many cases, is not the part principally or primarily attacked; and, in some instances, it appears to escape entirely, although the vision is lost. Syphilitic ophthalmia appears a better name for this affection.

There is scarcely any disease which occasionally proves so insidious in its approach as syphilitic iritis, nor is there any form of internal inflamma-

tion more variable in its progress, degree, or intensity. Sometimes it commences internally, attacking, in the first instance, the tissues of the iris and the adjoining parts, proceeding in its course with remarkable intensity, and destroying vision completely, if not arrested at once. In such cases it is accompanied by severe pain, intolerance of light, lachrymation, and increased vascularity of the sclerotic, so that no one can mistake it; but, at other times its approach is so insidious, and its progress so slow and painless, that vision of one eye is lost before the patient is aware of it. The iris is then seldom engaged until a late period of the disease; and the slow inflammation, by which vision is ultimately destroyed, commences in the deep-seated tissues of the eye. In many cases, as in that now before us, it takes a contrary direction, commencing in the external parts of the organ, and being usually ushered in by conjunctivitis, apparently simple and produced by cold. Hence, you perceive, there is a great variety as to the mode of origin, progress, and intensity of syphilitic ophthalmia, and from this you will infer that there must be some diversity in the treatment. The physician is to be chiefly guided by the intensity with which it attacks the eye, and hence the treatment which would be proper for one case would be wholly unfit for another. I am anxious to advert to this matter, as I think we did not treat the case of this woman as we ought to have done, had we considered its nature more attentively. If syphilitic ophthalmia be of an intense character, attacking the iris and lens at once, and threatening to destroy vision in a few days, the activity of our treatment must be proportionate to the imminence of the danger; we must bleed, leech, and give calomel and opium in large doses, say ten grains twice or three times a-day, and must continue its administration until the mouth is affected. In this instance, a disease that would destroy vision in three or four days, is cured in the same space of time, and the activity of our treatment is adapted to meet the intense and rapid character of the ophthalmia. We produce full salivation in as short a time as possible, and apply the extract of belladonna to the eyelids, to keep the pupil from contracting. In syphilitic iritis there are many shades of intensity, and the treatment must correspond with the existing symptoms. Now, if the disease be of a chronic nature, and has advanced slowly, it must be made to recede slowly. You should endeavour to remove it by the gradual ingestion of mercury, aided by the usual local means. In the former case you have only three or four days for action, in the latter, you have as many weeks. Hence, I think, we were too precipitate in our treatment of this woman. Her disease came on slowly, and without violent or urgent symptoms, consequently we ought to have treated her mildly, giving small doses of calomel or blue pill, so as to bring the system gradually under the influence of mercury. But we salivated her at once, and the consequence was, that although she improved at first, the disease became afterwards exacerbated. Had salivation been gradually superinduced, the relief obtained would have been less speedy, but more certain and permanent.

You will, therefore, whether you treat syphilitic iritis or syphilitic pains and periostitis, or sore throat, or eruption, be guided by the character and progress of the symptoms. If the disease has come on gradually—if it be mild or chronic in its nature, and no vital part threatened—you may take time and proceed gradually in mercurializing your patient. But where the vitality of any organ or part is endangered, you must act with promptitude, and throw in mercury, as it is termed, at once. Thus, where sy-

philitic ophthalmia attacks the eye in such a manner as to be likely to destroy vision in a few days, it will be necessary for you to give 5 or 10 grain doses of calomel three times a-day: and the same line of practice will be required when periostitis attacks the orbit, particularly the thin plate of bone between the eye and the brain, or when it fixes itself in the internal table of the cranium, and threatens the dura mater.

I may observe here that a consideration of the nature of those tissues, in which scrofula is most commonly developed, will give you much information with respect to the administration of mercury in venereal affections, and the energy with which this agent is to be employed on various occasions. The vitality of the white tissues is low, and their inflammatory affections of a more subacute and chronic character; and hence not demanding such energetic treatment as where tissues of a higher order are attacked. This you may lay down as a general rule. But there are some exceptions, as in the case of an organ composed of various tissues, as the eye; or when it attacks purely albuminous tissues in a very acute and intense form. In general, the vitality of periosteum and bone is low, and so is that of most of the tissues of the eye; and whenever you have to treat inflammations of such parts, you should not expect to be able to produce any sudden change, for parts of this description require a considerable time for the restoration of their healthy functions. Hence, in the majority of cases, periostitis and syphilitic ophthalmia, with the exceptions already alluded to, are to be removed by a mild alterative treatment, by small doses of mercury and gentle frictions, so that some weeks shall elapse before the mouth is affected. Nor should you attempt to bring on full salivation: touch the gums slightly, and keep them in that state for some time, exhibiting as much mercury as will just keep its influence in the system.

I have already devoted some lectures to the consideration of periostitis, and it is unnecessary to refer to it again; but I may observe, that you will require considerable discrimination to determine in some cases whether the affection you are about to treat is syphilitic or not. You will find many examples of periostitic inflammation depending wholly on a scrofulous taint in the constitution; for scrofulous inflammation is often fugitive, and attacks the periosteum before it fixes in the bones. You may also have periostitis from rheumatism, or from gout; but one of the most common causes of periostitis, in persons not labouring under syphilis, is connected with the secondary effects of mercury on the constitution. Persons who have taken mercury for any disease, no matter whether it be pneumonia, pleuritis, or hepatitis, are afterwards subject to periostitic inflammation, and this liability continues not for months, but even years. Indeed, periostitis is one of the most common effects of mercurialization, particularly if the patient be exposed to cold while taking mercury. In the course of one, two, three, five, or even a greater number of years, exposure to cold, a blow, and other apparently trivial causes, will give rise to periostitis in some individuals. I am at present attending, with Mr. Crampton and Mr. Cusack, a gentleman labouring under periostitis of the tibia and cranium; and on inquiring into the history of his case, we found that it is nearly nine years since he was salivated. I have also witnessed a very severe case of periostitis affecting the shafts of both tibiæ in a lady who took mercury about five or six years ago for supposed hepatitis. One of the most remarkable cases of periostitis after mercury which have ever come under my notice, I have recently witnessed in the person of a gentleman who was for some years surgeon to the British

Envoy to Mexico. In that country, raised nearly 12,000 feet above the level of the sea, and exposed at once to sharp winds, and a burning tropical sun, fevers of an intense character often prevail. Some time after his arrival, this gentleman was attacked with fever, for which he was fully salivated. He caught cold during his convalescence, and was attacked with periostitis, for which he took mercury again with relief. Next year he caught cold again, was again attacked with periostitis, and cured by mercury, as before. The year after, the same series of accidents was repeated. I forget how many successive attacks he had, each originating from cold, and each, like the former, removed by mercury. At length the mercury seemed to lose its power over the disease, and was no longer capable of relieving it. He returned to this country with the view of improving his health by change of air, and presented a most extraordinary spectacle. The periostitis had chiefly fixed itself in the cranium, which it had altered so as to have no longer any resemblance to the human skull. When I saw him, a considerable portion of the pericranium and bones of the head had been affected with periostitis for three years, without any intermission. His skull would have defied the scrutiny of Gall and Spurzheim, for its shape was the most extraordinary I ever witnessed. He was in the habit of taking large quantities of opium to procure some alleviation of his sufferings, and was restless to such a degree that he was frequently for fifteen or twenty nights together without an hour's sleep. Altogether he was in the most pitiable state; and seldom got any relief until the attacks were wearing off, when he enjoyed some brief intervals of repose. Some fifteen or twenty years ago, when the subject of the treatment of syphilis was warmly canvassed, it was asserted by the mercurialists that mercury never gave rise to nodes or periostitis, unless where there existed a syphilitic taint in the constitution. Now I can attest from manifold experience that this is not true. The gentleman whose case I have related had never been affected with syphilis. But there is no necessity of insisting on this point. Every practical physician knows that mercury may and does give rise to a train of symptoms bearing some analogy to those of secondary syphilis. Thus, after the use of mercury, a patient may be attacked with feverishness, pains in the bones, nodes, sore throat, and an eruption, to which the name mercurial eczema has been given. Here you perceive we have a remarkable analogy between the diseases produced by mercury and syphilis. Mercury, when exhibited improperly, may produce all the affections I have enumerated, and in addition to these, caries of the bones, particularly of the nose and palate. It is well known that some active remedies have a tendency to produce diseases somewhat analogous to those they are known to cure. This is frequently observed with respect to mercury, belladonna, strychnia, quinine, hydriodate of potass, and some other powerful medicinal agents. In fact, it is hard to expect that a remedy will cure a disease affecting a certain tissue or tissues, unless it has some specific effect on such tissues; and in this point of view we have an example of the "*similia similibus curantur*" of the homœopaths.

Mercurial otitis of the head is a very common form of disease: its more usual seats are the frontal and parietal bone; but it is sometimes observed also on the other bones of the skull. In general, the inflammation affects the external table of the bone, and is then easily recognised from the tenderness and swelling of the corresponding portions of the

scalp. Sometimes, however, the inflammation commences in the internal table of the skull, and where this occurs, the disease wears a much more alarming aspect, for it is then apt to implicate the dura mater and subjacent portion of the brain. In such cases, the true nature of the complaint is not unfrequently overlooked, or mistaken for some other disease causing headache. This is a very serious and fatal error: for unless the physician is aware of the real nature of the malady he has here to contend with, he will seldom adopt proper measures, and the patient will fall a sacrifice. Such cases are indeed obscure, but we may in general make out their true nature by a careful attention to their history. Thus, if severe nocturnal headaches arise in a person who has otitis in other bones, and if the pain darts from some fixed point, then, although all external tenderness be wanting, we may safely conclude that the cerebral affection originates in otitis of the cranium. In investigating such cases, I have derived much advantage from percussion. I place the back of one finger on the patient's head, and tap it smartly with the fingers of the other hand. If internal otitis be present, every tap excites a peculiar internal pain in the part affected, which pain is the greater the nearer the part percussed is to the seat of the disease.

You have seen in our wards several men complaining of very agonizing headache without any external tenderness; and you have witnessed in these cases the failure of the common means for relieving pain in the head, and the success which followed the adoption of a treatment founded on a true diagnosis of the disease. This headache, yielding to no other species in severity, deprives the patient altogether of rest—occasionally occupying chiefly one side of the head—and most severe at certain hours, is not unfrequently mistaken for nervous hemicrania, and treated with iron! When otitis occupies the external table of the cranium, it seldom strikes inwards, so as to engage the internal, and disorder the brain. That it does so sometimes appears from several cases; among the rest, that of Mary Wilkinson, admitted into our ward on the 21st of October. In her the scalp was excessively tender, and felt in one part thickened and boggy. There was dilatation and increased pulsation of the external arteries supplying that side of the scalp. On the 27th, the headache increased, and she fell into a state of profound coma, with dilated pupils insensible to the light; the extremities were cold, and pulse scarcely perceptible. Luckily, while in this state, the mercury previously administered began next day to affect her mouth, and, aided by large doses of calomel, and powerful blistering, soon restored her. Such a recovery very seldom takes place. Otitis is also very dangerous when it occupies the orbital and contiguous portions of the frontal bone. It is very obscure when seated at the base of the skull.

Mercurial otitis is a very common occurrence in the cervical vertebræ, but comparatively rare in the dorsal. In the lumbar it becomes again more frequent, but not so much so as in the cervical. I have, however, seen some cases where the dorsal vertebræ appeared to be almost all engaged in the disease, and where, consequently, the greatest agony was experienced on their being touched or moved. Pathologists have not yet paid sufficient attention to the species of neuralgia which is occasioned by inflammation of the nerves or their sheaths, spreading from the surface of the bones through which they pass.

Nothing is more certain than the fact, that in many, the abuse or even

the use of mercury renders the constitution disposed to ostitis on future occasions, when cold and damp act on the body, especially if fatigued by exercise, or exhausted by dissipation. This ostitis is consequently called mercurial: but this name must not mislead us; for, strange as it may appear, the disease often yields readily to mercury—a mode of treatment generally effectual for the moment, but attended with the obvious disadvantage, that it leaves the patient more liable than ever to future and severer relapses, which will at last refuse to yield to mercury.

LECTURE XXX.

Difference of opinion respecting the use of mercury in the venereal disease—The question discussed, Is it possible to cure secondary symptoms without mercury?—Chancres—Abuse of Mercury—General treatment of Syphilis—Other poisons capable of producing an eruption similar to syphilitic—Concluding remarks: on chancre; mode of applying caustic in venereal sores, &c.

IN one of my first lectures I stated that, notwithstanding the host of facts bearing on the question of the non-mercurial treatment of primary and secondary syphilis, there is still much difference of opinion amongst men of the highest rank in the profession. One good has resulted from the statements put forward by the army medical practitioners, namely, that mercury is no longer abused in the empirical and barbarous manner followed by our predecessors. Few, if any, at the present day, will be found to enter upon long and exhausting courses of mercury, for slight chancres or sores, in persons of delicate or scrofulous constitutions; and I believe the opinion is growing stronger and more general every day, that when primary symptoms occur, although mercury be omitted, or merely used as an alterative, the disease may be successfully treated. Let me, however, be understood in this matter. I make this statement in reference to those cases only in which the disease is treated from the commencement, and not allowed to go on unchecked for days or even weeks. I have already brought forward evidence to prove, that when genuine chancre is treated properly from the beginning, it may be cured without mercury. There must have been several cases of true chancre among Dr. Roe's patients, and yet of the entire number there was only a single case of secondary venereal, and that in a patient broken down in health and labouring under bubo for a considerable time before admission.

But you will ask—Is it possible to cure secondary symptoms without mercury? If you are to believe some authors, you cannot. According to their views of the case, a patient labouring under secondary symptoms, if treated without mercury, may get well for a while, but the disease will return again and again until it breaks up his health. All I can say on the point in question is this, that I have seen several cases which were pronounced secondary syphilis get completely well without mercury. About ten or twelve years ago there was a case of secondary syphilis in this hospital, which I undertook to treat without mercury. It was a case of well-marked papular disease, which had made its appearance about six weeks after the primary sore; and, to remove all doubts on the subject, I showed the man to the late Mr. Hewson—a gentleman justly esteemed

for his accurate and extensive knowledge of the venereal disease. He pronounced it at once a case of true syphilis, and added that it could not be cured without mercury. As there was no urgent reason for the exhibition of mercury, I thought the matter worthy of experiment, and treated the man with purgatives and antimonials, followed by vegetable alteratives and nitric acid. I did so and succeeded in effecting a perfect cure. I kept the man afterwards under surveillance, to see if a relapse would occur. He never had a return of the disease, and Mr. Hewson was quite struck with the result, as he had no conception that the patient could be cured without mercury. Indeed this was the general opinion, the other surgeons of the Meath Hospital having arrived at the same conclusion. The case made a very strong impression on my mind, and, connected with others having a similar result, has convinced me, that there is some truth in the statements of those authors who say that syphilis can be cured without the mineral. On the other hand, I must confess that there are some cases which answer the description given by Mr. Colles, and which cannot be cured without bringing the patient under the influence of mercury. Thus a very fine healthy young man, whom I attended some years ago, put himself under my care for chancre, after having neglected the disease for three weeks or more. Now when a case of this kind, which has been allowed to run on unchecked, comes before you, you should not be too sanguine, or think that your patient will be perfectly safe under the non-mercurial treatment; for where chancres are neglected, secondary symptoms are very apt to occur. I treated him with purgatives antimonials, rest, and low diet. He had no buboes, and got quickly well; but about five or six weeks afterwards he was seized with symptoms of fever, accompanied by acute pains of the joints, and two days afterwards got venereal eruption and sore throat. He had in fact all the symptoms of venereal exanthematous fever, and his skin became covered with blotches—the character of which could not be mistaken. They were neither papulæ, pustules, nor tubercles, but true venereal blotches, terminating in scaly scurf. I gave him tartar emetic, followed by vegetable alteratives, and he got better. He continued well for about a fortnight or three weeks, and then another eruption broke out, attended with pains and fever as before. The non-mercurial plan was tried again, and was again followed by the same apparent success; the eruption faded, and his throat got better. He then took lodgings in the country, for the benefit of change of air, but while there was attacked a third time more severely than before. He had fever, eruption, and sore throat, and in addition to these, periostitis and nodes; he was also becoming weak and emaciated. Under these circumstances I prescribed calomel and mercurial ointment, until his mouth became sore. His symptoms all gradually disappeared, and he has had no return of the disease. In this gentleman the greatest attention was paid to diet, confinement to the house, and every circumstance which could favour the success of the non-mercurial plan. The patient's constitution was excellent, and free from any scrofulous taint, and yet the syphilitic poison seemed to be rapidly undermining his strength, and the disease acquired fresh force from time instead of growing less violent; in fact, its progress was so alarming that mercury could be no longer with safety withheld. A very moderate course of mercury, managed so as to keep his mouth tender for six weeks, thoroughly and permanently cured him.

Now to what conclusion does all this lead? simply to this, and I believe it is the conclusion to which all rational men have come, that although there are many cases of syphilis, which can be cured without mercury, there are others in which its employment is indispensable.

In the two cases, which I have just related, the results were very dissimilar. In the first, a case which had been pronounced distinctly venereal by some of our most distinguished surgeons, and not to be cured without mercury, the non-mercurial treatment proved quite efficacious; the man was readily cured, and had no return of his disease. The other case, which you would have regarded as most favourably circumstanced for getting well without mercury, had quite an opposite result; the disease returned again and again, and did not yield completely until the system had been brought under the mercurial influence. Hence you perceive the necessity of avoiding extreme opinions, or coming to any general conclusions as to the treatment of syphilis.

The inference which my experience has led me to draw on the subject is, that many cases of syphilis—indeed a great majority of cases of primary sores—may be cured without mercury, if treated at once and properly.

After chancres have existed for some time, the chances of secondary symptoms are greatly increased, and mercury in such cases will be often required; but it should be used with caution, and moderately. Were I to speak for myself, I would say, that, as a general rule, I prefer the non-mercurial plan in the treatment of primary chancres, particularly if seen at the commencement, and where they appear in persons of a delicate and scrofulous habit. I think at least you will not be wrong in giving many cases of chancre a trial, and see whether you cure them without mercury. If secondary symptoms appear, you have still a resource in mercury; the patient's constitution is unimpaired, and the disease is still amenable to treatment. If you treat your patient properly, he has many chances in his favour; and if he gets secondary symptoms, mercury will still act favourably on his system. The rational practitioner is neither a mercurialist nor a non-mercurialist; he acts according to the state and peculiar exigencies of each case, and selects his plan of treatment according to the form, condition, and duration of the disease, as well as the constitution of the patient. If the chancres be of a mild, and what may be termed indolent character, the application of nitrate of silver at an early period, combined with rest, low diet, aperients, and, if necessary, vegetable alteratives, will complete the cure. If attended with inflammatory symptoms, a vigorous adoption of the antiphlogistic plan will be indispensable, and the use of caustic applications must be deferred until the symptoms of inflammatory action are abated.

Whenever you get a chancre in its commencing period to treat, try the antiphlogistic and non-mercurial plans, and, if your patient improves, persevere; but, if there be no amendment, you may have recourse to the cautious exhibition of mercury. I say cautious, for in some constitutions you cannot be too careful in the administration of this remedy. The consequences which have followed from the injudicious use of mercury have been often and strongly depicted, but not in colours too strong for truth; the lamentable results which have attended its abuse rank among the greatest opprobria of medicine.

In Johnson's General History of Pyrates—a most curious book, pub-

lished in 1725, and from which Sir Walter Scott has borrowed some of his best traits of nautical character—we find a passage proving the abuses of mercury were great at that period, and that even then facts were not wanting to show that this mineral was not indispensably necessary for the cure of syphilis. In the following passage I have preserved the spelling of the original. Talking of the Brazils our author remarks,—“The Generality of both sexes are touched with venereal taints, without so much as one surgeon among them or any one skilled in Physick to cure or palliate the progressive mischief. The only person pretending that way is an Irish *Father* or Priest, whose knowledge is all comprehended in the virtues of two or three simples, and those, with the salubrity of the air and temperance, is what they depend upon for subduing the worst of malignity; and it may not be unworthy to notice, that though few are exempted from the misfortune of a running, eruption, or the like, yet I could hear of none precipitated into those deplorable circumstances we see common in unskilful mercurial processes.”

Who can read, without shuddering, the long detail of misery inflicted on unfortunate venereal patients in the time of our predecessors? the exhausting salivations—the inveterate nodes—the frightful caries and sloughing—the emaciation—the hectic—the rapid or lingering, but ever fatal phthisis. Hundreds of victims, whose slight primary symptoms might have been successfully treated without a single grain of mercury, have had their constitutions gradually broken down, until at length scrofula became fully developed, and was quickly followed by its attendant, tubercular consumption.

Thanks to the exertions and labours of the army surgeons, we no longer behold the same indiscriminate exhibition of mercury, or the same wicked tampering with human life. The evils which have flowed from the abuse of mercury are greatly diminished, but still not sufficiently exploded from British practice. Notwithstanding all that has been said and done, a good deal still remains to be accomplished, before the treatment of syphilis can be said to be placed on a solid and rational basis. I am not among those who contend that you should never use mercury. On the contrary, I think there are cases in which you can employ it to great advantage—in fact, where its employment is indispensable. But I would have you always to act with caution. In treating cases of primary or secondary symptoms, which have existed for some time, and where the patient has been taking mercury, it is hard to unravel the perplexities which surround the case, and ascertain whether the mercury has been properly administered or not.

Where a patient labouring under syphilis has been salivated without being improved, one of two things must be inferred—either that the mineral has had no effect on the disease, or that it has had an injurious effect on the constitution. The great point to arrive at in the treatment of syphilis is to make the mercury act on the disease, and not on the constitution. This I have often endeavoured to impress on my class. I will venture to say, that I would engage to give a patient labouring under primary symptoms any quantity of mercury, without producing a favourable effect on the disease, or doing him any good: I would engage to salivate a man affected with sore throat, and yet leave him as bad, or even worse than ever. I have witnessed this occurrence over and over again, and have laid it down to myself as a proposition,—that

venereal may be treated with mercury, to the fullest extent, without being cured.

Syphilis and mercury are not like two opposite forces—not like an acid and an alkali—so that by putting them together you are sure to neutralize them. No. It is a melancholy fact, but true, that the constitution may be impregnated with both at the same time. Some time ago, a gentleman's coachman was admitted into Sir Patrick Dun's Hospital. He got primary symptoms, for which he took mercury; but being of active habits, and unwilling to quit his employment, he remained with his master, whom he was frequently obliged to attend at night. In this way, he was often exposed to wet and cold, and used to take whiskey, with a view of protecting himself. The consequence was, that eight weeks afterwards he came into Sir P. Dun's Hospital with his mouth sore and fully salivated, but labouring under bad sore throat and extensive eruption. In adverting to his case before the class, I said, "This appears to be a very bad specimen of the mercurial treatment, but you are not to conclude from what you see that mercury will not cure the disease. We will keep him in hospital; give him mild aperients, light nutritious diet, and sarsaparilla; and when we have removed the bad effects of mercury on his constitution, we will proceed to administer it again, but in such a way as to act on the disease, and not on his general health." About three or four weeks afterwards, the man was so much improved, that we were able to put him again under a mild course of mercury, and succeeded in eradicating every symptom of disease. Although a patient has got worse under the use of mercury, you should not conclude that it is incapable of curing the disease: it may have been administered improperly; and under such circumstances, I tell you again, no good can be expected from it. In such cases, the morbid action of mercury must be allowed to pass off completely before we have recourse to the mineral again; and if this be done with circumspection and care, the best and most favourable results may be expected. I agree perfectly with the judicious observations put forward on this subject by Dr. Lendrick, and I would strongly recommend every gentleman present to read his excellent paper, published in the 32d number of the Dublin Medical Journal. As in many acute diseases, particularly those of the class Exanthemata, so in syphilis you may have great variety in the symptoms. Some of them will be faintly shadowed out, or altogether absent; while others may manifest a remarkable prominence. In measles you may have the eruption without the catarrhal symptoms; in scarlatina, the sore throat without the eruption, or, what is still more curious, the desquamation and dropsy without any apparent preceding symptoms. So also in syphilis, in which you may have chancre without bubo, sore throat without eruption, or periostitis without any well-marked appearance of the symptoms which usually precede it in the order of time. You are not to expect that the disease will always appear in the form laid down by the great John Hunter, or that the symptoms will pursue the precise order marked out by him. As in acute disease, where not merely a single symptom, but even whole groups of symptoms, may be absent, so in many forms of chronic disease, some of the characteristic marks will be occasionally wanting. There is much variety in the forms, intensity, complexion, and duration of chronic diseases, and particularly with regard to those which arise from animal poisons. Scarlatina, typhus, measles, and small-pox, produce very different impressions on different constitu-

tions, operating on some mildly and favourably, on others with extreme intensity. The same variety is seen in the constitutional symptoms produced by syphilis: in some they are slight and chronic, in others acute and violent. In fact, syphilis is so variable a disease, that every reflecting and experienced observer will be led to the conclusion, that it must require a mixed and varied treatment, and that its treatment cannot be based on any general code of laws as laid down by mercurialists or non-mercurialists. By acting in this way, you will avoid both extremes, and pursue a wiser and a better course.

There is another point to which I shall direct your attention before I conclude. It is of great importance in the treatment of venereal affections to bear in mind that there are other poisons capable of producing an eruption similar to the syphilitic.

In a lecture published last year, I endeavoured to show that in some deranged stages of the constitution, the human body is capable of generating an animal poison within itself, one of the characters of which is a more or less general cutaneous eruption. I have also shown that deranged local action of a part of the body may be followed by inflammation and the formation of matter capable of infecting the whole constitution. I have more than once, while going round the wards, been struck with the appearance of a sore of this description, and on stripping the patient found some of Mr. Colles's pustules on the skin.

Some time ago a young man came into this hospital with gonorrhœa and phymosis; he was unable to draw back the prepuce, and the consequence was, that the extensively ulcerated glans lay constantly bathed in gonorrhœal matter. Shortly after admission his skin became covered with an extensive papular or papulo-pustular eruption, which was looked upon by many as true venereal. He also became emaciated, and sore throat, very closely resembling syphilitic sore throat, made its appearance. The prepuce having been divided, he was treated with small doses of arsenic, mild nutritious diet, rest, and lotions of sulphate of zinc, and recovered completely. A case still more curious occurred some time since. A gentleman, one of the pupils, cut his finger while dissecting. The wound was followed some time after by a suppurating tumour resembling a whitlow, which lasted for a long time, and finally generated a poison, which produced sore throat and a cutaneous eruption, the latter of such an obstinate character that, after trying many remedies, he was obliged to have recourse to mercury. These facts, coupled with others of a similar tendency, show that venereal symptoms present a considerable variety as to their number, order, form, duration, and curability by mercury, consequently it often becomes a matter of difficulty to distinguish the true nature of the disease, and separate it from other influences by which it may be modified. Hence, too, the caution with which we should proceed to subject a patient to a course of mercury.

One word now with respect to the treatment of chancres. I think it is a matter of the utmost importance to the medical man, as well as to the patient, that chancres should be seen and treated in the very commencement, that is from two to four or six days after their appearance. Like the effects of many animal poisons, they are at first merely a local disease, and seldom affect the constitution, until they have been for some time in existence. In the beginning they produce local irritation, but if neglected may give rise to constitutional affection. Hence the importance of being

treated from the commencement, and to this circumstance I attribute the chief part of the success that attended Dr. Roe's practice, and the rare occurrence of secondary symptoms among the men intrusted to his care. I feel convinced that chancre, if seen shortly after its appearance, may, in eight cases out of ten, be treated safely and successfully without a single grain of mercury.

There are very few animal poisons which may not be arrested and destroyed at the point of inoculation, if treated properly. I feel fully convinced, that if you were to take a vaccine vesicle, and destroy it with nitrate of silver shortly after it has made its appearance, the virus would not affect the constitution, and that the child would not be protected from the danger of infection from small-pox. Burn the whole vesicle, it will heal like any other part, and the child will not be safe from infection. You may smother the disease while it is merely local, and before the constitution is affected. Such at least appears to be the case with many animal poisons, and in particular with regard to the venereal.

As it is extremely desirable to arrest the local progress of chancre, many methods of accomplishing this object have been devised, among which none appear more certain or efficacious than the application of escharotics. If the disease be detected in its very early stage before the *matrix* pimple has burst, or immediately after that event, the destruction of the local disease proves, in the great majority of cases, a perfect protection against constitutional sequelæ. When the chancreous ulceration has once commenced, and has been allowed to remain unchecked for one, or two, or three days, it is still more desirable to extirpate the local malady, and the result will generally be successful. The chance of protecting the constitution diminishes in proportion as the operation is deferred, but we want data to enable us to calculate at what period it ceases to be at all protective; that period probably varies in different cases.

Be this as it may, it is an essential point in practice to get rid of the primary sore as speedily as possible; how it is best to effect this object is a subject which requires a few remarks. The usual mode of treating small sores, whose diameter does not exceed that of a common stick of lunar caustic, is to apply the latter in substance, so as to produce a small eschar of the required size; this method seldom fails, but is attended with the disadvantage that it often gives rise to sympathetic bubo, as the caustic is not unfrequently used with too little caution. I have accordingly given up the use of the solid caustic, except where the pimple or ulcer is very small, requiring merely a slight touch of the pointed pencil. Many practitioners lean too heavy on the pencil during its application, and keep it too long applied, and consequently the resulting inflammation and eschar are far more considerable than are necessary, and also more likely to produce bubo.

When the sore is so large that the diameter of its surface equals or nearly equals a line, it is already too extensive for the application of the solid caustic without incurring the risk of bubo. Under these circumstances, or, *à fortiori*, when the sore is still larger, I use the following method:—Provide yourself with a common-sized, nicely-pointed camel's-hair pencil, and a solution of lunar caustic, twenty grains to the ounce. Pour a drop or two of this on the cover of a book, or on the table, and dipping the brush in a basin of water, cleanse the surface of the sore with it. Dry the sore then completely with a piece of lint, and, rinsing the brush, squeeze

out the chief part of the water, and, pointing the brush, you may then dip the extreme point of it in the drop of caustic solution, so as to take up the smallest possible quantity of fluid, which you may then apply to the centre of the sore. When it has done acting, we may readily judge, by the appearance of the surface, whether enough has been applied, for the whole surface must be whitened; but it is not, as is usually imagined, proper to burn out the edges. It may be necessary to dip the end of the brush in the solution, and apply it to the sore a second or even a third time, pausing to observe the effects of such application. By proceeding thus, we destroy the diseased surface, and do not produce any inflammation likely to give rise to bubo.

Some practitioners are much bolder, and use the solid caustic much more freely, desiring the patient to keep the part poulticed; but their mode of proceeding is very objectionable. When the solution has been properly and cautiously applied, no dressing to the part is required, except a bit of lint or charpie. In some cases, it is better to use as an escharotic the nitrate of copper, which may be employed in the form of concentrated solution, obtained by allowing the solid salt to deliquesce. Here the camel's-hair pencil and the same precautions are required.

After cauterizing the surface of a chancre, I have frequently applied a little of the fur or felt of hat to the ulcer, and directed the patient not to remove it, if it adhered to the surface, which it will sometimes do, forming a scab that does not drop off until the sore is quite healed. Although we may not have recourse to applications decidedly escharotic (which is the surer way), yet I think the early and diligent use of stimulating lotions of lead, sulphate of copper, and sulphate of zinc washes, serve to a certain degree to protect the constitution. The fact is, that chancres so treated in the very beginning, and thus altered, and caused to assume a healing process, cease to be so likely to infect the system either of the individual himself, or of females with whom he may have connection. A similar remark applies to gonorrhœa; an astringent injection, used several times immediately before connection, will for the time, so alter the nature of the urethral secretion, that it will cease to be infectious, although it may become so in half an hour or an hour afterwards.

LECTURE XXXI.

Treatment of syphilis continued—Use and abuse of mercury, with cases—On the causes which impede its beneficial action—Corrosive sublimate to be preferred in some cases—Observations of authors, &c.

I HAVE stated, in a former lecture, that you may give mercury for syphilis in such an injudicious way, that all the efforts of the medicine are expended, not on the disease, which it is meant to cure, but on the constitution of the patient, which it injures. This proposition, whose truth has been long recognised, cannot be impressed too strongly or too clearly on your minds; for on accurately comprehending its scope and meaning will depend your success in the diagnosis and treatment of difficult cases. Nor is this peculiar to mercury when used in the venereal disease, for the same mineral may be so mismanaged, in other diseases also, as to produce

no beneficial effect, although it be the very best remedy that can be administered in them, when judiciously prescribed. Thus, give calomel in considerable and repeated doses to a dysenteric patient, and allow him at the same time to use cold and acid drinks, and a mixed diet with vegetables, and you will render the disease worse instead of better, especially if the skin be freely exposed to alternations of temperature and cold air.

Again, when a violent pneumonia has hepatized a considerable portion of the lung, no remedy exceeds mercury in value; but it may, nevertheless, and I regret to say not unfrequently is, given under such circumstances, without the necessary precautions, and consequently rather injures than serves the sick man. The same observation applies to mercury when ordered in pleurisy or peritonitis, and is remarkably exemplified in arthritis and sciatica: in the latter disease, unless proper precautions as to temperature and rest are taken when giving calomel, you will be sure to salivate without obtaining any relief of suffering.

If opium be administered without tact, at wrong times, and in wrong doses, it often fails to procure sleep, and causes watchfulness, and so it is with all our remedies; they only produce a curative effect when properly exhibited. Certain states of the system, too, prevent the kind constitutional action of mercury. Suppuration of the liver renders it almost impossible to affect the mouth, as has been remarked by Annesley and Marshall. When the constitution is eminently scrofulous, mercury rapidly gives rise to a new group of bad symptoms, and fails to cure the venereal cachexy for which it was given.

The presence of the scorbutic diathesis—and it often may be associated with syphilis—renders the use of mercury unsafe and even injurious; even in healthy constitutions the favourable influence of mercury on the venereal symptoms may be interrupted or destroyed by strong mental emotions, excessive fatigue, bodily labour (hence the difficulty of getting mercury to act well on day-labourers and artizans, while employed), irregularity of diet, intemperance, &c. &c.

In all cases where any of these causes operate on the system, it is extremely difficult to prevent the mercury from going astray (as it is termed), that is, injuring the constitution without serving the disease.

The following example proves the truth of this observation, and shows that a very great difference of opinion may exist even amongst the most determined mercurialists, respecting the propriety of giving and withholding mercury in certain cases.

Some years ago, I was called to see a young gentleman who had recently contracted a chancre. His constitution was perfectly good, and I proposed to cure the sore without mercury. To this he would not consent, and consequently I thought it right to call in the aid of the family medical attendant. He advised the use of mercury, and we prescribed five grains of blue pill, three times a-day, after a few days' preparation by means of confinement, rest, and low diet. By a mistake on the part of the patient's brother, he got five grains of calomel, three times a-day, instead of five grains of blue pill. A rapid improvement in the chancre took place, and on the fourth day we found the sore nearly healed, but the mouth much more affected than we had anticipated. He had then taken one drachm of calomel. That evening some young friends came to his room, and persuaded him to join them in a supper of oysters, punch, &c. In the night a most violent attack of mercurial cholera, with

colic, vomiting, and purging, came on, and reduced him to a state of great debility. The mistake, as to the calomel, was now discovered; and, in consultation on the following day, his mouth being very sore, and the chancre spreading, it was agreed to use soothing measures, local and constitutional. At the end of a week, we found the sore on the prepuce perfectly stationary: it seemed neither inclined to spread nor to heal, while his mouth was still a little sore, and his breath fetid. My colleague now advised the resumption of mercury, which was accordingly used, both internally and externally. In about ten days, during which time he scrupulously followed our directions, his system was again brought under the active influence of mercury, but still the sore was stationary. My colleague still wished to go on with the mercury; I dissented, and another consultant was called in. This gentleman, although a mercurialist, thought mercury here inapplicable, and we therefore left it off. I now touched the sore with nitrate of copper, and, applying to its surface some felt of hat, a scab was formed, which adhered until the sore completely healed. Several years have elapsed, and the patient continues well. Here, then, was a case where two mercurialists, of great experience, differed as to the expediency of giving mercury. As authorities, they might be deemed equal, and yet, at a particular crisis, their opinions were diametrically opposed—an occurrence alone explicable on the grounds that the principles which guide mercurialists are not so precise and certain as they profess them to be. Indeed, on many occasions, I have found the greatest discrepancy of opinion between mercurialists as to the length of time during which mercury ought to be continued after it has caused a primary sore to heal, in the same case one practitioner advising a mercurial course twice as long as that recommended by another. Occurrences such as these demonstrate that much still remains to be done in this department of medical science, and such errors should teach us all—for we all make them—the necessity of acknowledging, that, as yet, our opinions upon this subject are based upon no very firm grounds; and that consequently we should be tolerant of the opinions of others when they differ from us either in theory or practice. Toleration, such as I have recommended, is but too rare, and many seem incapable of arguing or lecturing calmly and philosophically on the subject of the treatment of venereal. Now in the case above related, it appears to me that the mercurialists forgot some of the rules laid down by the advocates of mercury. Let us reconsider it for a moment: a venereal sore is rapidly healing under the influence of fifteen grains of calomel daily; had a proper diet been observed, another day would have completely healed the sore, but unluckily the patient commits a gross indiscretion of diet, and, suddenly after that, the sore spreads beyond its original dimensions, and continues obstinately to refuse to heal again in spite of the patient's ill-advised perseverance in the further use of mercury. Under these or similar circumstances, the rule laid down by Mathias becomes applicable, viz., that when a sore becomes stationary (having been previously healing) or gets worse under the use of mercury, it is injurious to exhibit it any longer; it must be laid aside, until those causes which deranged the constitution, and impeded the proper action of the mercury, have ceased to exist. But to prove still further that the most strenuous supporters of the mercurial system are liable to errors—to grievous errors—I shall give you the following case, on the accuracy of whose particulars you may implicitly

rely. The practitioner who conducted the treatment is considered to be a most skilful mercurialist, and most experienced in the management of syphilis. When the rules that should guide us in the exhibition of mercury prove so fallacious in such hands, how much more likely are they to fail with the young and inexperienced!

Mr. —, a strong, healthy young man, got a small pimple and sore on penis after connection, 25th Nov. 1836. He consulted a medical friend on the very day the pimple came out: he was assured that it was not venereal, and was desired to return on the 5th day; then also the same opinion was repeated. Suspicious of its accuracy he went to another practitioner, who put him on alterative doses of mercury; Plummer's pill was continued for ten days without any soreness of mouth; it was then discontinued, as primary symptoms had healed. He remained quite well until February, 1837, in the middle of which month three or four large tubercular pimples slowly formed and suppurated on the scalp, neck, and face. His general health, however, appeared quite good. On the 2d of March, 1837, throat felt a little sore, and he began sarsaparilla decoction; otherwise his health continued good. On the 16th March, however, a copper-coloured eruption, consisting of blotches variously sized and very numerous, came out on body and limbs. The eruption was unattended by fever.

He now consulted a third practitioner, who ordered him to rub in ℥ss. of strong mercurial ointment, twice daily. His mouth became very sore on 5th day, when rubbings were discontinued for a few days, but were then resumed, and continued for seven weeks longer, during which time he confined himself to his room, and was very careful as to his diet. On the 11th May, the frictions were discontinued, as Mr. — pronounced him cured, and safe from all danger of relapse. Observe that his mouth had been decidedly affected this time; profuse salivation had not been maintained, but his gums were tender, and a slight salivation existed all along, after the violent salivation which arose on the 5th day had subsided.

The patient took great care of his health during the summer and autumn. He continued quite well until the 9th of September, when he got an ulcer in his throat. He again applied to Mr. —, who at first insisted (in self-defence, no doubt) that the sore throat must have been occasioned by new infection. This the patient truly denied; on examining the ulcer Mr. — asserted that it arose from the original syphilitic infection, and he immediately put him on the daily use of a quarter of a grain of corrosive sublimate. He touched the ulcer several times with nitrate of silver in solution; the throat got well on the seventh day, but, by way of securing the constitution, the quarter-grain daily dose of corrosive sublimate was continued.

On the 1st of January, 1838, another ulcer formed in the throat! Mr. — now increased the corrosive sublimate to half a grain daily, touched the ulcer several days in succession, twice daily, with butter of antimony; after some days only once daily.

On the 10th of January ulcer was healed. The use of the concentrated syrup of sarsaparilla was added, and the half-grain of corrosive sublimate was continued until Friday, 2d of March.

I need scarcely record, that he was then in an extremely debilitated state, for the length of time he had been taking corrosive sublimate had been enough to impair the power of his stomach, so that for two months

he had lost all appetite, and he was likewise slightly jaundiced. By the way, when mercury has been used by a patient to excess, jaundice is by no means an uncommon consequence—a fact we had often occasion to verify in the Lock Hospital 20 years ago.

The above case is instructive likewise, proving, as it does, that the same venereal poison in the same constitution may give rise to cutaneous affections of different species, for it here at first produced tubercular pustules, and at a subsequent period copper-coloured blotches.

When this patient was placed under my care, I looked on him as a victim to a plan of treatment injudiciously persevered in for months after mercury was no longer necessary. Accordingly I discontinued that mineral altogether, and the patient completely recovered. It is difficult to imagine what train of reasoning could have misled the practitioner in this case. But to return to the causes which impede or prevent the beneficial action of mercury.

Every excess—every thing, in fact, which injures the health of body or mind—will have a tendency to counteract the beneficial effects of mercury on the disease. I think much mischief has been done by the well-known assertion of John Hunter, that he could not see what harm a good dinner and a bottle of wine would do to a man taking mercury for chancre. I would not advise you to undertake to administer mercury in venereal cases unless the patients are willing to submit to your directions;—be careful in matters of diet, avoid intemperance, and confine themselves to bed, or at least to their rooms.

It is the subjection to strict regimen, quietude, and confinement which seems to act so favourably in the case of soldiers. They are confined to hospital, obliged to keep their beds or rooms, deprived of all dietetic stimulants, and removed from all causes of mental emotion, and hence it is that their chancres heal so rapidly. Mercury will seldom do much good unless taken under proper regulations. It will affect the constitution variously, but in general injuriously. I have already mentioned one case in which it acted injuriously, in consequence of indulgence; allow me to give another case of the kind arising from a different class of causes. A young gentleman at college, who was under my care for chancre, was taking mercury for some time during the summer season. He had taken some blue pill with benefit, and thinking if one or two pills were good, a large number would be better, he took them much oftener than he was ordered.

An election took place at the college; he went to see it, became actively engaged in it, and continued so until a late hour in the afternoon. The weather happened to be extremely warm, so as to oblige him to change linen three times during the day, but the excitement produced by the election was such, that he forgot the condition he was in, exposed himself to a vast deal of fatigue, and remained fasting the whole day. In the evening he went home, and took a large glass of wine. In the course of a few minutes his head was violently affected, he became quite delirious, and continued alarmingly so for twelve or fourteen hours. Here you perceive the mercury affected the head, producing violent delirium. In other cases it will give rise to coma. In fact, it would be difficult to enumerate the various modes in which it may act injuriously when administered without caution, or when the patient is exposed to disturbing influences during a mercurial course.

You will recollect that some time ago, in speaking of double or complex diseases, I brought forward several facts in support of the hypothesis, that persons may labour under several diseases at the same time, all of which may combine to form an impaired state of the general system. In confirmation of this assertion, it appears that mercury may be employed for the treatment of syphilis, so as not only to leave the disease untouched, but also to superinduce mercurial cachexy, and even scrofula, and in this state you may have eruptions of various kinds. This is one of the worst forms of complex disease that comes under the notice of the practical physician. It was this form of disease which exhibited so many melancholy spectacles in the Lock Hospital some years ago: patients were seen labouring under all the horrible symptoms which combined syphilitic, scrofulous, and mercurial cachexies present—the glands, skin, throat, bones, mucous, synovial, and fibrous tissues, were all simultaneously affected; in fact, almost every tissue in the body was more or less engaged, and the patients died terrible examples of the frightful ravages of complicated disease.

In endeavouring, therefore, to analyze the nature and character of syphilis, you must always hold one great object in view, viz., to ascertain as closely as possible the order of the symptoms. Let us, for example, take the case of the woman in the chronic ward, who is at present labouring under nodes. The first object here is to inquire whether they are syphilitic or mercurial; and with this view it will be necessary to obtain an accurate history of her case—to ascertain the order of symptoms—how long and in what manner she used mercury—what relief she has obtained—and whether the symptoms of relapse have come on slowly and gradually, or rapidly and at once.

If a person labouring under a certain class of symptoms, primary or secondary, has used mercury until his mouth has been affected, and if, when he has reason to think himself cured, his mouth being still tender, or having been so lately, if such a person, after exposure to cold, gets a violent attack of pains, followed by periostitis, we may conclude that he has taken a sufficient quantity of mercury to cure his syphilis, and that his complaint is mercurial periostitis; for here you have a train of symptoms not referrible to the original cause. This is a very common case, and you will see numerous instances of it in labourers, and persons who are exposed to atmospheric vicissitudes while taking mercury. You will find on inquiry, that after they have been cured of the venereal symptoms, they have exposed themselves to cold while still under the influence of mercury, and have shortly afterwards been attacked with a new train of symptoms. In most cases the chances are that this sudden supervention of disease is not the effect of syphilis, but of mercury. An accurate analysis of the history of the case, and a careful observation of the new phenomena, are then the only guides we have to enable us to arrive at a just conclusion. I stated at my last lecture that the mere fact of a considerable time having elapsed since the patient took mercury is no proof that the symptoms are not mercurial. I have over and over again met with cases of periostitis in persons who had been two, four, six, and even eight years without taking mercury. I was called the other day to see a lady whose mouth was sore, and her breath fetid; in fact, who presented all the phenomena observed in cases of mercurial salivation; and yet it is now several years since she took mercury by the advice of an eminent

Dublin physician. Now, if so much time could have passed by, and yet one of the immediate effects of mercury be present, it is not improbable that some of its remote effects should appear after a lapse of time in which we would suppose that the mercury had been completely removed from the system. Many facts, however, can be adduced to show that some constitutions, when thoroughly affected by mercury, are apt to retain it for a very considerable time, and hence the practical physician is led to the reflection, that it should be used only in cases of necessity, and with all due discretion. Thus, in treating rheumatism, if you can cure by bleeding, leeching, tartar emetic, Dover's powder, and colchicum, you should not have recourse to mercury. The same observation will apply to the treatment of pneumonia, hepatitis, and many other forms of inflammation.

In a letter which I have just received from Sir James Macgrigor, he informs me that mercury is very little used in the army. There is no regiment or hospital from which it is wholly excluded; but it is administered with discretion, and only when the necessity of the case plainly requires its employment. I may observe, *en passant*, that you will find some excellent observations on mercurial remedies in the lectures of Dr. Sigmund, published in the *Lancet*.

There is one remark I wish to make with respect to mercurials, namely, that an undue preference is shown to some preparations to the exclusion of others. I think, for instance, that calomel is too often employed where other preparations would answer better, and that corrosive sublimate is too much neglected. I have witnessed its superiority to other preparations of mercury, in many instances; and some practitioners prefer it in the treatment of many forms of secondary syphilis. Thus, in a patient labouring under secondary symptoms, after the fever is over, and the eruption begins to decline, corrosive sublimate may be used with great advantage. One-eighth of a grain may be given twice a-day, and every night the patient may rub in from a scruple to half a drachm of mercurial ointment. Under this treatment, the disease is cured much more rapidly and effectually than if calomel or blue pill, or mercurial inunction alone, had been employed.

In throwing out these observations on the treatment of venereal, my object has not been to enter into specialities, but simply to furnish a few general rules for the guidance of persons engaged, or about to be engaged in the treatment of one of the most important diseases in the whole nosology. You will find any additional information you want in books. An immense quantity of valuable information has been collected by the army surgeons; and—thanks to the indefatigable industry of Sir James Macgrigor—the profession and the public are now able to avail themselves of those valuable contributions to medical science. You will find much valuable matter in the *Medico-Chirurgical Review*, which contains an able analysis of Mr. Colles's work on Venereal.

Ricord's work has been very ably reviewed in the *Edinburgh Medical and Surgical Journal* for July, 1838; and to that periodical I must refer you for details, merely remarking, that no modern author has done more than Ricord, by contributing materials calculated to decide many important controverted questions.

Fricke remarks, that although affections of the bone and periosteum are a very frequent effect of the syphilitic poison *per se*, yet caries and

destruction of the bone are seldom or never observed, except when mercury has been administered. This observation is, generally speaking, correct; but, nevertheless, it requires some limitation: for I have seen examples of caries of bone in the venereal disease, where not a grain of mercury had been taken. In the cases I allude to, the scrofulous diathesis was pre-eminently marked, and the affection of the bones, which the venereal poison excited, immediately degenerated from its usual course, and assumed all the characters of scrofulous disease. In both instances, destruction of the nasal bones, and consequent sinking in of the bridge of the nose, occurred—a deformity occasionally of simple scrofulous origin.

From an analysis of Pirogoff's "Surgical Annals," published in *Oppenheim's Journal*, Sept. 1838, it appears that mercury is very seldom employed at Dorpat for the cure of venereal, and yet Dorpat is remarkable for the number and severity of syphilitic cases—a circumstance partly attributable to the absence of medical surveillance over the women of the town, and partly to the apathy, carelessness, and filth of the lower orders.

Pirogoff's general mode of treatment is non-mercurial; and he maintains that relapses are less frequent and less violent than when mercury is employed as the general means of cure. It is worthy of remark, that a peculiar consequence of phymosis, or its causes, is frequently observed at both Dorpat and Petersburg, and which consists in the transformation of the inner layer of the prepuce into firm cartilage. There is no remedy for this but circumcision. This change into cartilage is always produced by diseases which, producing phymosis, at the same time give rise to a long-continued irritation and inflammation of the inner surface of the foreskin, attended with an increased secretion from the latter. Under such circumstances, the surfaces of the glans and its covering prepuce pour forth secretions of an offensive nature, and which find a very difficult vent, and are, besides, rendered more acrid by an occasional admixture of urine, and by the impossibility of thoroughly cleansing the parts.

This conversion of a submucous cellular layer into cartilage occurs also in the intestinal canal. In March, 1831, two examples of it were observed by Dr. Nalty and myself, at Sir P. Dun's Hospital. One of these cases was very remarkable, as the submucous cellular tissue of the colon was converted into cartilage over an extent of eight or nine inches in length, and occupying the whole circumference of the gut in that part, so as to form a complete cartilaginous cylinder, about a line in thickness.

This tract of intestine seemed therefore formed of four distinct coats, viz. :—mucous, cartilaginous, muscular, and serous. The cartilage was firm in its structure, very pliable, though strong, and its deposition seemed to have produced no change in either the calibre or shape of the intestine. This morbid production was evidently connected with a chronic inflammation of the mucous membrane, which had finally terminated in numerous ulcerations, and was accompanied by a copious deposition of black colouring matter, giving the membrane a mottled appearance. The blotches of black occupied by far the greatest portion of the surface, and were of a very deep shade, precisely similar to the colouring matter so often found in the bronchial glands and on the surface of the lungs.

In the healthy European this black colouring matter is not found, except on the surface of the lungs, and in the chorion, where it forms the pigmentum nigrum. In the negro this colouring matter occurs likewise

in the rete mucosum, producing the black skin which distinguishes that variety of mankind. We thus see that in the white as well as the negro, not only do the vessels of certain organs enjoy a power of secreting black colouring matter during health, but that likewise during disease other parts of the body, as in the cases I have cited, may assume a similar action, and secrete black matter. In some whites this tendency to secrete black matter becomes excessive, and gives rise to certain forms of melanosis, where this matter is secreted in almost all the tissues of the body; for I cannot agree with Faudrington in thinking, that the experiments of M. Barruel, or those of Dr. Henry, are sufficient to establish a marked difference between the colouring matter of melanosis and that of the rete mucosum of the negro, or the pigmentum nigrum of the white. The melanotic patches are, no doubt, often of a different shade, but very frequently they are extremely black.

Be this as it may, the black matter in the intestines I have described was clearly of the same nature as that on the surface of the lungs of the white, or the rete mucosum of the negro. This subject is interesting, because a knowledge of the fact, that the black colouring matter which imparts to the skin of the negro its peculiar hue, is also a natural secretion in certain organs of the white during health, and is likewise in the latter a frequent product of disease—I say a knowledge of this fact is of great weight, proving that the black colour of the skin cannot constitute a difference of species. With regard to the hair, which is often the seat of a probably similar colouring matter in the white, I may observe, that one fact, not hitherto attended to by physiologists, is in itself sufficient to establish that the hair is a horny tissue, in which a certain circulation is maintained. The fact to which I advert is, that the hair often begins to grow grey at its extreme point, or the end furthest from the root. Here the colouring matter is often absorbed, while it still remains in the remaining portion of the hair. The phenomenon of *plica polonica*, so admirably described by my friend, Dr. Kowalowski, in the *Dublin Medical Journal* for November, 1838, establishes the vitality of the hair.

POSTSCRIPT.—Having witnessed the very judicious treatment pursued by Dr. Tuohill, of Clare-street, in some embarrassing cases of syphilis, I requested he would briefly detail their particulars, and explain the mode of treatment. I shall now lay before the reader Dr. Tuohill's communication, which, from the well-known talents and acquirements of the author, I consider entitled to the greatest attention.

“Whether that peculiar form of the venereal disease, commonly called ‘the Phagedenic,’ be the result of a distinct morbid poison, or a mere modification of what we more commonly meet in the course of practice, there can be no doubt that it is both a very formidable and a very unmanageable affection. This observation applies equally to the constitutional as well as to the local symptoms in whatever relation the one may be supposed to stand towards the other. Though much difference of opinion may appear to exist respecting its precise nature very little can be discovered in the consideration of those principles of treatment that are deemed fittest for adoption. All men of experience are agreed on the necessity of checking the ulcerative process, and fortifying, or at least supporting the bodily health, indications which it is usual to attempt accomplishing by those external applications comprehended under the class of sedatives, stimu-

lants, escharotics, and (save in the existence of vascular excitement of the system generally) the internal use of sarsaparilla, nitric acid, the various preparations of iodine, bark, iron, &c. with such directions as to climate, diet, and regimen, as circumstances may demand. The signal indifference which phagedenic ulceration frequently exhibits to the influence of so many and such valuable remedial means would go far in showing, either that they are badly adapted towards the promotion of a cure, or that the disease is of such a nature that TIME must constitute an essential element for its removal out of the system. The latter idea may be sustainable whether we conceive that in the long run the resources of the constitution alone have the power of neutralizing the innate virulence of the disease, or that, after running its natural course, it becomes so mild as to enter on, or approach to, a spontaneous cure, requiring but little if any assistance from medicine. Whatever reputation mercury may have deserved in other forms of the venereal disease, in this at least it can lay claim to little. It is not its negative so much as its positive powers that disentitle it to the character of a remedial agent. The serious mischief which even a moderate use of the remedy so frequently entails, both on the constitutional and the local symptoms, would seem to justify its rejection altogether. Still, strange though it may appear, there are occasions where its beneficial effects have been most surprising, that is, so far as the accomplishment of a perfect and permanent cure, under circumstances otherwise hopeless, would warrant the expression. It is a matter of much regret, however, that we have no systematic arrangement or complication of such cases—no faithful record of the precise circumstances under which mercury has proved so successful when all other means failed. The statements of medical men on this head are vague, general, and even contradictory. No special rules as a guide to the practitioner in any given case are laid down. Some are of opinion that the most seasonable period for a trial of mercury is when the constitution has rallied from the sympathetic effects of the local disease. Others look upon it in the light of a dangerous experiment, a kind of ‘*dernier resort*,’ admissible only in extreme cases when the ulceration is rapidly spreading despite of all attempts to arrest its progress. Others again say, that mercury may be given with advantage in small doses as an alterative, but they tell you to watch and wait till the ulcerative process shall have assumed a chronic form resembling in features and complexion an indolent ulcer.

“ Having premised thus far, I shall now detail the essential particulars of a case of phagedenic ulceration which resisted all the ordinary means of treatment with others of rather an experimental nature, and at last yielded to remedies, which, as far as I can collect, were never before administered in the same affection. J. C., aged 34 years, of a florid complexion, and robust figure of body, arrived in Dublin from the South of Ireland, on the 6th of October, 1839, for the purpose of placing himself under medical advice. He was confined to his bed the week previous, and suffered much from a large bubo in the right groin, which now presented a distinct sense of fluctuation. The tumour was noticed on the 2d of September, and reached its present size notwithstanding the application of a great many leeches and iodine ointment. He was also put under the influence of mercury, which he had been taking for five weeks. So far back as the 15th of August, he contracted a chancre, which, as not apprehending infection, he neglected for the first fortnight, but healed speedily

by the application of black wash and nitrate of silver, leaving neither hardness nor any other trace of its existence behind.

“ It appears, from the gentleman’s statement, that in the summer of 1832, during a convalescence from influenza, a venereal eruption was discovered over his body by his medical attendant: the mucous membrane of the nose was also in a state of ulceration. He got some warm baths, and had taken for the space of a month Plummer’s pills with sarsaparilla. Black and yellow washes were injected into the nose. The eruption very soon disappeared, but the affection of the nose continued for more than two months. Ever since that period, crops of pimples which scale away, are in the habit of appearing on his poll and at the roots of his hair; and the firm conviction of his mind was, that the disease still existed in his blood. He conceived that the fact of his now being laid up may turn out as a fortunate event in his life, by *obliging* him to attend to himself, and thereby getting totally rid of the two diseases. I opened the bubo, gave vent to a large quantity of laudable pus, applied poultices of bread and milk for a few days, following them up with simple dressing and compresses. The cavity progressively contracted, and the surface of the cut presented a healthy appearance—no disposition to callous edges or the formation of sinuses. The internal treatment consisted of quinine, sarsaparilla and nitric acid, nourishing diet, and wine in moderate quantity. Towards the end of December he went home, considerably improved in health, with a small ulcer not more than an inch in length, the remains of the bubo. He returned to Dublin early, in May, with an ulcer larger than the size of a pigeon’s egg, internal to the situation of the first ulcer, but originating from it after the application of nitrate of silver. It was stuped with opium; black wash and acetate of lead lotion were also used. All irritability subsided; the ulcer became stationary and exhibited an indolent character. Taking other circumstances into consideration, I conceived the occasion favourable for mercury, and brought him under its influence. The mouth was kept sore for a fortnight, but no favourable impression was made on the ulcer; on the contrary, it became irritable, with a bloody discharge, in addition to which the stomach became deranged, and the rest much interfered with. June 17th, Mr. Cusack was called in consultation. He conceived that the impaired state of the constitution modified the ulcer and rendered it unmanageable, and proposed change of air as the safest and best means of checking the evil. The only medicines he would then set value on were sarsaparilla and hydriodate of potash, but expected some improvement from strapping the ulcer with real adhesive plaster, and the use of nitric acid as a lotion. These suggestions were strictly adhered to, and a full trial given. The health was benefited, but no improvement was observable in the ulcer; its edges were burrowed, and the skin, at its inner margin, became livid, hard, and granular to the touch. A pustule appeared at the upper angle of the ulcer, which, on bursting, increased rapidly, and ran into the original seat of the disease, giving to the whole a crescentic figure. As those changes had occurred under circumstances so favourable to the improvement of the general health, I arrived at the conclusion, that the ill-conditioned state of the ulcer was the result of other causes than those of a general constitutional nature; and with a view of counteracting what I conceived an old venereal taint, gave a trial to the muriate of mercury; I prescribed one-twelfth of a grain, in the form of pill, to be taken twice

a-day. In the course of ten days, a most remarkable improvement was observable; the inflammatory hardness of the neighbouring skin disappeared, the ulcer granulated, and diminished to one-fourth its size. The most sanguine hopes of recovery were naturally entertained, when, most unexpectedly, a sense of rigor was felt; the stomach became irritable, and a complete loss of appetite followed; the secretion of the ulcer was suppressed; it became hot, painful, and disposed to bleed. Opiate pills, with stupes, afforded relief from the pain, but the ulceration proceeded, removing, in its progress, all the newly-formed structure. Mr. Cusack was again called in: after paying a few visits, he expressed his conviction of the hopelessness in expecting any thing like an immediate cure by specific remedies. On the 24th of September, all but twelve months since the patient's first arrival in Dublin, he was obliged to return home on matters of urgent business. Mr. Cusack and I met for the purpose of laying down rules for his observance. He remained at home four months, used constantly the sarsaparilla and hydriodate of potassa, dressed the ulcer with red precipitate ointment, with the occasional application of nitrate of silver. In February 3d, 1841, he returned to Dublin, with a crop of leprous eruption on his body and extremities. In the situation of the nates, they were large and showed more of a pustular form. Mr. Cusack, having first witnessed the beneficial effects of Mr. Donavan's preparation of iodine, arsenic, and mercury, in cases at Steven's Hospital, was anxious to give it a trial. It was given in graduated doses, and pushed so largely as to produce nausea, constriction of the œsophagus and palpitation of the heart.

“ Those powerful medicines exerted a very decided and manifest influence over the eruption, banishing every vestige of it in four days, but made not the least impression on the ulcerative process, which at the time happened to be in a state of unusual exacerbation. The ulcer appeared extremely sensitive, of a fiery red colour, with irregular fungous granulations, extended its ravages along the side of the scrotum to the perinæum, where it terminated in a kind of sinuous pouch. The sufferings of the patient were now indescribable; opiates, in large doses, failing to procure rest, and scarcely alleviating the intensity of the pain. The stronger caustics, such as nitric acid, muriate of antimony, and kali purum, were alone capable of checking the morbid action, and affording relief. Even nitrate of silver seemed insufficient to arrest the onward progress of the disease. The exacerbation lasted for three weeks, caused much bodily exhaustion, and left the nervous system in a very irritable condition. He was moved to one of the outlets of Dublin, and put under a course of tonics and bitters. The appetite and strength improved, and the ulcer, though still maintaining its characteristic figure and features, became comparatively bearable; the pain amounting to mere irritation, and the ulceration being partial, yielding to a weak solution of nitrate of silver.

“ In April, the ulceration became quite stationary and continued so in May. Mr. Cusack and I then agreed that a stimulus of some kind was requisite, and conceiving it not improbable that the present appearance indicated at least a toleration of mercury, we came to the conclusion of giving the remedy a fair trial, at the same time watching its effects, and guarding against any mischief that may seem to arise. May 21st, half a drachm of mercurial ointment was rubbed in at night, and the ulcer

fumigated with the hydrargyrum cum cretâ. Those remedies were kept on for the space of three weeks, until the gums were sensibly affected; still no visible change or improvement of any description could be discernible, but in the course of a short time a sense of general weakness and nervousness was complained of, which, to a considerable extent, gave way to the use of quinine, bitter infusions, and a rather liberal allowance of claret, with nourishing diet.

“ August 2d, Mr. Colles was called in consultation; he recommended the ulcer to be fumigated with the red candle, and a very small quantity of mercurial ointment (ten grains) to be rubbed into the inside of the thigh, night and morning—a mode of administration which he found successful in similar cases of long standing. This plan of treatment was persevered in for upwards of three weeks, without the least encouragement, according to Mr. Colles’s own admission, to proceed any further.

“ September 10, Sir Philip Crampton next joined in consultation. It was his idea that a complete removal of the diseased surface offered the surest and speediest means of accomplishing a cure, and by his advice a saturated solution of nitrate of copper was poured over the ulcer so perfectly as to enter every fissure and crevice. It had the effect of giving rise to the most agonizing sensation of torture, which lasted several hours, but when the suffering ceased, it is almost incredible what a degree of ease and comfort was experienced. The countenance brightened up and totally lost that haggard cast of expression so peculiarly characteristic of the disease in its aggravated form. A large slough, apparently comprising the entire morbid mass, came away, leaving a clean smooth surface behind. Healthy granulations preceded; the ulcer contracted, and obviously seemed disposed to fill up, when, without any assignable cause, it relapsed into its old condition. The succeeding winter, including the commencement of 1842, he spent for the most part in the country. Sarsaparilla with hydriodate of potash, were in constant requisition, and a great variety of local applications were tried, viz., carbonate of iron, the acetates of lead and copper, muriate of mercury, arsenic, with cicuta and carrot poultices. The onward course of the malady had thus received some partial check, but no impression of consequence could be sustained. The ulceration increased upwards and laterally towards the left groin, burrowing deeply at the root of the penis.

“ March 10, Dr. Graves was now called on to consult with Mr. Cusack and me. After a full inquiry into the history of the disease, he dwelt on the necessity of closely attending to the state of the general health, and proposed, by way of a trial, the oil of cod-fish, which was taken to the amount of 10 oz. in teaspoonful doses twice a-day; its effects, as far as observation could go, were strictly of a negative character.

“ During the months of April and May, the ulceration proceeded more or less actively, and engaged a large section of the root of the penis. The strength much declined, and the loss of flesh was very palpable; the stomach was disordered, and a torpidity of the kidneys supervened, inducing or coexistent with tension of the abdomen. The latter affection was accompanied with considerable distress, and gave way but imperfectly to aperient and diuretic medicines. The situation of the patient was now a subject of anxious concern to his friends: the break up of his constitution was so shockingly perceptible, and he himself frequently made allusion to the case of a very near relative, who, while labouring

under similar symptoms, fell a victim to dropsy. Whatever value may be set on the force and faithfulness of such an analogy, it at least contributed to convey both to my mind as well as to that of Mr. Cusack, no small share of apprehension; and as we were considering what further remedies worthy of trial were within our reach, we selected creosote for internal use, and extract of belladonna for external application. We had no authority for such a selection; it was purely one of an experimental character. We felt that remedies of a powerful nature were indicated, and it was a main object to hit on those that could do the least possible injury—a recommendation though negative, still in the present instance, perhaps, of vital importance. The belladonna was applied twice a-day; about the size of a large pea of the extract, diluted with a dessert spoonful of water was poured on the ulcer, and after being allowed to rest for a few minutes, it was covered with lint and oiled silk. The creosote was formed into an emulsion in the proportion of 12 drops to 8 oz. and two tablespoonfuls were given three times a-day. Both medicines were made use of without a day's intermission from the 8th of June to the 7th of August, when the healing process was completed. The good effects of the medicines, both on the constitution and the local disease, were clearly perceptible after the first week's trial, and every succeeding day afforded undeniable evidence of a steady and progressive course towards a recovery so long delayed and so anxiously hoped for.

“Whatever value future experience may attach to the treatment adopted at the close of the above long scene of suffering, there can be no question that to it alone is attributable the happy and fortunate result that followed. The recovery succeeded the remedy in the strict order of cause and effect, without an incident or coincident to qualify or weaken their just and respective relations. It cannot be said that *time* constituted an active or essential ingredient in bringing matters to a successful issue; the change was too rapid. There was no harbinger of the glad event, no one favourable feature to be discovered that could tend in the least degree to inspire hope or encourage confidence. The constitution did not triumph over the disease; it rather sunk beneath its repeated assaults. The disease itself showed no perceptible indication of decline; it still stood at its acme of virulence, and, all things considered, the case at no former period presented so gloomy and unpromising a complexion. The first signs of improvement were perceptible in the constitution—the secretion of urine increased, and the abdominal fulness subsided, the appetite returned with natural sleep, and a consciousness of additional strength was felt in every limb. Before the ulcer exhibited any sensible alteration, ‘the burning gnawing pain,’ as the patient graphically so denominated it, completely abated, and the discharge gave less of the dark stain to his linen. The healing process first filled up the deep chasm at the root of the penis, then the upper horn of the ulcer granulated; the neighbouring skin lost its livid hue and became soft; the convex margin of the ulcer flattened down and exhibited a white pellicle, an appearance which convinced me that at length and at last a recovery was at hand, for at the former period when the ulcer was reduced to so small a size, the convex margin still continued hard and elevated with a serrated edge.”

“I shall now subjoin another case of phagedenic ulceration, which has been occasionally for the last year and a half under my care. Mercury succeeded in the end, though at an early stage of the illness it proved an

utter failure. The recovery was both sudden and unexpected. My chief object, however, in giving it for publication is to direct the attention of the profession to certain appearances in the condition of the parts affected, which it may be found of importance to attend to in coming to a decision as to the propriety of exhibiting mercury. The patient was a young man, 26 years of age, with a naturally strong and healthy constitution. The first time I attended him was in August, 1840. He was then affected with a swelled testicle, complicated with hydrocele, which I found to be venereal, and from which he completely recovered after having rubbed in half a drachm of mercurial ointment twice a-day for three weeks. At this time I observed marks of ulceration on his back and thighs, and learned from him that in the month of December previously (1839), he had taken mercury for the cure of a venereal eruption. He consulted me again in February, 1841, for a large painful ulcer with hard, overlapping edges, situated above the middle of the right clavicle. It measured three inches in length, and one and a half in breadth, of a semicircular figure, with its convex margin internally towards the neck. The adjoining skin, particularly at the convex margin, was hard, and of a livid colour. It made its appearance about three months previously, and was treated with several ointments and other local applications without producing the least benefit. The health did not seem to have suffered much, though on several occasions the rest was interfered with in consequence of the darting pains. I removed the callous edges with a scissors, and stiped the part with warm water and laudanum, at the same time encouraging the bleeding. I prescribed pills of opium and cicuta, which were continued for a week. The margins of the ulcer, and a few ulcerating points on the surface, were touched with nitrate of silver, and unguentum æruginis was subsequently used for dressing. Sarsaparilla, nitric acid, and hydriodate of potash were administered steadily until the 10th of May, when on plainly observing no advantage to be derived from a further pursuance of the treatment I commenced putting him under the influence of mercury. He rubbed in two ounces of ointment, and took two and a half dozen of Plummer pills. His mouth remained sore for nearly three weeks. Not the slightest change for the better was observable in the ulcer or neighbouring skin. The granulations were more disposed to bleed, and small ulcerations made their appearance on the surface. The mercury evidently disagreed with his stomach, he also felt weak and had an irritability of the pulse. The cold infusion of sarsaparilla on lime-water was now prescribed, which, together with a compound rhubarb pill every second day, agreed in a remarkable manner; but still he complained of debility, with a tendency to perspiration on making any unusual effort. The sarsaparilla was persevered in till the end of July, and, during the interval, the applications in use were yellow-wax ointment and nitrate of silver, and on two occasions, the muriate of antimony. In August, he went some distance into the country, and, while there, was visited by a medical friend, who dressed the ulcer with red precipitate ointment, and applied the sulphate of copper solution. He used no internal remedies of any kind. In October 22d, he returned to Dublin, seemed in better health, but rather thin. The ulcer had increased in size, its lower corner passing below the clavicle; the surface presented several large round granulations, with scarcely any degree of sensibility, and the burrowing towards the convex margin was very deep. I cautiously removed the edges and

the more prominent of the callous granulations with kali purum, and followed it up with the nitrate of silver solution, varying its strength according to circumstances. Having thus produced a beneficial change on the whole surface of the ulcer, I entered on the use of black wash, with weak precipitate ointment, and gave the sarsaparilla with hydriodate of potassa another trial. An improvement was supposed to take place, but, strictly speaking, things were at a stand-still until the end of December, when the strength speedily gave way with a decided loss of flesh; and he felt so weak as to be totally incapable of attending to the lighter occupations of business. He had, therefore, to retire and go again to the country, where he continued till the beginning of May, 1842. He had taken no medicine, save two large bottles of Peruvian bark, in wine, in order to combat the debility which he laboured under. In the mean time, the ulcer was dressed with yellow ointment, and sulphate of copper was applied to check the fungous granulations. In April 22d, I received a communication from a relative of his in the country, with whom he was residing, informing me that his looks were most ghastly, and that he had scarcely any flesh on his bones, and suggested, that as the country had done him no service, it was his best plan to go into a hospital, where every comfort could be acquired on the payment of a certain sum. As such an alternative was very repugnant to the patient's feelings, he was by no means willing to enter on it with any thing like a serious intention. He arrived in Dublin on the 15th of May, and called on me on the 20th. His debility and emaciation were extreme; his tone of voice was even altered. In a marked tone of despondency he reminded me how mistaken I had been in supposing that country air could cure so inveterate a disease as his was. He declined entertaining the question of the hospital, and seemed desirous of making me feel that the responsibility of his case was altogether on my head. I saw plainly, that some decided steps should be taken, as all the non-mercurial remedies had failed. I was contemplating the adoption of Mr. Colles's plan of rubbing in small quantities of mercurial ointment, when I recalled to my mind the close resemblance which this ulcer bore to one of a similar nature, which yielded to calomel and opium, I, therefore, notwithstanding the alarming exhaustion, had the less hesitation in proceeding. He commenced on the 21st of May, taking a grain of calomel and $\frac{1}{4}$ grain of opium, twice daily. On the 13th of June his gums became sore, and I reduced the quantity to one pill a-day, which was sufficient to keep up the tenderness of the gums, and on the 6th of July, I deemed it unnecessary to persevere any further with the medicine, as no vestige of the ulcer was remaining. During the period of the healing process, the only dressing made use of, consisted of Elemi ointment and white lead, in the proportion of one part of the latter to four of the former. The alterations in the local appearances which attracted my observation and which I am anxious to draw attention to, are as follows, viz., a change in the configuration of the ulcer from that of the ordinary crescentic to somewhat of an oblong shape; the want of distinction into convex and concave edges, and the absence of angular sharpness at either extremity; more consistence in the discharge, with a tendency to scab; the absence of fissures or callous granulations on the surface, and the complete disappearance of that peculiar granular hardness and lividity which were all along observable close to the convex margin of the ulcer.

“ With respect to the sensible effect of the medicine, I could only collect, that at first it did not disagree (a matter of much moment to be apprised of); but after a fortnight the rest was natural and refreshing, and the appetite improved, both calming the nervous system, and imparting fresh vigour and life to the shattered frame. On the subsidence of the pain, which was greater than the complexion of the ulcer would seem to indicate, the centre granulated and skinned naturally, thus forming two separate ulcers, which speedily scabbed, shrunk and shrivelled away, leaving behind a perfectly sound and permanent surface. From this period the patient rapidly gained flesh and recovered strength. He is at this moment as healthy, and in the enjoyment of as good spirits as ever he had in his whole life.”

The plan of treatment adopted by Dr. Tuohill, in the preceding cases, has not been spoken of by any writer on the subject. That the creosote cured the first patient, there can be no doubt, and if the observations with respect to the proper period for giving mercury in phagedena be proved to be correct, we must regard Dr. Tuohill as having made the most important addition to our knowledge of this disease since the introduction of the non-mercurial treatment.

I have but few observations to make on the treatment of syphilis, in addition to those already announced. Since the preceding lectures were delivered, I have made some experiments on the comparative value of lunar caustic and sulphate of copper in *healing* chancres; and I am fully convinced, that for this purpose we should prefer the latter. The great utility of lunar caustic in destroying the surface of the sore, in the first instance, is unquestionable; but after this first application, I think we will succeed in rapidly healing the ulcer more effectually by sulphate of copper, which may be used either in substance or in solution of various strength, after the manner recommended for the nitrate of silver lotions. When the ulcer has assumed a chronic appearance, with thickened, elevated, and, as we frequently see, everted edges, I know of no escharotic more useful in levelling the edges and improving the surface of the sore, than the free application of this remedy in substance. I am also perfectly satisfied that the sulphate of copper produces much less irritation than the other, and that buboes more rarely follow its employment.

There is one more point to which I am very anxious to direct attention, as I am certain many errors are committed by a want of knowledge on the subject. I have frequently had under my care, patients of a scrofulous constitution, affected with primary sores, which, for obvious reasons, were treated on the non-mercurial plan, and readily healed without bubo or any other bad symptom. Some of these patients were afterwards attacked with periostitis, produced by cold, wet, injury, or any other cause, and though they had never taken a grain of mercury, and were free from any other symptom resembling syphilis, have been pronounced to labour under secondaries by other practitioners to whom they have applied for advice. This view seemed in many instances extremely probable, from the fact that soon after the periostitis was established, nocturnal exacerbations, sweating and emaciation rapidly ensued. Such cases are by no means rare, and require the greatest discrimination; for if mercury be resorted to with the impression that the patient labours under secondary syphilis, the most alarming consequences are sure to follow. The periostitic pains may be relieved for a time, but they soon return, again mercury

is had recourse to, and again the pains return; in the meantime the constitution of the patient rapidly gives way under the combination of struma and the uncalled for administration of mercury. I have seen but too many instances of what I now state, and therefore I am particularly anxious to direct attention to these cases, which, as far as I can discover, have not been spoken of by writers on syphilis, struma, or periostitis. It may be asked, what are the distinguishing marks of these cases? I can only say, that in those which have come under my observation, the periostitis followed the appearance of the chancres at considerable distances of time—many months or two, four, even six years intervening—it was unaccompanied by any form of eruption, and was not *immediately* attended by sweating, nocturnal exacerbation and emaciation; there was no sore throat, or other unequivocal syphilitic symptom, circumstances which, when coupled with the fact that the sores on the penis were treated on the non-mercurial plan—a plan allowed on all sides *to interfere less with the order of succession, and the natural combinations or forms of grouping of syphilitic symptoms*, these circumstances, I say, constitute the basis of a differential diagnosis, which, when followed by the line of treatment indicated, leads to the happiest results.

In all such cases mercury is inadmissible, and our chief reliance must be placed on iodine in its different forms, sarsaparilla, nitric acid, tonics, iron, nourishing diet. I have a few remarks to make with respect to hydriodate of potash, which I trust will not be considered superfluous. I have observed that this remedy will frequently cure periostitis and other affections when given in free doses, though the disease may have resisted its influence when given in small quantities. I am never dissuaded from trying it by the assurances of the patient or his medical attendant, that the remedy has already had a fair trial; in such instances I begin with the doses usually ordered and increase the quantity daily, carrying it in some cases to half a drachm three times a day, a mode of administering this medicine I found extremely beneficial.*

Hydriodate of potash does not appear to exercise the same powerful control over syphilis characterised by the copper-coloured eruption as over other forms,—these cases are more advantageously treated with corrosive sublimate and sarsaparilla, and this opinion accords with the views of Mr. Carmichael, who limits the administration of mercury to this form of the secondary disease and to the peculiar ulcer, which, according to his doctrine, precedes it, namely, the Hunterian chancre. There are two classes of cases in which hydriodate of potash is more particularly serviceable. The one includes those instances where the symptoms have

* For a knowledge of the fact that hydriodate of potash should be pushed very far in cases of obstinate and frequently relapsing periostitis, I am indebted to my friend, Surgeon O'Ferrall; the following case illustrates the efficacy of this method. Mr. M. had severe periostitis, after long-continued mercurial treatment of syphilis, and was much reduced by frequently repeated salivations,—in August, 1839, Mr. Carroll of Meath Street, advised him to place himself under my care. From August to December, 1839, he took ℥xvi. of hydriodate of potash, in five-grain doses, gradually increased to ten grains three times a-day. His general health improved, he grew stout, and appeared quite cured, but towards the end of January, 1840, he relapsed, and again took the same medicine with temporary relief,—this happened several times, so that before December, 1840, he had consumed xxxiii. drachms more,—in that month he again relapsed, when I consulted Surgeon O'Ferrall, who advised a recurrence to the same remedy in much larger doses, and persevered in *until all periostitic swelling, and every vestige of pain was removed*. He now took ℥ss. three times a-day, until ℥xx. were consumed. He took on the whole from beginning to end ℥viii. and ℥v. of this mineral, and has been perfectly well ever since!

been set astray (so to speak), by the frequent and injudicious employment of mercury,—the other embraces those cases in which the periosteum, the bones, and the mucous membranes are extensively engaged, in the latter instance presenting ulcer of the nose, tonsils, pharynx, tongue, inside of cheeks and lips, usually associated with large and painful condylomata at the verge of the anus, and the mucous tubercles of the French writers on the scrotum, inside of thighs, &c. In such forms of the disease, hydriodate of potash, either singly or in combination with sarsaparilla, are by far the best remedies we possess. We as yet want facts to determine accurately the comparative value of hydriodate, and corrosive sublimate, in those particular cases, which indicate to every practitioner, whether he be a non-mercurialist, or a mercurialist, the necessity of giving sarsaparilla, tonics, good diet, &c. &c.

P A R A L Y S I S.

LECTURE XXXII.

General remarks on the pathology of paralysis—Dr. Graves's new views upon this subject—Their application to the study of several varieties of paraplegia—Explanation of Mr. Stanley's case of paraplegia; of Dr. Stokes's cases—Two cases of paraplegia after enteritis—Paraplegia after metritis—Paraplegia the consequence of poisoning by lead; by arsenic—Paraplegia arising from irritation of the urethra (case communicated by Dr. Hutton).

HAVING recently met with some very interesting and remarkable cases of impairment of the muscular functions of the lower extremities, I am anxious to offer a few observations on paraplegia, particularly while the subject is still fresh in my mind: we can resume the consideration of our clinical cases at a future opportunity. I would entreat your favourable attention on this occasion, while I lay before you some opinions on paraplegia peculiar to myself, and differing from the views entertained by the generality of medical writers; the subject, too, is one of extreme interest, involved in much obscurity, and offering an extensive field for investigation: I trust, however, I shall be able to communicate some new matter calculated to throw additional light on the nature of this affection, and thus contribute to fill up the blanks which exist in an important department of pathological medicine.

You are aware that by paraplegia is meant that species of paralysis in which the lower extremities are affected—a paralysis frequently embracing loss of motion and loss of sensation in the lower extremities, accompanied, in many instances, with derangement of the muscular power of the bladder and rectum. Now, I wish you clearly to understand that it is not my intention to describe the symptoms, or discuss the causes of those species of paraplegia which are well ascertained, and of which you will find satisfactory descriptions in your books: under this head may be classed all those cases which are produced by disease of the spinal marrow, its membranes, the vertebræ or their appendages, their ligaments, and diseases directly affecting the great nerves which supply the lower extremities. All these matters have been sufficiently studied, and require no additional observations from me; my object is to elucidate some of the obscurer varie-

ties of paraplegia. I have touched on this topic before in my lectures delivered at the Meath Hospital, but since that time I have met with many cases, and made inquiries which tend still further to illustrate the subject. I have read, with the attention which it merits, a lecture on this subject, published by my colleague, Dr. Stokes, in Renshaw's *London Medical and Surgical Journal*, and also Mr. Stanley's interesting cases in the 18th volume of the *Medico-Chirurgical Transactions*, published in the year 1833. In Mr. Stanley's paper, several cases of paraplegia are brought forward, the explanation of which had not been understood before or even at the time he wrote, but which I had given several months previously, as applied to paralysis in general, in two lectures in the 58th and 59th numbers of the *London Medical and Surgical Journal*, and which had been delivered at the Meath Hospital, in Nov. 1832, and were published immediately afterwards. In fact, the explanation offered by Mr. Stanley is merely a corollary of the propositions which I laid down at that time, and which I shall beg leave to repeat here.

Before I commenced my investigations on the subject, pathologists, in endeavouring to ascertain the causes of paralysis, sought for the sources of the disease almost solely in the centres of the nervous system. They looked for the cause of paralysis in the brain or spinal cord, where they supposed it originated either in organic or functional derangement of these important organs. In the lectures to which I have already referred, I showed that this mode of accounting for all forms of paralysis, by referring them to original disease of the nervous centres, was in many instances incorrect, and proved, I think, to the satisfaction of the class, and those who read the lectures, that a most important and influential cause of paralysis has been hitherto nearly overlooked—a cause which, commencing its operation on the extremities, and not on the centres of the nervous system, might, by a reflex action, produce very remarkable effects on distant parts. I brought forward on that occasion many arguments, facts, and cases, to prove the possibility of such an occurrence—to show that it frequently happens that impressions made on the extremities of the nerves will generate a morbid action in them; that this morbid action will be conveyed along their branches and trunks to the spinal cord or brain; and that, continuing its propagation, it may, by a retrograde course, be carried thence along the nerves to distant organs, and in this way give rise to disease in parts originally intact and healthy. I brought forward several instances to prove that, when a certain portion of the extreme branches of the nervous tree has suffered an injury, the lesion is not confined merely to the part injured, but in many instances is propagated back towards the nervous centres; and that, in this way, not only the nervous filaments of the injured part may be affected, but also the main trunk of the nerve and other branches, or that the lesion may reach the brain or spinal cord, and thus produce still more extensive effects on the system. What I endeavoured to impress upon the class at that time was, that pain, numbness, spasm, and loss of the power of muscular motion, may be produced by causes acting on the extremities of the nerves; and that such affections, commencing in the extremities of the nerves, may be propagated towards their centres so as to be finally confounded with diseases originating in the centres themselves. For a detailed account of my views on this subject, I beg leave to refer to the published lectures; at present I shall content myself with recapitulating a few of the facts on which these views were grounded.

If you place your hand in snow or ice-cold water, you will find that it is not merely the parts subjected to the influence of cold that become numb, and that the diminution of power is not entirely limited to the muscles concerned in the peculiar motions of the fingers, but extends also to those of the fore-arm, by which the principal motions of the hand are performed. Here the impression of cold is found to affect not only the parts immediately exposed to it, but also parts that are quite removed from its influence and warmly covered. We see that not only the muscles attached to the fingers, but also those of the fore-arm, undergo from this cause a temporary paralysis. Now, if a cause of a trifling nature, and acting only for a time, can, when applied to a part, produce loss of power in another and more central part, we may infer that the same cause acting permanently might produce permanent paralysis of the latter. We can, therefore, conceive how in this case the agency of cold might travel upwards and reach the muscles of the arm also, and thus we should have a change, commencing in the tips of the fingers, propagated to parts at a considerable distance from the situation of the original lesion. Again, we find that an injury, affecting one branch of a nerve, will be propagated by a retrograde action so as to affect another and distinct branch, as was exemplified in a case mentioned in my former lectures on paralysis. A young lady, having wounded the inside of her ring finger with a blunt needle, observed that she had, in consequence of the injury, a considerable degree of numbness, not only in the wounded finger, but also in the little finger next to it. Here we find that an impression made on the nerve of one finger not only affects that finger, but also travels backwards so as to operate on the branch given off by the ulnar nerve to supply the little finger—and *given off, observe, above the place of the wound*—so that the phenomena were identical with those which would arise from an injury inflicted on the branch which supplied both fingers. Within this last month, I have had an opportunity of witnessing a very striking fact of this nature. A young gentleman, distinguished for the extent of his classical and mathematical acquirements, and who had just succeeded in obtaining the senior moderatorship (analogous to the *wranglership* of the English universities), swallowed a small but angular piece of chicken-bone. It lodged low down in the œsophagus, and was not pushed, by means of a probang, into the stomach until after the lapse of more than an hour. Considerable inflammation of the pharynx, œsophagus, and surrounding tissues was the consequence; on the third day of his illness he got a violent, long-continued, and ague-like rigor, which terminated in a profuse perspiration, and ushered in a well-marked inflammation of the neck of the bladder. In the next place, we find that impressions affecting the frontal branches of the fifth nerve may, by a reflex action, operate on the retina so as to cause blindness. Here the morbid action travels from the circumference towards the centre, and is again reflected towards the circumference so as to affect a separate and distinct part. Of this I lately saw a curious and instructive example. A medical student, travelling through Wales on the outside of the mail, was exposed for many hours to a keen north-easterly wind blowing directly in his face. When he arrived at the end of his journey, he found that his vision was impaired, and that every thing seemed as if he was looking through a gauze veil. There was no headache, no symptom of indigestion, to account for this evidently slight degree of amaurosis, and yet he was recommended to use cupping to the nape

of the neck, and strong purgatives. When he consulted me, which he did in the course of a few days afterwards, I at once saw that there was something unusual in the case; and, after a careful examination, I at length elicited from him the fact of his having been exposed to the influence of the cold wind. It was now apparent that the retina suffered in consequence of an impression made on the facial branches of the fifth pair. The cure was effected, not by a treatment directed to relieve cerebral congestion, but by stimulation of the skin of the face, forehead, temples, &c.

It is, however, unnecessary to multiply examples to prove the truth of the proposition, that disease may commence in one portion of the nervous extremities and be propagated towards the centre, and hence, by a reflex action, to other and distant parts. Bearing this in mind, we can explain why it is that disease commencing in one part of the system may produce morbid action in another and distinct part; and it certainly appears strange, that, with so many striking examples before them, pathologists should have so long overlooked this cause, when seeking to explain the nature of many forms of paralysis. If certain irritations of the nervous extremities in one part of the body are capable of giving rise to a derangement in the whole system of voluntary muscles; if a local affection may become the cause of exalting and rendering irregular the functions of every muscle in the body; then, surely, it is not difficult to conceive that a cause, local as the former, and tending not to exalt but to depress the motor function of the muscles, may likewise affect not merely the nerves and muscles of the part, but also those of the whole body, or of distant organs, giving rise to paralysis. Now, pathologists have long recognized the fact, that general muscular excitement and spasm may arise from the operation of a local irritation. A man gets a contused wound on his thumb, or one of his fingers, and some superficial nerves are injured. In the course of a few days he begins to feel a degree of stiffness about the lower jaw and muscles of the neck, accompanied by a sense of constriction about the diaphragm. This increases gradually, all the voluntary muscles are thrown into a state of fixed spasm, and he gets tetanus. Here a few trifling branches of the digital nerves are injured, the morbid action is conveyed from them along the nerves of the arm to the spinal cord and brain, and is thence, by a reflex action, propagated all over the body. A wound in the finger causes a morbid action in its nerves, and it has been acknowledged by pathologists, that this, by acting on the brain and spinal cord, may give rise to a general morbid action of the muscular system. This being the case, there is nothing improbable in supposing that a cause affecting any portion of the branches of the nervous tree, and which produces effects of a paralytic nature, may likewise react backwards towards the nervous centres, and thence, by a reflex progress, may extend its influence to distant parts of the circumference.

To give another instance: how often do we see irritation, commencing in the intestinal mucous membrane, propagated backwards towards the brain? Take the familiar example of intestinal worms. A child labours under worms; here the irritation of the digestive mucous surface, whether it be produced by the worms, or by the indigestion which accompanies them, is propagated from the stomach and bowels to the brain, and thence reflected to the voluntary muscles, causing general convulsions.

Dr. William Stokes details the following case in his lectures: "A young woman was admitted into one of the surgical wards of the Meath Hospital, for some injury of a trivial nature. While in the hospital she got feverish symptoms, which were treated with purgatives, consisting of calomel, jalap, and the *black-bottle*, a remedy which deserves the name of coffin bottle, perhaps better than the pectoral mixture so liberally dealt out in our dispensaries as a cure for all cases of pulmonary disease. She was violently purged, the symptoms of fever subsided, and she was discharged. A few days afterwards, her mother applied to have her re-admitted, and she was brought in again, and placed in one of the medical wards. Her state on admission was as follows:—She had fever, pain in the head, violent contractions in the fingers, and alternate contraction and extension of the wrist and fore-arm. These muscular spasms were so great, that the strongest man could scarcely control the motions of the left fore-arm. In addition to these symptoms, she had slight thirst, some diarrhœa, but no abdominal tenderness. On this occasion a double plan of treatment was pursued, the therapeutic means being directed to the head, in consequence of the marked symptoms of local disease of the brain, and to the belly, from the circumstance of abdominal derangement observed in this and her former illness. She died shortly afterwards with violent spasms of the head and fore-arm; and as she had presented all the ordinary symptoms of a local inflammation of the opposite side of the brain, we naturally looked there first for the seat of disease. After a careful examination, however, no perceptible trace of disease could be found in the substance of the brain, which appeared all throughout remarkably healthy. She had all the symptoms which, according to Serres and Foville, would indicate disease of the optic thalamus or posterior lobe of the opposite side, yet we could not find any lesion whatever of its substance, after the most careful examination. But on opening the abdomen, we found evident marks of disease; *the lower third of the ileum, for the length of six or eight inches, was one unbroken sheet of recent ulcerations.*" This case, gentlemen, you will perceive just now, bears very strongly on the subject of paraplegia arising from enteritis.

Again: how often do we see convulsions brought on in the same way by cutaneous irritation? A child gets an attack of fever, accompanied by general irritability and restlessness. During the course of the disease, the lungs become affected, and the medical attendant applies a large blister, which is left on for several hours. Next day the symptoms of nervous irritation became more violent; the child is perfectly restless, or, if it dozes for a moment, awakes screaming, and is finally attacked with general convulsions. Many other examples could be brought to support this view of the question, and prove that morbidly increased action of the whole muscular system may be excited by a cause acting merely on some insulated portion of the nervous extremities.

I think, therefore, that I am borne out by analogies strikingly exhibited by numberless examples, in asserting that the circumference of the nervous system has been too much neglected by pathologists in their explanations of the nature and causes of paralytic affections. I could give many instances of pains commencing in particular parts of the body, and travelling back towards the spine, so as to give rise to an affection of that organ, which has been too generally looked upon as the result of idiopathic disease. How often does this happen in hysteria? How often does it occur,

that the organ primarily engaged in hysterical cases becomes, during the attacks, acutely painful, and as the disease proceeds, the pain travels back towards the spine, until at length, the spinal cord itself becomes affected, and we find acute pain and tenderness over some portion of its track? I am fully persuaded that many modern authors, who have ascribed the phenomena of hysteria and other affections to spinal irritation, have been too hasty and indiscriminate in their explanations. In the majority of cases, you will find hysteric patients complain at first, not of pain in any part of the spinal cord, but in the right side in the situation of the liver, in the region of the heart or stomach, or in the head, or the pelvic region. At this period there is seldom any tenderness over the spinal cord; but, as the disease goes on, the irritation which existed in some of those situations to which I have referred, is extended to the spine, and pain and tenderness are now felt over some of the spinous processes of the vertebræ. When this has taken place, then the spinal irritation thus produced becomes itself a new cause of disease, from which, as a centre, the morbid influence is propagated to other organs. The profession owes much to Teale, Griffin, and other writers, who have pointed out the importance of attending to this spinal tenderness in cases of hysteria, &c. Still, however, like all those who have been employed in investigating a new subject, they have, perhaps, generalised too hastily, and have, in many cases, regarded this spinal tenderness as a cause, when it should have been merely considered as a consequence.

Having thus endeavoured to explain some of the general principles which should guide us in the investigation of nervous diseases, I shall relate some cases of paraplegia, which, though differing in their origin as to the organ inflamed, will strike you as exhibiting a close analogy to those published by Mr. Stanley. "In November, 1832, I attended, with Mr. Kirby and Mr. Cusack, a young gentleman, aged fourteen, who was residing at a boarding-school in the vicinity of Dublin. He had eaten a large quantity of nuts on the eve of Allhallows, and had, in consequence, obstruction of the bowels, attended with sense of weight and pain of the stomach, nausea, loss of appetite, and obstinate constipation. Active purgatives, of different kinds, were employed without effect, and the obstruction was only removed by the use of repeated enemata, thrown up with Read's syringe, introduced as far into the cavity of the intestine as the circumstances of the case permitted. To these means, assisted by leeching and stuping, the constipation yielded; but its removal was followed by symptoms of enteric inflammation, embracing not one, but all the coats of the intestine—the mucous, the muscular, and certainly the peritoneal. The occurrence of a new and violent disease greatly impeded his cure; we had a long and anxious attendance, and the young gentleman escaped with great difficulty. However, the enteric symptoms at length gave way, convalescence became manifestly established, the patient was able to sit up in his bed, and as his strength and appetite were rapidly returning, he was informed that he might get up. On attempting to leave his bed, it was found that he had lost the power of using his lower extremities—in fact, he had become paraplegic. He had perfect power over his arms and trunk, but the lower extremities were quite useless. The paralysis, however, was entirely limited to the muscles; there was no diminution of sensibility in the limbs; no numbness, pain, or sensation of formication; and the muscular functions of the bladder and rectum were, apparently, uninjured.

“ Before I enter on the explanation of this case, permit me to recite the following:—In the month of November last, I was called to visit a lady residing in the neighbourhood of Merrion-square, who was said to be labouring under symptoms of dyspepsia. She had a sense of weight about the stomach, nausea, tendency to vomit, epigastric and hypochondriac tenderness (the latter situated in the right side), but no fever or excitement of the circulation. In the course of two or three days, she became slightly jaundiced, and it was evident that the latent cause of her disease was, in all probability, a gastro-duodenitis terminating in an affection of the liver. It is sufficient to say, that this lady’s symptoms went on, and that the diseased action gradually extended to the whole intestinal tube, liver, and peritoneum. Her bowels became tympanitic, her belly extremely tender on pressure, she got low fever, with quick pulse and great restlessness, and was saved with difficulty by the repeated application of leeches, and the use of calomel, so as to affect the mouth. She became convalescent; but with the return of health, it was found that she had lost the power of using her lower extremities. She still continues paralytic.”

In the case of the young gentleman already detailed, you will recollect that the paralysis was entirely limited to the muscular functions of the lower limbs, and that there was no derangement of sensation, no lesion of the muscular powers of the rectum and bladder. The same thing occurred in this case. There was in the beginning no impairment of sensibility, and the power over the rectum and bladder was uninjured. “ Within the last three weeks, however, she has complained of pain in the loins and bowels, and the muscular functions of the bladder are becoming deranged.”* Indeed, the case is rather unfavourable; it has resisted the ordinary remedies, and threatens to become one of confirmed paraplegia.† It is to be observed, that in this lady the loss of power was much more complete than in the young gentleman before referred to; his paraplegia was by no means perfect, and yielded to the employment of stimulating frictions to the extremities, combined with a cautious use of internal stimulants and tonics. In neither of these cases was the loss of muscular power so great as to deprive the patients of the use of their legs while lying in bed. They could then be raised, flexed, and extended with apparent ease and strength; and yet, when the patient attempted to stand up or walk, he was totally unable to do either, his legs sinking under him; and even when supported by a person on each side, so as to take the greater part of the weight of the body off the limbs, he was still unable to advance one foot before another. I cannot understand why so great a difference should exist between the muscular force of the legs in the one position and in the other.

Here, you perceive, we have more or less complete loss of power of the lower extremities, supervening on inflammation of the gastro-intestinal mucous surface. Of this I have now witnessed several examples. How are we to account for this? In what way does paraplegia arise from inflammation of the bowels? The mode in which I would explain this phenomenon is as follows:—The impression made by inflammatory derangement on the nervous filaments distributed to the mucous coat of the

* This sentence was inserted on the 23d March, 1835. Mr. Carmichael and Dr. Nalty have seen this lady repeatedly.

† She began to improve in six months, and eventually quite recovered.

intestines is propagated to the spinal cord, and from this reacts on the muscular functions of the lower extremities. It is true that the intestines, and most of the abdominal organs, are almost exclusively supplied with nerves from the great sympathetic; but you are to recollect that these communicate by numerous branches with the spinal nerves, and that, consequently, morbid impressions made on their extremities may be rapidly and extensively propagated to the spinal cord, and from thence by a reflex action to the muscular nerves of the lower extremities. When I first met with cases of paraplegia after inflammation of the bowels, or fever with gastro-enteric symptoms, I thought that, owing to some peculiarity in the case, the great lumbar nerves had become implicated in the disease; that there was an actual inflammatory state of the neurilema, accompanied by thickening and effusion, which, by compressing the nervous matter, gave rise to the paraplegic symptoms. A more extensive review of the subject, however, has convinced me that this is not the fact; for, if it were, the affection of the nerves would naturally be attended with acute pains shooting in the direction of their course—for, as far as my experience goes, in every instance of inflammation attacking the neurilema, intense pain is felt in the parts to which the branches of the affected nerve are distributed. Again, though this explanation might apply to cases in which the inflammation was general—as where enteric is combined with peritoneal inflammation—it would not apply to those cases in which the inflammatory action is localised. Thus, in Mr. Stanley's cases, the paraplegia supervened on inflammation principally limited to the kidneys. In seven cases detailed in Mr. Stanley's paper, we find paralytic symptoms produced, not by any derangement commencing in the brain or spinal cord, but in consequence of an irritation having its seat and origin in the kidneys; and yet, in the majority of his patients, the paraplegia was as complete as if it had been produced by idiopathic disease of the cord or its investments. What was equally remarkable, many of those cases were accompanied by spinal tenderness; so that the most experienced practitioners, on a review of the symptoms, were inclined to look upon them as cases of disease affecting the vertebræ, or the spinal cord and its sheath. Yet on dissection there was no caries of the bones; no destruction of ligaments; no remarkable vascularity, softening, or suppuration of the spinal cord; no inflammation of its membranes, or effusion into its sheath. In almost all, the morbid phenomena were confined to the kidneys; there were depositions of pus dispersed through their substance, and the mucous lining of the infundibula, ureters, and bladder, was thickened and vascular. The formation of purulent matter was not, however, connected with the paraplegia further than as being, like it, produced by the same cause—inflammation of the kidney. In one case the paraplegia was very complete, and yet the inflammation of the kidney had not advanced to the stage of suppuration.

There can be little doubt that others have frequently noticed the occurrence of paraplegia after inflammation of the bowels, although no author has as yet written upon the subject. It is well to be acquainted with the occasional occurrence of so untoward and obstinate a sequela of enteric inflammation, in order that we may watch attentively the state of the lower extremities immediately after the inflammation of the bowels has been subdued. As the patient, in such cases, has no pains in his limbs, and is not conscious of any loss of power until he attempts to stand

up—and as this attempt is not usually made for many days after the subsidence of the inflammation of the bowels, in consequence of the great debility which the disease and the active treatment necessarily resorted to produce—this variety of paraplegia is very liable to be overlooked in its commencement, and is thus neglected at the very period when treatment is most likely to prove beneficial. The foregoing observations have, no doubt, excited a suspicion in the minds of some of you, that the paralysis so often observed to follow painter's colic may be derived from a reaction of the nervous system of the bowels on that of the muscular system in general. Dr. Bright, indeed, has asserted that inflammation of the spinal marrow or sheath, as denoted by spinal tenderness, always precedes the paralysis produced by lead. It often does, but by no means constantly; for I have pointed out to you several cases in this hospital in which not the slightest vestige of spinal tenderness could be detected either before the commencement, or during the progress, of the paralysis which so often follows painter's colic. I am not inclined to adopt the supposition that the paralysis in such cases is merely secondary, and the result of the intestinal irritation. I think it much more probable that it depends on the poisonous effects of the lead acting directly on the nervous system. The same observation applies to the paralysis which so often occurs as a result of large doses of arsenic. Orfila has remarked that some of the dogs he experimented on, and which narrowly escaped dying in consequence of large doses of arsenic, became, when they recovered from the immediate effects of the poison, permanently paraplegic. I look upon this paralysis as a direct consequence of the deleterious action of the arsenic on the nervous system, and not as the result of the gastro-enteritis it invariably produces. The fact, however, is well worthy of attention, that both arsenic and lead produce intestinal irritation in the first instance, and loss of muscular power in the second. A knowledge of this fact will prepare us for understanding the connection which appears to exist between intestinal irritation and paralysis.

In a lecture published by my colleague, Dr. William Stokes, in the 237th number of the *London Medical and Surgical Journal*, he makes the following observations, which I shall beg leave to quote:—"Here, then, we have well-marked paraplegia without any perceptible organic change in the spinal cord or its investments, but presenting distinct traces of disease in the kidneys. This leads me to observe the very close connection which exists between the kidneys and spinal cord—a connection which has been long recognized by medical practitioners, but only in a limited point of view; for, though they were of opinion that disease of the kidneys and a discharge of ammoniacal urine were the results of spinal disease, they never seem to have reflected that the reverse of this might happen. It seems, however, now to be almost completely established, that disease of the kidneys may produce symptoms which are referable to disease of the spine. Medical men have been too much in the habit of looking at this matter only in one point of view. They know that disease of the spine will produce disease of the kidneys, and here they stop; but it has been shown that the reverse of this may happen, and that renal disease may produce very remarkable lesions in the functions of the spine. Of this very curious occurrence we have many analogies in pathology. Thus, for instance, in several cases of cerebral disease, but particularly in hydrocephalus, we have vomiting; here we have

functional disease of the stomach depending on disease of the brain. Take the reverse of this,—observe the delirium which attends a case of gastro-enteritis; here you have the functions of the brain deranged in a most remarkable manner, and this produced by sympathy with an inflamed mucous membrane. The truth is, that in the spine and kidney, as well as in various parts of the body, we may have two organs so closely connected in sympathy, that disease of the one will bring on serious functional lesion of the other.”

It will be seen that these observations coincide, in many points, with the principles I have laid down in the published lectures which I delivered on the subject of nervous pathology, and to which I have already referred. On this point Mr. Stanley makes the following remarks:—“In reflecting on the phenomena of the first series of cases which have been detailed in this paper, it might be thought improbable that irritation, commencing in the kidney or in the bladder, should be propagated through sentient nerves to the spinal cord, and that the impression should thence be transmitted through both the motive and sentient spinal nerves to the limbs—here occasioning an impairment both of sensation and the power of motion. Some illustration of this subject seems to be furnished by the researches of experimental physiology. If, in an animal, “a few seconds after it has been deprived of life, the spinal cord be then divided in the middle of the neck, and again in the middle of the back, upon irritating a sentient organ connected with either isolated segment, muscular action is produced—that is to say, a sentient organ is excited—and an irritation is propagated through the sentient nerve to the isolated segment of the spinal marrow, where it gives rise to some change, which is followed by an impulse along the voluntary nerves to the muscles of the part.”* In the instances which have been adduced, irritation, commencing in the nerves of an internal organ—the kidney—has been transmitted through the spinal cord to the motive and sentient nerves of the lower extremities; but the same phenomena may occur in an opposite order, as in the case of a compound fracture or other severe injury of the lower extremity, followed by retention of urine from irritation arising in the anterior and crural ischiatic nerves, and communicated through the lumbar and sacral plexuses of spinal nerves to the nerves of the bladder. Extending these views to cases of neuralgia where there is no visible derangement of structure or other local cause of excitement, it will always be difficult to determine whether the source of irritation be in the affected nerves, or in the central portion of the nervous system whence they are derived.”

You will perceive that this explanation, as far as it goes, though not in the same words, is in meaning the same as that which I have given, with this exception—that it is only a corollary of the general principles which I had laid down in my lectures on the pathology of the nervous system. Long before the publication of Mr. Stanley’s paper, I had established the proposition that impressions made upon any portion of the nervous extremities may be propagated towards their centres, and thence by a reflex action transmitted to the nerves of other and distant parts, so as to give rise to morbid phenomena analogous to those which are produced by disease originating in the central parts themselves. Applying this principle to the subject of paraplegia, we shall find that, independently of cerebral or spinal disease, it may arise from a variety of causes, each referable to lesions commencing in distinct and isolated portions of the

* Outlines of Human Physiology, by H. Mayo.

nervous extremities. Thus, in Mr. Stanley's cases, the exciting cause seems to have originated in the urinary system; in the cases which I have detailed, where it supervened on inflammation of the bowels, it commenced in the digestive (and it appears, from a communication made to Mr. Stanley by Mr. Hunt, of Dartmouth, that the same thing may result from irritation existing in the uterine) system. Mr. Hunt alludes to several cases of disease of the uterus being followed by such loss of power in the lower limbs, that the patients were entirely confined to bed; adding that there was no change of structure in the parts to which the symptoms referred as the source of irritation. In addition to these, I shall in my next lecture bring forward several cases to prove that a similar loss of power may be produced by the action of cold on the lower extremities. Indeed, the number of cases which I have recently met with, where paraplegia was evidently brought on by exposing the lower extremities to cold and wet, has very strongly directed my attention to this form of the disease; and I trust I shall be able, at our next meeting, to communicate some very interesting matter on the subject.

I shall conclude this lecture by reading the following case, for which I have been indebted to the kindness of my friend Dr. Hutton.

“Richard M'Nab, a sailor, aged thirty-eight, was admitted into the Richmond Hospital on the 16th of January, 1835, and placed under Dr. Hutton's care. His previous history was briefly as follows:—In the summer of 1826 he strained his back in leaping, and was confined to bed in consequence of the accident, but recovered in about twelve days. Shortly afterwards he contracted gonorrhœa, which was attended with hernia humoralis; this yielded to repeated local bleeding, but a gleet remained, and this, after continuing for some time, disappeared under the use of sea-bathing. He then enjoyed good health, with the exception of occasional slight pain in the lumbar region, until October, 1830, when, being much exposed to cold and wet during a long and fatiguing voyage, he got an attack of piles, for which he was under medical treatment for seven months. During the continuance of this affection, he first observed a frequency in micturition, but had no retention or sensible obstruction of urine. After recovering from the hemorrhoidal attack, he enjoyed good health until September, 1834, when, coming from Cadiz to the port of Dublin in a very leaky vessel, he suffered greatly from cold, wet, and fatigue—being almost constantly engaged at the pumps, which could not be left for ten minutes at a time. In addition to this, being deprived of his usual allowance of spirits for thirty-two days, he found himself, on his arrival in Dublin, in a very weak state. He rested from his occupation for a fortnight after discharging his cargo, and states that during this time he drank from four to six glasses of whiskey daily. He then went on board the Elizabeth, of London, as chief mate, but after eight or nine days his back and lower extremities became affected with pain and weakness, which increased to such a degree that he was obliged to give up his occupation on the thirteenth day. He states that, during the time his back and legs were getting weak, he was obliged to pass water about three times in an hour, which he did with pain and tenesmus. On the 1st of January the pain of his back was very severe, and he lost the use of his limbs, but not completely, for he could support himself, and even walk a little with the aid of two sticks.

“At the time of his admission he appeared somewhat broken down in

his general health ; he was pale, emaciated, and laboured under derangement of his digestive organs. He suffered from occasional chills, succeeded by heats and sweating, which occurred at irregular periods ; he also laboured under micturition, dysuria, and the stream of urine was much diminished ; the weakness and loss of power in his lower extremities as reported.

“ His treatment was as follows:—First, cupping over the loins, then moxæ in the same situation ; attention to his digestive organs ; diluents and opiates for the urethral symptoms. On the 26th of the same month, a very close stricture was found to exist in the membranous portion of the urethra. A small catgut bougie of double length was introduced, so that one-half of it projected from the meatus ; over this was slid a small gum-elastic catheter of ordinary length, and open at each end, until it traversed the stricture and reached the bladder ; the catgut bougie was then withdrawn, and the gum-elastic catheter secured. A little constitutional disturbance followed, but soon subsided, and in a few days gum-elastic catheters of a much increased size were introduced with facility.

“ *A very remarkable amendment took place in his back and lower extremities, in a very few days after the first introduction of the instrument ; in fact, it was almost sudden.* Warm baths, friction to his limbs, &c., completed his cure. He was discharged on the 25th of February, at which time the power of his lower limbs was perfectly restored, and the symptoms affecting the urinary system had disappeared.”

You at once perceive the extreme importance of this case ; it bears directly on the question before us, and proves that urethral irritation may, as well as inflammation of the kidneys, give rise to paraplegia ; and it affords another striking illustration of the general proposition which I have laid down.

In the next class of cases we have to consider, the cause of the paraplegia is extremely obscure—I mean those cases in which the paraplegia occurs during the course of fever. Here the other sufferings of the patient, and his general debility, attract our notice so exclusively, that the paralysis entirely escapes notice until convalescence is established—until, in fact, the patient wishes to support himself on his legs. He then finds, much to his surprise, that his limbs collapse under him, and that he has little or no power over them ; this appears to him the more extraordinary on account of his having recovered a good deal of strength in his upper extremities. Thus, a Miss F. was attacked with fever, while on a visit to a friend in Dublin. She was attended by Mr. Carmichael. Her fever was protracted and severe, and exhibited, during its progress, well-marked symptoms of gastro-intestinal irritation and congestion, viz., tympanitis, epigastric and abdominal tenderness, &c. When her convalescence was established, her attendants found, to their great alarm, that she had no power in her legs. She complained of coldness and numbness in the lower extremities. This lady gradually recovered the use of her legs, but not until moxæ, without number, had been applied along the course of the spinal column. The cure lasted about a year. No evidence could at any time be detected, indicating disease of the spinal bones or ligaments. Mr. Carmichael has seen several cases of paraplegia following the remittent gastric fever of children, totally unconnected with spinal disease. Such an occurrence is most usual in children of a scrofulous temperament, and is seldom, very seldom, remedied either by time or medicine. Two ex-

planations suggest themselves as capable of accounting for the paraplegia after fever. The first rests upon the frequency of the occurrence of violent pain in the small of the back in the commencement of this disease. This pain in the back is often excruciating, and generally accompanied by proportionally violent pains in the lower extremities. I am quite as anxious to relieve the pain in the back in the beginning of fever, as I am to remove headache; one is almost as serious as the other, for the vital importance of the spinal marrow in the economy is scarcely less than that of the brain.

In reference to this point of practice, I have been in the habit of using the expression (in order to fix the attention of my pupils), that such a patient has not any pain in his head, *but he has gotten his headache in the small of his back*. Now, when headache is the prominent feature of the first stage of fever, how few will omit bleeding, leeching, cupping, cold or hot applications, &c. &c. When, on the contrary, the lumbar spinal marrow is the seat of the congestion, how generally do practitioners neglect the application of topical bleeding, and other appropriate remedies. Were such neglect of less frequent occurrence, it is probable that paraplegia after fever would not so often be met with. Some may be inclined to look for the source of the paraplegia which follows fever in the irritation of the gastro-intestinal mucous surface, propagated by a reflex progress to the spinal marrow. It is not easy to decide between these two explanations, but I confess myself more inclined to adopt the former than the latter.

I shall now proceed to lay before you some facts and cases illustrating the nature of another form of paraplegia, a form of extreme interest, from the circumstance of its being hitherto but little understood, and not mentioned by any writer I am acquainted with, as well as from the peculiar nature of its origin, and the frequency of its occurrence. I have, within a comparatively short period of time, met with several instances of this affection, and have some cases of it at present under treatment.

Before I enter on this part of the subject, I may be allowed to remark that, in some cases, loss of the power of motion in a limb can evidently be traced to the operation of a cause whose action is confined altogether to the surface. Thus, in the case of a woman in Sir P. Dun's Hospital, erysipelas occupied the calf and inside of the right leg, and occasioned some inflammation and tenderness along the chain of lymphatics extending to the groin, where one of the inguinal glands was slightly enlarged and painful. The erysipelas yielded to the employment of local and general remedies; but, for several days, and particularly while the disease was at its acme, she was altogether destitute of any power of motion in the affected limb; she could neither bend the leg on the thigh, nor could she raise the whole limb. This affection must have been produced by a reflex action propagated from the cutaneous branches to the larger muscular nerves. It is evident, that the muscles which move the leg on the thigh could have been affected only in this way, for they lay far above the part in which the erysipelatous inflammation existed. It is in the same way that we are to account for the paralysis observed in cases of phlegmasia dolens.

Sometimes the reverse of this happens, and a single limb becomes paralyzed, on account of an injury done to one of its principal nerves by the application of sudden violence, or of pressure long continued. Thus, a case was related to my friend Dr. Brennan and myself, in which a robust

gentleman having been much fatigued during the day, fell asleep after dinner, his head resting on his arms which were crossed on the table. In consequence of some unfortunate awkwardness in his position, one of the ulnar nerves was compressed during the time he slept, and, on awaking, his fore-arm and hand were completely powerless. Many remedies were tried in this case without success, and the paralysis continued until the day of his death, which occurred several years afterwards. A lady not long since, was tripped up in walking across the floor, and fell with considerable force. The parts which sustained the principal shock were the left hip and trochanter. From the moment of the accident, she lost all power in the left lower extremity, which remained permanently paralytic. Fracture or dislocation was suspected at first, but a minute and careful examination showed that the suspicion was groundless. No injury of the spine could be detected, and she had no numbness, pain or fornication in the affected limb. After a month she was placed under the judicious care of Mr. Kirby, who used every topical application likely to prove useful, but without the slightest benefit. She returned to the country, where she died shortly afterwards, quite unexpectedly, in the bloom of life, and without the occurrence of a single symptom indicative of approaching danger. No autopsy was permitted.

I shall now, with the view of illustrating the form of paraplegia to which I have alluded, read the following very remarkable case, which I had an opportunity of tracing through all its stages, and which made a very considerable impression on me at the time. The history is chiefly derived from notes furnished by the patient himself before he became too weak to write; what relates to the latter stages of his complaint is taken from my own case-book.

Mr. B., aged twenty-three, was remarkably strong and healthy, though of a spare habit. He was able to take a great deal of exercise, capable of enduring much fatigue, and passionately fond of hunting, fishing, and shooting, particularly the latter; and, in pursuit of his favourite amusements, frequently exposed himself to wet feet during his excursions through bog lands, and when wading in the water. These habits, however, he laid aside after the occurrence of the first attack of his illness, which happened in 1829. He had for many years been of a costive habit, his bowels being frequently confined for a week at a time, but did not experience any sensible bad effects from this circumstance, and never took any aperient medicine. Since the first attack in January, 1829, this state ceased, and his bowels became ever afterwards inclined to looseness, which always increased before the appearance of one of the attacks, accompanied by griping, nausea, and inclination to vomit. Each attack was generally preceded by a copious secretion of insipid watery fluid in the mouth, and then the characteristic symptoms of his disease commenced. These consisted in obstinate and protracted nausea and vomiting; he first threw up whatever happened to be on his stomach at the time, and afterwards every thing he swallowed, whether solid or liquid. The matter ejected was at first acid and afterwards bitter, varying in colour from mucous to bilious, but being generally of a greenish and occasionally of a bluish tinge. The greenish fluid annoyed him much from its extreme bitterness, and the quantity thrown up in the course of the day varied from three to four quarts of fluid. He complained also of pain, referred to the stomach or lower part of the chest, which continued throughout the

attack, being most acute at its commencement; for the last year, this sensation had passed into a feeling of painful constriction, which he described as a "contracted feeling of his inside," and compared it to something like the effects of a cord drawn tightly, so as to compress or strangle his body exactly along the outline occupied by the insertions of the diaphragm. During the prevalence of the attack, he had profuse perspirations, particularly towards the termination of each paroxysm. The duration of the first attack did not exceed four or five days, after which, he became quite well, and continued so for six or seven months, when his symptoms suddenly returned. He began to reject every thing from his stomach as before, but in the course of a few days the vomiting disappeared, and for a considerable interval he had no return of his complaint. In the year 1830, he had three attacks of a similar description; from these he recovered also completely, and without remarking any diminution of power in his lower extremities. In 1831, however, the disease began to assume a more serious aspect; the paroxysms became much increased in severity, lasted longer and recurred at shorter intervals. For one of these attacks he took mercury, and was salivated. In 1832, his symptoms became still more violent, and the duration of the paroxysms more protracted. He had one in March, a second in May, and a third in June, each of which was accompanied by some numbness and loss of power in the lower extremities; this, however, was slight, and disappeared altogether as the vomiting subsided. About this time, he noticed that his urine was scanty, and deposited more sediment than usual. He also complained of being very apt to catch cold whenever he got out of bed, and stated that he suffered occasionally from severe twitches and pains in his legs, thighs, arms, and other parts of his body, which were generally succeeded, and carried off, by profuse perspirations.

In August, 1832, he had a violent attack, which lasted nearly a month. The vomiting was incessant, continuing night and day, and he suffered severely from the feeling of painful constriction already described. On getting up after this attack, his legs suddenly failed him, and he dropped down on the floor quite powerless. The paralysis did not now disappear during the intervals, although it grew somewhat better after each fit of vomiting had ceased; indeed, he used to improve in his walking after the paroxysm had entirely disappeared; and, aided by two sticks, supported himself so as to give some hopes of a recovery until a recurrence of his attack reduced him again to a state of almost total paraplegia. His legs now began to waste sensibly, and he noticed that they had lost their feeling and were remarkably cold. He also complained of severe twitches of pain in various parts of his body, accompanied by profuse night-sweats, and turbid, scanty urine.

For some months before his death he was completely paraplegic, and continued to be attacked with violent fits of vomiting. The vomiting went on night and day, and he was unable to retain the mildest and most soothing substances for a moment on his stomach. Mr. Crampton and Dr. Ireland attended him with me, and we had recourse to every thing we could think of to allay the irritability of his stomach, but in vain. After continuing to resist obstinately every form of treatment for five or six days and nights, the vomiting would suddenly cease, the gentleman would exclaim, "Now I am well," and he could then eat, with perfect impunity, substances which would prove irritating and indigesti-

ble to many stomachs. This was one of the most singular circumstances I ever witnessed. The transition from a state of deadly nausea and obstinate retching to a sharp feeling of hunger, used to occur quite suddenly. One hour he was the most miserable object you could behold, racked with painful constrictions across the epigastrium, alternately flushed or bathed with cold perspiration, and rejecting every thing from his stomach, the next found him eating with a voracious appetite whatever he could lay hold of, and digesting every thing with apparent facility.

It may be observed that as the disease in this case proceeded, the intervals between the attacks diminished, while the paroxysms increased in duration. For the first two years they continued only for four or five days, and appeared at intervals of six or seven months; latterly they used to last for eight or ten days, and returned every third or fourth week. During the paroxysm the only thing which he took was a little cold water with some brandy and a few drops of laudanum, which remained longer on his stomach than any thing else, and enabled him to enjoy a few minutes sleep. He never complained of any headache, and his intellect was remarkably clear, and his memory good.

No trace of organic disease could be detected in the abdominal viscera, and there was not the slightest tenderness over any part of the spine. He also retained to the last a complete power over the bladder and rectum.

At length his system began to give way; long confinement to bed, and the frequent recurrence of these exhausting attacks completely wore him out, and he sank on the 30th September, 1833. A post-mortem examination was allowed by his friends, and we scrutinised every part of his system with the most anxious care. The brain, cerebellum, spinal cord, and their investing membranes, were carefully inspected; we examined the large nervous trunks that supply the lower extremities, inspected the viscera of the thorax, and searched for evidences of disease in the stomach and intestinal tube; we could find none. There was no lesion of the brain or spinal cord, no thickening or vascularity of membranes, the large nerves exhibited their normal condition, the stomach was perfectly healthy, the intestinal canal natural, the liver and other glandular viscera of the abdomen without any trace of appreciable derangement.

Here, then, was a case of perfect paraplegia (I say perfect, for he had lost all power of his lower extremities for more than two months before his death) which may be fairly termed functional, inasmuch as there was no lesion of any part of the nervous centres to explain the phenomena present. How then are we to account for them? the first symptoms were undoubtedly those of abdominal irritation, as manifested by the tendency to diarrhœa in an originally costive habit, accompanied by violent paroxysms of vomiting which recurred at distant intervals. Are we to attribute this diseased condition of the stomach and bowels, which, from the remarkable periodicity of its occurrence, was evidently functional, to irritation, congestion or inflammation of the brain or spinal marrow? From the data we are in possession of, it appears that this question must be answered in the negative. There was no headache, heat of scalp, throbbing of the temporal arteries, or other sign of determination to the head, of congestion, or inflammation of the brain either before or during the attacks. The patient's intellect was all throughout remarkably clear,

and his memory good. Again, if we look for the origin of the disease in the spinal cord or its investments, we can find nothing to assist in explaining the phenomena. There was no pain in any portion of the spinal cord, and at no period of his illness could we detect any tenderness over the spinous processes. The history of the case seems to prove that whatever was the cause which operated on the nerves of the stomach and intestines, it gradually extended the sphere of its morbid influence to the spinal cord, and, through it, implicated the nerves of the lower extremities. The case is in many respects highly interesting, and well worthy of the attention of the pathological inquirer. The dissection was conducted in the presence of Dr. Ireland and myself, by my friend and former pupil, Mr. Harris, so advantageously known for his skill in morbid anatomy. It was not made in a hurried or careless manner, each organ was carefully examined, and the process occupied at least four hours.

The next case to which I shall call your attention, is one which I have already given in a former lecture; it seems, however, to be so similar in the nature of its exciting cause to the foregoing though differing in some of its symptoms, that I shall beg leave to repeat it here.

James Moore, aged 32, was admitted into the Meath Hospital on the 3d of March, 1833, under Dr. Stokes's care, for an attack of paraplegia, which he attributed to cold and wet feet while engaged in working in a quarry. About a month before admission he perceived a stiffness of the great toe of his right foot, afterwards numbness and coldness of the sole, and then of the leg as far as the knee, and dragging of the limb in walking. During the progression of the disease up along the right thigh it commenced in the left foot, and after a few days he experienced almost complete paralysis of sensation in the right lower extremity, and a lesser degree in the left, accompanied by so much diminution of the power of motion, as to render him unable to walk without support. About three weeks after the appearance of paralysis in the lower extremities, the little finger of the right hand was attacked with numbness, which passed successively to the rest, attended by some loss of the sense of touch and power of grasping objects. He had also retention of urine, and the bowels were obstinately constipated. There was no tenderness over any part of the spine. He had no pain in the head; his pupils were natural; pulse, sleep, and appetite also normal.

Here we have an instance of paraplegia apparently originating from an impression made on the nerves of the lower extremities. The man had been engaged in draining a quarry, and during his occupation was constantly exposed to wet; shortly after this he begins to complain of numbness and loss of power in the right lower extremity, and, during the progression of the disease up along the limb, the left becomes similarly engaged. About three weeks afterwards, the hands, which had been also, but not so frequently exposed to the influence of cold and wet, begin to be affected with numbness, and the power of grasping objects is diminished. To what can we attribute these symptoms, except to the influence of cold acting on the nervous filaments of the cutaneous surface of the limbs, extending its morbid impression to the spine, and thence reacting on the nerves, so as to produce impairment of the power of motion and diminished sensation? The man certainly had no symptom of cerebral or spinal disease, nor was there any thing connected with the state

of the nervous centres which would lead to the supposition that paraplegia was the result of an irritation originally affecting the brain or spinal cord. It was on these grounds that I gave it as my opinion at the time, that the disease was an example of creeping paralysis, having its origin in an affection of the peripheral extremities of the nerves.

The next case is one which was also under treatment in the Meath Hospital during the course of last winter: for the particulars I am indebted to my colleague, Dr. William Stokes.

A robust, middle-aged man was admitted into the chronic ward of the Meath Hospital, in the latter end of February, 1834, labouring under paraplegia. He stated that he was generally employed as a boatman about the river and port, was frequently exposed to cold and wet, particularly in his lower extremities, and that he was in the habit of drinking freely. He had enjoyed good health until about seven weeks before admission, when he was seized with numbness of the feet and legs, which, after continuing for three or four days, was followed by tingling pains running along the course of the nerves. He then remarked that the power of his lower extremities was much diminished, and this gradually increased so as to prevent him from walking or even standing without support. His bowels became obstinately costive, and about a month after the commencement of his attack, he perceived that his urine was discharged in smaller quantity than usual, and that he was much more frequently called on to pass it than before. He also mentioned that he had gonorrhœa about six months before, and that he had used balsam of copaiba and injections. Some time after this he said he noticed some white matter passing with the urine, but did not pay any particular attention to it as it gave him no inconvenience. His appetite was tolerably good, and he had no headache or any symptom of determination of blood to the brain. He denied having received any injury of the back, and there was no tenderness over the spinous processes of the vertebræ. He had no pain in the spine, either before or since the occurrence of his illness, nor was there any symptom of inflammation of the substance or membranes of the spinal cord. When admitted he had considerable diminution of sensation and complete loss of motion in one of the lower extremities; in the other he still retained some power. He had also retention of urine, requiring the daily use of the catheter.

The treatment was as follows:—He was placed on one of Dr. Arnott's hydrostatic beds, as there was a great tendency to stripping over the hips and sacrum, a purgative pill was administered two or three times a-day to remove the costiveness, and he was ordered to be cupped over the loins. The latter was done in consequence of his complaining of some tenderness on pressure in the situation of the kidneys. His symptoms, however, went on without any improvement, and he died about a month after his admission.

On dissection the following phenomena were observed. The kidneys (which were first examined) appeared rather soft, and of a yellowish colour, but there was no vascularity, suppuration, or other change of structure. The ureters were somewhat distended, but presented no other trace of disease. The bladder was contracted, its muscular coat thickened, and its mucous membrane very vascular. There was no affection of the prostate. On examining the spinal cord, Dr. Stokes observed that he thought the cauda equina appeared to be slightly softened, but remarked that from its appearance he could not state that it was actually

diseased. The rest of the spinal cord appeared healthy and normal; there was no vascularity, effusion, or softening. External to the sheath of the cord there was a small, flattened, oval body, about the size of half a very small hazel-nut, and of a consistence intermediate between lymph and fat. Around this there was some slight degree of vascularity. Dr. Stokes observed, that from the small size of this body, and the peculiarity of its texture, he entertained strong doubts as to its having any influence in the production of the symptoms noticed during life. He remarked, although it might have been originally the product of inflammation, and have existed in the form of an effusion of lymph, still the circumstance of its conversion into a fatty substance proved that it must have existed for a very considerable time, and the smallness of its size, as well as the obscurity of its origin, did not by any means satisfactorily explain the occurrence of paraplegic symptoms.

The next case which I have to lay before you, appears to be analogous in its mode of origin to the former:—"A gentleman of strong constitution, and extremely fond of field sports, particularly fishing and shooting, exposed himself repeatedly to wet feet at a time when he was labouring under the effects of a long mercurial course. Taking large quantities of blue pill, and exposing the lower extremities to wet at the same time, are circumstances which have an obvious tendency to produce disease, and it is not to be wondered if this gentleman became the victim of his want of caution. He got numbness and weakness in his legs, which he at first attributed to fatigue and over-exertion; but as the disease went on, he became more and more powerless, and, finally, applied to me respecting his illness. On examination I found that he had no pain in the back, or tenderness on pressure; nothing, in fact, to indicate any original affection of the spinal cord. The functions of the brain also were natural, and there was nothing about him to lead me to suspect cerebral disease. He had, however, considerable impairment of the muscular functions of the lower extremities, and could not walk without the aid of crutches, or some person to support him. In treating this case, I looked upon it as an instance of imperfect paraplegia, in which the paralysis apparently rose from impressions made upon the sentient extremities of the nerves of the legs and feet, at a time when these nerves were particularly liable to be deranged in their functions from the previous use of mercury. I therefore had recourse to remedies directly applied to the extremities of those nerves, and fortunately succeeded in restoring this gentleman to the use of his limbs. The cure, however, was not perfect, for a very notable degree of weakness still remains.

Of this form of paraplegia I have now witnessed many instances. In most cases I was induced to think that it arose from impressions made by cold and wet on the lower extremities. It is most commonly observed in young gentlemen who are addicted to fishing and shooting, and who in pursuit of their amusements get wet feet repeatedly, from walking over boggy grounds, or wading in the water. It is also observed in labourers whose employment obliges them to stand in water for many hours together, as in draining, pump-sinking, and other similar occupations. In all cases it assumes the creeping form, and generally appears at first in one limb, and afterwards in the other. There is, however, considerable variety in the rate of its progress; in some cases the patients become almost completely paraplegic in a few weeks from the commencement of the disease, in others it will go on for months, and even years, before the power of

the lower extremities is completely destroyed. Where its progress is slow, it makes its approach in an insidious manner, and is at first scarcely noticed by the patient. Its latency is here further favoured by the absence of pain, numbness, or formication; for it is only at the more advanced stages of such cases that derangement or diminution of sensation is noticed. It is only when making some unusual exertion, as in going up stairs or ascending a hill, that the patient finds a more than ordinary degree of weakness in the lower extremities. The first symptom which generally attracts his attention, is an incapability of walking as far as he has been accustomed, but this is attributed to some temporary weakness, or is considered to be the result of previous fatigue. As the disease progresses, walking up an ascent becomes a matter of some difficulty, there is a shuffling motion of the legs, and the patient is apt to stumble from slight obstructions. Gradually the loss of power becomes more manifest, it excites the attention and surprise of the patient, and he finds that he is no longer able to walk without the aid of a stick or some person to lean on. The paralysis is, however, seldom complete; with the help of crutches the patient continues to hobble about, and it is only in bad cases, and at an advanced period of the disease, that he becomes completely paraplegic. The paralysis is never so sudden nor so complete in this form of paraplegia, as it is in cases of disease of the spinal cord, or scrofulous ulceration of the bones and ligaments.

In other cases, however, the paraplegia, though evidently of the same origin, and having the same creeping character, advances with much more rapidity; and the patient may, in a few weeks from the commencement of the attack, experience a very considerable diminution of power in the lower extremities. In such cases it will be generally found that one limb is much more affected than the other, the loss of power being most complete in the limb which was first engaged.

With respect to sensation, it appears to be affected as well as motion. In the slow and chronic form of this species of paraplegia, it does not attract the attention of the patient so quickly as the derangement of muscular power; it is generally some time before he notices any diminution of sensation, and then accidentally. In the more advanced stage, however, this becomes manifest, and is accompanied by a feeling of cold in the lower limbs, which seldom extends higher than the knees. In the more rapid and acute form, the derangement of sensation is much more obvious, and is generally the first symptom noticed by the patient. There is at first a feeling of numbness, which commences in the toes or feet, and extends up the limb: this, in the course of a few days, is followed by formication and tingling pains in the course of the nerves, and then loss of power and diminished sensation. *There is, however, in both these forms of paraplegia, much less impairment of sensation than of motion, and the loss of sensation is never so complete as in paraplegia from disease of the spine.*

There is one curious symptom occasionally observed in this disease, which is that, before the appearance of any decided symptoms of loss of power in the lower extremity, irritation of the lower part of the digestive tube takes place; the rectum becomes morbidly excited; the patient complains of tenesmus, and thinks he is about having an attack of piles. This was the first symptom observed in one of the cases I attended; the patient complained so much that we were induced to examine the state of the rectum, but could not find any thing to account for the morbid ex-

citement. The same observations apply to the bladder, with this exception, that the morbid irritability of this organ occurs occasionally after the disease is confirmed and has made considerable progress. On the whole, however, affections of the bladder and rectum are rare in this form of paraplegia; and it is only at the advanced stages that we sometimes meet with that derangement in the muscular powers of the bladder and rectum, which occurs so frequently, and at such an early period, in the paraplegia from spinal disease.

In cases of paraplegia from disease of the spinal cord or its investments, it has been observed that the urine becomes altered in its quality, and assumes an ammoniacal odour. I have not observed this occurrence in the forms of paraplegia that I have detailed. The urine is turbid, scanty, and voided oftener than usual; but I cannot say that I have seen it in any case decidedly ammoniacal, even in the advanced stages of the disease, and where the patient was completely bed-ridden. Should future observations prove that this diagnostic mark is constant, it may be of some value in distinguishing this from other forms of paraplegia.

In these cases there is scarcely any thing which would lead us to fix on the spine as the seat and origin of the disease; neither can we find any thing in the brain with which we can connect the paralytic symptoms. There is no pain of the head or spine, very seldom any tenderness, the patients are in the full vigour of intellect, and all the organs of sense in their normal condition. The functions of respiration and circulation are unaffected; and it was remarked in the first case which I have detailed, that there was no change in the pulse, either during the fits of vomiting, or the intervals of ease. The appetite also is generally good; but, in almost every instance I have met with, there has been remarkably obstinate constipation.

With respect to the prognosis and treatment of this form of paraplegia, I have but little to say. The prognosis is generally unfavourable, particularly where the disease has lasted for some time, and is accompanied by morbid irritation, or loss of power in the bladder or rectum. It is also bad in proportion to the slowness with which it has come on, and the absence of pain or formication of the lower extremities. With respect to treatment, I may observe that I have never seen any benefit derived from applications to the spine. The application of blisters or issues over the back or loins, does not appear to be productive of the least good effect; of the latter, I can speak positively, from experience. They are an enduring source of annoyance to the patient, and never produce the least amelioration of symptoms. I am in the habit of applying my local remedies to the legs and thighs, selecting those parts in which the greatest cutaneous sensibility exists. What I generally do, is to keep up a succession of blisters along the inside of the legs, and over the anterior and inner parts of the thighs. The practice of medicine furnishes many proofs of the utility of stimulant applications to the nervous branches, in case of disease affecting the larger trunks. Thus, in sciatica, a blister, applied over the ham or calf of the leg, where many of the ultimate ramifications of that nerve are superficial, will frequently produce a much more decided effect than when applied over the origin of the nerve itself. Liniments of a stimulating kind, and blisters repeatedly applied, are the local means on which I chiefly rely in the treatment of this form of paraplegia. After some time, I commence with the use of strychnine, and continue it until

some sensible effect on the system is produced, when I omit its further use, and have recourse to the exhibition of sulphur. These are the two internal remedies from which I have derived most benefit. I have in such cases seen very good effects from a perseverance in the use of the sulphur electuary, of which I have given a formula in one of my published lectures. Much also will be accomplished by the external use of sulphur, in the form of baths, and hence cases of paraplegia of this kind might be materially benefited by the internal and external use of the waters of Lucan, Harrogate, Baden, Barége, &c. With respect to the use of mercury, it appears to be decidedly injurious. I have seen it given in three cases; in all it did much more harm than good.

This is all I have to say at present on the subject of paraplegia. I fear much that many omissions, and considerable deficiency of materials, will be observed in the statements I have laid before you. I hope, on some future occasion, to be able to communicate a more minute and better digested series of observations on this obscure form of disease. The subject, however, is in itself so interesting, and so important, that I have been tempted to bring it before you, perhaps prematurely. My anxiety to excite discussion, and attract further attention to a department of practical medicine hitherto quite neglected, must on this occasion plead my excuse.

ELECTRO-MAGNETISM.

LECTURE XXXIII.

As Mr. Clarke has lately been employing electro-magnetism very successfully in my wards at the Meath Hospital, I have obtained from him notes of some of the cases, and also an account of his apparatus, &c. This document I feel great pleasure in laying before the reader.

“ Brief notes of some cases in which I have applied Electricity to patients in the Meath Hospital.

“ Edward Fitzgerald, labourer, admitted 24th April, 1842—discharged cured 5th June, aged 50—temperament sanguineous. Disease—lumbar rheumatism, extending to the pelvis; also sciatica. Felt much stiffness of the loins, and pain when walking, and particularly when attempting to stoop. Attributed his complaint to watching in the open air at night. Had been cupped and blistered without effect.

“ Applied magnetic electricity four times, from 20th to 23d of May inclusive, by which time a perfect cure was obtained. Remained in hospital until 5th June, without experiencing any return of the disease.

“ Edward Kelly, labourer, aged 40, admitted 12th May, 1842,—discharged, much relieved, on the 28th June—temperament bilious. Disease—chronic rheumatism, with enlargement anterior and inferior to the malleoli of each foot, accompanied with some effusion into the adjacent parts. Had suffered under this disease during the entire of the past four years, having been treated in other hospitals and discharged uncured;

and since his admission into this hospital, had been blistered, leeches, and treated with hydriodate of potash and colchicum, without much benefit.

“I applied electro-magnetism for about ten successive days, and succeeded in reducing the enlargement below the ankles considerably, and enabling him to walk well; still, after much exercise, a disposition of the same part to swelling existed, and we cannot, therefore, say, that a perfect cure was effected, even under the combined treatment of medicine and electro-magnetism. And as so much other treatment was adopted, not electrical, I did not deem this a case deserving of long-continued perseverance, more particularly as I conceived it likely that he would not be permanently restored by any treatment whatever.

“Anne Cummins, admitted 17th May, 1842—discharged cured on 1st July—temperament changing from sanguineous to nervous. Diseases—ptosis of right eyelid; amaurosis, which had deprived right eye of vision, and so injured the left, that she could hardly see the chimney-piece of her ward when distant from it the length of the room; also amenorrhœa of ten months’ duration, and great general nervousness.

“This patient, immediately after her admission, had been blistered over the eyelid on the frontal muscle, and had an issue put into the top of the head, and was subsequently mercurialized, but all without effect. She remained in the same unfortunate state when I saw her on the 17th of June, or one month after the application of blister and issue.

“I applied magnetic electricity for the relief of the ptosis, for the first time, on the 17th June. She had experienced much confusion (as she expressed it) in the head, and had tremulous motion of the left eyelid previous to the electricity, which symptoms were diminished by the electricity, and the eye felt stronger.

“I continued the application of magnetic electricity on the 18th and 20th, by which time the ptosis was nearly cured, and the pupil of the left eye was less dilated, whilst its vision was improved.

“On the 20th, as well as for a short time on the 18th, I also applied electricity to the region of the uterus, and on that evening she menstruated. This action continued on the 21st and 22d, and the fluid was natural both as to colour and quantity.

“22d and 23d—Found her a little feverish; therefore did not apply electricity.

“28th and 29th—Applied electricity this day for relief of the amaurosis, she being in all other respects quite cured. After each operation she felt her head more composed, and sight of the left eye was by this time nearly perfect. After being electrified on the 29th inst., vision returned to the eye, which had been four months blind.

“30th—Applied electricity this day, and found after its application the cure of the amaurosis of left eye was complete, and at several yards distance she could distinguish the form and colour of small objects with the right eye. Doubtless that eye also would have been perfect in its vision after a few days longer, but she found it necessary to leave the hospital on the following morning, and came in the course of the day to my house, to thank me for (as she called it) her ‘wonderful cure.’

“This was, certainly, a most successful case, and the triumph of electrical power—ptosis, amaurosis, and amenorrhœa having all yielded in the short space of fourteen days, after having for thirty days previously baffled the highest medical skill.

“Theodosia Cunningham, late of Chatham-street, admitted 15th June, 1842—discharged cured; temperament, hysterical and lymphatic. Disease—total paralysis of right lower extremity, from hip downwards; limb so insensible that she might be pinched, cut, or a breast-pin inserted half an inch deep into any part of it without her being conscious of it. The foot was also distorted: the toes and fore-part of the foot pointing inwards, and the external metatarsal portion faced much towards the ground. Also catamenia had been suppressed for thirteen months; but owing to some mistake, this fact was not communicated to me until the use of electricity to the sacrum and to the glutæi muscles, in process of cure of the paralysis, caused their return.

“In this case I applied the secondary electric current to the parts affected, during five weeks, in which time about twenty-five applications of electricity were made. The success was gradual, but complete. She was discharged on the 2d of July, in full power of her limbs, having danced, I understand, in the ward previous to leaving it.

“The catamenia were restored by an electrical operation on the 2d of July, in the manner above stated; and it is worthy of remark, that this discharge did not return until the very day when it was wont to manifest itself thirteen months before, although I had more than once before electrified these same parts. This teaches the importance of taking nature to our aid, by seizing on the time of her probable co-operation in the cure of disease. Not having been informed of the suppression of the catamenia, I did not know that it was secretion and discharge she alluded to when she requested me to cease the application of electricity for that day, which was Saturday, and it was only on my visit on Monday that I learned it, when too much time had elapsed for me to renew the operation. The discharge was very small in quantity; and it was intended that she should have remained in hospital until a few days previous to the time when the discharge might again be expected; but as I did not come to hospital for some days, she thought that I had forgotten her case, and went home previous to this time. She had also pain in the right temple, and had lost use of her right eye, which she describes as having occurred about a year since, at the moment when her arm (which had then recently become contracted) was extended by force. The pupil was not dilated; but there was a particularly nervous look about both eyes—headache and loss of vision continued.

“This case was most remarkably successful, and excited much attention in the hospital.

“Jane M’Kernan, aged 28—sanguine bilious; admitted 16th June—discharged cured. Disease—suppression of the catamenia during ten months, being since her last confinement; nursed her infant five months, had inflammation of the pleura whilst nursing; got pains in chest and shoulders in February last, which still exist.

“Electro-magnetism applied five times, from 21st to 29th June, without effect; objected to the further application of electricity, pleading fear of her being pregnant; it was therefore discontinued.

“I am not at all surprised at want of success in this case, considering that it did not receive due perseverance, and that in all probability, the few times on which I did apply electricity, were not close to the period of the month when she usually menstruated; for she did not remember this: and thus I may have been acting in opposition to, instead of co-operating with nature.

“Abigail Duneley, aged 23; not married—temperament sanguineous and nervous; admitted 20th July, 1842; left hospital when only twice electrified. Disease—irregular and deficient catamenial discharge; also neuralgic pain in one side of head and temple. Did not know the time when catamenia usually occurred with her. On this account it might be necessary to apply electricity for many days before arriving at the time when, by co-operating with nature, we might hope our efforts to be successful; yet she only remained to be electrified twice.

“The neuralgic pain was relieved every time I applied the electricity, which was every second day; and finding its effect on the day of its application, it was resolved to apply it daily; but in the interim she left hospital. In such a case, any useful result from the application could hardly be expected, as above shown.

“Catherine Carroll, unmarried, late of St. Wolstans, Celbridge, admitted 13th August, 1842—discharged cured; temperament hysterical and full; health good previous to catamenial irregularity. About March, 1840, being then two months without the catamenial discharge, large angry-looking boils (the largest were of the size and form of half of a small egg) appeared on the front of the tibia, none of them being in the lower extremities higher than the knee, around which joint they were numerous, they also appeared on the arms, and were finally absorbed with suppuration.

“Got cold in May, 1840, and had pain in the left side, which extended generally over the pleura, and became dangerous in August of same year, when it was chiefly removed by medical treatment, but some pains remained about this part up to the time of her admission to this hospital.

“About December, 1840, her feet, particularly the ancles, became swollen, this was succeeded by headache, or a sense of weight on the head, which was removed by blister to the nape of the neck. The catamenia returned in May, 1840, and continued recurring at intervals of three weeks, until August, 1840, they were then suppressed from August to October, at which time they reappeared and continued regular until March, 1841; since which time, now nearly 18 months, they have entirely suppressed.

“16th to 19th August—Applied secondary electricity according to my usual practice.

“20th—Learned that she had menstruated on the previous evening after I had left her, but as the discharge was small, and as nature usually continues this action for two or three days, I did not deem it imprudent to apply electricity on this day also, being the second day of her menstruation, with a view of increasing the discharge, which is usually small after such long interruptions.

“21st—Did not apply electricity further, and was glad to learn that yesterday’s application was most seasonable, and the catamenial discharge ample both on that and the present day.

“Patient feels much better, and pain in side is nearly gone—she is in fact cured.

“Maria Smith, aged 20; feeble hysterical temperament. Eyes have a very peculiar cast, which some very hysterical patients possess—admitted 12th August, cured 25th August. Disease—Catamenial irregularity and scantiness, causing fits of nervous terror and epilepsy. Had no catamenial discharge until her eighteenth year, when they appeared

regularly every third week, until she was nineteen years and three months old, but very scanty in amount. For nine months previous to this or from the period when she was eighteen years and six months old, being now eighteen months ago, she became affected with fits of nervous terror, when nineteen years and three months old, the catamenia became irregular, occurring only every second month, and even then scarcely perceptible; since the catamenia became so irregular and scanty, the fits of nervous terror and epilepsy became more frequent and severe, generally occurring every day, and sometimes three or four times daily; occasionally absent for several days, but always returning with a force stronger in proportion as they were longer absent.

“In the milder form these fits consisted in an overpowering feeling of terror, in its stronger form a loss of consciousness and convulsive action; in one of these last she fell into the fire and her cheek still bears evidence of the fact.

“23d August—Yesterday, the 22d, she had a trifling manifestation of the catamenia, being then six weeks since they last appeared, and as nature usually in healthy cases continues this action during three successive days, I did not hesitate to apply the electro-magnetic current this day to the region of the uterus in my usual manner.

“24th—Found that yesterday’s application, being in the proper time, had the desired effect, and the catamenia were renewed and larger in quantity than she had ever had them. This day also (being the third day of the menstruation), the catamenia still continue, and are equal in quantity to that which attends a healthy woman.

“26th—Feels light and well, countenance natural, and has had no return of the fits since my first application of electricity to her, although previous to that time she had them each day since her admission to hospital.

“29th—Continues well and much improved in appearance.

“Richard Brennan, labourer, aged 55—temperament, sanguineous—admitted, 12th July, 1842—discharged, cured, 27th August. Disease, lumbar rheumatism and sciatica, with neuralgia adjacent to the rectus femoris, vasti and other anterior and interior femoral muscles. Has been afflicted in this manner for more than three years; attributes it to working when standing up to his hips in cold water. His case resisted all the usual treatment from the 12th ult., or nearly one month; on the 8th, 9th, and 12th inst., I applied electricity (secondary current).

“12th August—Perfectly cured and continued well up to the day of his discharge; namely, 27th inst. This was a most successful case.

“Edward Murphy, labourer, admitted, 22d August; discharged, 30th August, 1842; late of Liverpool and Manchester Railway. Disease, pain in the left side; also in the os frontis, sternum, and clavicle; also intense neuralgia, particularly at night, along the anterior and interior femoral muscles, as rectus, vasti, &c., &c., of right side, also pain in right knee. These pains usually became excruciating as soon as he became warm in bed, generally obliging him to leave his bed and attempt to walk, but at such times he could only do so by leaning on the hospital bedstead: there always remained in the morning a soreness of the part, yet it was not a cramp.

“23d—This day could not walk without a stick; and having yesterday gone down stairs, could not return for nearly two hours, owing to the

pain. Had severe pain this day, previous to my applying magnetic electricity, which relieved it much.

“24th—Learned that the pain did not return as usual on his going into bed, and only appeared lightly near morning, and then did not deprive him of use of the limb. He is much pleased at success of the electricity.

“25th—Found him free from pain, neither had he any on the preceding night. Applied electricity as before.

“26th—Continues well. Electricity no longer necessary. This was a *most successful case*, and was quite similar to that of a man named Ryan, a Castle messenger, whom I treated equally successfully, in Saint Vincent’s Hospital, in May last. This case had resisted the usual medical treatment.

“John Kelly, aged 40—temperament, bilious—admitted 28th July, 1842. Disease, paralysis of lower extremities, with enlargement of plantar arch of left foot, particularly anterior and inferior to inner ankle—late servant to Mr. John Little, of Carrick-on-Shannon. About two years ago, appetite began to fail; soon afterwards, felt as if stockings were gartered too tightly, which sensation lasted for nearly twelve months, during which time general lassitude was very distressing. This was succeeded by a giddiness in the head, lasting about three-quarters of an hour each morning, and subsequently by pain in the instep and inner ankle of left foot, and an enlargement inferior and anterior to it. In December, 1840, this enlargement became very considerable and hard, and the entire left lower limb became swollen, and was bandaged by a physician in Carrick-on-Shannon. About this time he lost the power of moving the lower extremities for three months; he had also inability to pass urine, except by an instrument, for a month; the arms were partially paralyzed at the same time, and he had moxas applied to the spine: he had six weeks previously been cauterized on each side of the dorsal spine, near its upper part, by a practitioner in Birr (King’s County), without effect. The moxas were applied to the origin of sciatic nerve; this took place in March, 1841, and by June of that year, he could walk on flat ground, but not safely up or down stairs; and from June, 1841, to the present time, nearly fourteen months, continued in the same state, able to walk (on flat ground only) about one mile, with much stiffness of limbs, but unable to ascend or descend stairs safely, and therefore unable to follow his usual duty of servant.

“No treatment, whatever, was given to this man except electrical. He has been electrified by me, since the 8th inst. (now the 29th), thirteen times, and is now nearly cured of paralysis. He moves with much more freedom, and not only walks up stairs, but is able to run up, taking two of the large stone stair-steps at each spring, touching, however, the banister with his hand as he springs. The enlargement of the plantar arch is a good deal diminished, and I expect a perfect cure will be made in another week.”

REMARKS ON MEDICAL AND ATMOSPHERIC ELECTRICITY. BY EDWARD S. CLARKE, M.R.I.A. IN A LETTER TO DR. GRAVES, M.R.I.A. ETC.

“DEAR SIR—In accordance with your wish I send herewith brief notes of all the cases in which I have applied magnetic and voltaic electricity

to patients in the Meath Hospital during the past three months, and also of two cases which I undertook in St. Vincent's Hospital.

"I need hardly add that my private practice, under the guidance of yourself, Sir Philip Crampton, Sir Henry Marsh, Dr. Stokes, Surgeons Cusack, Smyly, Kirby, and other distinguished members of the profession in Ireland, would furnish additional instances in abundance of the very high importance of the various forms of electricity in the treatment of many otherwise incurable diseases.

"With reference to the apparatus I employ in such cases it varies much with the nature and extent of the disease. In most instances I use the secondary current developed either by a permanent magnet, or an electro-magnet, the magnetism of this latter being occasionally excited by a voltaic sustaining battery of the form described by me in Sturgeon's *Annals of Electricity and Magnetism*;* and sometimes by a very potent thermo-electric arrangement, which I have lately devised, and which of itself promises to be productive of very important results in many cases where electricity of very low tension is desirable. All these instruments transmit their electric currents by directors furnished with moistened sponges instead of steel needles as formerly used with Cruikshank's form of battery; a construction which I now rarely employ, and never transmit its current through any except platina needles.

"The electricity derived from friction of glass, as the aura, sparks and shocks, I have not discarded, on the contrary I find the latter (sparks and shocks) to effect good service when other forms have failed, as in some varieties of catamenial suppression, in some rheumatic cases, and as resolvents of scirrhus and indolent tumour. The results in the Meath Hospital cases include—amaurosis; ptosis; complete paralysis of right lower extremity; partial paralysis of both lower extremities; complete paralysis of right arm; lumbar rheumatism; sciatica; neuralgia, femoral and brachial; edema; catamenial suppression and irregularity; spinal irritability. In fine, even in the short time I have had the honour to act under the guidance of the physicians of Dublin (only three months), I have verified nearly all the efficacy which has hitherto been attributed to this science, and great as I have shown its importance as a medical agent to be even in the narrow limits as yet assigned to it by the profession, I feel assured that it will soon be found applicable to a far more extensive range of diseases, and that higher triumphs await its progress, when it shall, by the profession, have been employed to stimulate the functional performance of more important organs found on a deliberate consideration of the theory which has led to its adoption as a medical agent, namely, its identity with the nervous influence; and, perhaps, in illustration of this view you will permit me to take a hasty retrospective glance upon the causes which have gradually led to the introduction of electricity among medical agents.

"Even before the present century, when that form of electricity was alone known which is developed by the friction of glass and silk, the rapidity with which volition was transmitted along the nerves to the muscles, had induced many persons to suppose that this was the agent employed by nature to traverse the high road of the nerves as the messenger of its will, and it was then remarked by these observers, that these latter bodies were by far better conductors of electricity than any other portion

* *Sturgeon's Annals of Electricity and Magnetism*, vol. iii., p. 84.

of the human frame. It was subsequently observed that a strong spark or passage of electricity along any nerve called its dependent muscles into action; these facts, combined with others, led many, even at that early period, to believe that the nervous influence and electricity were identical; still it was difficult to conceive how electricity of such high tension could exist in the human body, the fluids of which endow the entire with power of electrical conduction. But when the genius of Volta had at the commencement of the present century unfolded to the world a new form of electricity of tension so low that, with the exception of the nerves, which are excellent conductors, the animal solids would transmit it with difficulty, and when it was further seen that this new form of electricity, thus developed in a state of tension so low as to be quite consistent with the structure of the human body, exerted on the muscles, when transmitted to them by the nerves, a stronger action than frictional electricity had ever done; and further still, that animal matter alone, independent of metals, could constitute an arrangement capable of developing this electricity, the electro-nervous theory received a great accession of probability. And when at a period a little later our own countrymen* had shown that this electricity of low tension was capable of decomposing saline fluids, and of eliminating their acid constituent at one extremity of the arrangement and their alkaline at the other,† it was soon seen that the secretion of our most important organs, as of the skin, stomach, liver, intestinal canal, &c., might be the result of the electrical condition of these organs impressed upon them at birth by Divine power; and hence, after the discovery of electro-magnetism by Oersted, the galvanometer was proposed as a means of discovering whether or not these organs, whose secretions are characterised by opposite chemical qualities, were not also in opposite states; and the result of this beautiful test was strongly confirmatory of this theory,‡ for these organs all indicated opposite electric states whose secretions were of opposite chemical natures. Thus the skin, whose secretion is acid, indicated positive electricity when examined by the galvanometer, the intestinal canal indicated negative electricity, and its secretion has been proved to be alkaline, except in the stomach where it is acid, and there it indicates positive electricity. The stomach was found to be in one electric state, the liver in the other, the chemical nature of the secretions of each organ always according with that character which should result from the peculiar electric polarity in which the organ was found by the galvanometer to be.

“ Thus it was shown that in all human probability these hydro-electric currents detected by the galvanometer were the cause of all the secretions of our organs. At a still later period that accomplished electrician, M. Becquerel, showed that the acid and alkaline secretions of our various organs reacting on each other through the medium of the muscular and nervous tissues, must of necessity give rise to hydro-electric currents between these organs, and hence the primary electric state of these organs having been impressed upon them at birth by Divine power, the first result was alkaline or acid secretion of each organ according to the electric condition impressed upon each—these secretions reacting on each other de-

* “ Sir Humphrey Davy, Wollaston, Cruikshank, and others.

† “ Transactions of Royal Society of London, 1814, p. 583; also of 1809. Philosophical Magazine (old series), vol. xxxii., p. 488.

‡ “ Becquerel *Traité d'Electricité et du Magnetisme*, Tome i., p. 322 to 327.

velop electric currents which again produce the secretions and maintain them during life, or so long as the electric condition of the organ continues in its normal state.

“ In this stage of the electro-nervous theory I might easily adduce in its support the opinions of some of the most illustrious names of which philosophy and medicine can boast; but I must not trespass on the page of your valuable labours, and shall only remark that it followed from their opinions, as a matter of course, that at least in many cases abnormal secretion was the result of abnormal electric condition of the organs.

“ The valuable experiment of Dr. Wilson Philip, of Worcester* (made in presence of Mr. B. C. Brodie), on the identity of the nervous influence and electricity, added many converts to the electro-nervous theory. This experiment consisted in the proof that the functions of digestion and respiration of which a rabbit had been deprived by cutting the eighth pair of cerebral nerves, namely, the par-vagus or pneumogastric of the modern French school, could be restored by connecting the portions of these nerves which remained attached to the diaphragm with a voltaic battery instead of with the brain, from which the division and turning back of these nerves had separated it. This experiment showed the strong probability—that the secretion and functional action of the gastric juice as well as the action of the lungs, and the motions of the respiratory muscles are dependent for their existence on hydro-electric currents, and if it did not strictly *prove* the identity of the nervous influence and electricity, it gave great weight to that opinion, and proved that the latter could be substituted for the former without inconvenience to the animal economy, and lastly, it aided in directing the public mind to the important conclusion, that when disease has impaired the action of these important functions, it probably does so by altering the normal state of the natural electric sources, and that the action of these on the system, which is so essential to our most important secretions, may be supplied by electricity, *if this latter be made to resemble that of nature in quantity, direction, and intensity.*

“ We are thus led by the experiment of Dr. Philip, and the amply proved existence of hydro-electric currents circulating between the organs of secretion (as proved by Le Donne, Marianini, Orioli, and Becquerel), to see that the processes of secretion and digestion are hydro-electric phenomena, and thence to appreciate the importance of judiciously administered electricity of low tension in restoring a healthful condition to the secreting and digestive organs, and to witness the greatly increasing probability that in all cases of secretion, digestion, sensation, and motion, electricity is the great natural agent and is identical with the nervous influence. It is true that as yet I have not brought forward any argument to prove that electricity attends, and is the cause of all human motion, a proof which appeared necessary to be given before we could be called upon to acknowledge its identity with the nervous influence. This proof, which could not be afforded until the connection between the sciences of electricity and magnetism was well understood, has recently been afforded to a great extent by Dr. Favio and Professor Zantedeschi, in Italy,† who have shown that independently of the electro-chemical currents just alluded to as ruling the secretions, there exists (at least in all warm-blooded animals) another class of electric phenomena, of at least equal importance, presiding as they do

* “ Transactions of Royal Society of London, 1822, part 1, p. 2.

† “ Bulletin de l'Academie Royale des Sciences et belles Lettres de Bruxelles, T. vii., partie 2, p. 43.

over all voluntary motion. These phenomena consist in the passage of an electric current along the nerves of each limb to their corresponding muscles, they exist only during the motion of the limb, are detected by the galvanometer, and as they differ both as to source and direction from the hydro-electric currents which, under the guidance of life, cause the secretions, their discoverers have named them 'electro vital,' or 'neuro electric' currents.

"The experiments of these gentlemen consisted in attaching a metallic stilet to each end of the wire of an exquisitely delicate galvanometer, one of which stilets was kept (by its insulated handle) in contact with the nerve leading to any limb, whilst the other was sunk deeply into the body of the muscle, of which the action was to move the limb. The animal was then excited to move the member, when it became evident, that at the instant of every movement a current of electricity passed along the nerve and galvanometer in the direction of from nerve to muscle. This experiment was certainly very beautiful, and its results, if free from ambiguity, would be most valuable; yet, as so much of difficulty is opposed to obtaining accurate results under such circumstances, particularly as the stilets were of oxydizable metals (iron or silver) on which the animal fluids could exert chemical action, and, therefore, generate hydro-electric currents independent of any vital action. I think that we cannot rest with such confidence upon them, as on the apparently decisive experiments of M. Prevost, of Geneva, lately communicated by M. De La Rive, to the Royal Academy of Sciences of France.* M. Prevost's experiment consisted in showing, that when a sewing-needle had been inserted into the crural muscles of a frog, and parallel to the longitudinal direction of the muscular fibres, and, therefore, at right angles to the capillary termination of the nerves distributed to these muscles, it became sufficiently magnetic to attract light particles of the filings of iron whenever contraction was excited in the muscles by stimulating the cerebro-spinal origin of its motor nerve. This was indeed the most complete proof imaginable, that a vital current of electricity is actually sent along the nerves to the muscles from the cerebro-spinal origin (of the former) whenever motion is produced; for the magnetization of the needle which took place at every motion of the limb could be produced by no other means than the passage of an electric current along the nerve, and is precisely that which we should expect from the well-known electro-magnetic law, first made known by Professor Oersted, namely, that magnetism is always developed in any conducting substance placed at right angles to an electric current.

"Thus is made manifest to the sense of vision, the truth of that beautiful theory, which assigns to the motor nerves the office of conductors to that electricity which the brain sends to the muscles as the messengers of its will for the production of all corporeal motion. Hence we have reason to believe, that the vital electric current, which M. Prevost has shown to accompany motion in the living animal, is really the cause of all human motion, and are led to look with confidence to the use of artificial electricity as a means of restoring the powers of voluntary motions to such parts of the human body as have become partially and recently deprived of it, in consequence of paralysis of the motor nerves, arising either from slight structural alteration, or deficient power of setting into motion the natural electric fluid at their origin.

* "Philosophical Magazine, vol. xii., p. 294 (new series).

“The general results of the experiments alluded to, seem to indicate a division of the nervous system into two classes, of which one presides over the muscles of voluntary motion; the other over those of involuntary motion and organs of secretion. The influence of the first is produced at pleasure from its cerebro-spinal origin—that of the second owes its power to hydro-electric action; and if so, it is wisely, indeed, ordained by the great Creator, for if the secretions had depended on our will, and on the action of the mind, our first night of repose would be our last of existence. It is true that the secreting organs have cerebral and spinal nerves, and this may account for the influence of the mind on the digestive organs; but to a great extent the distinction appears well founded.

“I must apologise for this trespass upon a province not properly my own, and close this hasty sketch of the reasons which induced many to adopt the opinion, that the nervous influence and electricity are identical, by remarking, that the practical result which has followed its adoption on the Continent, in the hands of Magendie,* Marianini,† Palaprat, and Orioli, and in this country by yourself, Sir Philip Crampton, Sir Henry Marsh, Dr. Stokes, Surgeons Cusack, Smyly, and others (whose humble instrument I had the good fortune to be), is such as to confirm this theory in a very remarkable degree. But as I have already said, I feel that we are as yet but in the infancy of the application of this science, and that the time will soon arrive, when the suggestion first thrown out by Professor Orioli,‡ of remedying abnormal secretion, by altering the electric state of the secreting organ, will soon be carried into full effect; neither will the task of reaching these organs be found so difficult as might at first be supposed, when it shall be understood that it is not necessary that the part whose electric state we desire to alter, should form a part of the electric circuit, but that on the contrary, the electric current is not limited to the space which lies between the poles of the apparatus, but passes beyond it, following the course of the nerve so as to affect parts below, and quite exterior to the space supposed to be the passage of the electric current. Thus if one director be placed on the origin of the sciatic nerve, and the other on the popliteal space, the current will not be confined to the portion of the nerve which lies between the directors, as one might expect, but will act forcibly much below it, even to the plantar extremities; and I am often obliged to adopt such a course, where the nerve of the part to be acted upon is deep seated in that part, but is more superficial in some point nearer to its origin.

“With reference to the facility with which electricity removes various forms of disease, I believe I may remark that I have found it to act more quickly in neuralgia than in any other, as it occasionally cures some varieties of this disease in two or three applications, but in others, often requires a feeble electrical current for many successive days.

“Next in order of facility come rheumatism and sciatic cases, then cases of deafness. After these come some varieties of catamenial suppression. It acts also readily on certain curable forms of amaurosis, then in partial paralysis, and with greater difficulty in hemiplegia than in almost any other form; as this disease requires many weeks of daily, and, perhaps, constant application, by means of the sustaining battery.

* *Comptes rendus premier Semestre*. No. 24, Année, 1840.

† *Bibliothèque Universelle*, T. lii., p. 351.

‡ *Becquerel Traité d'Electricité et du Magnetisme*, T. i., p. 325.

And here I may mention, as an instance of the value of electric treatment, that in this disease I have always found those muscles soonest restored to voluntary power, to which electricity had been the more constantly applied.

“ There is no doubt, that the application of electricity to the head and its neighbourhood (after the symptoms of cerebral inflammation have subsided), requires great caution, otherwise, the most dangerous consequences might follow ; needles should never be employed as directors to this part. Even when simple voltaic electricity is employed, the current from two or three pair of plates only an inch and a half square, would be attended with extreme danger if needles be employed ; yet with care and attention to circumstances as they arise, the electro-magnetic current may safely be applied, through the medium of sponges, from the first cervical vertebra to the foot, varying the treatment as the disease demands.

“ As a fellow member of the Royal Irish Academy, you have been aware of the laborious series of meteorological observations and researches which I have made, at the recommendation of the council of that learned body,* with a view to discover the connection which exists between atmospheric electricity and other natural agents ; such as temperature, barometric pressure, hygrometric condition of the air, both as to free or uncombined moisture, and as to the absolute quantity of aqueous vapour existing therein, in what state soever of dryness it might be ; so as to deduce from the action of one or all of these agents the natural law which causes the diurnal changes of atmospheric electricity, and to give a correct statement of the condition of all these atmospheric agents at each hour of the day and night. You have requested me to say in this place a few words upon the subject, *in order that you may compare the progress of the diurnal changes of atmospheric agents with the periods which you have observed to affect the daily stages of acute diseases.*

“ I have, therefore, to observe, that atmospheric electricity has one gradual ascent from 3, A.M., which is its minimum, to 3, P.M., which is its maximum hour ; excepting, however, from this statement the fact, that there occurs a slight sudden ascent from 8 until 10, A.M., and a considerable ascent from 5 until 7, P.M., when the intensity even exceeds that of 3, P.M. This intensity, however, speedily subsides, and we may regard 3, P.M., as its diurnal maximum.

“ The quantity of aqueous vapour in the atmosphere as indicated by the dew point, after all necessary corrections are made, has also its minimum at 3, A.M., and its maximum at 3, P.M.

“ The thermometric curve exhibits its maxima and minima at the same hours, namely, minimum at 3, A.M., maximum at 3, P.M.

“ The barometer curve exhibits two maxima and two minima in each twenty-four hours, namely, a diurnal maximum at 10, A.M., and minimum at 4, P.M., and its nocturnal oscillations occur at the same hours. These variations in the height of the mercurial column amount, according to my observations, to $\cdot 020$ of an inch, which is equivalent to an alteration of pressure, amounting to 4.2 ounces on each superficial inch of the human body. This considerable reduction in the amount of the external atmospheric pressure, whilst the internal pressure of the animal fluids remains unchanged, would seem to lead to the conclusion, that the hour of 4, P.M., must be distressing to invalids, but still more so that of 4, A.M., when the

* “ Proceedings of Royal Irish Academy, 1839 and 1840, part 4.

reduction of external pressure also exists, and the stimulating sources of electricity and external heat are both at their minima, and the aqueous vapour of the atmosphere is in its most uncombined condition, depositing itself insensibly on the surface of the body, and thus tending to lower its temperature at a moment when the vital forces are least able to resist this action.

“ The foregoing meteorological results are deserving of every reliance, having been obtained by a most laborious series of observations made by me during twelve months, at which time the electricity of the atmosphere was observed at intervals of fifteen minutes, during, at least, fifteen successive days in each month, and from five to ten nights, the temperature of the air was observed as frequently ; the height of the barometer was noted each half hour during the same time, and the dew point was taken hourly with a Daniel’s hygrometer during the same period as the other instrument.

“ The electrometer employed was one of my own invention, and not a mere hygroscope, as all the former gold leaf electrometers were, but one capable of measuring, with accuracy, the slightest change of intensity, as well as of giving indications of electricity so feeble as to escape observation with ordinary instruments.* The barometer, thermometer, and hygrometer, were also accurate instruments, constructed with every care for the occasion. The result has been satisfactory in the same proportion, pointing out, as I think it clearly does, the law which in nature regulates the diurnal variations of atmospheric electricity, and its intimate connection and dependence upon two out of the three great natural agents, with which I had proposed to myself to investigate its connection. This law will clearly appear when we remember the experiment of Volta, in which it was shown that whenever water, not *absolutely pure*, is evaporated from an insulated vessel composed of materials similar to those which compose the crust of our earth, the vessel from which the evaporation takes place is left in the negative electric state, in consequence of a portion of its natural quantity of electricity being taken up in the latent state by the vapour, as it forms, whilst this same vapour manifests all this extra supply of electricity when it becomes condensed on the surface of a cold and insulated body, which latter then appears strongly positive, because the aqueous vapour, in the act of condensation, has set free that redundant quantity of electricity which it had previously taken up in a latent form from the insulated vessel, out of which it had been evaporated, and which was only necessary to its aëriform existence.

“ Thus we see that the electricity of the earth (when uninfluenced by the inductive action of passing positive clouds) is negative,† relative to that of the surrounding atmosphere, in proportion to the quantity of aqueous vapour which has been evaporated from its surface. This ought to make the indications of their relative difference, as exhibited by an electrometer, greater in proportion to the sun’s altitude, or rather in proportion to the temperature of the respective hours ; and this I have found to be the case, with the exception of the slight sudden increase of tension,

* “ See a description of this instrument in the proceedings of the Royal Irish Academy, 1839 and 1840, part 4. An instrument of this description has since been taken out with the Niger expedition ; it was furnished by Watkins Hill (to Dr. M. William, surgeon to the Albert) according to my drawings.—E. S. C.

† “ This fact of the earth being negative, relative to the air, has been acknowledged to be true by every observer.

which occurs from 8 until 10 in the morning, and of the sudden but considerable increase which occurs from 5 until 7 in the evening (always speaking of the mean curve of each day, as derived from the annual average). This sudden increase of tension at those hours arises from the condensation of the aqueous vapour, in the form of dew,* which, as before shown, must liberate its previously latent electricity.

“The foregoing opinion relative to the time and cause of the diurnal variations of atmospheric electricity is valuable because that is not the expression of any pre-conceived ideas which might have influenced my reading of the results of my researches, but on the contrary, was quite unexpected as to the hours themselves; and the cause only then occurred to me when I held in my hand the various annual curve charts of the hygrometric and thermometric condition of the atmosphere at each hour, and observed their obvious connection and dependence. Indeed, I had been insensibly led by the high character attributed to the observations and researches of Professor Schübler, of Stutgard, to anticipate very different results, as that philosopher made the minimum hour to occur at 2, P.M., and thus expresses himself as to the want of influence of temperature on the diurnal variations of electricity :—†

“It is necessary to remark that these diurnal periods correspond very little with the advance of diurnal temperature in the same place, and that in this regard there cannot be a question of the smallest parallelism. If the first minimum of atmospheric electricity manifests itself a little before the rising of the sun, when the temperature of the day is lowest, the second presents itself, on the contrary, from 2 to 4 or 5, P.M.; that is to say, in the warmest part of the day. But if there is but little analogy in this regard, there is so much the more under that of the humidity and visible vapours in the atmosphere. We observe the maximum of the daily period after the rising and setting of the sun, at hours when the air presents the greatest quantity of vapours, as well to the hygrometer as to our view.’

“But as that gentleman only made two observations daily, we need not wonder that the disturbing inductive influence of passing clouds marked the true hours of variation, and consequently its true causes. My explanation of the cause of this diurnal variation differs also from that given by De Saussure and his followers; namely, the conducting state of the aqueous vapour. The electric tension being supposed to be strong at the maximum hour, because neither too great dryness or too much moisture then prevailed, the former of which would prevent the aerial electricity returning to the earth through our instruments, and the latter would neutralize their electric states by its too great conducting power, whilst my explanation, as already shown, rests not on the conducting power of the vapour, as influenced by its state of combination, but on the absolute quantity of aqueous vapour, as indicated by the dew point, when all necessary corrections for temperature have been made, the relative electric condition of the earth and its atmosphere being always most different when the greatest quantity of aqueous vapour is indicated by the dew point. But this result is not to be discovered by contemplating the progress of electric intensity

* “See Pictet *Essai Sur le fue*, S. 35; also *Bibliothèque Universelle Sciences et Arts*, 93.
—On morning as well as evening dew.

† “*Reserches Sur L'Electricité Amospherique* par M. Schübler (*Bibliothèque Universelle Sciences et Arts*).

and advance of the dew point upon individual days, but only first by the monthly curves, and still more clearly by the annual curve, the natural law becoming more evident in proportion as the observations are more numerous, for when very few observations are made, the chances of their being falsified by the disturbing influence of passing clouds, is very great indeed.

“As it is interesting to trace (so far as our limited knowledge can) how few the primitive agents are, which the Almighty uses for the production of the numerous and important phenomena dependent on creation, employing these few in such endlessly varied forms that we no longer recognize their existence; whilst some of the numerous secondary agents, arising from that mutual connection and dependence, appear to work out natural phenomena, with so much apparent energy and singleness, that we frequently believe them the original agents under Providence, thus erroneously multiplying causes, by considering effects as such, whilst in reality the infinite wisdom of the great Creator, foreseeing all possible dependencies and changes, used but a few principles to accomplish all his marvellous productions. As he has formed all substances upon this our habitable earth out of such few materials as that even with our present imperfect chemical skill, we have been able to reduce them to 52 elements, and it is likely, as our progress in chemical analysis advances, we shall find this number much reduced, so, in this same point of view, it is interesting to notice that electricity of the atmosphere, that invisible and extraordinary agent which is at once the terror and the ornament of the sky, as developed in auroræ or in lightning—which is, with much probability, believed to be the safety of the mariner on the boundless ocean,* which is essential to the purity of our atmosphere, and formed the crystalline beauty and treasure of the mineral kingdom† thus bowing chemical effects to its power, is the result of the action of one body on water, and that body the same which maintains the planets in their orbits—the sun—the centre of the planetary system. When I say so many effects are thus seen to result from the action of one body (the sun), and when we know that its light and heat are necessary to the existence of every organised being in the planetary system, what an idea becomes impressed upon us of the wisdom of the great Disposer of all things, and well may we exclaim in the language of the poet,

“His wisdom guides the rushing wind,
And tips the bolt with flame;
His goodness breathes in every breeze,
And warms in every beam.’

“Neither is this universality of action peculiar to the great luminary we have been speaking of, but is common to all the great agents in nature (and even those of a secondary character). Thus we see the multiplied offices of the atmosphere, the moon, &c. &c.; indeed this is so obvious, that I have great reason to apologise for the trespass upon your valuable time by the remarks which I have made upon it; but as the sun’s action is not generally known to be the cause of the diurnal changes of at-

* “Thermo-electric currents at the equator being believed to cause polar magnetism.

† “See the results of Becquerel, Cross, Fox, and others, in producing mineral crystals (by means of electric currents of low tension), which chemistry had in vain previously attempted.

mospherical electricity, I thought this digression not altogether out of place.

“Believe me to be, Sir,

“With unfeigned admiration and respect,

“Your most obedient servant,

“E. S. CLARKE.

“18, York Street.”

POSTSCRIPT TO MR. CLARKE'S CASES.

John Kelly's Case (conclusion of), see page 427.

“From the 29th August to the 9th September I applied electro-magnetism of very high tension to this man five times; on the 9th September he left hospital, but came to my house and was electrified daily until the 20th, by which time the enlargement, anterior and inferior to the malleolus internus, had almost entirely disappeared; and he was able to walk without difficulty several miles each day over even a hilly and rough road; and on the day last named, returned to the country to resume his duties with his former master, who, aware of his progress towards recovery, had kindly reserved his situation for him. Previous to his leaving Dublin he presented himself to Surgeon Porter, at whose instance I had attended him; and who has since expressed to me his great satisfaction at the cure which was thus accomplished. I have since heard of this man through — Thompson, Esq. (student under Surgeon Maurice Collis), who took a great interest in him; he states that he finds no difficulty in walking or discharging any of his duties as a servant. This man was electrified about thirty times.

“Charles Crean, aged about 70, formerly butler and house-steward to the late Lord Bishop of Kilmore. Disease—paralysis of bladder. This man was quite unable to void urine, and it was accordingly drawn off with the catheter three times each day, by the resident surgeon. His mind has been astray during nearly the entire of the past twelve months. He was affected with this complaint (paralysis of bladder) for some weeks previous to his entering this hospital; it manifested itself suddenly during a paroxysm of mental aberration.

“8th October—As directed by Dr. Stokes, I this day applied secondary current from sacrum to pubis and along the course of the abdominal muscles.

“9th—This morning he voided naturally a few drops of urine. I applied electricity in same manner as on yesterday.

“10th—Applied electricity as on preceding days; tone of the bladder seems about to return as he voided a little urine twice this morning either whilst being electrified or immediately afterwards; in all about a wine-glassful; it was propelled at first nearly two inches from point of penis.

“11th—Applied electricity as before; mind appears rather more wandering, projectile force of bladder rather less; but made, at four or five attempts, about the same quantity as yesterday.

“12th—Applied electricity this day from perinæum to about half an inch above upper part of the pubis; also occasionally in the former method.

“13th—Applied electricity in the same manner as yesterday; he voided more water, but mind is wandering, and he seems desponding and inactive as well as impressed with a great dread of some unknown danger. Catheter is still daily applied at his most anxious request, although becom-

ing each day less necessary. This night he attempted to commit suicide (by cutting his throat), but fortunately did not make any dangerous incision. As the bladder is evidently recovering its tone fast, and as he is so excitable, I have discontinued the electricity; it had, however, accomplished its purpose as he daily voided urine spontaneously, and by the 16th inst. the catheter became unnecessary. I regard this as a most important case, particularly as no remedy was resorted to except electricity.

“Luke Byrne, aged 33. Disease—paralysis of both lower extremities; he complains also of a sensation of a ligature around the abdomen, and refers his paralysis to this cause, which he also believes to have been much increased by excessive internal and external use of spirits of turpentine. Having applied electricity to this man for seven successive days without effect, I desisted from its further use, particularly as Dr. Stokes thinks it likely that he is affected with disease of the spinal canal. I feel, however, that other electric instruments ought to have been tried in this case, which could not be done for want of a room, especially devoted to electrical operations, where instruments not very portable could be left and kept in order. Rubbing with mercurial ointment and other treatment has been resorted to, from the 14th inst. to this time, the 26th, the constitutional action of mercury has appeared, but the paralysis remains unaltered.

“Theodosia Cunningham. Disease—amenorrhœa; recommended by Dr. Graves. This is the same individual whom electricity so effectually cured in hospital of paralysis of right lower extremity; by reference to her case it will be seen that she suffered under suppression of the catamenial discharge for thirteen months preceding July last, but which fact I was not aware of until electricity produced its return on the 2d of July, whilst I was in the act of applying electricity to the glutæi and other muscles in the neighbourhood of the uterus; and it was remarkable that nature adhered in that case to the period of her usual action with this girl, namely, the 2d of the month, nor was electricity able to produce it until that time arrived, although applied to the same parts on many preceding days. The catamenial discharge was, however, very trifling, owing chiefly to the application not having been made to the appropriate parts in consequence of the reason already explained, and being then under the impression that it would be improper to renew the application on the following day lest it should alter the regularity of the natural periods, an instruction which I received from a physician accoucheur of considerable standing, the opportunity was lost for that month; and although the paralysis was cured the violent headaches continued. No attempt was made by nature to remove the catamenial discharge. On the succeeding period, under those circumstances, experiencing constant and violent headaches and other hysterical sensations, and especially dreading a renewed attack of paralysis, she again applied to Dr. Graves, who believed all her illness to result from catamenial suppression, which might be said to have then lasted fifteen months, and for the temporary relief of the consequent symptoms blood had been in vain taken in the course of the preceding year, once from the nape of the neck by cupping, and twice from the arm by the lancet, and consequently requested me to apply electricity with a view to produce a return of the menses, accordingly I began at the period when she might, for their return being the 2d of September, I began a few days previously to apply a feeble secondary current, as usual in these cases, first on the 27th, then 29th and 31st, and on the 1st and 2d of September, more strongly, but without success.

“ 3d Sept.—In consequence of success not having attended the application of electro-magnetism even on the preceding day, I insulated her and connected her with the negative jar of a Nairnes electric machine of large size, and passed about ten shocks of moderate intensity in each of the directions I am accustomed to send the electro-magnetic current. Success followed before I had administered many shocks, menstruation began, but was small in quantity, and not sufficient to prevent me from continuing the application of the shocks. Having adopted the idea that it would be rational practice to apply the electric current on the second day of the menstruation, whenever the secretion should prove too scanty, I renewed the application of shocks on the following day, the 4th September; on that day as on the preceding, the catamenial secretion made its appearance, not continually, but only every third or fourth hour, and this in very small quantities, whilst headache, sickness of stomach, with hysterical symptoms, were very distressing, under these circumstances I consulted Dr. Graves, and he advised a repetition of the preceding day's application, on Monday, the 5th September, being then the third day of her menstruation, but the fourth day removed from that of her usual period.

“ On coming this day to be electrified, she was exceedingly hysterical, whilst head and stomach were even more unwell than usual, on preceding days. Nevertheless, I passed two shocks, which produced a slight return of the menses. I also gave some sparks to her arm, which she believed was about to be visited with nervous paralysis. She left the house very sick, but had scarcely done so, when the catamenial secretion came on in greatly increased quantity. On reaching home, she discharged from her stomach a watery and greenish-looking liquor (as she described it), whilst the discharge became far more considerable than it had ever been, and such, both as to colour and quantity, as healthy women generally secrete. This discharge continued during the entire of Monday and Tuesday, as well as to a less extent until Wednesday morning, the 7th instant, when she felt quite well; had lost her morning headaches; regained colour in her cheeks; and lost the peculiar hysterical appearance of the eyes, which up to that time had characterized her. And, I think, that instead of being a victim to headaches and hysterical sensations, which threatened her with nervous paralysis, such as she had twice before been afflicted with, she may now expect to enjoy excellent health, being naturally of a robust constitution.

“ I regard this case as peculiarly important, as it establishes two facts fully: first—that although our efforts in the cure of this disease ought to be undertaken as near to the natural period in each individual as possible, that still it is a good practice to persevere for three or four days after that period, if the secretion be either absent or deficient in quantity. This woman always experiences pain in the back during the secretion of the menses. Secondly—that no catamenial case can be said to have overcome the power of electricity, until frictional, as well as magnetic, electricity, shall have been both tried; and hence, that in all probability, the only two unsuccessful cases of this disease which I have had in the hospital, and which are recorded in my notes, would not have been so, if a room expressly devoted to electricity had existed in the hospital—an opinion which my experience in many other diseases, such as rheumatism and paralysis, decidedly induces me to extend to them.

" SAINT VINCENT'S HOSPITAL.

" Anne Thrimback, formerly 110, Marlborough-street, admitted 25th April—discharged 20th June. Disease—paralysis of left arm, which was much wasted.

" 1st June—applied secondary electric current, from origin of fourth curvical nerve to palm of hand, and occasionally to ulnar nerve; also, through the trapezius, deltoid, biceps, flexor cubiti, and triceps extensor muscles. I repeated this application every second day (not having leisure for daily operations), until the 13th, from which time the application was made daily until the 20th, on which day she was discharged, being then quite cured.

" Thomas Ryan (messenger in Dublin Castle), admitted 6th June—discharged 17th June. Disease—neuralgia of the sciatic nerve as far as the popliteal space, and of the anterior crural nerve; pain intolerable at night in rectus femoris, vasti and other adjacent muscles. Had large blister over the loins without effect; also used hydriodate of potass and camphorated mixture.

" 10th June—applied secondary electric current from origin of sciatic to popliteal space; also, from sciatic origin, and occasionally from the obdurator nerve and sciatic notch along the rectus femoris, vasti, and other anterior femoral muscles. On visiting him on the 12th, he stated that he had not been afflicted with any return of the pain, and, therefore, did not deem it then necessary to renew the application. But having experienced on that night a slight return of the pain, I applied the electric current as before, after which the pain returned no more, and he was discharged cured on the 17th instant.

" Thus far I have given notes of the additional hospital cases, of which I esteem Crean's case, in which I was fortunate enough to cure paralysis of the bladder, as of very high importance, directly pointing as it does to the effective action of electricity upon organs essential to our existence, and which another case at present under my care confirms, as far as the bowels are concerned. I cannot, however, close these notes without calling attention to one case selected from your private practice, as indicative of the highly restorative action of electricity in hemiplegia.

" The case I allude to is that of Master B. —. This young gentleman, age about 17, retired to bed in good health, on the 19th July last. During that night he was visited with apoplexy, and in the morning it was discovered that he was perfectly paralyzed throughout the entire of the left side. The voice was unaffected; but whenever he attempted to put his tongue out, instead of going straight forward, it was protruded at the *side* of the mouth. On the paralyzed side the limbs were flaccid and motionless, and sensibility was entirely extinct; the bladder and rectum were also involved in the paralysis.

" Previous, however, to your having directed the application of magnetic electricity, you had by other treatment restored to a considerable extent the power of sensation; but all power of motion was altogether absent. The tongue was still paralyzed; the sphincters of the anus and rectum were also in the same state, the urine and fecal matter being still voided without his control. The sound side was unable to support the other which was paralyzed. The limbs were greatly wasted, particularly those on the paralyzed side, whilst the skin on same was withered and

inanimate-looking. He was in this state on the 12th of August, when you directed the application of magnetic electricity to the lower extremity, at the paralyzed side, and along the spine daily, having determined on the trial of electricity unaided by any other remedies. During the first few days of application no remarkable change took place; strength was gradually being restored; the skin of the affected side began to lose its withered and inanimate appearance; whilst the lower paralyzed and wasted extremity appeared to be increasing in fulness. This stage was followed by frequent involuntary movements of the lower limbs. And it is worthy of remark, that the muscles to which electricity was most frequently applied, were those which first manifested involuntary motions, and subsequently soonest became obedient to the will. After involuntary movements of the lower paralyzed limb, the intestinal paralysis ceased, and on the 31st of August, or nineteen days after the first application of electricity, the flexor muscles of the paralyzed leg began to resume their power. After a lapse of nine days more, in all twenty-eight days, he could each morning execute one voluntary extension of the leg, but only one, and that only when just after waking, and in full power after a night of repose. Fear of cerebral inflammation being less urgent, I have for many days past applied electricity to the upper portion of the spine and arm, and by this time many involuntary movements took place in the arm, particularly at night, and on the 13th of September he could move the fore-arm and humerus upwards and inwards; but the biceps flexor cubiti was then very weak in its contractile action, and the pronator radii teres being more powerful than the supinator, caused the fore-arm and hand to fall inwards and forwards when he attempted to raise his arms. The great toe, also (but none of the others), began to evince a power of withdrawing itself from a pinch of my finger, or from a strong electric spark.

“On the 23d Sept. power began to return to the extensors of the leg, and on the same day he left his bed and sat up in a chair for an hour or more.

“Application of electricity was discontinued on the 31st of September (seven weeks from its first application), owing to the patient appearing feverish. I saw him a few days ago (on the 20th of October): his strength has so much increased, that he can walk well by the aid of a stick, and his general health is good. There remained, however, an awkwardness in moving the left side, and certain muscles were comparatively inactive, which gave rather a paralytic appearance to his movements; but as it is, I believe, intended to renew the application of electricity, and as his case in all its stages yielded gradually to this agent, I think that in all probability even these defects will be removed.

“In the progress, I have resorted to nearly all the known sources of electric power, as well as to many new forms of apparatus, and have for weeks together kept electric currents circulating through the paralyzed limbs (or such parts of them as it appeared advisable), both night and day, even during the sleep of the patient, and the result has been successful in proportion to the care and energy employed. It may be well also to notice, that the only parts to which voluntary power of motion had not returned when the application of electricity was discontinued, were the fingers and lesser toes, parts most distant from the nervous centre, in which the capillary circulation was necessarily difficult, and from which a very remarkable amount of moisture was constantly exhaling, attended of course with constant evaporation and tendency to reduction of temperature.”

S L E E P L E S S N E S S .

LECTURE XXXIV.

Sleeplessness—Sleeplessness from anxiety, grief, &c.—Case of jaundice accompanied by sleeplessness; treatment—Remarks on purgative mixtures—On the proper time for administering opiates—Sleeplessness in delirium tremens—Chronic variety of delirium tremens; treatment—Sleeplessness in fever; case—Failure of different modes of treatment—Use of opiate injections—Delirium traumaticum—Constitutional irritation from blisters; treatment—Sleeplessness in hypochondriacs and hysterical females—On the use and abuse of cold applications to the head.

Two cases which have been recently under treatment in this hospital demand your particular attention,—the man who has been labouring under a severe attack of jaundice, and the boy who is recovering from fever. A remarkable symptom in both of these patients, and which must have repeatedly attracted your notice, was a total privation of sleep. In the former case the sleeplessness continued for a week, in the latter for nine or ten nights.

Sleeplessness is a very curious result of disease. It accompanies certain morbid conditions of the system brought on by active disease or by grief, care, and various other forms of mental disturbance, continues to harass the unhappy sufferer night after night, and frequently resists the most powerful and decided narcotics. I do not intend to enter into any inquiry respecting the different states of the constitution in which it occurs; my purpose is merely to offer a few practical remarks on the more obvious and striking examples, with the view of illustrating the cases to which I have directed your attention.

There is a form of sleeplessness which is frequently the precursor of insanity, and which has been well described by my friend, Dr. Adair Crawford. The watchfulness in such cases is accompanied by the well-known symptoms of incipient mental derangement, and its treatment is therefore inseparably connected with that usually resorted to in cases of threatened insanity, and embraces the employment of means, moral as well as physical. Of these it is not my intention to speak; I may observe, however, that Dr. Crawford has found opium, gradually increased to very large and frequently repeated doses so as to produce sleep, the best remedy.

In the case of jaundice, the patient passed several nights without any sleep. He was just beginning to recover from the jaundice when this new symptom appeared, and I directed your attention particularly to the circumstance, because every manifestation of nervous derangement connected with jaundice should be carefully watched. It frequently happens that jaundiced patients sleep too much, and in some cases the disease is accompanied by convulsions, succeeded by coma, most alarming symptoms, and almost invariably the harbinger of a fatal termination. Dr. Marsh was the first who directed our attention to the great fatality of those cases of jaundice in which convulsions occur; I have seen but one instance of recovery. It was in the case of a gentleman labouring under icterus, very considerable hepatitis, with enlargement of the liver and anasarca,

with ascites. He was treated by Dr. Osborne and myself, and had at least a dozen long and violent convulsive paroxysms, ending in coma, succeeded by temporary forgetfulness and fatuity. Repeated leeching of the right hypochondrium, active purgation, and mercurialization of the system removed all the symptoms of disease, and he slowly but perfectly recovered. A very able and original writer, Dr. Griffin, of Limerick, has detailed the particulars of some interesting cases of this nature in the *Dublin Medical Journal*. You perceive, therefore, that in jaundice every thing denoting an unusual state of the nervous system, whether it be too much sleep or too little, demands your attention.

In this man's case the jaundice was the result of an attack of hepatitis. We treated it with leeches, blisters, and the use of mercury, and in the course of a few days the stools became copiously tinged with bile, and symptoms of improving health appeared. At this stage, the dejections being bilious, but the jaundice still remaining, he began to exhibit symptoms of restlessness and nervous irritability, and finally became perfectly sleepless. Here, gentlemen, we had to deal with a new symptom, extremely harassing to the patient, and likely to react unfavourably on the original disease. As a preliminary step, I determined to evacuate the bowels, and for this purpose I prescribed a purgative draught, consisting of five ounces of infusion of senna, half an ounce of sulphate of magnesia, a drachm of tincture of senna, and a scruple of electuary of scammony. My object was to purge briskly, and then give a full narcotic. In all cases of jaundice depending on hepatic derangement, after you have succeeded in producing bilious evacuations, you should never omit prescribing an active aperient every second or third day for the space of ten days or a fortnight, with the view of carrying off the remains of the disease so as to prevent the occurrence of a relapse. Hence you will find such cases very much improved by the use of Cheltenham water, taken every day for three or four weeks *after the reappearance of a bilious tinge in the alvine discharges*. The stimulus of the purgative causes an increased flow of bile into the intestines, which removes the hepatic congestion, and carries off what is popularly termed the dregs of the disease, and promotes a rapid and complete recovery. It is a simple, but successful practice, and I would advise you never to omit its employment in cases of this description.

With respect to purgative mixtures, I may observe that you should prescribe a larger quantity of the infusion of senna than is generally ordered, if you wish to secure its certain and decided operation on the intestines. Hospital nurses, who reason from facts and experience, know this, and when directed to give a senna draught, they always give a small teacupful. They administer from four to six ounces at a time, and I have observed that in this way the action of the medicine is more certain, and the benefit derived from it more extensive. I am convinced that the usual mode of giving this valuable purgative in private practice is bad; the quantity given is too small, and consequently it is necessary to repeat the dose several times, a mode of proceeding apt to occasion much nausea and griping; I would, therefore, recommend a quantity varying from three to six ounces, to be administered in all cases where the patient's condition will admit of free purging. A most accurate observer of the effects of medicines, Mr. Kirby, is in the habit of ordering purgative mixtures in chronic cases to be taken at bed-time, and not, as is usually

done, in the morning. He asserts that their action is milder and less irritating to the bowels when the patient lies in bed and is asleep until the period of their operation, than if he were up and about.

After the purgative had produced four copious discharges, I prescribed eight minims of black drop, to be taken at a late hour in the evening. Whenever I give opiates to procure sleep, I always observe the rule laid down by Dr. M'Bride (a celebrated physician of this city), to select the period at which nature usually brings on sleep, and which varies according to circumstances and the habits of the patient. Whenever you have to deal with watchfulness in patients labouring under morbid states of the constitution, as, for instance, hectic, inquire when the tendency to sleep usually occurs, and administer your narcotic about an hour or two before its occurrence. It is between three and five o'clock in the morning that the inclination to sleep is strongest; it is about this time that sentinels are most apt to slumber at their post, and consequently attacks upon camps or cities, made with the intention of effecting a surprise, are usually undertaken about this period of the morning. How well marked is the periodic tendency to sleep at this hour in all patients labouring under hectic fever produced by whatever cause. How often do we hear the poor sufferer complain of restlessly tossing about in his bed until three or four o'clock in the morning, when at last sleep, welcome though uneasy, for a few hours separates the patient from his pains. If given at an early hour in the evening, the effect of the opiate is not coincident with this periodic attempt of the constitution, and it fails in producing sleep; but if exhibited at a late hour, it begins to produce its soporific effect at the very time when nature inclines the harassed sufferer to repose, and the result of these combined influences is a deep, tranquil, and refreshing sleep. By observing this simple rule, I have often succeeded in producing sleep in cases where various narcotics had not only failed, but even added considerably to the irritation and discomfort of the patient.

In cases of sleeplessness where you have administered an opiate with effect, be careful to follow it up for some time, and do not rest satisfied with having given a momentary check to the current of morbid action. To arrest it completely, you must persevere in the same plan of treatment for a few days, until the tendency to sleep at a fixed hour becomes decidedly established. You must give an opiate the next night and the night after, and so on for five or six nights in succession; and where the watchfulness has been of an obstinate and persistent character, narcotics must be employed for a longer period and in undiminished doses. I do not allude here to the sleeplessness which accompanies confirmed hectic and other incurable diseases; such cases require a particular mode of treatment, and generally call for all the varied resources of medicine. But in those instances of watchfulness, which are frequently observed towards the termination of acute diseases, it is always necessary to repeat the opiate for some time after you have succeeded in giving a check to this symptom. You need not be afraid of giving successive opiates, lest the patient should become accustomed to them, and a bad habit be generated, for the rapid convalescence and renewed health, which are wonderfully promoted by securing a sound and refreshing sleep, will soon enable him to dispense with the use of opiates.

Another disease in which sleeplessness is a prominent symptom, is delirium tremens. We have had an example recently in our wards, and you

have seen the means employed to overcome it. The patient came into hospital with symptoms of extreme nervous excitement and watchfulness, which had continued for some time, and were brought on, as is most commonly the case, by repeated fits of intoxication, succeeded by a pause of perfect sobriety—in Irishmen the result of necessity or accident. In this man you must have remarked the signal benefit which attended the use of a combination of tartar emetic and opium, and how rapidly the watchfulness disappeared.

There is, however, one form of nervous irritability, frequently observed in persons who are in the habit of drinking freely, but without running into excess, and presenting, as it were, a shadow of delirium tremens, on which I shall make a few remarks. This curious state of the nervous system is generally found to exist in men about the middle period of life, and who consume a larger quantity of spirituous liquors than they are able to bear. Such persons, without suffering in appearance, or losing flesh, get into a chronic state of disturbed health, manifested by nausea, and even dry retching in the morning, loss of appetite, and impaired digestion; but in particular by a deranged and irritable state of the nervous system, and by watchfulness. This forms one of the most distressing symptoms, and the patient generally complains that he cannot get any sound and refreshing sleep, that he lays awake for hours together, and that when he slumbers his rest is disturbed by disagreeable dreams, or broken by slight noises. How are you to treat this affection? I can give you a valuable remedy for this deranged state of constitution—one which I have often tried, and which, from experience, I can strongly recommend. It is a mixture composed of tincture of columba, quassia, gentian, and bark—say an ounce of each; and to this is added a grain, or even two, of morphia. A compound tincture, somewhat analogous to this, is much in use among military gentlemen, and others, who have resided for a considerable time in India, where, from the heat of the climate, and the prevalence of intemperate habits, the stomach becomes relaxed and the nervous system irritable, so as to represent, in a minor degree, the symptoms which characterise delirium tremens. You perceive I combine several tonics to form this mixture, because they are well known to produce a more beneficial effect when combined than when administered singly; and I add to these a narcotic, which has the property of allaying nervous excitement without derangement of the intestinal canal. The dose of this mixture is a teaspoonful three or four times a-day, and the best time for taking it is about an hour before meals. It gradually removes the nausea and debility of stomach, lessens nervous irritability and watchfulness, and with a proper and well-regulated diet, and attention to the state of the bowels, I have seen it produce excellent effects. In such persons much benefit is derived from the use of the tepid shower bath.

Fever is another disease in which sleeplessness is a symptom, frequently of an unmanageable character, and pregnant with danger to the patient. You witnessed this in the case of the boy who lies in the small Fever Ward, next to the man who is at present labouring under general arthritis. This boy had fever of a mild description, and unattended with any bad symptoms. His case scarcely required any attention, and he had almost arrived at a state of convalescence without the aid of medicine, when he began to lose his rest, and absolutely became sleepless for several nights. I beg your attention to this case for many reasons. In the first place, you

have seen that we tried many remedies without success, and afterwards fortunately hit on one which answered our purpose completely. Let us examine the nature of the medicines prescribed, and our reasons for giving them.

In the first place we gave, as in the case of jaundice, an aperient followed by a full dose of black drop. It failed in producing any sleep; we repeated it a second and a third time, but without the slightest benefit. I then remarked to the class, that, as I had noticed the good effects resulting from a combination of tartar emetic and opium in the case of delirium tremens where opium alone failed in procuring sleep, it would be proper to give this remedy a trial. I observed, at the same time, that I was convinced that the preparations of antimony have a distinct narcotic effect, and that I had seen patients in fever whose watchfulness had been removed by antimony given in the form of tartar emetic or James's powder. I said it was my firm impression that tartar emetic, along with its other effects, exerts a decided narcotic influence on the system, and that it is this which makes it so valuable a remedy in treating the sleeplessness of fever and delirium tremens. Our predecessors were much in the habit of using antimonial mixtures in the treatment of fever; and they did this because they knew, by experience, that these remedies worked well. It is at present too much the fashion to decry their practice, and in this instance, I think, with very little justice.

In this boy's case, however, the combination of tartar emetic and opium did not succeed in producing sleep. Having thus failed in our first and second attempts, we had recourse to the liquor muriatis morphiæ—a preparation first brought into use by Dr. Christison, and which, in the form usually employed, is equal in strength to laudanum. It is an exceedingly valuable preparation for many reasons, and one which has the strongest claims to your notice. Being of the same strength as laudanum, it saves the trouble of learning and remembering new doses, and, in addition to this, it possesses the more important advantages of inducing sleep with more certainty, and not acting as an astringent on the bowels, or affecting the head so frequently as laudanum. You observe that I say *so frequently*; I do so because cases now and then occur in which even moderate doses of the liquor of the muriate of morphia produce quite as much headache as laudanum. I prescribed the former in doses of fifteen drops every six hours, so as to give sixty drops in the day, and continued this practice for two days, but without the slightest effect. Here you see three modes of inducing sleep completely failed. The boy remained for a day without taking any medicine, and then we made another attempt, which was more successful. We first prescribed a purgative enema, and after this had operated he was ordered an opiate injection, consisting of four ounces of mucilage of starch and half a drachm of laudanum. He fell asleep shortly after using the opiate injection, and did not awake until the next morning. The following night the opiate was repeated in the same form, and with equal success; convalescence went on rapidly, and the boy's health is now quite re-established.

Here, then, is a singular fact attested by this case, that opiates in the form of injection will succeed in producing sleep, where they have completely failed when administered even in large and repeated doses by the mouth. Baron Dupuytren was the first who made this important observation, and proved that narcotics applied to the mucous surface of the rectum exercise a powerful influence on the nervous system, always

equal, and very often superior, to the effect produced by taking them into the stomach. He maintains that, in delirium traumaticum and delirium tremens, a certain quantity of opium, when prescribed in the form of enema, will act with more decided effect in allaying nervous excitement than the same or even a larger quantity, when taken by the mouth. I have no hesitation in giving full credit to this assertion, as the results of my experience tend strongly to confirm its truth. I have, not long since, published, in the *Dublin Medical Journal*, the case of a patient in Sir P. Dun's Hospital, who was reduced to the last stage of debility and emaciation from effects of mercury and syphilis. The torture which this man endured from nocturnal pains, and a total deprivation of sleep, was such that he swallowed enormous doses of opium; in fact, he had, previously to his admission into Sir P. Dun's Hospital, exhausted all his means in purchasing opium. While in hospital, he used to take 150 drops of black drop in the course of a day, and yet, notwithstanding these excessive doses, he could only get a few minutes of unrefreshing slumber. After some time I changed the plan of treatment, and had the black drop administered in the form of enema. It succeeded in producing a decided soporific effect, and in a short time he was able to enjoy a sufficient quantity of repose, from taking only one-tenth of the quantity used by the mouth. I have also, in the same paper, adverted to the case of a medical gentleman who laboured under an affection of his joints, which was accompanied by spasms of the limbs and most excruciating pains. His agony was so intense that he used to swallow grain after grain of opium, until he had taken to the amount of thirty or forty grains, with the view of procuring some alleviation of his sufferings. He was prevailed on to give up altogether the use of opium by the mouth, and employ it in the form of enema, which he did with the most striking advantage—the quantity which succeeded in giving relief in this way being scarcely the twentieth part of what he ordinarily used.

It is unnecessary for me to enter here into any discussion with respect to the nature and treatment of delirium traumaticum, and the sleeplessness which always accompanies it, as you will find this subject very ably treated in M. Dupuytren's works, and in a very instructive and elegant lecture delivered by Sir Philip Crampton (the surgeon-general) in this hospital, and published in the last volume of the *London Medical and Surgical Journal*. There is, however, one kind of sleeplessness, arising from irritation of the skin produced by blisters, which frequently assumes a very serious character, and on which it may be necessary to offer a few observations, as the subject has not been noticed sufficiently by practical writers. Trifling as the irritation resulting from a blister may seem, yet, under certain circumstances, it is a symptom of highly dangerous aspect, and becomes a source of just alarm. I have witnessed the loss of some lives from this cause, and many patients have, to my knowledge, been rescued from impending danger, by an early and proper share of attention being directed to its phenomena and treatment.

The bad effects on the nervous system, occasionally produced by the application of blisters, are somewhat analogous to those which result from wounds and other external injuries, and to be accounted for on the same principle. Wounds and injuries sometimes make an impression on the nervous system, by no means proportioned to the importance of the injured

organ to life, or the extent of the mischief. An injury, produced by a body which strikes the sentient extremities of the nerves with great force, will sometimes produce very remarkable effects on the system. Thus, a musket-ball striking a limb may, without wounding any great artery or nerve, or destroying any part of importance to life, produce a train of nervous symptoms of an extraordinary character. The person, without feeling much pain, and scarcely knowing that he has been wounded, without being terrified or having his imagination excited by any apprehended dangers, turns pale, gets a tendency to faint, and sometimes actually dies from an impression made on the nervous system. In the same way an external injury reacting on the nerves may bring on high mental excitement, delirium and a total privation of sleep, as we see exemplified in delirium traumaticum. I mention this with the view of establishing the proposition, that impressions made on the sentient extremities of the nerves are sometimes reflected on the nervous centres, producing the most alarming effects. In this way we can understand how the irritation of blisters may produce sleeplessness, mental aberration, and a train of symptoms analogous to those which characterize delirium traumaticum.

The delirium and sleeplessness arising from the irritation of blisters is by no means an uncommon disease. I have seen many examples of it in private practice, and I am anxious that you should be acquainted with its nature and treatment. It is generally met with in the case of children, in whom the cutaneous surface is extremely tender and irritable. I could relate several instances in which I have been called on to visit children labouring under fever, where symptoms of high nervous excitement were present, and where I found the little patients delirious, screaming, and perfectly sleepless from this cause. I have found this alarming affection generally occurring at an advanced stage of fever, and exhibiting a train of symptoms which closely resemble hydrocephalus. I have observed that after the application of a blister to relieve some suspected cerebral or abdominal or thoracic affection, jactitation, restlessness, constant application of the hand to the head, and delirium have appeared, and that these symptoms had been mistaken for incipient cerebritis or hydrocephalus, and treated with leeches and purgatives. When the blister has been applied to the nape of the neck, the soreness and irritation of the skin on that part *cause the child to roll its head from side to side on the pillow with that peculiar motion and scream supposed to prove to a demonstration the existence of hydrocephalus*. I have learned, also, that the above measures, so far from giving relief, have only tended to produce an exacerbation of the disease, and that the medical attendant has given up the case in despair. Now, gentlemen, if called to such a case, what should be your practice? In four cases of this kind I gave my opinion frankly to the medical attendant, and told him he was pursuing a wrong course, that the disease was analogous to delirium traumaticum, and not to be treated by leeches or purgatives, and least of all by blisters. I observed to him that these symptoms had made their appearance shortly after the child had been blistered for suspected disease of the belly, or head, or chest; and that it was useless to attempt to remove the disease by leeches, or purgatives, or blisters. The remedy I always proposed was opium, and it was acknowledged in four or five cases, that this remedy had succeeded not merely in relieving the existing symptoms, but in saving the patient's

life. In such cases, particularly in young children, the opium must be given in small but frequently repeated doses, so as to insure its energetic but safe action, and the greatest care must be taken to soothe the irritated portion of the skin by ointments, poultices, &c., *while unwearied diligence must be bestowed upon the task of preventing the child from scratching the blistered surface.* To effect this the child's hands must be muffled in appropriate gloves, and must be secured in the sleeves of a shirt made for the purpose.

I beg your attention still further to this subject of sleeplessness and delirium. I wish to mention the case of a gentleman who was a pupil of mine. This gentleman studied hard, attended lectures regularly, and was constantly in the dissecting-room. While thus occupied, he happened to wound one of his toes in paring a corn, and afterwards wore a tight shoe on the injured foot. A small imperfect abscess formed in the situation of the corn, which was opened by one of his fellow-students: the incision gave very great pain, and was not followed by any discharge of matter. Next day he was feverish, and the lymphatics of the injured limb became extensively engaged, the inflammation ascending towards the glands of the groin and having a tendency to form a chain of insulated patches in different parts of the leg and thigh along the course of the lymphatics. This you will generally find to be the case in inflammatory affections of the lymphatics; the inflammation is seldom continuous, but in the majority of cases, is developed at certain insulated points, where small diffuse suppurations form very rapidly. After a few days, this young gentleman's fever increased to an alarming height, he became completely sleepless, and had incessant delirium. He was purged briskly, leeches extensively and repeatedly, his head shaved, and cold applications so constantly applied, that he appeared half drowned and collapsed. Notwithstanding this very active treatment not the slightest relief was obtained; neither were the symptoms mitigated by incisions made in the inflamed patches for the purpose of evacuating matter; the sleeplessness continued, and the delirium was as wild as ever. I saw him on the seventh or eighth day, when all antiphlogistic measures had failed, and his friends were quite in despair. On being asked my opinion, I stated that I looked upon the case as one of delirium, not proceeding from any determination to the head or inflammation of the brain, but depending on a cause analogous to those which produce delirium traumaticum, and that instead of antiphlogistics I would recommend a large dose of opium and some porter to be immediately given. Mr. Cusack, who visited the patient after me, concurred in this view, and a full opiate was administered in repeated doses. It succeeded in producing sleep and tranquilizing the nervous excitement. I may here observe that a few days afterwards this gentleman had a return of the symptoms of cerebral disturbance with sleeplessness, in consequence of omitting his opiate, and that the opiate and porter were again administered, and again succeeded in removing the delirium and watchfulness. By perseverance in the use of the same means, the disease was completely removed, and convalescence established.

The last kind of sleeplessness to which I shall direct your attention, is that which is frequently met with in persons of a nervous and irritable disposition, in hypochondriacs and hysterical females. You will find such persons, although of active habits and with tolerable appetites, complaining of a total privation of their natural rest, and it is astonishing to

think how long they may continue subject to this harassing watchfulness. I have frequently observed this affection among females of nervous habit, who possessed strong feelings of attachment to the interest and welfare of their families, and who were remarkable for an exemplary and over anxious discharge of their domestic duties. It is also very often met with in the upper classes of life, where the susceptibility to nervous excitement is morbidly increased by fashionable habits. I shall not enter into the various moral causes which tend to produce this state of the nervous system, and will content myself for the present with giving you some hints for the treatment of this obscure affection. As yet I have not any distinct and accurate notions of the disease, and can only guess at the treatment; but this much I may state, that such cases are not to be cured by the means which I have already detailed. If they are to be cured by any means, I think it is by antispasmodics, and remedies which have a gentle stimulant, and, if I may so express myself, alterative effect on the nervous system. I have cured two cases of this kind by musk and assa-fœtida, where every other remedy had failed. To one of these I was called by my friend, Dr. Neason Adams; the patient was a lady of delicate constitution and hysterical habit; she was emaciated, and suffered from a total loss of rest, but had no other disease. All kinds of narcotics had been tried unsuccessfully, and opium in all its forms had failed in procuring sleep. I advised the use of musk in doses of a grain every second hour, and this means proved eminently successful. In another case I succeeded by administering the same remedy in combination with assa-fœtida. I have also remarked that assa-fœtida alone, given in doses of two or three grains three times a-day, has very considerable effect in calming nervous irritation of this description, and restoring the patient to the enjoyment of more prolonged and refreshing sleep. In all such cases the physician must be most careful to have the appearance of not thinking the loss of sleep as a matter of much consequence, and the family of the patient must be directed to speak as little about the matter in his presence as possible;—nay, so powerful is the operation of moral impressions, that in one case, which I attended along with Mr. Halahan, I succeeded in procuring sleep by ordering a musk pill to be given every second hour night and day, and by desiring the patient to be awakened, should she be asleep, at the time the pill was to be taken. I laid great stress on the importance of so proceeding, and thereby produced so strong an effect on the patient's mind, and inspired so great a confidence in the efficacy of the medicine, that she went to bed, not so much afraid of lying awake as afraid of being asleep at the hours when she ought to take a pill. The idea which had hitherto fixedly occupied her mind was displaced by a new impression, and relief was obtained the very first night.

In affections of the head occurring in acute diseases, and attended with raving and loss of rest, it is a very usual practice to direct the application of cold lotions to the shaved scalp.

Permit me, gentlemen, to make a few remarks upon this important subject. I wish I could make myself well understood on this point, for I have seldom met with any person who seemed to bear in mind the true principle upon which cold is applied as a means of repressing local heat. In cases of determination of blood to the head occurring in fever, the common practice is to have the head shaved and cold lotions applied. Enter the room of a patient who is using cold applications, and you will

observe the process conducted with great apparent nicety ; the head is accurately shaved and carefully covered with folds of linen wet with a lotion to which spirit of rosemary or some odoriferous tincture has communicated an agreeable and refreshing smell ; but when you come to examine the patient, you find his head smoking and the heat of his scalp increased. The nurse applies the lotion once every half hour, or perhaps not so often ; indeed, she seldom repeats the application until her notice is attracted by the steam rising from the patient's head, or until she herself, awaking from a comfortable sleep, and going over to examine the state of the patient's head, finds the folds of linen which cover it as hot and dry as if they had been hung before a fire. Whether applied to reduce local inflammation in any part of the body, or to cool the scalp in determination to the head, cold lotions as ordinarily employed do infinitely more harm than good. The cold is applied at distant intervals, its effect soon ceases and reaction constantly takes place, leaving the part as hot or even hotter than it was before.

If you put your hand into snow for a few moments, and then take it out, it quickly resumes its natural heat ; and if you repeat this at considerable intervals, so as to give time for reaction to occur, the vessels assume a more energetic action, and it becomes hot and burning. If you continue to keep it in the snow for a long time, its heat becomes completely exhausted, reaction does not take place until after a considerable period, and very slowly, and the hand remains at very low temperature for a good while. Bear this in mind, for it will direct you in the application of cold to reduce local heat. If cold applications be used at such intervals as to allow the scalp to react and resume its heat, rely upon it, it is much better to forbid them altogether. Where you wish to apply cold with effect, let it be done by relays of folded linen, wet with any frigorific mixture, and repeatedly applied to the scalp so as to leave no smoking, or, what is much better, get three or four bladders, put into each a quantity of pounded ice, and apply one over the crown of the head, one on each side, and lay one on the pillow for the back of the head to rest on.

There is a vast difference between a thing being done and its being well done : so it is with regard to cold lotions ; so difficult is it to insure their proper application, that I have entirely given them up in hospital practice, and rarely order them in private. I have been induced to abandon them in consequence of witnessing so many instances in which my directions were neglected, and consequently the cerebral congestion was augmented by their malapplication. Another serious inconvenience frequently arises from their use when applied in a slovenly manner, which is the danger of cold arising from the pillow and bed-clothes being wetted.

It is a curious fact that the head is the only one of the three cavities with respect to which long-established custom has laid down the maxim, that when its contents are inflamed we may cool the surface over it, while in inflammatory affections of the thoracic or abdominal viscera this practice is avoided as dangerous and inapplicable. Latterly, however, some medical men have been inclined to question the grounds on which cold applications have been rejected in the two latter cases, and some have even declared that they have used ice poultices in inflammation of the chest and belly with great success and perfect safety. I am not as yet prepared to adopt this practice, although I must confess that a review of

the subject might incline me to give up my prejudices on this point. It is certainly but reasonable to think that what is true of the one may be also true of the other, and that the application of cold to the head and heat to the chest and belly has nothing in its favour beyond mere custom. It should be recollected, however, that the head and face are more accustomed to cold than the chest and belly, and hence are less liable to any mischief likely to arise from its application in an intense degree. Still, I am inclined to think that there is much prejudice connected with the practice of applying cold to the head; and I have very little doubt that if the matter was properly investigated, and a number of experiments made, it would lead to the abandonment of cold applications in most inflammatory diseases of the brain. In fevers, I can say positively that in the majority of cases they are certainly injurious, *as usually applied*; sponging the bare scalp with tepid or warm vinegar and water, or *even frequently repeated steeping of the head and temples*, will often succeed much better in abating the headache and restlessness of fever than any cold applications whatsoever. In 1832, a violent influenza, accompanied by most distressing headache, attacked thousands in Dublin; this intense pain in the head was relieved by nothing so effectually as by diligent steeping of the temples, forehead, occiput, and nape of the neck, *with water as hot as could be borne*.

I do not speak here of the application of cold to the head for the purpose of relieving local heat and inflammation, but to produce an effect on the whole system. Cold thus applied is of decided and unequivocal value. You are aware that in cases of fever accompanied by symptoms of high mental excitement and great heat of skin, the use of cold dashing has produced the most extraordinary effects. Again, if a patient has taken too large a dose of prussic acid or any other narcotic, the best mode of rousing him is by pouring water on his face or chest from a height. In Turkey, if a person happens to fall asleep in the neighbourhood of a poppy field, and the wind blows over it towards him, he becomes gradually narcotised, and would die, if the country people, who are well acquainted with this circumstance, did not bring him to the next well or stream, and empty pitcher after pitcher on his face and body. This occurred to my friend Dr. Oppenheim, during his residence in Turkey, and he owes his life to this simple but effectual treatment.

To conclude, gentlemen, I may observe that sleeplessness in a chronic form is often produced by dyspepsia, and can only be relieved by the means suited to indigestion. Here it is that small doses of blue pill and tonic purgatives are of infinite service, combined with change of air, of scene, and an appropriate diet. In many females, sleeplessness is combined with menstrual irregularity, and can only be cured by means calculated to invigorate the health and restore the catamenial discharge to its natural periods and quantity, for the nervous system suffers equally whether they be suppressed or overabundant. It is singular how long sleeplessness often continues in chlorosis without inducing those serious consequences that are produced by this symptom in other morbid states of the system. In such cases much is sometimes accomplished by means of the common preparations of morphia, or by the use of Hoffman's liquor (liquor æthereus oleosus), camphor, and other medicines that act upon the nervous system. It must be confessed, however, that these and every other expedient to obtain sleep often fail in chlorotic and hysterical females,

in whom relief is only obtained by a gradual improvement of the general health and menstrual function.

POSTSCRIPT.—Having in the preceding lecture alluded to the danger to be apprehended when any nervous symptom arises in a case of jaundice, I shall illustrate this view by introducing some very remarkable instances of this form of disease. The three following cases were sent to me by my friend Dr. Hanlon, of Portarlinton, and are the more valuable as the author never expected their appearance in this work. With respect to the writer I can say, that during his pupilage he was remarkable for extreme diligence, assiduity, and zeal in the pursuit of professional knowledge; and I hope that my readers will value as I do his communication.

Case 1—“Saturday, July 25, 1840, I was called to visit Miss Maria B—, aged seventeen years. I was informed that she had been previously healthy. On the preceding Wednesday she complained of languor, and in a few hours was attacked with bilious vomiting, which had returned three or four times in every twenty-four hours since. When the vomiting commenced, she became jaundiced, and the colour increased in intensity until it assumed a greenish-yellow tint. The bowels were constipated for two days before the vomiting began, and had remained so notwithstanding that the apothecary in attendance had given her repeated doses of purgative medicines. Effervescing draughts and other means intended to allay the vomiting had been given without success.

“I found the tongue thickly coated with a yellow mucus; tenderness of the epigastrium and right hypochondrium; thirst; abdomen not tender on pressure; urine scanty and high-coloured; pulse 80; slight headache; pupils natural; complains of want of sleep; and appears fretful and anxious.

“Calomel combined with compound extract of colocynth and croton oil internally, aided by purgative enemata, caused a dark, small and offensive motion towards evening. Leeches were applied to the epigastrium and region of the liver, followed by stupes, three grains of calomel every fourth hour, and a purgative draught consisting of infusion of senna, and tincture of senna, jalap and cardamons after every second dose of calomel.

“Sunday—Vomited twice since yesterday evening; the bilious matter of a darker colour; tongue still loaded; thirst diminished; tenderness of epigastrium and right hypochondrium much less; bowels moved twice in the course of the night—motions larger but still very dark in colour; pulse 80; headache relieved; pupils natural; colour of skin the same; slept for two or three hours in the night; same treatment continued.

“Monday morning, 5 o'clock—I was called up in haste to visit her. It appeared that two hours before my arrival she complained of violent headache and intolerance of light, vomited a dark brown matter resembling coffee grounds; soon afterwards became very restless, and gradually fell into a state of stupor. I found her in imperfect coma, the pupils excessively dilated and insensible to light, the eyelids closed. She flung herself every minute or two from one part of the bed to another, and uttered a faint subdued scream; she was very unwilling to be interfered with; pulse 60 and oppressed; skin of a still deeper tint of greenish-yellow.

“The assistance of Dr. Tabuteau and Dr. I. Jacob was procured in consultation. Fourteen leeches were applied to the temples; the head shaved and cold cloths applied to it; twelve grains of calomel in the

first dose, and five grains every second hour afterwards; purgative enemata were employed every second hour. Cold affusion on the head was subsequently used, to a great extent, but without producing any change in the state of the pupils, or the coma; mercurial inunction in the region of the liver and insides of the arms was commenced, and a large blister applied to the scalp.

“At 11 o'clock, A.M.—She was seized with violent convulsions, which lasted about a minute, and were accompanied with shrill screams; the right extremities appeared more strongly convulsed than the left, the mouth was drawn to the left side. The convulsions returned every thirty or forty minutes with same violence and screaming, until three o'clock, P.M., when they became less violent, but much more protracted in duration, and gradually passed into a continued spasm, or jerking of the extremities. She threw up occasionally a mouthful of the same dark matter which she had previously vomited. The administration of the calomel was relinquished, as every attempt to give it brought on a return of the convulsions. The mercurial inunction was assiduously continued, but no mercurial fetor could be detected on the breath; the coma became more profound; the pulse rose to 108, small, fluttering, and finally intermitting; sordes collected on the teeth; the urine and feces passed involuntarily; the breathing, towards the close, became stertorous; and she expired at 11 o'clock the following morning. No examination of the body was permitted.”

Case 2—“Monday, March 29, 1841, I was requested to visit Miss Charlotte B——, aged 11 years; sister of the former. She had been previously healthy; for the last two days has had the usual symptoms of a feverish cold, which is attributed to her having wetted her feet. I found the tongue loaded; tenderness of the epigastrium, none in the region of the liver; thirst; bowels confined; urine scanty and high-coloured; pulse 120; no headache; pupils natural; no discoloration of the eyes or skin. Six leeches to the epigastrium, to be followed by stuping; purgatives; diaphoretic mixture and diluents prescribed.

“Tuesday morning, 9 o'clock—Appears better; slept some hours in the course of the night; tongue cleaner; thirst diminished; tenderness of the epigastrium much less; no tenderness on strong pressure in the right hypochondrium; bowels have been strongly acted on four times; motions dark and offensive; urine more copious and paler; pulse 92; no headache; pupils natural; no discoloration of the conjunctiva or skin. Having been absent from home during the day, I hastened, on my return at eight o'clock in the evening, to visit; and was greatly surprised to find her in the same state as her sister had been. It appeared that about three o'clock she became heavy and languid, the skin became slightly jaundiced. She complained of headache and intolerance of light; vomited a dark-brown matter resembling coffee-grounds; tossed about from one part of the bed to another; refused to answer questions, and fell into a state of insensibility; the bowels had been moved twice, the motions dark but not offensive. I found her in a state of imperfect coma, the eyelids closed, the pupils excessively dilated, and insensible to light; pulse 64 and oppressed; skin jaundiced. In a few minutes after my entering the room she was seized with violent convulsions, which were accompanied by shrill screams, and lasted about a minute. Pressure on the right hypochondrium appeared to give her pain. Upon my requesting that addi-

tional medical aid should be procured, her friends declined having it, on the ground that the case appeared precisely the same as her sister's, and all our efforts on that occasion had been unavailing. Under these circumstances I had recourse to the same plan of treatment as that adopted in the preceding case: cold affusion on the shaven head; ten leeches to the right hypochondrium; mercurial inunction on the right side and inside of the arms, in the intervals between the convulsions; strong purgative enemata frequently repeated, and a large blister on the scalp. The disease, quite uncontrolled by these means, pursued precisely the same course, in every particular, as the former one. The convulsions continued most violent for two hours, when they began to be less violent, but much more protracted in duration, until they passed into continued twitchings of the muscles of the extremities. The coma became more profound; the breathing stertorous; sordes collected on the teeth; and she expired at seven o'clock the following morning.

“Her friends being now alarmed for the safety of her surviving brothers and sisters, became very desirous that the body should be examined. Dr. Tabuteau, who had seen the former case in consultation, assisted me in making the examination. The following are the results: examination made 30 hours after death; surface of the body jaundiced.

“*Head.*—Pacchionian glands preternaturally vascular; venous turgescence generally over the surface of the brain, with increased vascularity of the middle, and especially the left anterior lobes; substance of the brain much more vascular than usual; great vascularity of the choroid plexus; none of the optic thalami, or corpora pyramidalia; the entire surface of the base of the brain highly vascular, particularly at the crura cerebri, pons varolii, and medulla oblongata; no fluid found in the ventricles.

“*Abdomen.*—Numerous spots of extravasated blood in the omentum; several small patches of inflammation along the small intestines; stomach apparently healthy.

“*Liver.*—Size, natural; colour, externally of a dull yellow, with several dark spots about the size of a half-crown piece; consistence, less than usual; structure, minutely granular, and of a very peculiar crimson-orange colour, somewhat resembling what might be supposed to result from an intimate mixture of arterial blood and bile; * gall-bladder distended with bile of the usual appearance. *Thorax* not examined.

“I endeavoured to preserve portions of the liver in a dilute solution of corrosive sublimate and diluted alcohol, but they gradually lost their characteristic appearance in both fluids.”

Case 3—“Friday, June 18, 1841, I was called to visit Miss Jane B—, aged eight years; sister of the two former. I was informed that she had been previously healthy. This morning she appeared languid and was attacked with bilious vomiting. No cause can be assigned for her illness. I found the skin jaundiced slightly; the tongue loaded; tenderness of the epigastrium and right hypochondrium; thirst; bowels confined; pulse 108; no headache; no intolerance of light; pupils natural; urine scanty and high-coloured. Eight ounces of blood were immediately taken from the arm, which afterwards proved to be cupped and buffed; eight leeches applied to the region of the liver followed by stuping; twenty grains of

* This is very like the appearance of the liver described by Louis, as occurring in the fatal cases of yellow fever at Gibraltar.

calomel given at once, and a strong purgative draught every fourth hour until the bowels are fully acted on; three grains of calomel and one and a half of James's powder every third hour after purgation; cold to the head.

"Saturday—Slept none; skin more deeply jaundiced; tenderness of the epigastrium diminished; heat of the right hypochondrium still remains; tongue yellowish; vomited twice since yesterday evening; urine tinged with bile and more copious; bowels moved four times; motions dark and offensive; pulse 110; headache and some intolerance of light; considerable restlessness. Six leeches to the right side; four to the temples; cold to the head; a blister to the nucha, mercurial inunction; five grains of calomel and one of James's powder every second hour. I now watched the case with the greatest interest and anxiety.

"Sunday evening—Slight mercurial fetor of the breath; tongue beginning to clean; tenderness of the right side diminished; bowels moved three times; motions less dark and offensive; pulse 90, and soft; headache and intolerance subsided; restlessness entirely gone; some return of appetite. Calomel and James's powder were continued every fourth hour until a slight salivation was established and cold carefully applied to the head. No unfavourable symptoms subsequently appeared. The tongue became clean, the pulse fell to the natural standard, the motions became more healthy in appearance, the appetite returned, and under the use of four grains of calomel at night, and a strong dose of black draught the following morning, repeated every third night for three weeks, the jaundice disappeared, and she has remained quite well up to this period."

CASE 4.—JAUNDICE FROM INFLAMMATION OF THE GALL-BLADDER—NERVOUS SYMPTOMS—DEATH—POST-MORTEM.

"Anne Milton, a healthy fine young woman, aged 20 (servant), admitted into the Meath Hospital under Dr. Graves, November 1, 1841. About five weeks ago was attacked with pain in the right hypochondrium, extending into the epigastrium, which lasted for a fortnight, and was followed by jaundice and high-coloured condition of the urine. She does not recollect whether the feces were whiter than usual. After the skin got yellow the pain in the side diminished; but during the whole time it lasted she had constant vomiting and nausea. Three days after the setting in of pain, and ten before the appearance of the jaundice, she became affected with excessive itching of the skin, which prevented sleep; *this itching ceased as soon as the jaundice appeared.** She had no pain in either shoulder. At the time the skin became yellow, an eruption of an herpetic character appeared over the hepatic region. She was under no treatment for the pain; but to the eruption, a mixture of gunpowder and blood was applied.

"*Present Symptoms.*—Skin and conjunctiva deeply jaundiced; all objects appear yellow; urine high-coloured; feces white; no itching of skin; the linen over the eruption is stained yellow; tongue clean and moist;

* The same phenomenon was observed in a man named Jones, who laboured under the most severe jaundice, in whose case the itching preceded the appearance of the jaundice for two months, and discontinued on the discoloration of the skin becoming established. These two cases are irreconcilable with the generally received opinion, that the itching depends on the deposition of the constituents of the bile in the texture of the skin.

great thirst; appetite good; stomach not sick; no pain after taking meals; bowels confined; sleeps badly; no headache; pulse 80, full and soft; breathing hurried; no cough or physical sign of disease in either lung; the heart's action strong, but the sounds are normal and distinct; complains of no pain when the right hypochondrium is pressed, or when the ribs are pushed against the liver, *but she has slight pain at a point between the right hypochondrium and epigastrium, greatly increased by pressure.* There is some fulness of the latter region, but percussion does not give a dull sound; no enlargement of the liver noticeable or detected by percussion; the abdominal muscles are very irritable, and are thrown into spasm by the least effort to examine the abdomen minutely; she has no pain over either lumbar region. Poultices to the eruption—xii. leeches to the painful part. R. pil. hydrarg. gr. x. Pulv. doveri gr. v. in pil. iii. st. i. 4tis. horis. Enema purgans.

“November 5th—pain relieved by leeches; no other change; appetite extremely good.

“November 6th—was attacked last night with pain in the stomach; no vomiting; pulse to-day fuller and quicker—100; breathing not hurried; ‘feels unwell’ to day; tongue clean; some thirst; appetite good; bowels confined; skin dry; no change in the jaundice; complains of tenderness at the point before mentioned. R. pil. hydrargr. gr. v. ter in die. Hirudines xii. P. D.

“November 7th—On the previous evening she became delirious, and this morning (7th), at the hour of visit, was quite comatose, and soon after died.

“*Post-mortem.*—The brain and abdominal viscera were the only parts examined. The liver was not by any means enlarged, and a section of it disclosed no excess of blood. It was of a light brown colour, tinged with yellow, as if from a superabundance of the colouring matter of the bile. The gall-bladder was distended, and on being opened was found completely filled by a dark green mass of a tenacious viscid nature, apparently lymph. This substance was of the same pyriform shape as the gall-bladder, and terminated by its narrow extremity at the commencement of the gall-duct. On its removal, the lining membrane of the gall-bladder presented a bright scarlet colour and villous appearance, and the natural and beautiful ‘honeycomb’ arrangement of the mucous membrane was completely effaced. There was no softening or ulceration of the membrane, nor was the colour different in any part. It resembled very much the appearance of the mucous membrane in acute laryngitis. The walls of the gall-bladder were much thickened. There was no obstruction of the ductus choledochus, the cystic or hepatic ducts, and their lining membrane was quite free from any unusual vascularity; the duodenum and stomach were stained with the colouring matter of the bile, but in other respects were healthy; no gall-stones or other obstruction; the kidneys were natural.

“*Cranium.*—The dura mater was stained of a yellow colour; there was no thickening or opacity of this membrane; the arachnoid and pia mater were quite healthy; the substance of the brain was firm and free from any unusual vascularity; no effusion of lymph in any part; the ventricles were not distended with fluid beyond what is normal, but the fluid, though in small quantity, was of a yellow colour, and the surface of the different parts contained in each ventricle was also of a light yellow colour; the nerves and all other parts of the organ were free from this staining.

CASE 5.—It may not be deemed superfluous to mention here the details

of a case which was lately under the care of my esteemed colleague, particularly as it required some skill to distinguish the features which it presented from the ordinary and so frequently fatal combination we have just spoken of. An old woman was admitted, in September, 1842, into the Meath Hospital, labouring under jaundice, purpura hæmorrhagica, and palpitations of the heart. Her habits were very intemperate, and shortly before admission she had been indulging largely: and when first seen by Dr. Stokes, she presented, in addition to the symptoms already enumerated, many of the features of delirium tremens. She was exceedingly feeble, and her legs were anasarous. After being under treatment for some time she began to improve; when one night she was attacked with violent delirium, convulsions, and imperfect paralysis of the right side, she lost the power of speech and the mouth was drawn frightfully to the left side. The face presented almost all the phenomena which attend Bell's paralysis of the portio dura, *but the head was cool, she complained of no uneasiness in this region; the eyes were quite natural, and no increase in the strength of the pulsation of the carotid or temporal arteries could be detected. She lay sobbing and frequently sighing,* and appeared extremely anxious to excite the sympathy of the spectators. These circumstances induced Dr. Stokes to make a most careful examination of the patient; and having premised to the class that the case differed in many particulars from the ordinary combination, and that should it appear that there was really a connection between the jaundice and the supervention of the cerebral symptoms, the prognosis ought to be most unfavourable. He ascertained after some time, from the nurse and the other patients, that this woman, though fifty years old, was extremely hysterical, and had had, during her sojourn in the hospital, many attacks somewhat similar, though much more mild; and by a further reference to her husband, it was discovered that she had been subject to these hysterical attacks for the last 30 years, and that she had frequently been affected with convulsions, raving, and even temporary paralysis, for years before the occurrence of jaundice.

The nature of the case was then quite evident, and the patient was saved the risk which might have attended the employment of remedies the supposed complication would have indicated. It may, with truth, be said, that this was a very unusual combination; but it shows, in my opinion, the necessity of patiently investigating, and carefully scrutinizing the characters of any rare, or hitherto unnoticed symptom, or combination of symptoms, in any particular case, for who might not have mistaken the cerebral symptoms in the example before us for the common complication which occurs in jaundice?

LECTURE XXXV.

ON INFLAMMATION AND THE MOTOR POWERS, WHICH CAUSE AND REGULATE THE CIRCULATION.

GENTLEMEN,—The general laws which govern inflammatory action, and the relation which the vascular system bears to that process, constitute a

most important subject, which has engaged the attention of the ablest pathologists and practitioners in this country for the last half century. Since the date of the great John Hunter's celebrated work, which gave the first impulse to this investigation, many British and Continental writers have applied their talents to the illustration of the changes the vascular system undergoes during the progress of inflammation. Thompson, Hastings, W. Philip, James, Burns, and Marshall Hall, have performed numerous and interesting experiments, which throw light on its phenomena; and we have gained much by the assiduity and research they have displayed, in endeavouring to illustrate a matter of such acknowledged difficulty. Still, these authors appear to have adopted some erroneous views, and to have misunderstood or overlooked some points of peculiar importance. I shall first direct your attention to the opinions of Dr. Marshall Hall, as explained in his lectures, now in course of publication in the *Lancet*. Dr. Hall, possessing extensive acquirements and high professional reputation, has cultivated the sciences of physiology and pathology with distinguished zeal, and made numerous experiments and microscopical observations, tending to illustrate the subject of inflammation; his opinions are, therefore, entitled to serious consideration.

In the last volume of the *Lancet*,* page 76, Dr. Hall, speaking of the inflammatory process, observes—"I conclude that each cause of inflammation first induces such a physical effect upon the internal surface of the capillaries, as leads to the adherence of the globules of blood to it, and to their ultimate stagnation. This stagnation augments as the inflammation increases, and becomes more diffused, and seems to constitute the essential character of the disease." Here you perceive that the first step is the adherence of the globules of the blood to the internal surface of the capillaries, the consequence of which is, that the calibre of these vessels is considerably diminished, so that they become obstructed, and cause a stagnation of the blood, which Dr. Hall looks upon as the essential character of inflammation.

Further on he says—"I have never been able to detect any action in the capillaries themselves. It is, probably, by the partial obstruction to the circulation in the capillaries, that the minute arteries become enlarged." Now observe, according to this mode of explanation, the circulation being obstructed in the capillaries, in consequence of the adherence of the globules of blood to their sides, the arteries which supply them are propelling blood into obstructed vessels, and consequently become enlarged or dilated—and why? Dr. Hall says, "according to the well-known law, that muscular organs augment, with obstacles to their functions." Here I may, in the first place, observe, that Dr. Hall is not warranted in looking upon the minute arteries as muscular organs; but waiving this point, how can the law alluded to explain the supposed increase in the capacity of the minute arteries? It might, indeed, explain the increase of thickness in their parietes; but is it not plain, that this very addition to the thickness of the arterial walls, so far from increasing, must diminish their calibre?

Again, he observes—"It is probably by the fact of stagnation that inflammation differs from blushing, eruptions, &c." Here, you perceive,

* This and the following lecture were delivered in the last week of November, 1837. It will be seen that I have since added many references to books published in 1838.

he introduces the qualifying term, "probably." He continues—"It is generally asserted, that there is a series of vessels which only circulate the serum of the blood, and exclude the globules. This I believe to be mere hypothesis. Vessels which only admit of single globules will appear colourless. In inflammation, the minute arteries which only admit single globules at a time, enlarge, and admit a greater number, and then the red colour becomes visible." He goes on then to say—"This enlargement of the blood-vessels is not confined to the minute arteries, for the larger vessels in the immediate vicinity of the inflamed part also become enlarged. * * * * This is owing to the obstruction of the true capillaries." And he illustrates this by instancing the application of a ligature to an arterial trunk, the consequence of which is, that the collateral arteries of the part become increased in size, in consequence of the obstruction. We shall see afterwards, how little this admits of being proved. He says—"It is not known how far this enlarged state of the arteries extends from the seat of the inflammation; but, in the case of an inflamed finger, the pulse at the wrist of the corresponding arm beats more strongly than it does on the opposite one."

Such are Dr. Marshall Hall's views of the causes of inflammation, and the part which the capillaries and minute arterial vessels play in that interesting process. You perceive, by the brief outline which I have given, that he attributes all the phenomena to adherence of the blood-globules to the sides of the capillaries, the consequent obstruction of these vessels, and the enlargement of the minute arteries to which that obstruction gives rise. In this view of the case the vessels are regarded as passive, and are distended on purely mechanical principles; in fact, their enlargement is a mere dilatation.

Notwithstanding the respect I entertain for the learning, ability, and industry of Dr. Marshall Hall, I must say that I look upon his views as purely hypothetical, and am convinced, that he has arrived at unsound conclusions with respect to the nature of inflammation. I shall not, however, take up your time by going over his positions *seriatim*, and showing their untenable character; but shall proceed at once to lay before you the opinions to which observation and reflection have led me, and which have been taught for many years in my lectures on the Institutes of Medicine. I shall not, like Dr. Marshall Hall, attempt to explain the nature of inflammation, or determine its proximate cause, but shall content myself with endeavouring to arrange its phenomena, and point out their order, and the share which the capillaries have in the inflammatory process. Before entering on this subject, it may be necessary to premise a few observations on the circulation in general.

The human body is composed of various parts, differing in their ultimate structure, chemical composition, and vital functions. There is a very remarkable difference between muscle and cellular tissue, and between the latter and nervous tissue. If we examine these parts more closely, we find them differing, not only in their structural arrangements, but also in the ingredients or materials of which they are composed. In muscle we find a large quantity of fibrin and colouring matter; in cartilage, fibrous membrane, and tendinous substance, we find more or less of the *fibrous structure* of muscle, but we do not meet with *fibrin*, and there is not the slightest trace of colouring matter. The same blood furnishes materials for the growth and nutrition of all, and conveys the nutrient

particles to red and white tissues alike ; but the white parts require not red blood, and consequently receive none. Blood is a compound fluid, which contains, as it were, the raw material of all the tissues in a fluid state ; it is, in fact, flesh in a state of fluidity, and destined to combine with and support the solid portions of the frame. It is conveyed by the arteries all over the body, supplying each tissue with its appropriate materials, and contributing to its growth, sustentation and repair, in the amplest, and yet in the most economical manner. It does not enter the tissue of every organ in that state which has been termed arterial, and in which it appears as a fluid of a bright red colour. This is an error of which nature is never guilty. It would be absurd if all parts of the blood were carried to all the different tissues indiscriminately ; and it would, moreover, be a great waste of vital and mechanical power. The chief bulk of the blood is made up of a transparent fluid or lymph, holding in solution various salts, besides albumen and fibrin. The red globules are immersed, but not dissolved, in this fluid ; and it appears from the observations of Mayer, that in the minute vessels the red globules occupy the central part, surrounded by the transparent fluid. The colouring globules are necessary for the nutrition of muscular, mucous, and some other tissues ; and are carried by the minute vessels wherever they are required. Every part of the blood is required in a muscle ; fibrin and colouring matter for its essential fibre ; albumen, fatty matter, &c., for its cellular and adipose membrane. The white tissues, as I have already observed, receive no red blood, because they require none—this is quite certain. Serous membrane, for instance, contains neither fibrin nor colouring matter ; at what point of the circulation does the separation of the albumen take place ? Is it an act of nutritive secretion which separates it from the whole mass of arterial blood, or are only the serous portions of the blood carried to the white tissues ? “Serous vessels,” says Müller, “that is, branches of the blood-vessels which are too minute to allow the passage of the red particles, and which are traversed, therefore, merely by the lymph of the blood, may possibly exist, but they have not been demonstrated.”

It seems to me, however, that it is by no means necessary for blood-vessels to be too minute to allow the passage of red globules, in order to make these vessels the vehicles of lymph alone. The entrance of the globules into them will be determined by other circumstances than their size. Already, as the blood approaches the capillary system, the microscope detects a tendency to a separation between its lymph and colouring globules ; and no doubt their complete separation is effected by vital agencies, independent of mere calibre. Hence we may explain the fact, that no red blood seems to circulate in serous membranes during health ; but the moment inflammation sets in, the natural play of vital energies is deranged, and the red globules, finding their way into unwonted channels, vessels innumerable, before filled with a transparent lymph, and therefore not visible, start suddenly into view, in consequence of their now containing an opaque and coloured fluid.

According to Hall, Müller, and other physiologists, all minute vessels contain red particles, which, however, are believed to exert no influence on their colour, so long as these particles are only admitted singly, and not several at a time. But when inflammation comes on, according to Hall these vessels are enlarged in consequence of obstruction, and then

admitting a greater proportion of red globules, become visible. Now, gentlemen, observe how suddenly, when the conjunctiva connected with the sclerotic is irritated, numerous vessels appear filled with red blood. Here is no time for the adhesion of globules to the internal surfaces of the vessels—no time for the gradual enlargement of vessels previously too small for the admission of the red globules; no, the vessels existed there, but they contained no red globules; they admitted none, because their admission would have proved unnecessary or injurious. I do not deny the sudden enlargement of minute vessels; on the contrary, I believe in it most firmly, and am persuaded that the minute and capillary arterial branches which admit in health only lymph, may suddenly expand and increase in size. I do not, for reasons hereafter to be detailed, consider this expansion as passive; and I believe that the red globules made little or no part of the fluid previously circulating in these vessels. Indeed, it seems rather illogical to argue that, because red globules might be present without imparting a perceptible red colour to this fluid, that, therefore, they are present. When the contents of a vessel are to the eye colourless, the *onus probandi* lies with him who asserts the presence of red colouring matter; and until that is proved in each particular case, the contained fluid must be regarded as colourless.

As to the idea that lymph vessels could not exist unless their diameter was smaller than that of the red globules, it is too mechanical to deserve serious attention. The entrance of animal matters into, and their propulsion along vessels, depend most assuredly on other conditions than mere size of particles. Indeed, Müller expressly says—“In the most minute capillaries which are not red, nor even yellow, but quite transparent, there is merely a single line of red particles, separated by unequal intervals, and from time to time no red particles are seen in these colourless vessels; but I have seen no canals through which red particles did not occasionally pass, and which, therefore, deserved the name of *vasa serosa*, and Wedemeyer, who says he has seen such *vasa serosa* himself, confesses that some of the red bodies traversed them from time to time. Here, then, we have my argument confirmed by observation, and the fact proved, that the *entrance and passage of the red particles does not depend on the mere size of the vessels*.”

If we take an accurate view of the general circulation, we shall find, then, that there is a great circulation of red fluid containing the raw material of all the tissues; which fluid, in its integral state, is destined chiefly for the muscles of voluntary and involuntary motion, into every part of which red vessels penetrate, and from which red blood returns. In fact, red blood forms as it were, a separate circulation, sweeping by the white tissues, to which it merely detaches its uncoloured lymph, while the red blood enters the capillaries of the red tissues. When the minute arteries arrive at the parts where red blood is no longer necessary, they send off smaller vessels which contain only white blood, mixed with comparatively few, if any red globules, while the branches which carry red blood proceed to join the corresponding veins.

I dissent from the common notion that the circulation of the blood goes on very rapidly. It has been computed that the heart expels from two to four ounces at each stroke of the left ventricle; and if we compute the quantity of blood in the body to be from twenty to thirty pounds, we shall be led to conclude that the whole mass of the blood passes through

the heart in a very short space of time. This, however, is only taking a partial view of the matter. It is true that there is a rapid central current of red blood which accomplishes its circle through the body in a very short time, but a large proportion of the juices of the body circulates very slowly through the tissues it supplies, being detained in the capillary system for a considerable period before it is returned to the general mass of the circulation. If you compare the relative circulations of different classes of animals, you will find that they differ considerably in the composition of their blood, as well as the rate at which it travels through the system. Some animals have only white blood and a capillary circulation, without any distinct arteries or veins. Others possess vessels corresponding to arteries and veins, but still no distinct organ like the heart. Finally, we arrive at a higher class, which have not only distinct arteries and veins, but also a heart. In each of these classes the circulation differs not only in the properties of the circulated fluid, but also in the velocity with which it travels. It is much slower, much more sluggish, in the lower than in the upper classes of animals. In the same way, blood does not circulate so rapidly in tissues of a low degree of organization (as bone, cellular and fibrous membrane), as in the red parts of the body. It is, therefore, not unreasonable to suppose that bone lives at one rate, fibre at another, muscle at another, and nervous matter differently from all. These views are of importance when brought to bear on the subject of inflammation, and tend to explain the slow progress it makes in certain tissues.

You must have perceived that, from the very beginning, I have rejected the idea that the blood is propelled through the system by the *vis à tergo* alone. If that were the case, the current, though diminishing in velocity as it receded from the heart, would be equable in vessels of the same size throughout the whole system. But, in my opinion, the current of circulation has many different rates, which depend not on the *vis à tergo* alone, or the distance from the heart and size of the vessels,* but on the vital energy of the vessels themselves. Hear what Müller says on this subject:—"Wedemeyer's description of the course of the blood in the anastomosing capillaries agrees perfectly with what I have observed. Sometimes, he says, the red particles flow rapidly from one current into another, as if by attraction. In other cases the current which they join is very rapid, *but they are arrested, as it were, in the collateral current, and only from time to time find means of entering.* Sometimes a red particle is even thrown back out of the rapid current into a weaker stream, and is then again repelled. I have also remarked that the same anastomosing branch between two currents sometimes receives the blood in one direction, and sometimes in the other, and that variations of pressure and position, and motions of the animal, are always the causes of these changes."

Such is Müller's testimony concerning the circulation in the capillaries, and it bears me out in the assertion, that a very great portion of the blood (using that word in its most comprehensive sense, and meaning thereby *nutritive fluid*) is comparatively stagnant in the capillary system; but I must confess that I felt much astonishment at Müller's assertion, that "all these variations in the capillary currents are, just as in currents of water in irrigated land, merely the result of mechanical causes."

* The blood's velocity in its progress from the heart is diminished chiefly by two physical causes, viz., increase of friction, and the increasing capacity (considered as a whole) of the vessels which contain it.

Having made these preliminary observations, we are now better prepared to speak of the forces by means of which the circulation of blood is accomplished. Most authors, and with them Müller, have stated that the motion of the blood in the capillaries is wholly dependent on the heart's action. Now these vessels are mere simple membranous tubes, and there is no doubt that their membranous parietes must exert a strong power of endosmosis and exosmosis, as shown by Dr. Rogers, in the American Journal of Medical Science. This power must necessarily have a great influence on the motions of the blood contained in the capillaries, causing a mutual interchange of contents between vessels in contact with each other, and between the vessels and surrounding parenchyma of the organs. Again, it has been proved by Dr. Draper, in the same journal, that in capillary tubes and organic pores a motion of the contents must result when the contained fluid possesses certain physical properties, from its mere contact with the internal surface of vessels so minute.

Here, then, are two sources of motive power, quite independent of the heart's action, and which must necessarily influence, in a most important manner, the capillary circulation; but this is not all, for there resides in the small vessels connected with the capillaries, whether minute arteries or minute veins, *a vital sensibility* which enables them, by suddenly or gradually changing their calibre, to increase or diminish the quantity of fluid in any particular organ or tissue.

Facts in abundance may be brought forward in proof of this assertion. When a fatty or a fleshy tumour arises on any part of the body, we have new vessels, as it were, created; and there is no reason to attribute their formation to any thing like a dilating *vis à tergo*. But the formation of the vascular system in the fœtus affords the strongest proofs. Here the smaller and more minute parts are formed first, the development commencing with the capillaries, and extending to the minute arteries and veins, and then to the larger trunks; until, at last, the heart is superadded, at first of an elementary, afterwards of a complicated structure. The best account of the development of the vascular system in the fœtus, is contained in Von Baer's work, published in 1837, in Königsberg.* He says (Part II. p. 126), that there is no doubt that the blood is formed before the vessels. The formation of blood goes on in every part of the body, and, when formed, it is put in motion by the agency of some unknown cause which impels it in the proper direction, until it at length reaches the central formation of blood, around which is developed a tubular canal, afterwards to be further modified and changed into the heart. In truth, the first motions of the blood are towards the heart, *and consequently the first vessels formed, are the veins*; a fact in itself sufficient to disprove the hypothesis that this motive power which presides over the circulation resides exclusively in the ventricles of the heart. What do we find occurring in the case of pseudo-membranes resulting from pleuritic inflammation? Exactly what takes place in the development of the fœtus. A large quantity of lymph is effused, which at first has no vascular connection whatever with the parietes of the chest. After some time, however, the effused lymph becomes organised, *and vessels begin to form in its substance*; these extend gradually, and join the vessels of the tissue with which the lymph lies in contact. Of this formation of vessels in effused lymph there can be no doubt; I have often examined it with ad-

* *Ueber Entwicklungsgeschichte der Thiere, &c., &c.*

miration, and it is likewise attested by Andral. When a mass of lymph, effused into the pleural cavity, is about to organise itself, and become vascular, a vast number of red points make their appearance throughout the mass, and are connected with very minute streaks, having a vascular distribution. In this lymph, then, red blood is manufactured, as in the fetal body at an early period of development, and vessels are formed; and sanguineous circulation, no doubt, exists.

These facts, I say, bear strongly on the question before us, proving beyond a doubt that the vital properties of living matter are capable of forming vessels, and of rapidly increasing their size when formed. To account for the sudden increase in the size of vessels belonging to an inflamed part, we must look to this fact, and not rely solely on increased *vis à tergo*, aided by obstruction.

Now the whole of Dr. Marshall Hall's explanation depends on these two causes—*vis à tergo*, and obstruction. But I say that vessels may be formed, multiplied, and enlarged, independently of these causes, and in consequence of an altered vital action of the parts in which the process occurs. Let me refer to the case of the impregnated uterus. In the unimpregnated state, the womb is a small organ, with vessels and nerves so small as scarcely to admit of being satisfactorily traced. What takes place after conception? It has now new and important functions to perform, and it becomes proportionally increased in magnitude and vital activity; its arteries and veins become elongated and enlarged; its walls become thickened, and its nerves increased in size. And yet we are told that this increase in the size of its vessels depends on obstruction. Where does the obstruction exist? What proof have we that there is any increased *vis à tergo*? Will any of these principles account for the augmented size of its nerves? Tiedemann has proved beyond contradiction that the nervous matter of the womb is augmented to a very remarkable degree, during the impregnated state, and that minute nervous filaments, scarcely discoverable with the aid of a microscope, enlarge into bands visible to the naked eye. The same thing occurs with respect to the minute arteries and veins; from being but barely perceptible, they become large tortuous vessels carrying an abundant supply of blood, and performing their functions with extraordinary activity. I do not pretend to offer any explanation of these facts; I merely place them before you, and show you the analogy which exists between the vascular and nervous development.

The vessels increase in size and capacity, so do the nerves; and the augmented size and capacity of both depend on the same unknown cause. The nerves are developed in the same order as the vessels, and, like the latter, they increase from the circumference to the centre. Nay, I am persuaded, that, did our means of investigating the matter possess the same advantages as those we enjoy in the examination of the vessels, we should find that, in inflamed parts, the nervous matter increases, in many cases, as rapidly, and to as considerable an extent, as the vascular.

So far, gentlemen, I have endeavoured to lay before you proofs of the independence of the capillary circulation, a fact which I have long since brought forward in my public lectures, and of which I have written somewhat in detail, in my review of Dr. Joerg's work on Atelectasis of New-born Infants. These views, I am happy to state, have been further

confirmed by Dr. Houston, in a paper published in the 29th number of the *Dublin Journal*.* In that paper, which I recommend to the attentive perusal of every student, Dr. Houston gives an account of an extraordinary case of twins born of a healthy young woman, between the seventh and eighth month of her pregnancy. One of the children was, to all outward appearance, perfect in every particular, and of the full growth of its age; the other, a female, and the subject of Dr. Houston's communication, was a monster, of somewhat smaller size than its companion. Both were alive at the time of delivery, but died almost immediately after. There was a separate cord, and a separate set of membranes, for each fœtus. The abnormal one had neither brain, heart, lungs, or liver; the kidneys were of enormous size, nearly filling the abdomen, and extending to the apex of the cavity formed by the ribs.

The umbilical vein, after quitting the cord, descended between the abdominal muscles and peritoneum as far as Poupart's ligament, and there opened into the external iliac vein, which became enlarged in size at this point. From this vein all the veins of the body were derived; large branches passed to the pelvis, thighs, and kidneys, and smaller ones to the intercostal spaces, and the tumour which constituted the head. These veins were devoid of valves, and terminated in the capillaries. From the latter, the arteries began by fine roots, and gradually coalescing, united into a sort of aorta on the fore-part of the spine, which descending, divided into the iliac and hypogastric arteries in the usual way. No communication existed between the arteries and veins, except at their capillary terminations.

Such is the history of this very remarkable case, as given by Dr. Houston. I have not time at present to enter into his arguments; but I think he has satisfactorily proved, that in this instance, the circulation was carried on without the aid of the heart of the other twin (as supposed by Sir Astley Cooper), or of the heart of the mother, and that it depended solely on the vital energy of the capillary and other vessels.

Another case of a monster without a heart, is related in the *American Journal of Medical Sciences*, for February, 1838, by Dr. Jackson, of Boston. This was likewise a twin; and there can be but little doubt that its circulation was quite independent of any assistance derived from the heart of its fellow.

I have already spoken of the dilatation of the arteries and veins of inflamed parts, as being produced by something very different from mere distension; and that it is not of a passive but an active nature. That the larger vessels actively dilate can scarcely be doubted by any one who has observed the state of the temporal arteries in phrenitis, or apoplexy; that the veins have a similar power, may be observed on plunging the hands or feet into a hot medium, whether moist or dry. Blisters applied to the skin produce for the time increased size of the cutaneous veins; and sores on the leg may, when considerable and long-continued, give rise to a varicose state of the veins. When a grain of sand falls into the eye, how sudden is the redness—how numerous the vessels which now appear gorged with blood! This change takes place in a few seconds, and, in my opinion, can be much more satisfactorily accounted for, by supposing that the capillaries and smaller vessels enjoy a wide range of

* A full account of this fœtus is given in a note to my lectures on Fever at the beginning of this work.

size, if I may use the expression, and are capable of enlarging or diminishing their calibre, according to the exigencies of the case and the state of the circulation. That the large arteries and veins do so, is acknowledged by all, and is proved by arterial trunks contracting on their contents so as to maintain their proper tension; no matter how much blood is drawn from an animal. The larger veins are capable of a like contraction and expansion: can similar properties be denied to the smaller arteries, possessing, as they do, an elastic coat proportionably thicker? The vascular phenomenon attending a blush ought to have taught physiologists how rapidly, how instantaneously, blood may be drawn to a particular part, and may again desert it; and that, under circumstances where the *vis à tergo* could not determine a flow of blood to the part in question, more than to any other in the body. Do we need microscope examinations on the capillaries of recently killed animals to instruct us, when such phenomena offer themselves, as it were, for the very purpose of illustration? When the child breathes for the first time, the air admitted into the lungs gives new energy to their capillaries, and at once the great current of blood flows through the pulmonary arteries, deserting the ductus arteriosus. In a seven months' child the latter passage is still very large; and yet, when the child breathes, its being open effects very little, if any thing, towards diminishing the flow of blood into the pulmonary arteries.

Here, again, we observe how arteries grow independently of mere pressure from within; for the pulmonary arteries and pulmonary veins are enlarging themselves long, long before they are called on to be channels for a quantity of blood at all proportioned to their calibres. John Hunter observed the enlargement of the arteries of an inflamed part, and his observations, and those of others, have brought to light a periodical and remarkable increase in the size of the vessels destined to promote the growth of the stag's horns. Are we, in this case, to explain that enlargement by obstruction, or by the *vis à tergo*? It is impossible to do so; and we must, then, look to the vessels of the part itself for a solution of the question. In such instances, as in the case of the pregnant uterus, these vessels are endowed with this power of growth and enlargement, quite independently of the general vascular system, or the action of its centre—the heart.

I am the more anxious to impress on you this view of the subject, as the hypothesis of obstruction has been adopted by many late writers, as explanatory of the local changes of circulation attending inflammation. Thus Dr. Williams, in his admirable lectures published in the *Medical Gazette* (No. 528), says, "We cannot, in the present state of pathological knowledge, doubt that the circulation through the inflamed vessels is, to a certain degree, obstructed; whilst, either as a consequence of this, or from some co-operating influence, the vessels leading to the part become dilated, and being thus more open than others to the pulse-wave of the heart, they become the seat of that throbbing hard pulse that has been mistaken for increased action of the vessels themselves."

Now, gentlemen, you observe here that Dr. Williams expresses himself doubtfully about the dilatation of the vessels being caused by obstruction, and he even speaks of some co-operating influence. We shall, therefore, content ourselves with having recited his opinion on this point. I must observe, however, that the dilatation of the vessels, *however caused*, can, on no principle, account for their becoming the seat of throbbing, and a

hard pulse : their being more open than others to the pulse-wave from the heart, could, at the utmost, only place them in the situation of other arteries naturally of the size they have now attained to ; but we do not find that such arteries throb, or have a hard pulse. Arteries do not throb, or become the seat of a hard pulse, in proportion to their size. That is not the fact ; and, consequently, Dr. Williams's explanation cannot be admitted.

Dr. Weatherhead, who has arrived at very nearly the same view of the subject with myself, says, " The first effect of an excitant, or irritant, applied to any part of the body, is to attract the blood to the seat of irritation, and to quicken its current in the capillaries." So far we perfectly agree. Here Dr. Weatherhead estimates the vital energy of the vessels of the part at its true value, and does not call in the aid of an increased *vis à tergo* to account for an augmented determination of blood to any particular locality ; but to what follows I cannot accede. " If these effects be kept up beyond a certain period, or carried beyond a certain degree, the excitation continues to attract as much blood as before, while the power of the capillaries to forward it diminishes, by the exhaustion ensuing from their prolonged over-action." There seems but a weak analogy in support of the assertion, that increased vascular action must necessarily produce vascular exhaustion.

It may be objected to my view, that dilatation of an active nature cannot be conceded to the capillaries, whose coats are quite thin and membranous ; but when the objects are so minute, it is quite impossible to determine the physical or vital powers of tissues ; and we should recollect that what is deficient in degree may, in the case of the capillaries, be made up by their number, which is immense in every part of the body. Still, so far as our observations do go, they seem to establish the property in question. Müller, whose opinion upon all physiological questions is of the greatest weight, has adopted on this subject an hypothesis which appears to me to be quite untenable. It is observable, that the first of the following paragraphs, which I quote from his work, proves, that when writing it, he felt conscious that the remarkable phenomena of *vital turgescence* are totally irreconcilable with the theory, which denies any permanent circulating power but that of the heart, and which asserts that " the motion of the blood in the capillaries is wholly dependent on the heart's action !" Let us hear what he says concerning *vital turgescence of the blood-vessels* (p. 224) :—" Although it be denied that the circulation is in any way aided by an attraction between the blood and the capillaries, the existence of such an attraction or affinity may, nevertheless, be admitted in the instance of the ' turgescence, turgor vitalis, or orgasm,' which is observed to take place in certain parts of the body, independent of the action of the heart. This condition of turgescence in animals is analogous to phenomena which are so evident in plants, such as the afflux of sap to the fruit-bud, which contains the impregnated ovum.

" *The mutual vital action, or affinity between the blood and the tissues of the body*, which is an essential part of the process of nutrition, is, under many circumstances, greatly increased ; and an accumulation of blood in the dilated vessels of the organ is the result. It is seen, for example, in the genitals, during the state of sexual desire, in the uterus during pregnancy, in the stomach during digestion, and in the processes of the cranial bones on which the stag's antlers afterwards rest, during the repro-

duction of these parts. The local accumulation of blood, with the dilatation of old, and the formation of new vessels, is, however, seen most frequently in the embryo, in which new organs are developed in succession by a process of this kind; while, on the other hand, other organs, such as the branchiæ of the salamander and frog, and the tail of the latter animal, become atrophied and perish as soon as the vital affinity which existed between the blood and their tissues ceases to be exerted.

“The phenomena of turgescence have been supposed to be dependent on an increased action or contraction in the arteries. But arteries present no periodic contractions of muscular nature; and a persistent contraction of the arteries, unless it were progressive (vermicular, as it were, or aided by valves arranged in a determinate direction), would be quite inadequate to produce a state of turgescence of any part.

“To explain the state of orgasm of the uterus during pregnancy, and of the bony processes which bear the antlers of the stag, we must presuppose the existence of an increased affinity between the blood and the tissue of the organ. This condition may be excited very suddenly, as is seen in the instantaneous injection of the cheeks with blood, in the act of blushing, and of the whole head, under the influence of violent passions; in both of which instances, the local phenomena are evidently induced by nervous influence. The active congestion of certain organs—of the brain, for example—while they are in a state of excitement, is a similar phenomenon.

“If the organ which is susceptible of the increased affinity between the blood and the tissue is, at the same time, capable of considerable distension, tumefaction and *erection* take place.”

It will, I believe, be readily acknowledged, that Müller’s explanation is, after all, a mere hypothesis. Is this affinity between the blood and the tissues of the body, chemical? or is it a mutual vital action? If the latter, then the vessels, *they being the only tissues in contact with the blood*, are active, contrary to his previous hypothesis. As to the chemical explanation of a *blush*, it surely does not merit examination.

The facts referred to by Müller in the above passage, all tend to corroborate the view I have adopted, and show that local changes of nutrition, vascularity, and circulation, may be quite independent of the heart’s action.

We must next turn our attention to the increase in size of some of the larger arteries.

“Apply a ligature,” says Dr. Hall, “to the principal artery of a limb, the circulation is then carried on by the collateral branches, which become enlarged for this very purpose, and in consequence of the obstruction.”

Now let us study the phenomena a little more accurately, and we shall soon see how erroneous is this explanation.

In the first place, what are the physical results produced by tying one of the large arteries of a limb? The *vis à tergo*, or propelling power of the heart, continues just as before; the quantity of fluid or blood within the whole system of arterial tubes is unchanged, while the forces to be overcome by the circulating power remain also the same. In fact, all the general physical conditions are unaltered after the ligature has been applied, except that a portion of the blood can no longer enter the tied artery. Let us now investigate what effects this non-entrance of a certain portion of the blood into its accustomed channel is likely to produce on

the rest of the arterial system. When the principal artery of a limb is tied, the blood circulating in the remaining arteries of the body, and the other arteries of that limb, is pressed more strongly against the arterial parietes. But as the distending force resulting from this increased pressure is not confined to any particular artery of the body, but affects all, more or less, it is obvious that a power so extensively distributed and subdivided can exert but little distending influence on any individual artery, or, in other words, can tend but little to dilate any of the arterial tubes. Now it is obvious, from the laws of hydrostatics, that this increased pressure will be more exerted *in proportion* on the main collateral arteries of the limb, than on the smaller; it will, in truth, be scarcely sensible in the latter, and yet these are the very arteries which enlarge first after the operation for aneurism. The increase in the size of the arteries commences, not where it ought to commence, if it depended merely on dilatation from increased pressure, viz. in the larger arteries, and in the collateral branches close to the ligature, but it commences in the smaller and more distant arterial ramifications. In addition to the fact that a proportionally less pressure is thrown on the smaller arteries, we shall recollect that the latter have parietes much thicker in proportion to their calibre, than the larger branches. This is another material objection to Dr. Hall's explanation of their increase in size. What are the phenomena observed after applying a ligature to an artery of large size, where a sufficient collateral circulation may be applied? First, the sudden diminution of circulation in the parts below the ligature gives rise to coldness and paleness of the limb; but in a few hours the circulation gradually returns, the thermometrical temperature of the limb rises, and the activity of the capillary system is greater than in the natural condition of the limb. This excitement continues for some time, and then diminishes to the ordinary standard of health. In eight, twelve, or twenty-four hours after the application of a ligature to the main artery of a limb, we find the skin of the parts below the ligature pale and cool, but in a few hours afterwards its temperature rises, and it exhibits an evidently increased arterial action. Now it is difficult to conceive that the main collateral branches have been dilated in so short a space of time. The mode in which the phenomena witnessed in this instance are best explained, seems to me to be the following. When a large portion of the blood destined for the supply of a limb is cut off, all the tissues of a part so deprived receive a shock: the muscles, nerves, capillary vessels—in fact, the vital functions of the whole—are more or less affected. After some time, however, the vital depression is followed by reaction, and this commences in the smaller arteries and capillary system, its commencement being marked by uneasy sensations, increase of temperature, and arterial throbbing. The initiative of the restoration of the circulation belongs to the extreme vessels, which take on an increased action, and this is gradually extended to larger arteries. These gradually augment in power, become enlarged and distended, and at length the circulation of the affected limb is restored to a state of efficacy, equal, if not identical with its pristine condition. Now, you are told that the increased activity of the capillary vessels, in this instance, is referable to the *vis à tergo* operating through the anastomosing branches. This is a false assumption. In the first place, the influence of the heart's action, when the blood passes through small anastomosing branches, and by circuitous courses, must be less powerful than before the operation, when the main channels remained pervious.

The *vis à tergo* is therefore lessened, and yet the capillary distension is greater than before the operation, or in the sound limb. In the next place, this argument is of more force, when it is considered that the enlargement commences in the smaller, and gradually extends to the larger vessels; and also, that in some cases the branches from the main artery through which the blood must pass, do not become perceptibly enlarged. Thus Mr. Hodgson, in the work on diseases of arteries, says—"The dilatation takes place principally in minute ramifications. The trunks, and the mouths of the vessels going off above the place of obstruction in the main artery, in several preparations, did not appear larger than in their natural state, and in a few instances only a slight dilatation was perceptible." From these facts it is obvious that the vessels least under the influence of the heart are the most dilated. But the most decisive proof is the return of the capillaries and minute arteries to their ordinary size, at the time when, the larger branches being dilated, the *vis à tergo* should be more operative. Hence it would appear that the power of distension resides in the arteries themselves, the irritation commencing in the capillaries, and being sympathetically propagated to the larger vessels. This is further confirmed by the fact, that, if an inflamed part, or a vascular tumour, be supplied by several arteries, and one of them be divided, the others will enlarge.

It is scarcely necessary for me to direct your attention here to the phenomena which occur in the erectile tissues, as the corpora cavernosa, &c. It cannot surely be maintained that the sudden increase in the afflux of blood to these parts is owing to any *vis à tergo*, or momentary augmentation of the propelling power of the heart. No; tissues of this kind enjoy the power of attracting to themselves an increased quantity of blood, in virtue of the vital power resident in them, and not from any peculiar exertion of extraneous forces. In fact, the capillary vessels enjoy the property of actively dilating, and drawing the blood into them, and this appears to be one of the principal causes of the circulation. Of this there is abundant proof. It has been observed in vivisections, that after the heart has ceased to act, the capillary vessels remain distended, and appear to carry on their functions as long as any blood is supplied to them from the arteries. It has been also remarked, that the larger arterial branches become first empty, then the smaller, and finally the capillaries. Dr. Philip states, that he has observed the circulation of the mesentery to continue for several minutes after the heart had been excised. This is the true explanation of the fact, that the arteries are so frequently found quite empty after death.

One of the strongest proofs we have of the power which the capillaries possess of drawing blood to themselves, is derived from the phenomena observed in vascular tumours. If scratched, or slightly wounded, these tumours frequently bleed to an alarming extent; while the division of the arteries which lead to them, and the removal of the whole mass, is attended with a comparatively small loss of blood. This is further exemplified in the familiar operation of opening the temporal artery. If the artery be only partially divided, and its connection with the capillaries still to a certain degree maintained, it bleeds copiously; but if it be cut across, and the connection wholly destroyed, it ceases to bleed altogether. Professor Smith, of Philadelphia,* amputated a leg below the knee, for dry gan-

* This fact is mentioned in a monograph which I received from America many years ago. Unfortunately, I have mislaid it, and cannot call to mind the author's name. He advocated views similar to those I have here attempted to establish, and to him I am indebted for the argument derived from the placental circulation.

grene of the foot and ankle. The great arteries were found wholly altered in their structure, being, as it were, converted into tubes of bone. Although pressure was completely removed from the femoral artery, and no means whatever were used to suppress the hemorrhage, the quantity of blood lost did not amount to half a tablespoonful. At the same time the action of the heart was vigorous, and the pulse at the wrist of the ordinary strength and fullness. Now in this case some blood must have been passing through the tibial arteries before the operation, for there was some circulation in the leg down as far as the ankle, and the collateral arteries, or anastomosing branches, were not enlarged. If we refer to the phenomena of wounds which engage arteries, we shall find, as I have already stated, when alluding to the operation of opening the temporal artery, that the wounded artery of an injured limb bleeds much more than the same artery of an amputated one. Hence it is that branches which would pour out a large quantity of blood, if merely wounded, sometimes do not require a ligature at all, although their divided orifices open on the surface of a stump.

Another instance in which the attracting power of the capillaries may be seen, is in cases where portions of an amputated finger have again united, of which we have several examples. In this case the fluids effused by the upper cut surface are absorbed and circulated by the vessels of the amputated tip. But one of the most remarkable proofs of the position I have laid down is derived from the circulation of the blood in the placenta. In this instance the impetus which the blood possesses in the umbilical arteries has been attributed to the *vis à tergo* derived from the heart of the fœtus. But after the detachment of the placenta, after the birth of the fœtus, the pulsation in the cord ceases, first at the placenta, and then at the umbilicus of the infant. After this period a section of the cord is not followed by any thing like the amount of hemorrhage which might be expected from the division of vessels of such diameter, and in many instances there is no loss of blood whatever. Now why does the flow of blood cease in the umbilical arteries? The *vis à tergo* is as powerful after birth as before, and operates on blood in tubes free from obstruction. It cannot be attributed to cold, for the circulation continues in every part of the infant; nor to exhaustion, for the fœtus loses no blood, and its circulation is now independent of the mother. Neither is it owing to the action of the lungs, which are said to divert the blood from the placenta; for although a greater portion of blood is carried to the lungs after than before birth, yet this would not account for the total cessation of the circulation in vessels so large as the umbilical arteries. The explanation, therefore, commonly given is not capable of being proved. From the facts which I have brought forward, it would appear that the organic vital actions of the placenta depend upon its own life, and that when this body is detached from the uterus, it of course dies, and the functions of its capillary system cease. The suction-power of the small vessels then continues no longer to assist the *vis à tergo* in carrying blood through the umbilical arteries, and the circulation declines, first at the placenta, and finally in the umbilical arteries, at their junction with the abdomen of the fœtus.

Such are the arguments derived from experiments and pathology in favour of the capillaries having a direct influence on the circulation. Those which may be borrowed from comparative anatomy are still

stronger. If we look to the vegetable kingdom, we shall find that the force with which the sap, *i. e.* the blood of plants, circulates in their vessels is very great. Hales and Dutrochet have proved this by direct experiment. If a vine be cut down in spring to the distance of three feet from the ground, it throws out sap with such force as to raise twenty-one feet of water. In other experiments this power was found capable of raising thirty-two and a half inches of mercury, or thirty-five feet five inches and three-quarters of water; and thirty-eight inches of mercury, or forty-three feet three inches and one-third of water. To effect this prodigious circulation, as it takes place in plants, the force must be very great, for we know that it is capable of raising from the ground a large quantity of water, combined with nutritious principles, to the top of the loftiest palm or forest tree—in fact, to an altitude of one hundred and fifty feet. Now in what organs does this power reside? There is no central organ in plants, nothing like a heart—nothing like large arterial tubes. How, then, is the ascent of the nutritious fluid accomplished? Let us study the phenomena for a moment, and we shall find sufficient evidence to satisfy ourselves that *the fluid circulating in each part of the tree is brought to it chiefly by the action of the vessel of the part itself*. I do not mean to deny the great power which the spongioles of the roots, acting as capillary systems, exert in *driving* the fluids they absorb through the tubular vessels of trees; this power is no doubt aided by the buds and leaves, whose capillaries, when acted on by a proper temperature, discharge their vital functions with activity, and are capable of drawing the sap to the extremities of the branches. Thus in the case of a vine observed by Richerand, one branch of which had crept into a smith's shop, this branch remained in leaf, or rather threw out fresh leaves in winter, while all the other branches continued quite bare. Again, cut off a branch of a living plant and place it in water, how actively does it absorb the water, and endeavour to prolong its existence. In winter this attraction of the ultimate ramifications of plants ceases, but returns again with the genial warmth of spring, when the buds begin to expand. Phenomena analogous to these are also observed in many animals. There are numerous tribes of animals possessing an active circulation, which have no heart whatever. Thus the Medusæ and Echinodermata, which must enjoy an active circulation, as is proved by their rapid growth, have no heart. In the *Holothurio tubulosa*, Cuvier has traced vessels going to the organs of respiration (pulmonary arteries), and vessels coming from the same (pulmonary vessels), as also a system of arterial and venous tubes destined to carry on the general circulation, but no heart. There are numberless examples of this arrangement to be found in the animal kingdom. In fact, a great deal of the motion observed in the fluids of the human body is effected by other means besides the heart, and those means are the powers possessed by the capillary vessels and membranous tissues of the body, which, by virtue of an unknown law, aid materially in the circulation.

You perceive, then, gentlemen, that my views are quite opposed to those who assert, that in inflammation the enlargement of the capillaries is passive. Dr. Hastings and Dr. Philip allow that the capillaries dilate during inflammation, but they attribute this effect to debility. This, however, is a mere assumption. The phrases, passive and debilitated, put one in mind of another hackneyed expression founded alike on fallacy, namely, indolent ulcers. Now there is nothing more active than what is

termed an indolent ulcer. It manufactures more secretion, uses more blood, and produces more pain than any equivalent portion of the same tissue throughout the body, and yet it is termed indolent! It is so with regard to the capillaries. It is said that in inflammation the capillary vessels are obstructed, and their force weakened. What is the real fact? Take an instance of conjunctivitis. What do you observe here? The affected membrane is swollen, its nervous sensibility exalted, its thermometrical temperature increased, its secretion augmented. Are any of these symptoms of debility? I think they can hardly be looked upon as such. The increase of pain, heat, and fluid secretion—the augmentation in size—all the phenomena, in fact, are opposed to the theory of debility. There is no passive dilatation or weakness; the capillaries enlarge and dilate from increased, and not from diminished action; red blood finds its way into vessels which before received only white; and unusual secretions occur in the affected parts. *The capillaries have the initiative; with them commences the enlargement, which afterwards extends to the smaller arteries, and from these to the larger branches.*

Under ordinary circumstances, the capillary circulation continues some time after the heart has ceased to beat, for the capillaries belong to that class of tissues which possess an inferior degree of vitality; and it has been shown by Bichat that such tissues survive those of a higher degree of organization. Hence, the capillaries continue to act for some time after the heart has ceased to beat; and as it is a law that the capillaries of the lungs will not transmit non-arterialized blood, the systemic veins become gradually distended, while the systemic arteries are emptied, so that, after death, we seldom find any blood in the latter.

A very curious case, recently published by Dr. Houston, supports very strongly the views which I have put forward in this lecture.* Dr. Houston had a very remarkable case, in which the circulation had ceased in one of the lower extremities. The foot, and afterwards the leg, were attacked with dry gangrene, of which the patient died. No obstruction was found in the vessels after death, and the ordinary injection passed readily into all the arterial ramifications. The arteries were all pervious, and apparently natural in their texture. Now, if the circulation of the limb had depended on the arteries alone, it would not have ceased so completely. Some time ago I attended, with Mr. Cusack, a patient from the North of Ireland, a young lady of rather delicate constitution, who was attacked at a certain hour every day, in a very singular way. The circulation in one of her legs seemed almost to cease, and the limb became remarkably pale and cold. This state of the limb would last for ten or twelve hours, and then an alteration took place; the leg became hot and painful, and its temperature became so disagreeable to the patient that she was obliged to keep the leg outside the bed-clothes, and have it constantly wetted with cold water and vinegar. During all this time the action of the heart was natural and the circulation of the rest of the body unaltered. Here we have a certain portion of a limb at one period of the day quite cold and pale, and at another extremely hot and painful. How can this be said to depend on any *vis à tergo*? The true explanation of the matter is, that it depends on a periodic affection of the nerves, capillaries, and smaller arteries of the part.

* The reader is referred to a note to the lectures on Fever for the details of this interesting case.

Such, gentlemen, are some of the arguments in favour of the supposition that the capillary vessels exercise a remarkable influence over the circulation. There are other proofs which I shall not touch on at present, as the more immediate business of the hospital prevents me from deviating any further from the path of strict clinical investigation. You may ask, perhaps, why I have entered on this subject at all, or why I have dwelt so long on matters which appear to possess only a mere theoretical interest. Because I am persuaded that much error exists with respect to the nature of the forces employed in carrying on the circulation, and because I think it of the most vital importance that you should be in possession of correct principles to guide you in the numerous emergencies attendant on the treatment of disease. The human body in its development from a lower to a higher degree of organization, loses none of its character, it ascends, retaining in its more perfect development all that it possessed in an inferior state. In the first stage of its development it possessed a diffused nervous and vascular system. It then acquired small nervous strings and capillary vessels, and finally larger arteries, larger nerves, nervous centres, and a heart. In the same way its circulation commenced, beginning in the smaller vessels and extending to the larger, aided by the *vis à tergo*, but independent of it in a remarkable degree. From this view of the subject, it follows that, in many cases of disease, we are to look to the forces which regulate the circulation of the part affected, and not to any *vis à tergo*, or propelling power of the heart. The physician and surgeon must study the life of each part, in attempting to estimate its morbid conditions. It was a want of proper knowledge on this subject which led to so many errors in practice. Among these I may mention the treatment of Egyptian ophthalmia, in which it was thought necessary to drain the patient of blood, for the purpose of subduing a mere local inflammation. In truth, the treatment of local inflammation, whether affecting external organs, as phlegmon, carbuncle, erysipelas, or internal parts, as pleurisy, peritonitis, &c., can never be properly understood, until the old doctrine, which (by teaching that the *vis à tergo* was every thing in inflammation) led to a too general use of venesection, has been laid aside, and sounder opinions adopted.

POSTSCRIPT.—Since the preceding lecture was delivered, this subject has been handled by many physiologists, and the majority of them entertain the same views which I then, and for many years before, advocated. I shall now quote the opinions of Dr. CARPENTER, the most modern and distinguished of our British physiologists; their importance is sufficient apology for inserting them in this place.

“We now come to the last head of the inquiry into the powers which convey the blood through the capillary system—that, namely, which concerns the agencies existing in the capillaries themselves. Many discussions on this subject may be found in physiological writings, and it has a bearing so immediate on one of the most important questions in pathology—the nature of inflammation—that it deserves the fullest attention. The chief question in debate is the degree in which the capillary circulation is influenced by any other agency than the contractile power of the heart and arterial system;—some physiologists maintaining that this alone is sufficient to account for the capillary circulation; and others asserting that it is necessary to admit some supplementary force, which may be exerted

either to assist, retard, or regulate the flow of blood from the arteries into the veins. We shall first inquire what evidence there is of the existence of any such force: and, when led to an affirmative conclusion, we shall examine into its nature. No physiological fact is more clearly proved than the existence, in the lower classes of animals, as well as plants, of some power independent of a *vis à tergo*, by which the circulating fluid is caused to move through their vessels. This power seems to originate in themselves, and to be closely connected with the state of the nutritive and secretory processes, since any thing which stimulates these to increased energy accelerates the circulation, whilst any check to them occasions a corresponding stagnation. It may be convenient to designate this motor force by the name of *capillary power*, it being clearly understood, however, that no mechanical propulsion is hence implied. On ascending the animal scale, we find the power which, in the lower organisms, is diffused through the whole system, gradually concentrated in a single part,—a new force, that of the heart, being brought into operation, and the circulation placed, in a greater or less degree, under its control. Still there is evidence that the movement of the blood through the capillaries is not entirely due to this, since it may continue after the cessation of the heart's action, may itself cease in particular organs when the heart is still acting vigorously, and is constantly being affected in amount and rapidity by causes originating in the part itself, and in no way affecting the heart. The chief proofs of these statements will now be adverted to.

“The movement of the blood in the capillaries of cold-blooded animals, after complete excision of the heart, has been repeatedly witnessed. In warm-blooded animals, this cannot be satisfactorily established by experiment, since the shock occasioned by so severe an operation much sooner destroys the general vitality of the system; but it may be proved in other ways to take place. After most kinds of natural death, the arterial system is found, subsequently to the lapse of a few hours, almost, or completely, emptied of blood; this is partly, no doubt, the effect of the tonic contraction of the tubes themselves: but the emptying is commonly more complete than could be thus accounted for, and must therefore be due to the continuance of the capillary circulation. Moreover, when death has taken place suddenly, from some cause (as, for instance, a sudden electric shock), that destroys the vitality of the whole system at once, the arterial tubes are found to contain their due proportion of blood. Further, it has been well ascertained, that a real process of secretion not unfrequently continues after general or somatic death; urine has been poured out by the ureters, sweat exuded from the skin, and other peculiar secretions formed by their glands; and these changes could not have taken place unless the capillary circulation were still continuing. In the early embryonic condition of the highest animals, the movement of blood seems to be unquestionably due to some diffused power, independent of any central impulsion: for it may be seen to commence in the vascular area, before the development of the heart; the first movement is towards, instead of from the centre, and even for some time after the circulation is fairly established, the walls of the heart consist merely of vesicles loosely attached together, and can hardly be supposed to have any great contractile power.

“The last of these facts may be said not to have any direct bearing on the question, whether the capillary power has any existence in the adult

condition; but the phenomena occasionally presented by the fœtus at a later stage appear decisive. Cases are of no very unfrequent occurrence in which the heart is absent during the whole embryonic life, and yet the greater part of the organs are well developed. In most, or all of these cases, however, a perfect twin fœtus exists, in which the placenta is in some degree united with that of the imperfect one; and it has been customary to attribute the circulation in the latter to the influence of the heart of the former, propagated through the placental vessels. This supposition has not been disproved (however improbable it may seem) until recently; when a case of this kind occurred, which was submitted to the most careful examination by an accomplished anatomist."

As the case alluded to, viz., that by Dr. Houston, is given in the preceding lecture, I shall not again introduce it, but pass on to the conclusions which Dr. Carpenter deduces from it. "It is evident," he says, "that a single case of this kind, if unequivocally demonstrated, furnishes all the proof that can be needed of the existence, even in the highest animals, of a capillary power, which, though usually subordinate to the heart's action, is sufficiently strong to maintain the circulation by itself, when the power of the central organ is diminished. In this, as in many other cases, we may observe a remarkable power in the living system to adapt itself to exigencies. In the acardiac fœtus, the heart is never evolved: and the capillary power supplies its place up to the period of birth, after which, of course, the circulation ceases for want of due aëration of the blood. It has occasionally been noticed that a gradual degeneration in the structure of the heart has taken place during life, to such an extent that scarcely any muscular tissue could at last be detected in it, without any such interruption to the circulation as might have been anticipated."

"It is equally capable of proof on the other hand, that the capillaries may, by an influence peculiar to them, afford a complete check to the circulation of a part, even when the heart's action is unimpaired, and no mechanical impediment exists to the transmission of the blood. Thus, cases of spontaneous gangrene of the lower extremities are of no unfrequent occurrence, in which the death of the tissues is clearly connected with a local decline of the circulation, and in which examination of the limb after its removal, shows that both the larger tubes and the capillaries were pervious; so that the cessation to the flow of blood could not be attributed to any impediment, except that arising from the cessation of the same power which exists in the capillaries, and is necessary for the maintenance of the current through them. The most remarkable evidence on this point, however, is derived from the phenomena of asphyxia, which will be more fully explained in the following chapter. At present, it may be stated as a fact which has now been very satisfactorily ascertained, that, if admission of air into the lungs be prevented, the circulation through them will be brought to a stand, as soon as the air which they contain has been, to a great degree, deprived of its oxygen, or rather has become loaded with carbonic acid; and this stagnation will, of course, be communicated to all the rest of the system. Yet, if it have not continued sufficiently long to cause the loss of vitality in the nervous centres, it may be renewed by the admission of air into the lungs. Now, although it has been asserted that the stagnation is due to a mechanical impediment, resulting from the contracted state of the lungs in such cases, this has been clearly proved not to be the fact by causing animals to breathe a gas destitute of oxygen

so as to cause asphyxia in a different manner, the same stagnation resulting as in the other case.

“The influence of prolonged application of cold to a part, may be quoted in support of the same general proposition; for, although the calibre of the vessel may be diminished by this agent, yet their contraction is not sufficient to account for the complete cessation of the flow of blood through them, which is well known to terminate in the loss of their vitality.

“Many of the facts which indicate the influence of the capillaries on the amount and rapidity of the circulation through them, have been already adverted to. It is a general fact, unquestioned by any physiologist, that, when there is any local excitement to the processes of nutrition, secretion, &c., a determination of blood towards the part speedily takes place, and the motion of the blood through it is increased in rapidity; and although it may be urged that this increased determination may not be the effect, but the cause, of the increased local action, such an opinion could not be sustained without many inconsistencies with known facts.” If the phenomena which have been here brought together be considered as establishing the existence, in all classes of beings possessing a circulating apparatus, of a capillary power which affords a necessary condition for the movement of the nutritious fluid through those parts in which it comes into more immediate relation with the solid, the question still remains open as to its nature. That the capillaries possess a contractile power, in a far higher degree than do the large arteries, and more easily excited than that of the smaller, appears scarcely to admit of doubt; though to what it is due, may be reasonably questioned. It has been recently asserted by Schwann, that they possess the same kind of fibrous tissue in their walls as do the large vessels; and this cannot be regarded as improbable. It is not possible, however, that their contractility could have any influence in aiding the continuous motion of blood through them, unless it were exercised in a very different manner from that of which observation affords us evidence; for when we are microscopically examining the capillary circulation of any part, it is at once seen that the vessels present no obvious movement, and that the stream, now rendered continuous by the elasticity of the arteries, passes through them as through unelastic tubes. The only method in which the contractility of the capillaries could produce a regular influence on the current of blood would be an alternate contraction and dilatation, or a peristaltic movement; and of neither of these can the least traces be discerned. Hence we should altogether dismiss from our minds the idea of any *mechanical* assistance afforded by the action of the capillaries to the movement of the blood. That the contractile coat of the capillaries has for its office to regulate the calibre of the vessels, can scarcely be doubted; but circulation, as is shown by the effects of stimulating injections, which, if thrown into the vessels before their vitality has been lost, will not pass through the capillaries. It would appear, therefore, to be through their action on this coat that local stimuli occasion a contraction of the capillaries; their effect, however, is different from what might have been anticipated: for, instead of the capillary circulation being retarded it is accelerated, at least, until an abnormal condition results from their continued operation. Here, again, is another evidence, that something different from mechanical power must be the agent that operates in all the foregoing cases.

“The nature of this agent is at present very obscure; and it may not be in our power for some time to unveil it. The conditions of its action, however, lie open for investigation; and it appears from the foregoing facts, that a very simple and constant expression of these may be given. Whilst the injection of blood into the capillary vessels of every part of the system is due to the action of the heart, its rate of passage through those vessels is greatly modified by the degree of activity in the processes to which it should normally be subservient in them. The current being rendered more rapid by an increase in their activity, and being stagnated by their depression or total cessation. This is little else than a modification of the ancient aphorism—*ubi stimulus, ibi fluxus*. Thus it seems that ‘the capillaries possess a *distributive* power over the blood, regulating the local circulation, independently of the central organ, in obedience to the necessities of each part. If this be true, it is evident that the dilatation or contraction of the capillaries will only have a secondary influence on the movement of the blood through them. The former condition is usually an indication of diminished vital energy; and when it is observed, it is almost invariably accompanied by a retardation or partial stagnation of the current; on the other hand, the application of a moderate stimulus, which excites the contractility, accelerates for a time the motion of the blood, by rendering more energetic that reaction between the fluids and the surrounding tissues, which is the condition that really has the most influence over the current. It is not enough to object to such a doctrine, that we know nothing of the mode in which this reaction affects the movement of the blood; since we are equally ignorant of the *modus operandi* of many other causes, whose real existence is fully acknowledged, as for instance the effect of a stimulus applied to a motor nerve, in causing contraction of the muscles supplied by it.’”*

In the *Edinburgh Medical and Surgical Journal*, for July, 1842, the reader will find an admirable paper by Dr. HOLLAND, of Sheffield, on ‘*The Forces by which the Blood is circulated in Capillary Vessels.*’

The author goes through all the arguments that have been advanced to prove that the circulation through these vessels is entirely due to the force of the heart, and he shows most satisfactorily how very irreconcilable such doctrines are with facts of every-day occurrence. At the end of the paper he mentions an experiment, which I believe to be unobjectionable, and, if possible, even more conclusive than Dr. Houston’s monster; it proves beyond doubt that the circulation through the capillaries is entirely owing to a vital property of these vessels, and independent of the influence derived from a *vis à tergo*. We shall allow Dr. Holland to speak for himself, “The umbilical vein conveys arterial blood from the placenta to the fœtus, the umbilical arteries convey venous blood from the fœtus to this organ. The origin and termination of these two classes of vessels in the placenta are involved in much obscurity. No direct connection is traced between them. Whatever opinions may be held concerning the functions of this organ, or its relations to the uterus, will scarcely be doubted that the vein terminates in capillaries, and that the arteries originate in the same kind of vessels. It is not our intention to examine the phenomena of fœtal circulation, but to allude to one striking peculiarity, viz., the circulation of blood in the umbilical vein. This fluid is transmitted from the placenta to the fœtus without the aid of any

* “Principles of Human Physiology, p. 417.”

propulsive organ. The capillaries are, indeed, the only source of motive power shown to exist, and hence the placenta separated from the uterus, appeared capable of determining the influence of the capillaries, and the efficiency of it in urging the blood through the long capacious vein. To institute the experiment a placenta was procured, twenty minutes after separation from the uterus, and placed, with the exception of the cord, in a bladder, which was immersed in water at the temperature of 100° Fahrenheit. The free extremity of the cord, at the same moment, was elevated to an angle of 30°, resting on the edge of a glass, and at the distance of a foot from the placenta. At the commencement of the experiment no blood escaped from the vein, but in two minutes from the immersion, it began to flow, and continued for about twenty minutes, and at this time it was found that the glass had received above an ounce.”

“Here, then,” continues Dr. Holland, “is an experiment, much less unexceptionable in its character than any with which we are acquainted, demonstrating the power of the capillaries to carry on the circulation, not only in their own complicated network of vessels, but in the larger vessels, and which ultimately terminate in a capacious vein; and the difficulty to the motion of the blood was intentionally increased by the elevation of the whole cord above the level of the placenta. Had this organ been immersed without the bladder, the absorption or imbibition of the water would have invalidated the experiment. The water is employed as an external stimulant for the purpose of maintaining, what may be conceived to be, the natural temperature of the placenta.

“The flow of the blood in this experiment, in our opinion, arises entirely from the influence of the capillaries. The stimulus of the water causes the blood to excite them to contraction, and the escape of it is not opposed by any impediment. We cannot imagine that the experiment produces any important modification in the conditions of the blood. The water is not absorbed, nor is the temperature of it elevated above the heat of the body. The consideration of the circulation in this case is not complicated by circumstances acting *à tergo*, or in advance of the blood; nor by the agency of respiration, or the struggles of an animal, in torture or placed in a constrained position.”

With the above experiment I shall conclude what I have to say on the subject of the capillary circulation.

LECTURE XXXVI.

SCARLET FEVER.

It is my intention to-day to make a few observations on the scarlet fever which now prevails as a destructive epidemic in Dublin, and many other parts of Ireland.* The history of such epidemics is very interesting, and tends to shed much light, not only upon the changes which diseases undergo, but upon the fluctuations of medical opinions and treatment. In the year 1801, in the months of September, October, November, and December, scarlet fever committed great ravages in Dublin, and continued

* These lectures were delivered during the session of 1834-35.

its destructive progress during the spring of 1802. It ceased in summer, but returned at intervals during the years 1803-4, when the disease changed its character; and although scarlatina epidemics recurred very frequently during the next twenty-seven years, yet it was always in the simple or mild form, so that I have known an instance where not a single death occurred among eighty boys attacked in a public institution. The epidemic of 1801-2-3-4, on the contrary, was extremely fatal, sometimes terminating in death, as appears by the notes of Dr. Percival, kindly communicated to me, so early as the second day. It thinned many families in the middle and upper classes of society, and even left not a few parents childless. Its character seems to have answered to the definition of the *scarlatina maligna* of authors, for a description of which I beg leave to refer you to the Cyclopædia of Practical Medicine, where you will find an article on the subject by Dr. Tweedie. In making this reference, however, I do not wish to be understood as expressing my unqualified approbation of the article in question, for I must in candour confess that it falls far short of what we might have expected from a physician of Dr. Tweedie's learning and experience. The long continuance of the period during which the character of scarlet fever was either so mild as to require little care, or so purely inflammatory as to yield readily to the judicious employment of an antiphlogistic treatment, led many to believe that the fatality of the former epidemic was chiefly, if not altogether, owing to the erroneous method of cure then resorted to by the physicians of Dublin, who counted among their numbers not a few disciples of the Brunonian school; indeed, this opinion was so prevalent, that all those whose medical education commenced at a much later period, were taught to believe that the diminished mortality of scarlet fever was entirely attributable to the cooling regimen, and to the timely use of the lancet and aperients, remedies interdicted by our predecessors. This was taught in the schools, and scarlet fever was every day quoted as exhibiting one of the most triumphant examples of the efficiency of the new doctrines. This I myself learned—this I taught; how erroneously will appear from the sequel. It was argued, that had the cases which proved fatal in 1801-2 been treated by copious depletion in their very commencement, the fatal debility would never have set in, for we all regarded this debility as a mere consequence of previous excessive reaction. The experience derived from the present epidemic has completely refuted this reasoning, and has proved that, in spite of our boasted improvements, we have not been more successful in 1834-5 than were our predecessors in 1801-2.

Before I detail more particularly the symptoms that accompany the present epidemic, I wish to enter a little at large into the subject of the changes and variations which the same disease is observed to undergo at different periods of time. This is a topic which occupied some of the master minds of antiquity, and upon which the greatest of modern physicians, the illustrious Sydenham, bestowed considerable labour. It has been too much neglected of late, and consequently I consider it my duty to call your attention to it, and I cannot do this better or more forcibly than by communicating to you a literal translation which I have made from the German of my friend Dr. Autenrieth's observations on this subject. The task of translation is always not only difficult but irksome; but if, as in the present instance, I can by this means convey to you valuable information not before presented to my class, or to the public in English,

I never decline the labour. What I am now about to read is, indeed, most important, and well deserves the deep attention of every practical physician.

The third cause, connected with time and capable of modifying diseases, is of infinite importance, both in a theoretical and practical point of view, but has seldom attracted much attention. Its existence is attested by its effects alone, for its nature remains unknown. I allude to the *constitutio morborum stationaria*, first noticed by Sydenham, but, since his time, nearly forgotten, or else confounded with the permanent influence of the seasons, or the accidental atmospherical changes spoken of above. All diseases, contagious and non-contagious, acute and chronic (the latter, however, seldom, except when attended with some degree of general excitement), have been observed to preserve a certain *constitution or general character*, which continues for a number of years in succession, with occasional interruptions, until it is displaced by another constitution of a different character. Thus, during one period, diseases are remarkable for being frequently accompanied by a sensation of extreme weariness, sudden sinking of the strength and vital powers, unpreceded by any evident marks of excitement, and attended by a disposition to pass into true typhus. During another period, the tongue is in general loaded with a thick white or yellowish coat, and many other symptoms of derangement in the digestive organs, such as a bitter taste, costiveness, or diarrhœa, are constantly observed.

During a third period, diseases are characterized by a remarkable degree of vascular excitement, an evident tendency to local determinations, a frequent formation of morbid productions; in a word, by all the symptoms of inflammation.

It is not known whether the transition from one of these periodic constitutions to another takes place suddenly or gradually; but the latter supposition appears more probable, except when the transition is accompanied by unusually great atmospheric changes. The erysipelatous affection which, both in England and Germany, succeeded the gastric and accompanied the first appearance of the inflammatory period, seems to have been an example of the gradual transition. Accurate observations are still wanting to determine whether this periodic constitution is confined to certain parts of the world, or extends over the whole, and whether its different species follow each other in a regular order of succession. If their order of succession should at any time be determined, it will enable the physician to foretell the character and most appropriate treatment of future diseases. The above question cannot be answered without very great labour spent in the investigation of the history of diseases in all ages and all countries, and are therefore foreign to the present work.

The general indications of course vary with the nature of the prevailing constitution, and, consequently, during one period stimulating remedies, during another alvine evacuations, and during a third venesection and the antiphlogistic plan, will constitute the most effectual treatment.

This very circumstance has caused much confusion in medical opinions, and has occasioned the reputation and the downfall of many an infallible system, each of which is in its turn consigned to oblivion, and perhaps again revived as a novelty at some future period. The English boast much of the astonishing improvements in science, and deride the ignorance of their predecessors, regardless of the old proverb—"Every thing has

its day." Whenever, therefore, the periodic constitution undergoes an alteration, they either obstinately uphold their usual plan of treatment to the manifest injury of their patients, or else blindly embrace some system, to them new, but which really rests upon ancient and established principles. In general, they do not fail to make use of so much exaggeration in support of their opinions, and thus succeed in misleading so many, that none but very well informed physicians can distinguish the fallacy of their arguments.

The medical history of Great Britain affords many striking proofs of the truth of these assertions, and is replete with examples of the singular obstinacy with which the English cling to opinions once formed, a circumstance which has materially contributed to obstruct their attaining to general views and impartial conclusions. Even to this day, a warm contest is carried on (less, however, in books than in the debates of learned societies) between the senior and the junior parts of the profession, the former still inclining to Brunonianism, while the latter attribute nearly all diseases to inflammation. Both, indeed, appeal to experience to prove the justice of their principles, and seem entirely to forget that while the propriety of their practice, as applied to particular cases, remains unimpeached, the very nature of the diseases themselves may have been changed. A summary review of the character assumed by diseases during the last twenty years, both in England and other countries, will perhaps afford a solution of this question. About the end of the last, and during the three or four first years of the present century, the proportion of nervous fevers to other diseases was as one to eighteen in Plymouth (Woolcombe), as one to sixteen in London (Willan), as one to ten in Newcastle (Clarke), and in Liverpool one to five (Curry). Nor was this scourge of mankind less severely felt upon the continent, where typhus, and diseases closely allied to it, committed extensive devastations, particularly during the epidemics of Erlangen, Jena, Kiel, Ratisbon, and Vienna. Cadiz and Seville were at the same period depopulated by the yellow fever, and Europe in general suffered much from repeated visitations of influenza. An inclination to a sudden sinking of the vital power, unpreceded by violent reaction, and unaccompanied by any marked symptoms of a gastric or inflammatory nature, constituted at that period the characteristic form of acute diseases, which were always preceded and attended by an unaccountable degree of debility. Stimulating and tonic medicines obtained, therefore, much celebrity, and every physician who practised during that period, attests the injurious or even fatal effects which were produced by the use of venesection, and other depletory remedies. What is still more remarkable, an epidemic typhoid pneumonia prevailed in many parts of Germany during the years 1800-1-2, in which the speedy production of an inflammatory state, by means of bark and ether, was the only method which afforded a chance of recovery. These facts must impress every impartial mind with the conviction, that the constitution of diseases has undergone much alteration since that period, and explain why physicians did not then employ copious venesection, but were obliged to content themselves with ordinary cold effusions, acids, and mercury.

The reign of typhus appears to have ceased with the influenza of 1804, when a new constitution began, at first more remarkable for the disappearance of nervous fevers and other contagious diseases, than for any peculiar character of its own. Catarrhal and rheumatic complaints, partly

attributable to the weather, prevailed for some time, and fevers of an intermitting type became more frequent, forming an evident transition from the purely typhus constitution to that of the vascular excitement of the following years. Some remnant of the typhus constitution was indeed still perceptible in the pectoral complaints which prevailed in London during the winter of 1804-5, and were attended with remarkable debility, requiring the greatest prudence in the use of the lancet. Venesection was indeed often entirely contraindicated, and Bateman states that it sometimes even proved fatal. The constitution, however, soon developed itself more decidedly, became more universally diffused, and obliged physicians to relinquish their former plan of treatment and adopt other measures. Derangement of the alimentary canal became its prominent feature in the summer and autumn of 1804, and diarrhœa, terminating in dysentery, was often met with.

This constitution suffered indeed a check from the cold of 1805, but it increased again during the following years, and afterwards became still more prevalent, manifesting itself by headache, a bitter taste in the mouth, a loaded yellow tongue, irregularity of the bowels, nausea, and anorexia. The utility of purgatives now became so obvious, that Hamilton's doctrines soon obtained as much celebrity as had been before enjoyed by the stimulating system. The nervous fever at Nottingham in 1807, the dysentery at London in 1808, the scarlatina at Edinburgh in 1805, and the measles at the same place in 1808, all required the purgative plan of treatment, and calomel became the favourite cathartic. The advantage then derived from the use of purgative medicines is abundantly testified by the writers of that period. This gastric constitution appeared also on the continent, but its progress was less rapid there than in England, where the inhabitants live in a manner calculated to augment or even to produce a tendency to gastric diseases. There were likewise other circumstances which impeded the formation of this constitution on the continent. Thus in Germany, the purely nervous constitution had scarcely yielded to catarrhal and rheumatic affections, when it was again revived in that unhappy country by the political occurrences of 1805-6-7. Typhus seldom, however, assumed the character of exquisite, for the rheumatic and catarrhal affections with which it was mixed partook somewhat of a gastric nature, as was proved by the great benefit derived from the exhibition of emetics and calomel. This appears in accordance with the fact that the gastric constitution was more fully developed wherever the ravages of war had not extended, although it still required less attention in the treatment than the rheumatic symptoms, then likewise prevalent. Thus the agues which were common at Tübingen about the end of 1806, commenced in general with pain in the belly, vomiting, and irregularity of the bowels; a yellow furred tongue, headache, and tremours of the parotids, were of frequent occurrence, and in general gastric symptoms were by no means rare. These symptoms gradually gained ground, and the reputation of ipecacuanha and cathartics increased in the same proportion. At Ratisbon the *constitution* was remarkably gastric in the autumn of 1809, and a nervous fever prevailed at Weimar in 1809-10, which was accompanied by bitter taste in the mouth, diarrhœa, nausea, and vertigo. Active catharsis was injurious in this epidemic, but much benefit resulted from the exhibition of castor-oil. The advantage derived about the same time in Berlin from the treatment of fevers by emetics and cooling purgatives, proved that they were there also complicated with gastric derangement.

The gastric constitution had scarcely established itself, or become pretty generally diffused, when a new character, viz. the inflammatory, appeared upon the stage, and has ever since continued, sometimes combining itself with the gastric to form diseases of a mixed character, such as erysipelas, and sometimes, when favoured by the seasons or local circumstances, raising itself to the rank of the chief performer. With its appearance venesection, which had previously fallen into disrepute, became once more a favourite remedy, and in the course of a few years was pushed so far, particularly in Great Britain, that Sangrado's maxim, "C'est une erreur de penser que le sang soit necessaire a la conservation de la vie, on ne peut trop saigner un malade," seems to have been the general rule of practice. The same inflammatory constitution became also general in Germany, but there it neither attained such a height, nor required such active treatment as in Great Britain, where many circumstances favoured its more perfect development; with us it generally yielded to the use of acids, cold applications of mercury, but in England it called for copious blood-letting. Even in 1810, diseases had become more inflammatory at Tubingen than they had been previously; but the change was still more perceptible in 1813, when the antiphlogistic treatment required the aid of small venesections, and nervous fevers were accompanied both by inflammation and derangement of the digestive organs. Erysipelatous affections were also frequent, and in many cases were of a marked inflammatory character. Erysipelas and true inflammatory fever, requiring the use of the lancet, were common at Ratisbon in 1811; Parrot exhibited acids, especially the acetous, with great success in the epidemic nervous fever which raged at Dorpat in 1812, and a diarrhœa of a bilious inflammatory nature prevailed at Königsberg during the same year. This important change in the *constitution* became very evident in the nervous fever at Berlin in 1813, as well as in the formidable epidemic described by Hufeland, which ensued after the war, and raged in the north of Germany during that and the preceding year. Although but a few years before the strongest stimulants had been necessary to obviate the paralysis which supervened even in the beginning of the disease, yet an opposite practice was now required, and antiphlogistic remedies were alone found capable of preventing the vascular excitement from terminating in inflammation of either the head or chest. In short, the inflammatory *constitution* has been prevalent in Germany ever since the years 1810-11, sometimes in its pure and marked form, and sometimes complicated with gastric and rheumatic symptoms.

This *constitution* became general at the very same period in Great Britain. Dr. Clutterbuck, of London, had indeed ascribed the origin of fever to inflammation of the brain, so early as 1807, and about the same time Dr. Steiglitz, of Hanover, had recommended the antiphlogistic treatment of scarlet fever, in preference to the stimulating plan then in vogue. But as the inflammatory was then still subordinate to the rheumatic and gastric constitutions, their opinions did not gain many converts. But the inflammatory constitution had increased so much in the autumn of 1809, and the winter of 1810, that even Dr. Bateman was obliged to prescribe venesection in fevers, a practice quite at variance with his former views. Erysipelatous inflammation became common in London, Aberdeen, and Leeds, and numerous cases of puerperal fever occurred in the latter towns, which, according to Gordon and Hey, never terminated favourably, except when bleeding and purgatives were employed with freedom. But it was

not until 1813, when the inflammatory constitution had fully developed itself, and the bad consequences arising from violent determination of blood to the head in nervous fever could not be averted except by decisive measures, that venesection came into general use in Great Britain in consequence of a publication by Dr. Mills, who had prescribed it with much success since 1810. In the same year that truly estimable physician, Dr. Thompson, published his admirable work upon inflammation. Blackall recommended blood-letting in several species of dropsy, and Armstrong employed the same remedy, combined with large doses of calomel, in the inflammatory puerperal fever which was prevalent at Sunderland. Venesection became from this time as great a favourite as ever in England, not, however, to the exclusion of purgatives, which were indicated by the derangement of the stomach and bowels that accompanied the inflammatory constitution. Both these remedies were found extremely beneficial in the nervous fever which was epidemic in Ireland in 1813-14; its inflammatory character being clearly evinced by a hard and full pulse during its first stage, and a violent determination of blood to the head, by which the headache and raving are increased, while its gastric type was not less strongly marked by tenderness of the epigastrium, costiveness, or else frequent and unnatural alvine discharges, together with a loaded tongue and bilious vomiting. The latter symptoms were, in Dr. Grattan's opinion, of such importance, that he gave a decided preference to the purgative plan. The fever, which had previously been confined to Ireland, became generally diffused over the rest of Great Britain after the famine of 1816, and continued without intermission for four years. Its inflammatory character being peculiarly favoured, both in England and Scotland, by the habits of the inhabitants and the situation of these countries, venesection attained an unexampled degree of celebrity, notwithstanding the representations of the Irish physicians, who used that remedy with more moderation. It was soon believed that there is, literally speaking, no disease whatever in which the lancet ought not to be used, and, as the human mind is ever prone to extremes, it was soon generally considered, both in England and Scotland, to be a well-founded pathological inference, "there is but one species of fever, viz. the inflammatory, and consequently venesection is the only true anti-febrile remedy. Such is the case in England at present, and it must have been so always, and in every part of the world." I flatter myself, however, that the preceding observations and statements of facts, drawn from authentic sources, sufficiently negative these assertions, and establish the real existence of a change in the constitution of diseases, notwithstanding what Dr. Duncan once said to me, "that such changes existed only in the imagination of physicians."

It is now twelve years since Dr. Autenrieth, in his Account of the State of Medicine in Great Britain, made the foregoing interesting observations; and to me it appears that the history of the diseases which have since prevailed affords convincing proofs that the then *inflammatory constitution* has again subsided, and is now replaced by a typhous type: indeed, it cannot be denied that a very great difference exists not only between the present and the former scarlatina, but also between the fever of the present day and that which prevailed shortly before Dr. Autenrieth published. But this is too important a question for us to decide, without more reflection and thought than I have been able to bestow on it, and without more facts than I have been able to collect. The opinion I have

brought forward I do not wish to be received as established ; I look upon it as probably well-founded, but as yet not proved, except so far as to merit further consideration and excite further discussion.

Indeed, I have for the present been obliged, by the pressure of other engagements, to postpone a more accurate examination of this subject, and a more severe scrutiny of the facts which just now crowd into my memory ; but I conclude with remarking, that the wide-spreading epidemic influenza, which lately visited the whole of Europe, including the British Isles, was not only truly remarkable, both for the violence of the feverish symptoms and of the local congestions of the chest and heart, which accompanied its attack, but likewise for the unexpected relation which it was found to bear to all measures of active depletion. I appeal to the profession for their testimony on this matter—I ask whether all our preconceived opinions as to the *à priori* indications for venesection, leeching, and purging, were not found to be contradicted by the effects of these remedies in the epidemic influenza of 1833. The sudden manner in which the disease came on, the great heat of skin, acceleration of the pulse, and the intolerable violence of the headache—together with the oppression of the chest, cough, and wheezing—all encouraged us to the employment of the most active modes of depletion, and yet the result was but little answerable to our expectations, for these means were found to induce an awful prostration of strength, with little or no alleviation of the symptoms. In some who were thus treated, recovery was protracted and doubtful, and the strength was not restored for several months. Indeed, nothing was more curious than the length of time which was necessary for some persons, in order to recruit their strength after an attack of this influenza, although that attack had not continued more than a few days, and had been judiciously treated, without blood-letting or unnecessarily debilitating remedies. I have known some who lapsed into a cachectic state of long-continued debility from which they never recovered ; for, while thus reduced, they fell victims to the first acute complaint which seized them. The influenza above referred to fully confirmed the opinion I had long entertained, that in acute diseases debility and exhaustion of the vital power are by no means in every case either caused by, or proportioned to, a state of previous excitement. This opinion received further support from the symptoms and phenomena exhibited by the Asiatic cholera, in which the stage of debility and collapse commenced, and too often closed, the scene. Why do I dwell upon these occurrences, and why have I so frequently referred to the opinion above expressed ? Simply because the prevalence of the contrary opinion laid the foundation for the injudicious and exclusive application of the lancet, and of the antiphlogistic method generally, in Britain, and was, consequently, the cause of working excessive mischief.

I have already mentioned that the disease called scarlet fever assumed a very benign type in Dublin soon after the year 1804, and continued to be seldom attended with danger until the year 1831, when we began to perceive a notable alteration in its character, and remarked that the usual undisguised and inflammatory nature of the attack was replaced by a concealed and insidious form of fever, attended with great debility. We now began occasionally to hear of cases which proved unexpectedly fatal, and of families in which several children were carried off ; still it was not until the year 1834 that the disease spread far and wide, assuming the

form of a destructive epidemic. The nature of the disease did not appear in the least connected with the situation or aspect of the patient's dwelling, for we observed it equally malignant in Rathmines as in Dublin, on the most elevated habitations on mountains as in the valley of the Liffey. It raged with similar violence at Kingstown, and the neighbourhood of Killiney and Bray. The state of the weather seemed to exercise no influence either upon its diffusion or its symptoms, which continued to exhibit equal virulence, no matter whether it was wet or dry, warm or cold, calm or stormy. The contagion seemed to act as a more deadly poison on the individuals of some families than upon those of others, and, consequently, when one member of a family had died, there was always much reason to fear for the others when attacked. At first I thought that its greater severity in such cases could be traced to a strumous habit, but subsequent experience did not confirm this suspicion, for the most scrofulous family I ever saw went through the disease without a death, whereas in some others the mortality was great, although not a single indication of a strumous diathesis could be detected. Many parents lost three of their children, some four, and in one instance which came to my knowledge, five very fine children were carried off. As usual in such epidemics, the degree of intensity with which different persons were attacked varied exceedingly, some exhibiting the mildest form of scarlatina simplex, which required no treatment, and scarcely confinement to the room, while the majority were severely affected. When the disease was violent, it assumed one or other of the following forms:—

First.—It at once produced not merely fever with sore throat and headache, but such violent congestion of the brain, and determination to the head, as occasioned convulsions and apoplectic coma on the first or second day. This happened to a fine young woman of robust habit in Werburgh street, to whom I was called by my friend Dr. Brereton. She was attacked with convulsions on the second day, and died comatose on the third. In her the scarlet eruption was extremely vivid and general, a fact I notice as a proof that the congestion of internal organs was not caused by any retrocession of the eruption. In truth, as will appear hereafter, the worst cases had the most general and most intense cutaneous efflorescence. When this tendency to the head took place in so violent a manner at the very onset, the patient was seldom saved; sometimes, however, very active measures of depletion, general and local, relieved the brain, and the case then went on favourably. This happened in a young gentleman residing in Upper Baggot street, to whom I was called by the late Mr. Nugent, of Merrion row. When the scarlet fever attacked a person subject to epileptic fits, the tendency to the head was increased by the epileptic habits, and the fits of convulsions at once supervened. Thus in the case of a gentleman, aged twenty-two, who had been for several months treated by Mr. Colles and me for epilepsy, the fits commenced on the second day of scarlatina, and continued with frightful violence until the fifth day, when they proved fatal. In a young lady residing near Black Rock, to whom I was called by Dr. Wilson, precisely the same thing occurred. She had been subject to epilepsy for many years, and when the scarlet fever commenced she was at once seized with frequently-recurring fits, which, in spite of the most active measures, ended in fatal coma on the fifth day.

In the *second form* of the disease which I noticed, the symptoms were

exceedingly violent and intense from the beginning, and the disease set in with the usual symptoms of severe exanthematous pyrexia, remarkable in the very commencement for the violence of the accompanying headache and spinal pains, and for the great irritability of the stomach and bowels. Indeed one of the very first symptoms in such persons was nausea, vomiting, and bowel complaint. Large quantities of recently secreted bile were thrown up, and the patient passed frequent, at first semi-fluid and afterwards fluid stools, curdled green or saffron yellow, and evidently composed of bile suddenly effused into the intestinal canal, with a copious and hurried secretion of mucus from the internal membrane of the bowels, and mixed with some true fecal matter. It was surprising what quantities were thus thrown up, and passed from the bowels by some during the first day or two of the disorder; neither the constant repetition of the nausea, and vomiting, nor the abundance of the discharge from the stomach and bowels, in the slightest degree mitigated either the violence of the fever or of the headache, or seemed to prevent the full formation of the eruption. It was curious to observe that this obstinate vomiting and purging was unaccompanied by the slightest epigastric or abdominal tenderness; during its continuance the belly became fallen and soft. In fact its cause was situated not in the belly, but in the brain, a fact I did not perceive until I had had an opportunity of watching the progress of five or six such cases. It depended on cerebral irritation and congestion, and was in nature very similar to the irritability of stomach and bowels which so often accompany, and too frequently mask the progress of acute hydrocephalus. As soon as I had become aware of the pathological relations of this vomiting and purging, I did not confine my endeavours to check these symptoms to measures intended to act directly on the stomach and bowels, such as effervescent draughts, chalk-mixture, stupes, leeches to the epigastrium, &c. &c. I changed my plan of treatment, and turned my attention to the state of the cerebral circulation. Having in a former lecture referred to this topic, and having explained to you the manner in which derangement of the stomach and bowels of a properly gastric origin is to be distinguished from disorder of the digestive apparatus, originating in a sympathetic derangement of function, itself caused by a morbid condition of the brain, and having already pointed out the importance in practice of not confounding these two states, one or other of which is so common in the commencement of violent fevers, phlegmasia, and exanthemata, I shall not at present dwell any longer on this subject. The second form of scarlatina was likewise remarkable for the violent excitement manifested from the very beginning in the circulating system, and in the production of animal heat. The pulse at once rose to above 100, it was seldom less than 120, and in many cases, particularly in young people, it ranged from 140 to 150. I have never in any other disease witnessed so many cases of excessively rapid pulse. In general the pulse in this form was regular, but in two cases it became irregular; one was that of a gentleman living in Upper Mount street, whom I attended with Sir Henry Marsh; his pulse became intermitting and irregular on the third day, and continued to be more or less thus affected for about a week. This gentleman was attacked with subsultus, delirium, jactitation, and various nervous symptoms, at a very early period, and complained constantly of his throat and head. The former was violently inflamed, and his skin was covered with a bright red eruption. On the ninth day he

was seized with convulsive fits of great violence, and which returned very frequently during the night; his case appeared utterly hopeless, and yet he perfectly recovered. In a young lady, whose case is detailed by Dr. Nolan, great irregularity and intermission of the pulse commenced about the eighth day, and continued during the state of danger; she also recovered. Of course irregularity of the pulse was in many not so much a symptom of disease as of approaching death, but then the state of the patient could not be mistaken, judging from all the other circumstances of the case. The acceleration of the pulse abated in all when an evident improvement in the general condition took place, but in few did the pulse become quite natural for many days after a favourable change, and in none did it fall to its usual standard in the course of twelve or twenty-four hours, as it not unfrequently does after the crisis of continued fevers; in fact, the scarlatina never ended with a well-defined crisis. As to the temperature of the body, I have already observed that in the cases I am now describing it was from the first considerable, and continued elevated until a very short period before death. Both the pulse and the heat of skin, however, were very easily reduced in energy by the use of the lancet or by the repeated application of leeches, and it was not uncommon to observe that even the judicious use of these means induced a general coldness of surface, very great sinking of the strength, and a faltering state of the pulse. This was remarkably the case in a young lady whom I attended along with Mr. Wilkinson, in Black Rock, and also in one of the family whose cases are related by Dr. Nolan. In both, these effects were very obstinate and alarming, for reaction was not restored until after the lapse of more than twelve hours; both finally recovered. The pulse was sharp but not strong, and resembled the pulse of great irritation rather than that of true inflammation. The most distressing symptom at the commencement of this form of scarlatina was the sore throat; the fauces were violently inflamed, and deglutition consequently much impaired, while a general soreness was felt in the back of the head and neck; urgent headache was complained of by all, and from the second day the eyes became suffused; great restlessness, anxiety, jactitation, moaning and interrupted raving soon made their appearance, and in many, sleep was banished or utterly broken by startings and delirium before three or four days had elapsed. The eruption had now arrived at its height, which it did with great rapidity, dating from the first moment of its appearance, so that the skin, everywhere covered with a scarlet eruption, resembled in appearance the hue of a boiled lobster. In these violent cases the efflorescence was perfectly continuous, and never broken into spots or patches; the skin appeared as if evenly dyed with one uniform colour; the surface of the tongue was likewise much affected with the same exanthematous redness, and soon became foul and afterwards dry and parched. The sudden drying of the tongue on the fifth or sixth day indicated in this form a rapid aggravation of the disease, and death in several cases was observed to follow this change in less than twenty-four hours, when it was, as in a young gentleman Mr. Rumley and I attended in French-street, accompanied by a sudden acceleration of the pulse and increase of the jactitation and delirium. In this form the brain and nervous system seemed to be the parts which suffered most, and many became insensible for several hours before death; others had convulsions; when the patient survived the seventh day there was a fair

chance of recovery, but many, too many, died on the fourth, fifth, or sixth day.

After I had witnessed a few examples of this form of scarlatina, I consulted with several of my friends and colleagues, and we determined to use the most active measures of depletion in the very first instance that occurred to us. A case was not long wanting. Sir Henry Marsh and I were engaged in prescribing for some children labouring under the epidemic, in a house in Pembroke-street, where our attention was directed to a fine boy, six years old, and hitherto perfectly healthy, who was, while we were paying our visit, attacked with the first symptoms of the complaint; we immediately resolved that as soon as the stage of rigor and collapse which preceded the febrile action had passed, to visit him again and act energetically, if circumstances seemed to permit it. Accordingly we came again in the course of a few hours, and found reaction already established, attended with vomiting, purging, and headache. The sore throat, too, was much complained of, and there was great tenderness of the external fauces. We ordered relays of leeches, eight at a time, to the neck, for the purpose of relieving both the throat and brain, and we administered James's powder and calomel internally. On the next day the skin was burning in spite of a copious loss of blood from the leech-bites, the eruption vivid and already established, the pulse 140, and there had been little or no sleep. Relays of leeches were again ordered, and persevered in until considerable and lasting faintness was produced, and yet no impression seemed to be thereby made on the disease; no abatement of its virulence seemed to be the result, for the raving became more incessant on the second night, and on the third day suffusion of the eye commenced, and the tongue became parched. Shaving of the head, the most industrious application of cold to the scalp, and various other remedies were in vain applied; the pulse became weaker, the breathing quicker, the strength failed rapidly, raving and delirium gave place to insensibility and subsultus, and the patient died on the fifth day. In this case depletion was applied at once and most decidedly, for we blanched and weakened the boy by loss of blood as far as it was possible to venture, and yet the disease was not in the least degree checked, nor the symptoms even mitigated.

A fine boy, thirteen years of age, was attacked in the county of Wicklow, where he was placed under the care of a very judicious practitioner, who did not use either venesection or leeches, but relied chiefly on the exhibition of diaphoretics, particularly antimonials. The boy died on the seventh day, having suffered much from delirium, subsultus, want of sleep, &c. His brother, who was one year older, and a very strong boy, was seized with the disease in Dublin, and placed immediately under my care. I had the advantage of Mr. Rumley's assistance, and we determined to prevent the superintention of the cerebral symptoms, if it were possible to do it by means of antiphlogistic treatment: we failed, and our patient died on the sixth day. In short, in this form of the disease, where the pulse, without becoming strong, *at once became extremely rapid*, bore venesection badly, and required great caution even in the application of leeches; the nervous symptoms only appeared accelerated by the system of depletion, although the heat of the skin suggested its employment. The derangement of the brain and nerves in this form depended on something more than the violence of the circulation, and originated in

something altogether different from mere cerebral inflammation or congestion. What that something was I cannot even conjecture; but it was probably the result of an *intense poisoning of the system by the animal miasma of the scarlet fever*. Every tissue of the body seemed, if I may use the expression, equally sick, equally overwhelmed, and it is probable, that the capillary circulation in every organ was simultaneously deranged. It was not gangrene of the throat which proved fatal, *for in this form it never occurred*; it was not inflammation of any internal viscus, for such was not found on post-mortem examination of the fatal cases; but it was a general disease of every part. In many, another state of things, which required to be carefully distinguished from that just described, existed, and the disease was evidently attended with an inflammatory state of the constitution, requiring energetic measures. In such cases the symptoms were severe in the commencement, the throat very sore, the efflorescence, however, not quite so sudden or so perfect, and the pulse never near so quick, never excessively rapid, and always strong and distinct. Such bore leeching and leeching well, and experienced from their use almost immediate alleviation of the sore throat, headache, and restlessness, and were not much weakened by the depletion. It must be confessed, that it was often exceedingly difficult to determine, *à priori*, whether the depletory system ought or ought not to be tried. Where doubt existed, my custom was to try moderate leeching, and from its effects I judged of the propriety of persevering.

The disease very frequently occurred in a *third form*, more singular still than the two first, and much more insidious in its commencement. This form was evidently very common in the epidemic scarlet fever described by Withering, as cited by Dr. Tweedie. In this form the disease was ushered in by the usual symptoms of pyrexia, together with sore throat, slight headache, and in due time a very moderate and normal eruption. The symptoms continued moderate; the patients, after the first few days, slept tolerably well during the night, had no raving, and were quiet during the day. About the fourth or fifth day all the febrile symptoms had so far subsided, that a most accurate examination could detect nothing urgent, nothing in the slightest degree either alarming or calculated to excite the least anxiety in the patient's condition. His skin became nearly of the natural standard, his thirst diminished, and the pulse was now scarcely accelerated; a calm nearly complete, in fact, seemed to have followed the first onset of the disease; and on entering the room, the physician might easily be deceived, as I myself was more than once, into the pleasing hope, that all danger was past, and that perfect recovery might confidently be anticipated. This hope was, in truth, founded on such circumstances as we can usually rely on; for who would prognosticate danger where his little patient, sitting up in bed, and perhaps eating a dry crust with some appetite, had a placid countenance, and had enjoyed a night of tranquil sleep? Regular alvine evacuations, diminution of thirst, sore throat, headache, and fever, together with the normal state of the cutaneous eruption, all conspired to confirm a favourable prognosis; and so matters proceeded, the family dismissing all apprehension as to the result, and the physician most probably discontinuing his attendance about the seventh day, in the belief that all danger was over, and that his interference was no longer necessary. Matters proceeded thus until the eighth or ninth day, when a certain degree of restlessness was observed

to occur, and in the morning a slight return of fever might be noticed. Then it was that a peculiar train of symptoms set in. The nostrils assumed a sore and irritated appearance about the edge of the alæ, and a serous moisture began to flow from their internal cavities. Sore throat was again complained of, the skin became hot, great debility and prostration of strength came on suddenly, a painful tumefaction commenced in the region of the parotids and submaxillary glands. This tumefaction increased rapidly, becoming every day harder, more elevated, diffused, and exceedingly tender, but without much redness. In the course of a few days it surrounded the neck like a collar, and being attended with swelling of the face, the poor little patient's countenance was sadly disfigured. In the mean time the discharge from the nose had increased considerably, and become more viscid and fetid; the internal membrane lining the nasal passage was affected throughout, its entire surface everywhere inflamed and tumefied, so that a snuffling sound was produced when the patient breathed through his nose: at length the discharge increased to such a degree that the nostrils became completely impervious to the air in breathing. The state of the throat generally began to alter for the worse at the very commencement of this change; and a similar inflammation, attended with an ill-conditioned secretion of lymph and fluid, occupied the entire surface of the mouth and tongue, and at last spread deep into the pharynx. While this was going on, the fever freshly lit up, at once exhibited the most decided symptoms of the worst form of typhus and subsultus, constant muttering, raving, anxiety, want of sleep, restlessness, moaning mingled with an occasional screech, reminding one of that which is so ominous in hydrocephalus. Great difficulty was now experienced in swallowing, and the drink was frequently spirted out of the mouth after a vain attempt at deglutition. Matters now proceeded rapidly from bad to worse, and at last, after much suffering, death closed the scene, being preceded for many hours by a state of extreme restlessness, during which it was impossible to determine whether the patient was still sensible. The swelling of the neck went on increasing to the last, but seldom exhibited any tendency to point; it continued, on the contrary, everywhere hard, or, at most, became indistinctly softened, or, to use a technical phrase, "boggy." When cut into, no matter was found; blood, serum, and a diffused cellular slough, not separated from the living tissues, were observed on making the incision.

I shall now read to you a letter I received on the subject of scarlatina, from Mr. O'Ferrall. His observations are extremely valuable, more especially those which are made towards the termination of the letter, where he describes a most important sequela of scarlatina not hitherto mentioned by any writer.

"MY DEAR SIR,—In reply to your letter, I have the pleasure to send you a few brief notes of my experience of the scarlatina of last autumn and winter.

"Of seventeen cases of which I possess notes, four occurred in adults, three in children under four years of age, and the remainder at different ages between the latter and fourteen or fifteen years. I seldom saw the cases in the commencement. The mode of attack was occasionally similar to that of common sore throat followed by rigors; sometimes violent pyrexia and shiverings, with intolerable headache, and even delirium,

preceded by other signs. In some few cases, the efflorescence first attracted notice, the fever in these instances being throughout so mild as scarcely to demand attention.

“The progress of the disease was various, but usually bore a relation to the character of the incipient fever. In general, the fever increased in intensity as the disease advanced, or as new parts became engaged; but this was not always the case. In two instances which I saw in a state of great vital depression on the third or fourth day, I was assured that the early fever was very high, although it had passed rapidly into the typhoid state.

“The danger sometimes appeared to arise from the condition of the entire system, sometimes from that of important parts. Of two cases which I saw when dying, one was sinking like a person in typhus fever; the other, a boy thirteen years old, was moribund in the coma, which succeeded to violent phrenitic delirium. The latter case was remarkable in this, that the phrenitic state occurred while the eruption was in its prime, the whole body retaining its deep scarlet colour until a short time before his death. The disease in this instance set in with delirium, which had been subdued, I have reason to believe, by the most active means. Death occurred in one instance from croup, the disease of the throat having passed into the trachea and bronchial tubes. In another, sloughing of the fauces, with low fever, carried off the patient on the sixth day.

“In several, who ultimately recovered, life was seriously endangered by local inflammatory attacks. In one instance, a girl about seven years old, enteritic symptoms sprang up suddenly while the patient was in a very weak state, and were with difficulty subdued. In another, a boy ten years old, acute pain in the region of the heart occurred when the eruption was on the decline; it was accompanied by short cough, palpitations, dyspnoea, rapid, though not irregular pulse, and sudden accession of fever. There was no perceptible *frottement*, but the action of the heart was violent, and there was acute pain on pressure. It yielded to leeching, followed by calomel, with James’s powder, till the gums were slightly touched.

“Another patient, a girl twelve years old, narrowly escaped the effects of sloughing of the throat. Croup occurred in two instances, in which, notwithstanding the opinions of M. Trousseau, I could not doubt its origin in scarlatina. It happened, no doubt, in cases which had exhibited the diphtheritic patches, without much surrounding inflammation on the tonsils, but the eruption was sufficiently marked to remove all obscurity. One child, who recovered, ejected the false membrane (which I still preserve) in a tubular form, and presenting a cast of the trachea a little beyond its bifurcation. In the child before mentioned, who died, patches of false membrane were also ejected; but she sank exhausted, and the disease was afterwards discovered to have extended far into the bronchial ramifications.

“Although the treatment was generally antiphlogistic, this plan was not always applicable, even in the commencement of the disease. In all instances which I had an opportunity of observing, it was necessary to watch the effects of local bleeding. It was easy to pass the boundary of relief, and then most difficult to repair the loss, and meet the symptoms of exhaustion when they had actually set in. Wine and diffusible stimuli were often required from this cause alone, even when the cases had nothing of the malignant or typhoid character in their nature.

“Tepid sponging appeared in many instances preferable to cold, and I think the soothing effects were of longer duration. Reaction, and the distressing sense of burning heat, did not appear to recur so soon as when cold fluids were employed. Purgatives, except of the mildest kind, were not well borne, but cooling diuretics were clearly indicated, and, when persevered in, had, in many cases, the apparent effect of anticipating the sequelæ of the complaint.

“The ulcerations and sloughing of the throat were treated by nitrate of silver, alum, and the chlorides, according to their states. But none of these applications were to be depended on, when the colour of the fauces was intensely red, unless a few leeches had been previously applied. In one gentleman, twenty-eight years of age, free leeching, externally (to the number of forty), failed in removing the sense of suffocation or enabling him to swallow. A few leeches applied to the inside of the nostrils was followed by copious bleeding and immediate relief. The latter expedient was indicated by the tumid state of the velum and pituitary membrane, the stertorous breathing, and complete occlusion of the nares.

“Its mode of spreading in families was uncertain. It sometimes attacked children within a few days of each other; at other times, a fortnight has elapsed before I was again requested to see a new patient. Some children escaped the disease altogether.

“Among the sequelæ which I had occasion to see, diarrhœa occurred in two or three instances, chronic bronchitis in one, and anasarca in four. The urine was slightly albuminous in two of the latter cases before the face and limbs began to swell; in the other two it exhibited this character when the disease was formed, but I did not see them previously. The treatment of the anasarca was antiphlogistic and diuretic, and succeeded in restoring three to perfect health; the fourth still remains an invalid, but not from this cause; the apex of the right lung affords evidence of tubercular disease.

“I have now to mention a peculiar affection of the neck, which I have not before seen in connection with scarlatina, but of which four cases have occurred during my observation of the epidemic in question.

“Case 1.—About the beginning of August, 1834, I was requested by my friend, Dr. Davy, to see a young girl, ten years old, in Upper Baggot Street. Her convalescence was tedious, some degree of fever still existing at the end of six weeks from the commencement of the attack. But her principal complaint was severe pain of the right side of the neck, close to the head, and extending as high as the vertex on the least motion of the part. She could not raise the head from the pillow without putting a hand at each side for its support, and when taken out of bed, instinctively sought a resting-place for the chin. The face was awry, its vertical diameter passing from above downwards, and from right to left. Posteriorly, the upper cervical vertebræ were curved, the convexity of the curve being situated a little to the left of the middle line; there was considerable swelling of the soft parts covering the bones. Pressure here was intolerable, and the least attempt to rotate the head occasioned severe pain. Deglutition was now tolerably easy, but there had been considerable difficulty of swallowing during the early period of the complaint. There was here obviously a carious state of the articulation of the atlas and dentata, and we did not expect to remove the curvature. Perfect rest was, however, enjoined, and the usual remedies employed with a

view to arrest the further progress of the disease. She gradually recovered her health, and is now lively and well grown, but the curvature is permanent.

“Case 2.—Early in August, 1834, Mary Inglesby, of Russell Place, aged 7, was sent to me by Mr. Long, of Summer Hill. She was confined to bed in scarlatina for a fortnight. At the end of this time she was taken out of bed, and then the head was observed to be turned to one side. It was now five weeks altogether from the beginning of the disease, and the parts were still in the same state. The face was awry. She complained of pain in the concavity of the curve and that side of the head, and could not bear the slightest motion or shock. Leeches were prescribed, and calomel given afterwards in doses of a grain, three times a-day, till the gums were touched. As soon as this effect was produced, the pain subsided, and the pain gradually acquired its natural position. Her recovery was complete.

“Case 3.—A younger brother of Mary Inglesby was subsequently under the care of Mr. Long, for scarlatina. The same state of the head and neck were detected on the thirteenth day, and treated by Mr. Long, on the same plan as that adopted in the former case. The pain disappeared as soon as the mouth was made sore, and the position of the head became natural. He is now in good health.

“Case 4.—I met Mr. Edgar, of Arran Quay, in February last, in the case of a young gentleman about six years old, whose convalescence from scarlatina was tedious, and in whom the difficulty of swallowing persisted after the redness of the fauces was removed. On taking him out of bed it was remarked that he was quite unable to keep the head erect. The symptoms were similar to those of the two last cases, but in a milder degree. A few leeches were applied, and evaporating lotions instantly used to the part, on account of considerable local heat. The leeching was repeated in a day or two, but as the symptoms yielded rapidly, and as he had some tendency to diarrhœa, calomel was not employed. In about a fortnight, the natural position of the head and neck was restored.

“I can offer no better explanation of the occurrence of this affection, during the progress of scarlatina, than by supposing that the inflammation of the fauces and back of the pharynx was propagated to the adjoining parts. In all those cases there had been marked and prolonged difficulty of deglutition, as a symptom of the disease; and it is to this circumstance I am desirous of calling attention, as affording an index for a careful review of the condition of the spine during the period of convalescence. Should a child be observed to lie more on one side than the other, and evince an unwillingness to be disturbed, it would be an additional reason for suspecting a tendency to this complaint. Believe me, Dear Sir, yours very truly,

“JOSEPH M. O’FERRALL.

“*Rulland Square, West, 30th July, 1835.*”

Since the preceding lecture was delivered, the disease has raged every winter and spring with undiminished virulence, and has resisted, as before, nearly every kind of treatment. A letter which I received from Dr. Cumming, of Armagh, stating that scarlatina had rarely been witnessed in that city since he settled there, eleven years ago, and that he had never seen the malignant form of the disease, induced me to forward a

circular to the principal medical men in the provinces, to ascertain if the disease prevailed in their respective districts, and if it had assumed the fatal form we had observed in so many instances in Dublin.

I shall now briefly lay before the reader the principal facts contained in the answers to my queries. Dr. Geoghegan, of the Kildare Infirmary, says, that during his residence there, for ten years, scarlatina never prevailed as an epidemic, and the sporadic cases he met with were exceedingly mild.* Dr. Astle, of Edenderry, relates the same. Dr. Woodward, of Kells, has not seen it epidemically, but isolated cases were remarkably fatal, some dying within the first twenty-four hours. Dr. Clifford, of Trim, mentions that it has latterly been prevalent in his district and very fatal. Dr. Clarke, of Rathdrum, states that it has been on the increase for the last three years, but has been very mild. The letter of Dr. Lloyd, of Malahide, is so important that I shall introduce it in full.

“*Malahide Dispensary, August 20, 1842.*”

“DEAR SIR,—In reply to your circular relative to the prevalence of scarlatina in my district, I beg to say, the year ending May, 1839, no case occurred; May, 1840, one case in an adult; May, 1841, no case; May, 1842, thirty-two cases are registered, three of which were fatal, one 24 hours after the appearance of the eruption; the others were a brother and sister, aged eight and six, scrofulous, and after a period of from 12 to 16 days, they died of diseased brain and abscesses in the throat. Since May, six cases have been under my care. The only cases of moment were those mentioned above as fatal, and some of the same family in which the urgent symptoms were extensive ulceration of the fauces—they recovered rapidly. During the past year, there were numerous instances of the disease, but so slight that the individuals were under no restraint; so that I was not applied to, save occasionally to treat some of the sequelæ.

“I may here allude to a curious fact. My district joins, on one side, that of Baldoyle; on the other, Swords; in both, epidemic diseases have frequently appeared for the last 25 years, with virulence, and after a long period commenced in Malahide district, in a mild and subdued form; many of the poor inhabitants are aware of the circumstance.

“Believe me yours, sincerely,

“HANS LLOYD.”

“To R. J. Graves, Esq., M.D.”

* Since I received the above communication from Dr. Geoghegan, he has sent me the following note:—

“MY DEAR SIR,—Since I replied to your circular, relative to scarlatina, many cases of it have occurred at Newbridge, four miles from this, on the Dublin road, and, from the number and rapidity of the deaths, I must suppose of the malignant kind. It was nearly confined to the children of the labouring class, and not having the dispensary there, I did not see them. I am, however, induced to state the condition of a boy, aged five years, I saw a day or two since, for the first time, although he then was three weeks ill. On the right temple was a large ecchymosis, about two inches in diameter; arterial blood trickling from the nose, mouth, and ears; he was greatly emaciated, and quite sensible, had diarrhœa and the hemorrhage only from the preceding day; the cervical glands were enlarged, but had not suppurated, nor was there anasarca or dropsy; he died the following morning. Being asked while driving past to see the child, and finding him so wretched an object, I merely told the mother I did not think he had the slightest chance of recovery. This is, I think, the only case in which I ever saw hemorrhage from the ears. Believe me, my dear Sir, yours faithfully,

“W. P. GEOGHEGAN, M.D.”

“*Infirmary, Kildare, Oct. 12, 1842.*”

Dr. Glover, of Philipstown, never saw or heard of a case of scarlatina during the four years he has resided there. Dr. Croly, of Mountmelick, states, that the disease has latterly become prevalent in that locality, and has assumed on many occasions a malignant form. Dr. Brunker, of Dundalk, mentions, that the disease has only presented itself in one instance within the last five years, and was very mild. Dr. Hudson, of Navan, has not met with the disease often; and during a term of eight years has only had one fatal case; whilst Dr. Byron of the same town states, that the disease "was very prevalent, and in several localities unusually malignant during the last two years, up to a period of about two months ago, when it was observed to be on the decline. At present, there are very few cases within twelve or fifteen miles of Navan, and these are less virulent, generally speaking, than formerly." From Wexford, Dr. Boxwell writes, that there "they have had but a few scattered cases in the town for the last six years, and not one fatal." In Arklow, Dr. Wright mentions, that scarlatina has been very prevalent in that town and neighbourhood for several years past, particularly 1840-41; but it did not frequently prove fatal." In Athy, as appears from the letter of Dr. Clayton, it has prevailed, and some of the cases have proved fatal. Dr. Macartney, of Enniscorthy, states, that it was prevalent and fatal during 1837 and 1838, and that it was, at the time of writing, breaking out again. The following communication from Dr. Ridley, of Tullamoore, is too important to be omitted:—

"Tullamoore, October 17, 1842.

"DEAR SIR,—Scarlatina appeared here in the latter part of November, in the last year, as an epidemic, and continued to be very prevalent until June following. During this period it prevailed most in the month of March. I saw a great number of cases in this town and the neighbourhood, which were mostly all of the benign or simple form. Some cases occurred, in full plethoric subjects, of an inflammatory nature; but I did not meet with a case of the malignant or typhoid disease, such as I have seen in Dublin. This epidemic raged chiefly amongst children and young people—the oldest subject I am aware of having had it was a person of forty years. It commenced with rigors, lassitude, loss of appetite (in some cases with soreness of the throat as a first symptom), and the usual symptoms of approaching fever, which continued to increase until the third or fourth day, during which time, in some instances, the fever ran high, with raving and other symptoms of cerebral disturbance. The eruption generally appeared on the second day in the form of small distinct spots like flea-bites, which did not run together, and declined suddenly on the fourth or fifth day without desquamation. In some instances the character of the eruption was an efflorescence, which remained out until the sixth or seventh day, and was always followed by desquamation, The fever was equally high in both these forms of eruption, but of greater duration in the latter. The throat was very slightly affected in the majority of cases, being nothing more than a slight erythematous blush on velum and tonsils; however, in some robust, plethoric persons, there was much inflammation, demanding active treatment. The symptoms had usually so much subsided as to enable the patient to leave the bed on the sixth or seventh day. *The fatal cases which I witnessed here, were caused by congestion of the brain, occurring on the third day, while the eruption*

was well out and every thing appeared favourable, slight drowsiness set in, which was quickly followed by coma and stertor; and in two cases death ensued in thirty hours from the commencement of those symptoms: they were all in young persons of full habit, and had no previous delirium or inflammatory affection of the brain. The sequelæ were, anasarca (which was very general, and occurred after the mildest form of the disease), pneumonia, bronchitis, acute rheumatism, remittent fever, enlargement of submaxillary and parotid glands. In one instance pneumonia proved fatal in eighteen hours. It was the case of a boy of nine years old, who had been three weeks recovered from scarlatina. The treatment was that usually practised. Emetics and purgatives, diaphoretics, attending to ventilation, &c., were sufficient in the generality of cases. In the inflammatory form, venesection, antimonials and calomel were prescribed; when the throat was affected, the free application of nitrate of silver was found to be the best remedy. Leeches, acid gargles, application of powdered alum, blisters, &c., were also beneficial. When anasarca followed, it generally yielded to smart hydragogue purgatives; but in some cases I gave calomel and squill with advantage: as a prophylactic I was induced to try belladonna, but without success.

“There was at this time a very prevalent inflammatory affection of the throat, which appeared and disappeared with the scarlatina. This disease commenced with slight fever, stiffness of the neck and dysphagia, which afterwards increased to a great degree. The pharynx, tonsils, and velum, assumed a deep scarlet hue, and were in some cases covered with patches of lymph, which could be raised off with a probe, like the membrane of diphtherite. The tonsils became greatly enlarged; also the parotid and submaxillary glands; the jaw became fixed, so that the teeth could not be separated; there was inability of swallowing, hurried breathing, and high fever. These symptoms increased to the fourth or fifth day, when the fever subsided with diaphoresis; the jaw became relaxed, copious salivation came on, and the ability of swallowing was in some degree restored; and, finally, in the course of eight or nine days from the commencement of the attack, this inflammation ended in resolution. In some few cases one or both tonsils suppurated, and in other still rarer instances, ulceration of the pharynx followed. Such are the symptoms of the most severe form of this disease; but it was sometimes so mild, as not even to confine patients to the house.

“At any other time this disease would have been looked on merely as an epidemic cyanche; but in this instance, there was a very decided connection observed between it and the prevailing scarlatina. It was, in the first place, even popularly remarked, that a person who had suffered from this cyanche had not been afterwards attacked with scarlatina, and that an attack of the latter was not in any instance followed by one of the former. It was likewise observed, that when one member of a family was seized with cyanche, scarlatina soon showed itself amongst some of the rest; and in the same manner, when scarlatina appeared first, cyanche very frequently followed, so that one was considered as the forerunner of the other. The following few brief cases may serve to show this connection.

“Case 1.—Master S. came home from school (where scarlatina had prevailed) complaining of soreness in swallowing, slight headache, and nausea. The next day the tonsils were enlarged, and he complained of

greater pain in swallowing ; pulse quick, skin hot ; *but no appearance of eruption.* These symptoms remained without getting worse for three days, when they gradually subsided. Before he was perfectly well, scarlatina seized two of his sisters and his father. In the former, the eruption appeared as an efflorescence and ended in desquamation ; in the latter it was in the form of distinct spots, and without any subsequent desquamation.

“Case 2.—Master O. came home from the same school with scarlatina. Two of his sisters and his brother were seized with it while he was ill. The eruption came out well in the spotted form. At the same time the man and maid-servant were attacked violently with cynanche, which was attended with high fever for several days.

“Case 3.—Visited Mr. B. who had been suffering from severe cynanche for four days. He cannot articulate or swallow ; the jaw is so fixed as to prevent the teeth being separated to more than a quarter of an inch ; fresh tumefaction of the neck ; pulse quick ; skin hot and dry ; breathing hurried ; face swollen and flushed ; eyes suffused (on inquiring if any of the family had scarlatina, I found his son, who was lying in the same room, just recovering from it). After a few days, perspiration appeared over the surface of the body, the fever became less, and he was able to open his mouth and swallow a little. On first seeing the tonsils and velum, I found them coated over with a thick white membrane, which extended to the hard palate, and could be raised off easily with the probe.

“Case 4.—P. N. has been complaining of headache and nausea since yesterday, feels a stiffness in his throat, and fears he is getting the scarlatina, as three of his children are only recovering from it. The throat symptoms increased to a great degree, with a smart fever attending them. No eruption appeared, and he was well in eight days.

“It is now almost generally admitted that the eruption is not a necessary symptom of scarlatina, which disease may occur independently of any affection of the skin. In this case the throat is supposed to be invariably affected, and the disease has received the name of ‘scarlatina faucium.’ But it may be a matter of some difficulty to disprove this scarlatinous affection of the throat from a common cynanche : the fact of scarlatina being prevalent in the neighbourhood, and the probability of the infection of it having been in some way communicated, must in such cases be taken into consideration. If it be found, however, that exposure to the infection of one disease gives rise to the other, and that one proves a preventive of the other, there are fair reasons for concluding, that it is the same disease, in the one case affecting the skin, and in the other the throat only.

“I am, dear Sir, yours most truly,

“JOHN RIDLEY.”

In Waterford, Dr. Elliott announces, that for several years it has appeared occasionally in an epidemic form, sometimes assuming great malignancy during the congestive stage, whilst its peculiar diagnostic characters were as yet barely discernible. Dr. Bewley, of Moate, mentions that it has not prevailed in his district for eleven years, and that during the whole of this period he had not a fatal case. Dr. Thorpe, of Listowel, has seen very few cases of the disease, and has not had a single death. Dr. Gogerty, of Nobber (county Meath), has had many fatal cases, and

the disease has been very prevalent. In Pomeroy, as appears from the statement of Dr. Harvey, the disease has been rare and mild. Dr. Connor, of Carlow, forwarded me the following letter, which I shall here introduce.

“*Carlow, 8th August, 1842.*”

“DEAR DOCTOR—I delayed answering your circular (received on Friday), until I could send you the combined opinion of some other practitioners, two of whom agree with me in saying, that there is annually a pretty general attack of scarlatina in this district, but nearly confined to the juvenile and infantine portion of the community, at least we do not recollect many adults affected with it, and only one fatal case amongst those, and that was the case of a lady just confined, and whose children had the disease, but recovered. As to the malignancy of the type, we can say, that whilst five children were carried off by it in one family others in same house had it slightly; and although several lost two or more children, numbers of families have been so slightly affected, that were it not that medical men recognised the disease, it would have passed away without any notice, requiring in some cases only the little patient to remain one day or two in bed. When many members of one family have been taken away, we have had reason to think that the constitution of the sufferers had more to do with the fatal result than the original type of the disease. Hoping that I have answered clearly and fully, I beg to remain yours sincerely,

“SHEWBRIDGE CONNOR, M.D.”

“Drs. Rawson and Porter are the persons to whom I showed your circular. Any other medical statistical information you may require I shall be most happy to afford or collect.

“P.S.—I have never known or heard of a case of intermittent fever in this district, though some fatal cases of typhus have had pretty regular hot and sweating stages, several in a day, perhaps the cold fit escaped observation. This though not bearing on your inquiry might interest you.

“R. J. Graves, Esq., M.D.”

Dr. Long, of Arthurstown, writes as follows—

“*Arthurstown, 5th August, 1842.*”

“DEAR SIR—During the past year I have not observed a single case of scarlatina, in my extensive district; although at New Ross, which is but ten miles distant, the disease has prevailed in its most malignant form, and been attended, I understand, with frightful mortality.

“In the summer of the year 1839, scarlatina raged here epidemically for some months. Its general character was at that time of a mild type, yet in some cases the most malignant symptoms were present. I had then occasion to remark what I am sure has been observed by others, namely, that in the same family were to be found individuals presenting well-marked cases of every form of the disease, from the simple fever with bright efflorescence of the skin, to the sloughing tonsils and typhoid type.

“In many the disease appeared to attack the throat alone, presenting symptoms that would, under other circumstances, have been considered indicative of simple cynamche tonsillaris.

“Believe me very truly yours,

“RICHARD LONG.”

“R. J. Graves, Esq., M.D.”

Dr. Russell, Surgeon of the County Tipperary Infirmary, gives the following answer—

“Cashell, August 6, 1842.

“DEAR SIR—I this morning received your letter of the 3d, stating that you were engaged in writing on scarlatina, and asking if it was prevalent in this neighbourhood during the last few years. In the year 1840, scarlatina was very prevalent during the spring, and assumed a most fatal form (I lost my wife and child by it), it appeared also to be most infectious, as almost every individual, except those who had the disease previously, who came near those infected, were seized with it. The fever was of a typhoid character, and the throat appeared as if affected with gangrenous erysipelas. The treatment that appeared most useful was warm bathing and the carb. of ammonia with bark. There have been occasional cases of it here since, but not at all of the same fatal form. Children seemed to sink under it more frequently than persons of more advanced years. I remain yours truly,

J. W. RUSSELL,

“Surgeon to the County Tipperary Infirmary.

“Dr. Graves.”

In Ballina, Dr. Whittaker says, the disease has been rare and mild. Dr. Stewart, of Lifford, states that two epidemics have visited that district within the last six years; both were very mild. Dr. Croly, of Mountmellick, says, “that scarlatina has at intervals prevailed in this locality for the last few years. Latterly it has assumed a malignant and fatal type, especially among children. The eruption was of a dark hue with early tendency to sphacelated ulceration of the fauces and pharynx, cerebral congestion with coma and convulsions.”

From Dr. O'Brien, of Ennis, the following particulars were received—

“Bellevue, Ennis, August 9, 1842.

“MY DEAR SIR—In reply to your circular relative to the prevalence of scarlatina in this county, I have not many observations to make, as it is only within the last seven or eight years that much of that disease has been seen here.

“My father, who has been forty years in practice in this county, told me that he has seldom seen the disease, and that it never prevailed as an epidemic here. About seven years since a few cases appeared here together, and it did not reappear until the spring of the year 1840, when it broke out in a large school in this town, and four persons died of it. I was in attendance on them, and was seized with it myself, and had a very narrow escape. It was evidently brought to the school on this occasion by a boy who had just come from the King's County, and who showed the disease in a day or two after his arrival. It spread with such rapidity through the school, that (notwithstanding the greatest precaution) the establishment had to be broken up for some time. It again reappeared about Christmas in the same year, to a slight extent, was not fatal, and has not been seen since. I understand that it is often very prevalent in Limerick in spring, and very fatal.

“We admit cases of this disease into the County Fever Hospital, when they occur in the lower ranks, and have never remarked that it was communicated from one person to another there. Believe me to be very sincerely yours,

S. W. O'BRIEN.”

In Boyle, Dr. Hall says, it has lately been prevalent but very mild; Dr. Taylor, has seen very few cases at Ferns, all of which were mild.

Dr. Griffin, of Limerick, writes as follows—

“74 Georges street, Limerick, August 6, 1842.

“DEAR SIR—We had some bad cases of scarlatina in Limerick last winter, and about two years ago, but they were few in comparison to the mild cases; and at any time within the last eight or ten years I have not known it to spread extensively as an epidemic here. It has never been at all so prevalent as measles or whooping-cough, or even typhus fever, when these diseases have been epidemic. Those who died of the complaint, suffered chiefly from the sloughing of the throat, but I saw one young girl die last year on the third or fourth day, apparently from the intensity of the fever and great prostration of strength.

“Yours, dear Sir, very truly,

“WILLIAM GRIFFIN.

“R. J. Graves, M.D.”

From Dr. Roe, of the Cavan Infirmary, I received the following full and very satisfactory particulars—

“Cavan, 29th August, 1842.

“DEAR SIR—Being much from home, and, at the time I received your polite circular, very much and anxiously occupied, I could not reply to it immediately in the manner I wished.

“I now beg to say, that scarlatina has been more than usually prevalent during the last few months. I have only seen two cases of it in adults. Amongst children I cannot say that those cases I met with were unusually severe or unmanageable. The soreness and swelling of the throat, with ulceration, were also very prominent and painful symptoms in several cases I saw; the sore throat appeared almost the only symptom, and the cutaneous affection very trifling and evanescent. I cannot say that the type of the disease here, as far as I met with it, was of a malignant character, nor did it put on that congestive inflammatory form, which produces such an awfully fatal disease. I have also seen two or three examples of the dropsical or anasarcaous symptoms, which sometimes succeed; and in one very fine healthy child, which I had an opportunity of seeing the evening before its death, and of making a *post-mortem* examination, I found the entire cellular substance of the body pervaded with the dropsical effusion, and a very large quantity, amounting, I think, to nearly a quart, effused into the thorax. From the great dyspnœa, and very unequal action of the heart, I presumed there must be structural disease of the heart—which was not the case—and all the viscera, both of the thorax and abdomen, appeared perfectly sound, so that the dropsy was entirely the result or the consequence of the original disease three weeks before, and from which the child appeared to have perfectly recovered.

“Scarlatina, mixed up with small-pox, has appeared also in our poor house, but not of a very fatal or malignant character; and I find from the physician to the poor house, that the scarlatina was rather of a low type, and required cordials, as wine, &c., and that bleeding was had recourse to only in a few cases. Although the disease has been prevalent here among the poor and labouring classes, yet I cannot say I have seen a great many cases, not being now connected with any public dispensary, and the

County Infirmary does not receive such cases. Some years ago, when it appeared in an epidemic, and very severe form, I had an opportunity of seeing much more of it, and then I found the most beneficial effects, from full and early bleeding; and in two remarkable instances, one an adult lady, and the other a fine healthy girl, I think it put an end to the disease, and prevented the congestive stage from coming on.

“I remain, dear Sir, with much esteem, yours very truly,
“GEORGE ROE.”

It is unnecessary to give the particulars of the many letters I have received on this subject; but from all may be collected the facts, that scarlatina has, generally speaking, prevailed to an unusual extent in Ireland, for the last seven or eight years—that it has, in many instances, been singularly rare in districts immediately adjoining others in which it has been equally prevalent—that there is no geological or physical difference in many of the localities alluded to, which can in any way account for these anomalies—and that we are equally at a loss to explain its mildness in some districts in which it has extensively prevailed, and its malignity in others.

Even in this city, during the period of its greatest virulence, whole families have been attacked with the mildest forms of the disease I have ever seen; and I have been assured by many of the physicians connected with our dispensaries, that they have for a certain period met with several cases, all extremely mild, and suddenly the character of the disease has changed, and the cases then coming before them were as remarkable for their malignancy, and undue proportion of mortality. This was seen in a remarkable degree in the practice of Dr. Osbrey, of Molesworth Street, whose very important communication I purpose appending to the end of these observations.

The reader who has studied our old authors with care, will perceive the identity that exists between *some* forms of our malignant scarlatina and the epidemics described by the name of the “*Ulcerous Sore Throat*,”* and the “*Putrid Sore Throat*.”† But in these epidemics, the principal and fatal symptom was inflammation, and sloughing of the throat, ulceration of the Schneiderian membrane, attended with profuse ichorous discharges, &c. The eruption was either disregarded, or only mentioned as a curious phenomenon, and death was produced by the “*sore throat*.” But as was before observed, many of our cases died without a single lesion that we could detect—they were poisoned by the virus of the scarlatina.

I shall here introduce the particulars of a few fatal cases that were lately under my care, from which the reader will probably be enabled to form a better idea of the malady than from the preceding description of it. The following notes were taken by Dr. Henry Kennedy, by whom the patient was first seen—

Case 1.—“I first saw J. K——, aged 14, on Friday evening, March 22, 1842. He had been at school the previous day, but had come home complaining of not being well. His mother had given him an emetic of ipecacuanha, which not only vomited but appeared also to have purged him. When visited about twenty-seven hours from the beginning of his illness, I found the purging had ceased, but the vomiting continued

* HUXHAM on Fevers, page 266. London. 1772.

† FOTHERGILL'S Works, vol. i., p. 341. London. 1783.

incessantly. He was throwing up quantities of dark greenish bile, and this occurred whether he took any drink or not. The thirst was insatiable, and the desire was for what was cold; the fever ran very high, the skin hot, pulse 140, and when left to himself he was inclined to rave; he referred his distress to the stomach, and said he believed his throat was sore; on looking into the mouth the internal fauces appeared inflamed, and the tongue was densely loaded, but there was nothing of that specific nature which would lead one to pronounce on the nature of the disease. At this time I looked very particularly to the state of the skin, but no eruption was visible. His position in bed was changed every moment, as he said for the purpose of giving himself relief. I had intended putting a few leeches over the stomach, but at the patient's own urgent request was induced to bleed him from the arm to about $\frac{3}{4}$ vii. A sinapism was applied to the epigastrium, a mouthful of cold water given frequently, and the extremities sponged with vinegar and water. On the following morning (Saturday) all the symptoms had increased in severity, the treatment of the night before had had effect but only temporarily, in fact for about four hours, after which all the symptoms had reappeared. In addition the body was now covered with an eruption which could not be distinguished from the maculæ of bad typhus fever; it was best marked, however, on the chest and back; it was quite distinct on the face. The raving was now of a more decided character, and it was more difficult to make him give a direct answer. At this period Dr. Graves visited the patient, and recommended internal stimulants with blisters to the surface. It is enough to add, that all treatment appeared to be quite inert, and from this time till the period of the patient's death, every symptom went on increasing, the raving becoming every hour more violent in its character, and the pulse rising to 170 and even 180. One or two points are, however, worthy of notice. During the last day of life the bowels were once affected, the discharge was quite natural, from this moment all vomiting ceased. During this day also a second crop of eruption made its appearance, it was perfectly distinct from the first, being of a redder colour, and the spots much more circumscribed. I have often had occasion to meet with the same since; it was now too that the tongue put on its characteristic appearance. That the nervous system was profoundly engaged there was but too much evidence of, for though no convulsion came on I observed strabismus, and the mouth was distinctly drawn to one side. There was also very violent fits of shuddering almost amounting to rigor; the eyes were not injected at all. The entire duration of this patient's illness was about sixty-eight hours."

In the patient whose case has been detailed we have a remarkable example of scarlatina terminating rapidly in death, without the sloughing of the throat, which usually caused death in the epidemics narrated by Huxham and Fothergill.

Case 2.—“Miss H——, a strong healthy lady, aged 28, was attended at the commencement of her illness by Mr. Nicholls; when I saw her, there was intense redness of the throat, great dysphagia, and pain in swallowing. These symptoms induced me to bleed once freely; the blood was bled and cupped to an extreme degree. After the disease had lasted for about thirty-six hours, an eruption of a vivid bright colour appeared. She obtained no relief from the bleeding, the pulse became quicker, debility increased, and she died with symptoms of poisoning in less than two days.”

The occurrence of arthritis as a complication of scarlatina, we have frequently witnessed in the Meath Hospital. In a man named Pierce, we had the greatest difficulty to save both wrist-joints from ulceration. And in another case, the motion of the elbow-joint was almost lost from the effects of inflammation.

I have noticed that when any of the viscera become engaged during the progress of this disease, that there is the greatest difficulty in subduing the local disease, and that it runs its course with great rapidity; this was unfortunately too well illustrated by the case of P. B. attended by Surgeon Smyly, of Merrion square, and myself. The following notes were taken by Mr. Smyly—

Case 3.—“Miss P. B——, aged 20; of a full habit of body, in December last was attacked with a very severe form of scarlatina. The eruption appeared on the 20th, and was very intense in its character; in the progress of the complaint her head became much engaged, requiring the application of leeches; her throat also was very bad, to relieve which leeches were again applied. Considerable prostration of strength accompanied the affection from the commencement. On the 30th, she was so far recovered that I took my leave.

“It may be worthy of remark that her sister, who was first affected with the disease, had it so mildly that the nature of the affection was not discovered, nor did she require medical aid.

“January 9, 1842—I was again called to see Miss B——, she then complained of a severe pain in her left side, which she first felt on going to bed, which became so violent during the night as to banish sleep. She had been till then going on as well as possible, recovering her strength daily, and was in excellent spirits. On the 8th, she eat heartily of beef-steaks for dinner, and drank some wine. I saw her sixteen hours after the commencement of the pain, when I found all the lower part of the left lung densely hepatized.

“The treatment consisted in repeated cupping, attended each time with much relief. The exhibition of mercury so as to affect the mouth, antimonials, by all which means the acute symptoms disappeared, but no improvement took place in the condition of the lung. Her strength began to fail, and she died on the morning of the 9th of January, 1842.”

In this case the most remarkable feature was the rapidity with which the lung was solidified, and the obstinate manner in which it refused to yield to treatment.

The following case was also attended by Mr. Smyly and me, and to his eminent skill may be attributed the recovery of the patient. It presents an unusual sequela of scarlatina, namely, aphthous ulceration of the anus, which, though not sufficiently pointed out in the late works on practice of medicine, was recognised and described by Huxham, and I introduce our case with Huxham's description, to show more clearly the identity of the two epidemics.

After alluding to the profuse discharge that took place from ulcerated surfaces in the mouth and nostrils, he says—“A sudden stoppage of this rheum from the mouth and nostrils actually choaked several children; and some swallowed such quantities of it, as occasioned excoriations of the intestines, violent gripings, dysentery, &c., *nay even excoriations of the anus and buttocks.*”*

* Huxham on Fever, p. 280. London, 1772.

“Case 4.—Master James F., aged twelve, was affected with a very severe form of scarlatina in July, 1841. The eruption began to appear the second day of his illness, and became very intense in its character, the whole surface of the skin being almost of a uniform redness. The accompanying fever ran very high, demanding venesection to reduce it. The throat presented the usual appearances; but in this case, the inflammation extended into the mouth, and we suspected, throughout the intestinal canal, indicated by the great irritability of the stomach and bowels, and the *circumstance of the anus presenting the same aphthous appearance that the mouth did.* The inflammation also extended into the left ear and caused the destruction of the membrana tympani. In less than a month’s time this young gentleman was so far recovered as to return to England, and has since enjoyed good health.”

In the writings of Huxham and Fothergill, the reader will also find frequent allusions to cases where death was produced by uncontrollable epistaxis, during the epidemic of “sore throat” described by these authors. Thus Fothergill, after speaking of the usual mode of death in these cases, says, “Though this was the common progress of the disease where it terminated unhappily, yet it often varied from this type, and was attended with very different symptoms. Some had an extreme difficulty of breathing almost from the first; some had a violent cough; some were comatous; others had a delirium; some died in a lethargic stupor; *others bled to death at the nose.*”* The following is an example of this form of the disease:

“Case 5.—I was called to see the Rev. Mr. C., aged 25, of regular temperate habits and healthy constitution. He was then labouring under severe fever with sore throat. On examining the fauces I found the tonsils extensively ulcerated. These were touched with nitrate of silver, and the next day they appeared much improved. On the third day of his illness an eruption appeared, neither too red nor too pale, in short as favourable as could be wished for, and perfectly normal as to its duration. During all this time the heat was intense; and on the third day of the eruption, the cold affusion was employed, and was followed by marked relief; but the pulse still remained sharp and quick, never falling below 96. In this state he continued till the seventh day of his illness, when epistaxis occurred (to this he had been subject for a long time), and was followed by considerable relief of his head. The epistaxis was not excessive, and from the fact of its being habitual, excited but little alarm. About the thirteenth day the fever had almost gone: his sleep was good, and his tongue moist and clean. At this time a small tumour, situated at the angle of the left jaw, and which had been there from the beginning, was observed to enlarge. The next day it had spread considerably, was very red and painful. The fever increased, the tongue became dry, and his sleep was disturbed. On the sixteenth the tumour was examined and opened by Mr. Cusack. A large quantity of good healthy pus escaped, and the patient experienced great ease. On the eighteenth day a deeper incision was made by Mr. Cusack, and again a large quantity of good pus escaped; but on this occasion no relief followed. On the next day the constitutional symptoms were much more severe; the epistaxis returned, and the tongue was now dry, black, and bleeding. There was no raving, nor was he at any time during his illness in the least delirious.

* Fothergill’s Works, vol. i., p. 353. London, 1793.

“Notwithstanding that the nares were plugged, and every measure which Mr. Cusack and I could think of employed, the epistaxis continued, the bleeding from the tongue could not be arrested, the tumour in the neck became gangrenous, and on the twentieth day of his illness death terminated his sufferings.”

The next very interesting case was communicated to me by Professor Porter, so well known by his celebrated work on the “Pathology of the Larynx and Trachea;” and as it illustrates another sequela of scarlatina, I shall lay it before the reader. There can be no doubt that the hemorrhage originated in the way pointed out by Dr. Porter, and it shows in a convincing manner the assistance in diagnosis which we derive from an accurate knowledge of anatomy. It will also be recollected, that this case differs in the manner in which the bleeding occurred from that mentioned in the preceding pages by Dr. Geoghegan of Kildare. The older writers make frequent allusions to examples of this latter form of hemorrhage.

Professor Porter details the case in the following graphic manner:—

“On or about the 18th of September, 1841, Master —, aged eleven, was attacked with scarlatina. He was of remarkably fair complexion, thin, almost transparent skin, and hair nearly white. The disease assumed rather a mild form, the eruption came out abundantly, and began to disappear about the evening of the fifth day. The throat was slightly engaged—very little difficulty in swallowing; but there were three or four external tumours, exactly resembling scrofulous glands, about to suppurate, and there was discharge of the puriform matter from both ears, with slight deafness of the left.

“At the end of about ten days he seemed to be progressing favourably as to health; two of the little glands on the left side suppurated and were opened, discharging healthy pus; his appetite was pretty good and his sleep sufficient, but he always rested during the day, and remained awake at night. The discharge from the ears continued, and he had become quite deaf at the left side.

“Soon after (I cannot be particular as to dates) a gland on the right side suppurated, and was opened. The discharge was healthy; but that from the right ear began to be thin and abominably fetid, the smell evidently indicating its connection with some diseased bone. He was now totally deaf of both ears. Our communications with him were altogether by signs, and he was becoming paralytic of the right side of the face; all his features being drawn frightfully to the opposite side when he either laughed or cried. At the end of about six weeks, however, he seemed in some respects to be greatly improved. He slept well, he was exceedingly cheerful and even lively, and his appetite almost voracious. He had so far recovered his hearing, that we could communicate easily with him; but the foul discharge continued in great abundance from the right ear, and the paralysis of the face had increased. He continued apparently to improve in general health and even in strength until the end of the ninth week, and had occasionally been up and dressed for a few hours in the day, when in the middle of the night a new symptom appeared.

“The child had been asleep, when he suddenly awoke, screamed out ‘Oh, my ear, my ear!’ when almost instantly a gush of blood took place from the right ear. This blood was florid, and had the appearance of being arterial. It came gushing forth most profusely as if poured from

the lip of a jug or ewer, and was sufficient in quantity to soil several towels before it ceased, which it did rather from the exhaustion of the patient than from the means employed to control it. I was not called during this first bleeding, but saw him early next morning. He complained of dreadful pain in the left side of the head, resembling hemiplegia. The discharge from the ear was a thin fetid serum mixed with flakes of unhealthy matter and discoloured with blood; and the paralysis of his face greatly increased, the features being distorted even when at rest. I attempted to plug the ear; but the pressure interfering with the discharge of matter, caused intense pain, and could not be endured even for a few minutes. From this time he continued to bleed at irregular intervals until his death; and as I was present on three or four occasions, I shall endeavour to describe one of the attacks of hemorrhage.

“He seemed to have no previous warning whatever: sometimes the bleeding commenced during sleep, sometimes while he was amusing himself with his toys. He generally gave a single scream at the instant, and then the blood burst forth with a gush that really astonished me. I never saw blood lost so rapidly in any surgical operation I ever witnessed, and only once in an accident where the deep jugular vein had been opened. This bleeding could hardly be controlled by pressure, and the attempt to do so caused intense pain, so that at times the nurse did not interfere, but allowed it to stop spontaneously, which it generally did in about a minute. The blood was always florid. The attacks occurred at irregular periods, and there never was hemorrhagic fever.

“About a week before his death, I observed that the blood was beginning to make its way by the eustachian tube into the pharynx, some of which passed into the stomach, and some was expelled by the mouth, and then he bled sometimes by one passage, sometimes by the other, and occasionally by both. I need not say that he became pale, exsanguine, and exhausted, except to express surprise that any child of his age could have endured so long. The palate and inside of his mouth was as pale as any part of the external surface of his body. Exactly at the end of the thirteenth week from the commencement of his illness, he died after a slight gush of blood.

“There was no post-mortem examination, and knowing the feelings of the child’s parents I did not ask it; therefore, the pathology of this case must be matter of conjecture. I think there can be no doubt that there was caries of some portion of the base of the skull, and from the symptoms, I always imagined it to be seated in the petrous portion of the temporal. The spot at which the carotid artery enters this bone is immediately adjacent to the bony portion of the eustachian tube, and it is probable that this latter was the original seat of the disease, from which it spread, until it implicated the vessel. The extraordinary size of the stream satisfied me of its being furnished by some large vessel; its colour showed it to be arterial; its escape by the ear, and afterwards by the mouth and nose, proved its passage by the eustachian tube; and I know of no vessel that would be sufficient to explain all the symptoms, unless the one I have mentioned—the internal carotid.”

DR. OSBREY’S ACCOUNT OF SCARLATINA OBSERVED AT ST. MARY’S DISPENSARY.

“The number of cases of scarlet fever which were under my care from the close of the year 1840, the period at which that epidemic first ap-

peared in my dispensary district, until its decline at the commencement of the present year, amounted to somewhat above two hundred.

“When it first appeared, the epidemic was of so mild a character, that I treated about forty cases without the occurrence of a single fatal one; merely attending to the state of the bowels and secretions was sufficient to effect a cure. It soon, however, assumed a more formidable character. The cases which mostly proved fatal were those affected with diffuse inflammation of the neck; they were generally children under four years of age. As it may be interesting, I shall describe to the best of my recollection the progress of that affection, together with the treatment which I found to be most successful.

“Those cases of scarlatina in which this form of inflammation presented itself, I was usually not requested to attend until some time after its commencement, which generally took place at the decline of the eruption on the third or fourth day. The attending, or I may say secondary fever, was principally marked by the occurrence of cerebral and nervous symptoms, the child either lay in a comatose state, or was excessively irritable and restless, and constantly whining. In those who were a few years older, a peculiar wildness of manner was occasionally observed, and if this were absent, the expression of the countenance was stupid and vacant. A common remark of their mother was, ‘that they did not consider them in their right mind.’ The children were affected with tremours of the extremities; the pulse was generally quick, and the tongue furred, but neither invariably so.

“The progress of the inflammation was very insidious, in most cases commencing as an indurated swelling behind the angle of the jaw on one side, which was at first very indolent, without any discoloration of the integuments, but as the affection advanced the swelling increased much more rapidly, often extending to the opposite side: the integuments then assumed a dusky red appearance, and became very tender to the touch; there was much edema, so that the part readily pitted when pressed by the finger, and there was an obscure sense of fluctuation communicated to the touch. In the advanced stage of the complaint, sensibility, which was previously great, diminished to such a degree that the child did not seem to suffer much pain if incisions were made into the swelling. When the patient survived till about the tenth day from the commencement of the affection, sloughs frequently formed, commencing in dark purple specks over the surface of the swelling, the sloughing rapidly spread, diarrhœa then set in; the abdomen became tympanitic; spots of purpura at times appearing over the surface of the body, with the occurrence of passive hemorrhage from the mouth and bowels. The child either died comatose or exhausted by diarrhœa, in case dissolution was not quickened by the super-vention of sudden hemorrhage from some of the large vessels of the neck giving way in the sloughing. An attack of convulsions sometimes preceded death, the period of which, unless when precipitated by exhausting treatment, to which it had been submitted previous to my seeing the child, varied from the seventh to the twenty-eighth day; the medium time being about the twelfth day from the commencement of the inflammation.

“In those cases which fell under my observation I did not notice any thing differing from the common, either in the appearance or duration of the eruption, except that it was occasionally somewhat more faint than usual, and that the desquamation of the cuticle did not take place after its

disappearance. Though what I have just described was the usual progress of inflammation when it ran a fatal course, yet sometimes it commenced earlier, on the first or second day of the eruption, the fever being of a more inflammatory type, the skin being hot, pulse strong, tongue furred, and much thirst being present.

“It is well known that this disposition to slough in scarlatina is not confined to diffuse inflammation of the neck, and that an inflammation of a similar character may attack other parts of the body—this was well exemplified in two cases which were under my care—one that of a boy, aged six years, in whom scarlet fever immediately succeeded an attack of whooping-cough, for the relief of which I had found it necessary to apply a blister to the chest, the other that of a fine child, his sister, aged four, who had received a slight scald in the ham of the left leg; such portions of the vesicated surfaces which had not as yet healed, were attacked by the inflammation, they were rapidly covered with ash-coloured sloughs, and the sloughing extended by livid margin. The boy, exhausted by the previous attack of whooping-cough, which had been unusually severe, I regret to say, died; the little girl, who was more fortunate, recovered. The treatment, which was the same in both, consisted, locally, in the ulcers being kept constantly covered with fermenting poultices, and in the margins being occasionally touched with strong muriatic acid. The cautious exhibition of mild tonics, and of stimulants, both diffusible and permanent, carbonate of ammonia of course being used amongst the former, constituted the general treatment. Another case, which I considered very remarkable, fell under my observation, *in which simultaneously with the gangrene of the neck, sloughs formed on both corneas, which rapidly extended, involving all the other textures of the eyes.* This case struck me as being so interesting, that I brought my friend, Dr. Battersby, with me to see it. *The destruction of the eyes took place two days before dissolution.* In each of these three cases the appearance of the part, when destroyed, *closely resembled that of hospital gangrene.* I did not notice any dépôts of purulent matter in the joints, or any other parts of the body.

“Having now described the more formidable characters of the inflammation, I shall state the treatment which I found most efficacious in arresting its progress, and in bringing about the more favourable terminations of resolution and abscess, and shall also take a short review of other modes of treatment that are occasionally resorted to. Mine simply consisted in the constant application of common oatmeal or linseed poultices, supporting the child’s strength by nourishing diet, and in the cautious exhibition of permanent and diffusible stimulants, carbonate of ammonia, as I have already said, being included in the latter. The practitioner should not I think swerve from this line of practice, though he may sometimes be urged by the parents, alarmed at the progress of the inflammation, to treat the child more actively, particularly with respect to the local applications. When an abscess forms, the swelling previously diffused, becomes more prominent, soft, and fluctuating, there is no pitting on pressure with the finger, and the surface is usually of a rose red colour. Incisions may be then made to give exit to the matters. The symptoms of general disturbance, such as coma, convulsions, and such others as have been described in such cases disappear, tremours of the extremities alone remaining, and the child gradually recovers from the extreme debility from which it had hitherto suffered. I have said that stimulants should be given with much

caution, for when used at all freely they are almost sure to induce convulsions, to which there is a great tendency throughout the progress of the complaint. After the formation of abscess, however, they may be exhibited with greater boldness. In cases where there is much restlessness and irritability, or when diarrhœa has set in, which usually does not take place until the sloughing has commenced, I have given opiates, either in the form of Dover's powders, or the pulvis cretæ c. opio, the doses being carefully graduated according to the age of the child. When the cases became complicated with purpura and passive hemorrhage, it is almost unnecessary for me to say, that I gave the mineral acids.

"I have ordered chloride of soda both internally and as a lotion. Its internal exhibition did not appear to be productive of any benefit, but as a lotion and gargle it was highly useful in destroying fœtor. When I apprehended internal sloughing I occasionally touched the throat with muriatic acid lotions by means of a camel's-hair pencil or a piece of sponge.

"Having had frequent opportunities of seeing the effects produced by the use of mercury, and also by local bleeding in the practice of others, I carefully avoided having recourse to such methods of treatment myself; the former, with rare exceptions, inducing purpura, passive hemorrhages, and sloughing, the accession of which is so much to be dreaded, and which are so liable to supervene of themselves. The latter precipitating dissolution by increasing the disposition to coma and collapse. I may here remark, that it is greatly to be deplored that many are so prone to submit young children to mercurial treatment in all cases which show any degree of obstinacy in resisting ordinary remedies without considering what possible object there may be in doing so, or what deleterious results are likely to accrue from it; and rarely have I observed such treatment followed by more woeful consequences than in the epidemic of scarlet fever in this city. Instances where mercury has been carelessly and indiscriminately given to them for other complaints by practitioners, are frequently brought to my dispensary, in which most dreadful sloughing and dysentery arose from its use. I do not by any means wish to impugn, by this remark, the plan proposed by Dr. Fitzpatrick, of submitting such children as have been exposed to the infection of scarlet fever, but have not as yet contracted it, to an alterative course of mercury, in order to prevent it assuming a malignant form in case they should take it (of this practice I have had myself no experience), nor do I mean to say that cases of scarlet fever may not at times become complicated with local diseases, as pleuritis, pneumonia, pericarditis, meningitis, and other affections in which the practitioner is imperatively called upon to order mercury.

"I have made incisions myself into the swellings extending beneath the fascia of the neck, but I do not consider it good practice in the case of young children, however useful it may be in that of adults and of grown children, for the following reasons: when made in the early stage of the inflammation they have a tendency to prevent the occurrence of either of those most favourable results—resolution or abscess; and when made in the advanced stages, unless when abscess or diffuse suppuration take place, they are of no use, they do not appear to check the sloughing of the integuments. The parents moreover to whose feelings such practice is generally repugnant, are very apt to attribute whatever ill afterwards befalls their child to these incisions having been made, a conside-

ration which I think should weigh with us in determining us against the practice, when no good is likely to arise from it. In case, however, abscess or diffuse suppuration of the cellular membrane occur we should not hesitate to make free openings. Diffuse suppuration of the cellular membrane, a result which I have only now alluded to, is almost as formidable, when the children are very young, as gangrene, inasmuch as they are scarcely ever able to bear up against the extensive suppuration, and consequently die of hectic.

“Blisters and mustard cataplasms merely applied as rubefacients did not appear to me to be injurious, but I did not place much confidence in them.

“It is obvious from what has been already observed, that we should be most cautious in making a prognosis when we meet this form of inflammation, as it often, when most mild at its commencement, subsequently runs a most fatal course, and when apparently of a most formidable character, terminates kindly. I have known many a practitioner, from mistaking its nature, supposing it to be nothing more than common scrofulous inflammation, to augur favourably as to its termination, when its subsequent course showed how very erroneous such an opinion was. The constitutional symptoms, however, even though we have no very clear evidence of the child having had scarlet fever, will, when carefully attended to, always enable us to form a correct diagnosis of the disease. Perhaps it is not from recognising this disease, which is one of the most formidable consequences of scarlet fever, that such discrepancies have occurred in the returns made by practitioners of the relative mortality of scarlatina in their practice. The children are frequently not brought to them until all traces of the eruption have disappeared, and in some cases, where it has been so faint as to have escaped the observation of the parents, or even that of the physician. In such cases it is easy to conceive that it might be mistaken for a disease sui generis, and that the previous existence of scarlatina might be entirely overlooked.

“When sloughing of the integument has commenced, the chances of the child's recovery are greatly diminished, and when it is under a year old, it is, I think, almost hopeless. To have an opportunity of observing the sloughing stage, it is requisite that the child should survive some time. When death is precipitated by injudicious treatment, or if the child do not undergo any, dissolution occurs so early from the secondary fever, that no further local appearances than the more diffused swelling will be observed. I should here mention, that in the worst cases, there is no attempt at suppuration, and the part, when cut into, resembles somewhat the cut surface of a rotten apple.

“Even when resolution or abscess occurs, we must not be too hasty in giving a favourable prognosis; for there is occasionally much subsequent debility, which may lead to a fatal result.

“I have observed instances of this form of inflammation which succeeded other exanthemata. The following case, which I received a note four weeks since to attend, at my dispensary, will prove, I think, an interesting example. It is that of a child aged two years, that had an attack of the natural small-pox ten days previous to my seeing it, and had been treated by another physician, who, on the occurrence of the inflammation of the neck (I understood from its mother), despaired of its recovery; and, indeed, when I myself visited it, I had no better hopes. It was

then lying in a state of coma, with its head quite motionless and thrown back, a large diffused swelling being behind the angle of each jaw and extending down the neck. The pulse was remarkably quick and weak, the tongue furred, abdomen tympanitic. On the child being submitted to the mode of treatment which I have described, it recovered from the state of coma it was in, and two very large abscesses formed in the situation of the swellings, which I subsequently opened. The tympanitic state of the abdomen was relieved by injections of castor-oil and turpentine. When the sensibility and intelligence of the child returned, it was attacked with convulsions, consisting in constant motion of the extremities and twitchings of the face, which continued for two days. These convulsions I ascribed to debility, and treated as such. In this case purulent *dépôts* formed over the back of the hand and one foot; also a large one over the scapula. The two former have been absorbed; but as the one over the scapula still continues, and as there is no chance of its absorption, the recovery of the child is still doubtful. A few spots of purpura appeared in different parts of its body, and it has been frequently attacked with diarrhœa. Its mother states, that it was a strong child before the attack of small-pox. It is, however, apparently of scrofulous habit, and had once suffered from rickets.

“ Dr. Ford saw this case with me at different times, and had an opportunity of observing the symptoms which I have described.”

My experience of the diffuse inflammation of the neck that follows scarlatina, accords with what has been stated by Dr. Osbrey; and the recommendation to direct all our efforts to the support of the patient until the period of sloughing arrives, deserves the greatest attention. The following case occurred a short time ago at the Meath Hospital:—A child four years old was admitted on the fourteenth day of its illness, with the integuments in the front of the neck in a state of gangrene. In a day or two the sloughs separated, leaving the muscles of the neck completely bare, and as distinct from each other as if dissected. The common carotids were also laid bare, and could be seen pulsating at the bottom of the ulcer. A few days after, granulations sprang up, and the ulcerated surface soon cicatrized. I have not been able to ascertain if any, or what amount of contraction of the neck followed the healing of the ulcer.

Sir H. Marsh and I attended, not long since, a lady who had been affected for some days with fever and sore throat. She had no eruption on any part of her body; but from the character of the fever, and the peculiar appearance of the throat, we suspected she was labouring under an attack of scarlatina. Her family were very anxious to ascertain the precise nature of her complaint; and I visited her twice a-day for the first four or five days of her illness, carefully examining the skin at each visit, but could not discover the slightest trace of an efflorescence of any description. She continued for several days to suffer from the fever and sore throat, and was at one time in a dangerous condition, but ultimately recovered by great care and the use of appropriate remedies. Now I watched this case from the sixth hour after its commencement to its termination, and repeatedly examined the skin, particularly that of the breast, abdomen, and inside of the knee and elbow-joints, places in which the eruption shows itself when it appears at all, but could not discover any vestige of it. You will often find a diffused redness about the knees

and elbows in cases where the eruption does not appear on any other part of the body ; but in this instance there was not the slightest deviation from the natural hue. Yet the result proved that it was scarlatina ; for the desquamation of the cuticle, which always attends this disease, took place, and the lady communicated the infection to several members of the family. A young gentleman residing in the house got a bad attack of scarlatina, two of the servants were also attacked, and the lady's father got sore throat ; in fact, there could be no doubt as to the nature of the disease. During her convalescence, she had desquamation of the cuticle ; and this is a point to which I would particularly call your attention. We are taught to look upon desquamation as the result of cutaneous affections of an inflammatory character : and it is an opinion very generally maintained, that in scarlatina, as in psoriasis, the peeling off of the cuticle depends on the peculiar state of the skin produced by inflammation. It is stated, that the increased vascularity of the skin occasions a morbid secretion, and subsequent detachment of the epidermis, and that the same phenomenon is observed in all cutaneous affections of an inflammatory character. This may be generally, but not universally, true ; for here we had an extensive desquamation of the cuticle without any eruption, without any previous redness, pain, or remarkable heat ; in fact, without any of the phenomena which are regarded as constituting inflammation. This seems to prove that there is something more than inflammation concerned as preparatory to that process which is termed desquamation, and that the change which the skin undergoes is not to be looked upon as a mere consequence of inflammation occupying the external surface of the corium.

Another curious fact observed in this lady's case : since the attack which I have just described she has been shedding her nails ; that is to say, the nails of the fingers are all dropping off, and yet there is no appearance of inflammation of any kind about the hands to explain the occurrence. You are, of course, all aware that the dropping off of the nails is a species of desquamation. From the peculiar structure of the nail, and the mode in which it is formed in the matrix, it does not drop off at once like a scale of epidermis ; still I think we are authorised in looking upon the shedding of the nails as a species of desquamation. This affords a very curious subject for investigation, as connected with the history of fever. It is an opinion entertained by many persons, that desquamation of the skin takes place at a particular period of typhus ; and that this is not an occasional, or varying, but a constant and general phenomenon. This statement has been put forward most strongly by Dr. Perry, of Glasgow ; and he is also of opinion, that the period in which typhus is most contagious, is during the desquamation of the cuticle. It is also asserted, that scarlatina is more contagious during desquamation than at any other period of the disease. This is at least the popular idea. How true it may be, my experience or observation does not enable me to decide : nor am I prepared to offer any thing like an explanation of the occurrence. All I shall say on the present occasion is, that the occurrence of desquamation of the cuticle in typhus, and in cases of scarlatina without eruption, has greatly altered my ideas as to the connection between it and cutaneous inflammation. I think, at least, that the process of desquamation in such cases is very different from inflammation, and that the morbid action of which desqua-

mation is the result, has very little in common with the ordinary process of inflammation of the cutaneous surface.

A gentleman who is in the habit of attending my lectures informs me that he has seen three cases of this form of scarlatina, characterized by the absence of the external efflorescence. They occurred in young persons, after puberty, and between the ages of fifteen and twenty-five. Each of these cases exhibited a considerable degree of fever, with increased quickness of pulse, thirst, heat of skin, diminution of the urinary secretion, and, after the first or second day, much depression, which continued for two or three days, and then yielded to treatment. The tongue was moist, but pointed, tremulous, red, and injected. The velum, isthmus faucium, tonsils, and upper part of the pharynx, were somewhat swollen, and of a very peculiar dark red colour, the redness being general, and equally diffused over the whole of the upper part of the pharynx as far as it could be examined. But the following case, which was very lately communicated to me by a practitioner of very great eminence in this city, is still more curious: Some years ago scarlatina broke out in this gentleman's family, and attacked all his children, with the exception of one young lady, who, although in constant attendance on her sisters during their illness, did not exhibit any symptoms whatsoever of the disease. When all the children had become convalescent, they were removed to the country for the benefit of air, whither she also accompanied them. Here she was, much to the astonishment of her family, attacked by the peculiar anasarca observed in persons who have recently laboured under scarlatina. Her father, under whose observation she had been during the whole time, was very much struck with the occurrence; he paid particular attention to the case, and feels convinced that it was the result of latent scarlatina. This case, connected with those already detailed, is of great interest in a general pathological point of view. They appear to prove the fact, that in some instances diseases produced by contagion do not give rise to the whole train of phenomena by which they are ordinarily characterized.

Let us turn for a moment to some of those diseases caused by the action of animal poisons on the system, as, for instance, measles. The symptoms which generally attend and characterize measles are universally known. After an attack of fever, on the third or fourth day, coryza, sneezing, hoarseness, and cough, are complained of, and then a rash appears, first on the face, and afterwards on the body and limbs. But it is not necessary that all these symptoms should appear, and that the sequence of morbid phenomena should be uninterrupted throughout; on the contrary, it frequently happens at particular periods, and in certain constitutions, that some of the most usual symptoms are scarcely observed, or altogether absent. You will find this point insisted on by Dr. Bateman, who has given a detailed description of a form of measles in which the catarrhal symptoms are wanting, and which he has termed *rubeola sine catarrho*. The same remark applies to many other forms of disease. Thus we may have pneumonia without cough, and pleuritis without pain in the side. Those who have witnessed the course of the late epidemic cholera in this country, will recollect that many cases occurred in which vomiting, purging, or cramps were not observed.

If we turn to fever, we find that the animal poison to which it owes its origin generally exhibits a certain number of symptoms, congregated

together, or observing a determined order and succession; and these we meet with in most of the cases which come before us in practice. But we now and then see fever patients in whom one or more of the most prominent symptoms are absent. Thus occasionally there is no quickness of pulse or appearance of vascular excitement; in some there are no cerebral symptoms; in others no increase in the temperature of the skin. Indeed, I might go through the whole group of symptoms which accompany fever, and show that almost every one of them may be occasionally absent, and yet the fever of a severe and dangerous type. I recollect pointing out to the class last year the case of a man labouring under chronic enlargement of the spleen. He had been working for two or three seasons in some of the marshy districts of England, and had been occasionally ill, but never had symptoms of regular intermittent; in fact, he had escaped the intermittent itself, but not what are usually deemed the consequences of it. We have been in the habit of explaining the enlargement of the spleen by referring it to the conflux of blood towards the internal organs, particularly the liver and spleen, during the cold stage of intermittent; and we have endeavoured to explain the subcutaneous edema which follows scarlatina, by attributing it to previous inflammation of the skin and subcutaneous cellular tissue; but the observations and facts which I have now brought forward will show that these opinions were founded on erroneous ideas. Turning to cases of chronic disease, we find in some, as for instance syphilis, that the poison taken into the system, gives rise in most cases to a determinate order of symptoms, *e. g.* bubo, sore throat, eruption on the skin, nodes, and syphilitic cachexy. Mr. Hunter has been at great pains in determining the order of the parts, and pointing out the tissues which are successively affected, and it is of considerable importance to have correct notions on this point; but although the number and order of symptoms marked out by Mr. Hunter and others may be observed in most cases, they are not so in all; and the same remark which has been made on the occasional absence of one or more important symptoms, in scarlatina, will apply with equal force to syphilis. Now when this morbid poison which excites syphilis does not affect the constitution in such a manner as to occasion the production of all the symptoms which usually characterize this disease, and thus a variety of venereal is formed, which often proves a source of great embarrassment, not only to the young and inexperienced, but even to the senior members of the profession.

It is of great consequence, in a practical point of view, to bear in mind the general proposition I have announced, *viz.*, that in both acute and chronic diseases *a constitutional affection may display its existence by only one or two of the numerous symptoms which usually accompany it*: and this occurrence seems more frequent in the case of diseases produced by contagion and morbid animal or vegetable poisons, than in the case of maladies generated by causes developed in the system itself.

The case of William Young, who was admitted on Wednesday last, has some claims to your attention, and demands a few observations on my part. This boy, who is about twelve years of age, had an attack of scarlatina some time ago, and had been dropsical for a week or ten days at the period of his admission. He was somewhat feverish, had thirst, heat of skin, and slight headache, cough, and difficulty of breathing, and on making an examination with the stethoscope, we detected numerous

bronchial râles; his lower extremities were anasaruous, and he had some effusion into the peritoneal sac. We could not ascertain exactly the time when this train of symptoms commenced, but it is very probable that it was a week or ten days after the disappearance of scarlatina. When patients who have been recently labouring under an attack of scarlatina take cold, the anasaruous symptoms appear in a very short time after the attack; but even where they are not exposed to cold, the dropsy appears generally about ten days or a fortnight after scarlatina, and is very often accompanied by some pectoral affection. The disease sets in with febrile exacerbations more or less marked; anasarca of the extremities is next noticed, and at the same time the patient has slight cough and difficulty of breathing, which generally proceeds from congestion of the bronchial mucous membrane, but may be the result (though less frequent) of pleuritis or pneumonia.

If called to a case of this kind in the commencement, and where the patient is not greatly exhausted by previous disease, the treatment is exceedingly simple. By opening a vein in the arm, and abstracting a quantity of blood proportioned to the age and strength of the patient, you remove the inflammatory state of the constitution, and arrest at once the anasaruous and pectoral symptoms. It may occasionally happen that active measures of this kind cannot be taken in consequence of the great debility of the patient from previous disease; but, generally speaking, cases of anasarca after scarlatina bear antiphlogistic treatment well. It is not after cases of violent scarlatina, or where the patient's life has been in imminent danger, that the supervention of dropsy is most commonly observed; the majority of dropsical cases of this kind are met with in patients who have had the disease mildly, and without any remarkable intensity either of the local or general symptoms.* Hence, venesection is borne well, and its performance attended by the most decided good effects, particularly where the dropsy is complicated with pleuritis or pneumonia.

In the case before us, however, being uncertain as to the exact duration of the disease, and finding several symptoms present indicative of weakness, we were obliged to proceed with more caution. The boy had been ill a week, and appeared to be under the influence of digitalis administered before his admission, for his pulse was intermittent and wavering. Under these circumstances I determined to limit the antiphlogistic measures to the application of a few leeches over the abdomen. I did this with less hesitation, as an accurate examination of the chest showed that there was neither pleuritis nor pneumonia present. The internal remedies were calculated to increase the secretion from the kidneys. The boy's urine was remarkably albuminous, and of the specific gravity of 1027. This is a point worthy of remark. In many cases of dropsy after scarlatina, the urine is albuminous. Now, almost every case of this kind will get well, and as convalescence progresses, you will observe that the urine ceases to be albuminous. These facts, of the truth of which I can speak with the fullest confidence, are quite sufficient to show that those persons are wrong who assert that albuminous urine is the result of organic disease of the kidneys. Albuminous urine is here, as Dr. Blackall observes, merely an indication of a peculiar inflammatory condition of the whole system,

* The same remark is made by Dr. Tweedie, *Cyc. Prac. Med.*, Vol. I.

and not of degeneration of the kidneys.* I may observe, however, that this is not always the case; for I could point out examples where albuminous urine is connected with an apparent opposite condition of the system; in fact, a condition demanding the use of a generous diet and tonics. Hence, there must be great diversity in the treatment of dropsy with albuminous urine. Where it occurs after scarlatina, and is accompanied by febrile symptoms, it is best treated by the lancet, nitre, purgatives, and digitalis; but where it occurs in chronic cases, without any remarkable excitement of the vascular system, without organic disease, and with more or less debility, it requires to be treated with tonics, generous diet, and full doses of opium. In the present case I only applied a few leeches to the belly, and kept the bowels gently open for the first few days, being determined to wait until the pulse became regular before I ventured on any decided plan of treatment. I then ordered mercurial frictions to the abdomen and axillæ, and gave mercury internally combined with small quantities of digitalis. He also got a draught twice a-day composed of carbonate of soda, tincture of squill, and syrup of orange peel. These remedies we shall continue for some time, carefully watching their effects.

From the state of weakness this boy was in at the period of his admission, and the length of time the disease has lasted, I have not thought it advisable to bleed him. When cases of this kind become chronic, they are very difficult of cure, and require very delicate management. You will frequently have to run through the whole list of remedies employed on such occasions, before you can hit on one that proves successful. I recollect a case of this kind, in which the anasarca was extreme, and the boy's legs were enormously swollen; the dropsy was accompanied by scanty secretion of urine, but without any distinct febrile excitement. After having used every remedy I could think of, for nearly three months, without any benefit, I resolved to try the effects of cold affusion, from which I had experienced much advantage some time previously in another case. I ordered a large vessel filled with pump water, in which a quantity of salt had been dissolved, to be poured over him twice a-day, for the space of two or three minutes each time, immediately after which the boy was wiped perfectly dry and put to bed. The good effects of this measure became soon evident; a copious discharge of urine took place, the swelling of the limbs subsided, and in six or seven days the child was able to run about as usual. * * * * *

This case went on unfavourably, and the boy died, after lingering several weeks, in a state of extreme dropsical swelling and great suffering, distension, and dyspnœa. As his urine continued highly albuminous throughout, we were excessively curious to learn what was the condition of his kidneys. The post-mortem examination was made a few hours after death, and the kidneys were found in every respect healthy; their size, shape, consistence, and colour, were perfectly normal. So striking an exception to the general rule ought to shake the confidence of those who assert that albuminous urine results from Bright's kidney. The long-continued presence of albuminous urine, in a case where no such state of kidney existed, forms conclusive evidence that this state of urine

* These opinions have been since advocated by Dr. Burrows, in his admirable essay on Scarlatina, published in the "*Library of Medicine*," Vol. I., and which I feel great pleasure in recommending to the attention of my readers.

is not necessarily the result of that renal degeneration to which it is referred by Dr. Bright; the occurrence of one positive exception is sufficient to disprove such a conclusion, even though supported by a thousand cases, and, consequently, when albuminous urine in chronic dropsy is found to occur along with Bright's kidney, I consider this particular state of urine and of kidney, as depending upon different causes, which often co-exist in chronic dropsy, and consequently I regard albuminous urine as a sign of Bright's kidney, but not as its result.*

It has been already observed that anasarca seldom occurs after severe and dangerous scarlatina, but it is not unfrequent as a sequela of the very mildest forms of that disease; a fact of which every practitioner should be aware, and a knowledge of which should prevent us from pronouncing a patient out of danger until the period during which dropsy may supervene, is passed. To impress the necessity of caution, I may mention that I have seen several cases of scarlatina in young persons and children so mild as not to require confinement to bed, and yet followed about the 18th or 20th day, by anasarca; this usually yields to treatment without much trouble, but in some patients, without our being able to assign any cause for it, the anasarca increases rapidly, the pulse rises, and in a few days is excessively rapid, from 130 to 150, becoming hourly weaker and weaker while the heart's action is strong and tumultuous; the skin is hot, and in many individuals inflammatory symptoms manifest themselves in the head, chest, or belly, and the patient is carried off by internal inflammatory effusion into one or other of these cavities. Other cases are more treacherous, and the approach of danger is not indicated by any thing but the rising of the pulse, and the rapid increase of the dropsical effusion, soon to be followed by convulsions, that succeed each other until death closes the scene, a termination so much the more unexpected, as these cerebral symptoms have not been preceded by the least headache, or any perceptible affection of the functions of the brain!

In addition to the remedies already mentioned, I can speak with the greatest confidence of the utility of hydriodate of potash in the form of anasarca we are now treating of; and I may add, that I have found the following line of treatment more successful than any other in the malignant forms of scarlatina—local bleeding by leeches when necessary; wine and carbonate of ammonia freely given with camphor-mixture. In some cases attended with intense heat of the skin, the cold affusion has given great relief, in others it has failed.

* In another part of this work, the reader will find more extended observations on this subject.

LECTURE XXXVII.

INFLUENZA.*

I ADVERTED in the foregoing lectures to the subject of influenza, and endeavoured to point out some of the principal features in which epidemics differ, as to their mode of spreading, from diseases which owe their diffusion chiefly to contagion. I stated that contagious disorders were comparatively slow in their progress, attacking different masses of the population in succession, and exhibiting, in general, a tendency to affect distinct classes of the community at different periods. On the other hand, when an epidemic like influenza makes its appearance, every thing comes under its influence almost simultaneously, and it overshadows the whole country in the space of a few weeks. Such is the course of the present epidemic, and so it was with the influenza of 1782, which travelled from the east, and left traces of its ravages in almost every quarter of the globe. In the case of epidemics which traverse the whole, or nearly the whole extent of the inhabited portion of the earth, it would be a matter of great interest to ascertain the place of their first appearance, or their point of departure. The cholera commenced in Hindostan, and in its route followed the great lines of communication and commerce: its general progress has been north-west; but in Portugal, Spain, and Italy, it has travelled in various directions, its progress, however, being in general along the great lines of communication leading from the part of the frontier where it first broke out, towards the large towns in the interior. It is probable that influenza pursues some certain and uniform course, independent of the physical circumstances which retarded, accelerated, or stopped the progress of Asiatic cholera. It is likely, too, that its rate of spreading is subject to fewer variations. Cholera took years to accomplish its journey from Hindostan to Britain; but, once established there, it crossed the Atlantic at a single step. The march of influenza has not as yet been mapped out, but, from the accounts which have reached us, it seems to have travelled at the same time in very different directions, arriving at Cape Town in January, during mid-summer, and in London in the same month, during mid-winter; while it is reported to have reached New Holland, and to have raged among our antipodes, two months earlier.

It is obvious that influenza does not depend upon mere variations of temperature, for we have had many seasons as changeable as the present, without the occurrence of any such epidemic. Besides, influenza is known to be a disease which travels through the most different climates, preserving its peculiar character and identity in all. It is not to be supposed that the same temperature, or the same barometrical and hygrometrical conditions of the atmosphere, prevail here as in Spain, France, Germany, or Sweden: yet in all these countries the present influenza has exhibited

* These lectures were delivered during the session of 1836-7.

an uniformity of character, and an identity of type, proving beyond all doubt that it is one and the same disease. That influenza is not produced by a low temperature, is proved by the occurrence of the disease in the month of June, in the epidemic of 1762; and in the months of May and June, in that of 1782; as well as by its appearance at the Cape of Good Hope in the middle of summer, as I have already noticed. At present influenza is rather on the increase in this city; and yet you have observed that, for the last week, the weather has been remarkable for its serenity and agreeable mildness. In London, many were led, by a limited view of the subject, to consider its origin as connected with the breaking up of the frost, and the peculiar state of atmosphere attending a general thaw. Influenza is not influenced in its progress by situation or locality; it does not creep along the shores, or follow the course of large rivers, or select low, marshy districts, in preference to drier and more elevated soils.

From what has been said, it is obvious that influenza does not depend upon vicissitudes of temperature, peculiarities of situation, or supposed moist or dry states of the atmosphere; neither does it arise from the prevalence of certain winds, for meteorological observation furnishes many instances of the prevalence of such winds without any influenza; and, on the other hand, it frequently travels against the wind.* It is probable that influenza may depend chiefly on telluric influence—upon some agency connected with variations in the physical conditions which operate on the external surface of our planet; but on this point we can only speak conjecturally, in the present state of our knowledge, and we should not allow ourselves to lapse into mere speculative and fruitless disquisitions. How often the variations to which I have alluded occur, and whether they are subject to any general law, remains yet to be determined. Several epidemics of this description have been distinctly recorded in the eighteenth century, viz., in 1708, 1712, 1729, 1732, 1742, 1762, 1767, 1775, 1782, 1789; while in the portion of the nineteenth century already elapsed, four influenzas have occurred, viz., in 1803, 1831, 1834, and 1837. This list is as complete as our medical annals will permit us to make it, but still we cannot rely on it as including all the epidemics of this nature which have occurred during the last one hundred and thirty-seven years. Supposing it correct, it would indicate the average return of influenza once every ten years. In making calculations of this kind, medical writers should always take care not to confound influenza, or disease

* The same views were advocated by the late Dr. HOLLAND, since the above lecture was delivered, at p. 195 of his "Medical Notes and Reflections," he says, "It is true that some authors, and in concurrence with common opinion, have attributed these epidemics solely to atmospheric changes, and the influence of extraordinary seasons upon the human body. And it must be admitted, on behalf of this opinion, that certain of the seasons during which they have prevailed, have been remarkable and anomalous; and further, that in common calarrh from obvious causes of atmospheric change, many of the symptoms resemble the lighter and more transient forms of the disorder in question. But there is something manifestly beyond this relation and independent of it. A disease which has appeared and spread at different seasons, in the middle of summer as well as in the depth of winter; which has been found traversing whole continents, continuing their course through many successive months, and often assuming even a definite direction of progress, which affects contiguous places in different degrees, and at different times; which frequently continues in the same place for several weeks or months, under every appreciable variety of atmospheric state; and which often affects, almost simultaneously, large masses of people living on the same spot, while others in adjoining localities are exempt; such disease cannot be considered as due to any of the known qualities or variations of the atmosphere, to which the term weather is applied."

which spreads rapidly over the whole globe, regardless of season and climate, with those local catarrhal affections that occur in all temperate climates almost annually. One thing, at least, is certain with respect to this disease, that it does not arise from exposure to cold, or, as it is termed, from catching cold. This I have repeatedly observed. Persons who took the best care of themselves, who always went warmly clothed, and were never exposed to the inclemency of the weather, took the disease just as readily as the half-clad labourer, who had to undergo daily exposure to all the vicissitudes of our changeful climate. But it should be observed that, although the attack of influenza in any individual was not necessarily dependent on exposure to cold, yet in many instances it was evident that catching cold determined the immediate access of influenza, or increased its violence when present.

I have also observed, that it seldom attacked persons labouring under acute diseases, until the period of convalescence arrived, when their immunity ceased, and they became just as liable to its invasion as others. Thus, patients labouring under typhus escaped as long as the fever continued; but frequently, on the very day the crisis occurred, and symptoms of returning convalescence appeared, they were seized with influenza. This is a very unfortunate circumstance. Just as a patient had struggled through a fever of seventeen, nineteen, or twenty-one days, he was attacked with a new and dangerous malady, which again placed him in a situation of imminent danger.

You must have observed, that influenza does not appear in every individual with the same violence, or exhibit in all, symptoms identical in their intensity or duration. As in most other epidemics which affect society at large, the different constitutions and ages of the individuals, and the different states in which the morbid influence finds them, modify greatly the nature of the attack; so that, although a vast number are affected, they suffer in very different degrees, and the complaint exhibits every variety of shade, from simple coryza, or catarrh, requiring no treatment, to catarrhal fever of the worst and most unmanageable description. Many persons laboured under what would be termed a common cold, were it not from the extreme frequency of such symptoms, combined with other circumstances which mark the nature of the disease. The same thing was observed with respect to cholera: few persons, during the prevalence of cholera, escaped without undergoing some form of bowel attack, but the mode and character of such attacks vary very remarkably.

Influenza is not by any means so severe or so rapidly fatal a disease as cholera, but the mortality which it has produced is greater, as it affects almost every person in society, while the ravages of cholera were comparatively limited. Consequently, although the proportion of deaths among a given number of individuals attacked was greater in cholera, the mortality for society at large is much greater in influenza. In Dublin, it is extremely difficult to obtain any thing like exact statistical details of the comparative mortality at different periods, for no general registry of deaths is kept in this city. Through the kindness of Mr. Eiffle, late Secretary to the Caledonian Insurance Company, I have been enabled to get an accurate return of the interments in Prospect Cemetery, at Glasnevin, in the suburbs of this city, for the months of January and February, during which influenza was very prevalent, as also for the corresponding months of the

preceding year. He has also furnished me with an account of the burials during the months before and after influenza.

Interments at Prospect Cemetery, Glasnevin; probably the largest in Ireland.

In December, 1835	355	In December, 1836	413
January, 1836	392	January, 1837	821
February, 1836	362	February, 1837	537
March, 1836	392	March, 1837	477
Total for four months,	1501		2248
			1501
		Increase during Influenza,	747

Assuming, then, that in Prospect Cemetery alone, about seven hundred persons are buried who died of influenza, and that there are at least three times as many persons buried in the other church-yards of the city and suburbs, we may conclude that in Dublin alone more than four thousand people died of the influenza, not taking into account the greater number who, although they got over the immediate attack of the epidemic, sank afterwards under various diseases, of which influenza had laid the foundation. In Paris, the influenza caused likewise a great mortality; for it appears, from a statement in the *Révue Médicale*, that the average daily mortality, during the first fifteen days of February, amounted to one hundred and ten, which is more than double the usual average. This only refers to persons dying in their own houses, and does not include the deaths in the hospitals. Eighteen thousand die in private houses annually in Paris—*i. e.* on an average about fifty daily. The rate varies from twenty to seventy a-day, according to the season; but during the first fifteen days of February, it rose from fifty-eight to one hundred and fifty-two in the day.

Influenza has been very fatal where it attacked persons who had been subject to chronic bronchitis, or who had happened to labour under any form of asthmatic affection; for this, I confess, I was not quite prepared. And when first called to attend asthmatic persons labouring under influenza, I expected that, from being accustomed to periodic attacks of dyspnoea and cough, they would be better qualified to bear the disease, and would continue to exhibit that tenacity of life for which asthmatic persons are so remarkable. The old also suffered considerably; but some very old persons had extremely severe attacks of influenza, and yet escaped. I attended, along with Mr. Maurice Collis, the venerable Judge Day, the contemporary of Goldsmith, who, at the age of ninety-three, had sufficient strength of constitution to shake off a most violent seizure. Two gentlemen, who had fought at the battle of Bunker's Hill, also survived the disease in a severe form; but generally speaking, it was very fatal among the aged. Influenza was also very fatal among persons who laboured under disease of the heart; and in this instance age made no difference as to result, for the young and old were equally liable to danger. I have also seen it fatal in cases of deformity of the chest, from curvature of the spine, and other causes. The mortality was also very great among persons in advanced life who laboured under tussis senilis: in a word, all

persons labouring under pulmonary irritation, or weakness, were exposed to very considerable danger. Subsequent experience has proved also, that where influenza left behind an obstinate and irritating cough, and where the constitution had a scrofulous taint, the disease was very apt to pass into tubercular phthisis. Among all the families I know, but two escaped the influenza altogether: one consisted of eleven children, besides the parents and servants, and resided in Pill Lane, in the very centre of the city; the other family consisted of five females, advanced in life, and who lived in one of the fashionable streets.

Allow me to digress here for a moment, for the purpose of making one observation, which a review of several cases of influenza, attended with severe pulmonary symptoms, suggests to me. It is a common error in pathology to confound effects with causes, and where the cause of a disease is not, and probably cannot be known, to fix on some peculiar and leading symptom, and attribute to it the origin of all the rest. But it is quite illogical to say that one symptom is the cause of another, or that because it has the precedence, it should also have the initiative. I alluded to this error in a former lecture, when speaking on the pathology of scarlatina. It has been over and over again asserted, that the dropsy of scarlatina arises from the previous inflammatory affection of the skin, or subcutaneous tissues; and the same thing has been asserted with regard to the desquamation of the cuticle. But I have brought forward facts and arguments to prove that this opinion is not founded in truth, and that dropsy, as well as desquamation of the cuticle, may take place where there has been no eruption whatever, and not the least trace of cutaneous or subcutaneous inflammation. Now when a person, after exposure to cold, gets pneumonia or bronchitis, followed by anasarca, it is quite a common thing to hear it said, that the anasarca had its origin in the pulmonary affection, and that the effusion of serum depended on obstructed transmission of blood through the lung. The same mode of explanation has been applied to disease of the heart as the cause of dropsy. This explanation, however, appears to me inadequate and unsatisfactory. Many cases of influenza were accompanied by extreme congestion of the lungs, and consequently imperfect aëration of the blood; and yet I have not in a single instance noticed the occurrence of dropsy as an immediate or remote consequence. Were dropsy dependent on the state of the lung to which I have alluded, it would have shown itself in some cases at least; and yet I have seen individuals attacked with influenza labouring under orthopnœa and severe pulmonary symptoms for weeks, without observing, in any instance, the slightest anasarca or edema.* This has strongly impressed upon my mind the conviction, that when dropsy comes on after disease of the lung, that the one is not always the consequence of the other, but that both often result from the same cause, and owe their origin to the same morbid impression on the system. This error has been further confirmed by the results of treatment, practitioners having found that measures adapted to remove congestion of the lung tended also to remove the dropsy; forgetting here, that where two symptoms closely allied together arise from the same cause, you will be most likely to relieve both by those means which are effectual in removing either. The principles

* I saw one old gentleman at Rathmines, whose feet and legs were much swollen; but this I attributed to his having remained so many days and nights in his chair, unable to lie down.

which I have here briefly alluded to, will apply to many other combinations of disease ; it is one of general application, and, in my mind, of no ordinary importance.

The present epidemic differs in many points from that which prevailed here about three years ago. The influenza of 1833-4 was by no means so generally fatal as the present. It was characterized, like the present, by considerable irritation of the tracheal and bronchial mucous membrane, but not by the severe bronchitis and pneumonia which have been witnessed in many cases of the present disease. The former raged in Dublin chiefly during the months of March and April. It came on very suddenly, with rapid pulse, hot skin, great prostration, languor, and excessive sweating ; there was cough, coryza, and not unfrequently, vomiting at the commencement. One of the most prominent symptoms, however, was headache, which was excessively severe. There was also, *cæteris paribus*, more debility, and the patients did not bear bleeding so well as they have done at present. But the most material point in which they differ is the comparative mortality. The disease in 1834 carried off some very suddenly with cerebral symptoms, and proved fatal to others from oppression of the chest and dyspnœa. Few, however, died, who survived for a week after they had been attacked, and the disease rarely left behind it a cough at all approaching in violence and obstinacy to that which now harasses convalescents. On the whole, the fever accompanying the influenza of 1834 was more acute, and set in with more marked depression of the nervous system, than that which attends the present, and the disease was much less liable to become chronic.

It would conduce greatly to the advantage of medical science, if a brief and accurate history was left to posterity of the character, symptoms, pathological phenomena, and treatment of every epidemic. Such a record would prove a guide and beacon to the practitioners of future ages—would enable them to draw important comparisons between the existing and the past—and thus arrive at a more fixed and available knowledge of the nature and habits of epidemic complaints.

There are, I have no doubt, many curious forms of epidemic disease which pass through society either wholly unnoticed, or confounded with others to which they have some slight affinity. I think I have seen particular forms of scarlatina, measles, small-pox, and fever, which have not been accurately noted, although they prevailed as epidemics. If every form of epidemic was noted, and the order of its succession marked, it would remain to be ascertained by posterity whether there may be what may be termed cycles of epidemics, and whether disease, after having manifested itself in determinate forms, following each other in determinate succession, may not commence again after the lapse of a certain number of years, and pursue the same course. This is not impossible, if we suppose that epidemics are connected with telluric or electrical influences, which are now known to observe a periodic course. Were this ascertained, a sort of observatory of epidemics could be easily established in the various civilized states.

In treating of the nature of the present influenza, it will be proper to consider, in the first place, the general constitutional symptoms which attend it, and afterwards glance at those which are chiefly of a local description. In some cases of influenza, there is little or no fever ;

neither does the presence of fever seem essential to the more severe or even fatal cases, although, generally speaking, fever occupies a very prominent position among the group of symptoms by which the disease is characterized. I have seen cases in which there was nothing like regular fever from beginning to end, and yet which terminated fatally.

I am at present treating two patients who have been labouring under orthopnœa for the last ten days, and yet in these patients the skin is cool, the pulse in general soft, and very little above the normal standard, and the tongue, though furred, quite moist; yet so great is the distress of respiration, that they are obliged to remain sitting up in bed night and day, panting for breath; and I am of opinion that both will die. This, however, is the exception with respect to severe cases, the majority being attended with very considerable fever. In the slight cases the fever is scarcely perceived, or altogether absent; this was the case with myself and some of my friends. We have coryza, hoarseness, cough, and some degree of pulmonary irritation, without any fever. At first, I thought that fever was an essential part of the disease; but the cases to which I have alluded, and others of a similar kind, have convinced me that this is not the fact. Where the fever appears, it comes on with the usual symptoms of pyrexia—namely, sense of chilliness, particularly about the small of the back, without decided rigors, flying pains in the limbs and joints, and headache, generally referred to the situation of the frontal sinus. There is from the commencement, great restlessness, jactitation, and more or less insomnia. Sickness of the stomach, loss of appetite, and tendency to diarrhœa, are also common symptoms. The skin is in general hot, and without any tendency to moisture, although, in some cases, there are occasional perspirations. These, however, are seldom general or regular, and last only for a few hours. The pulse is accelerated and tolerably full, occasionally even hard and wiry. These symptoms are very subject to slight exacerbations and remissions, and seldom continue the same for more than twelve hours together. Where the disease exists for any length of time in a violent form, the tongue usually becomes furred and loaded, the patient loses all relish for food, and in many cases complains of harassing thirst. In severe cases, the most prominent symptoms are, cough, wheezing, restlessness, dyspnœa, and loss of sleep. The appetite is generally more or less impaired; but I have seen some severe cases in which it did not fail remarkably for several days; the restlessness and jactitation attend many cases throughout. You are not, however, to suppose, that this always depends on the presence of pain or fever. The headache is not in all severe or distressing; and I have already stated, that the fever is not so general or so violent as one would suppose. The loss of sleep depends upon derangement in the tone of the nervous system, independent of fever; for I have observed it in numerous patients, in whom scarcely any febrile excitement was observable; but when complicated with fever, both react upon and aggravate each other. The skin, where fever is present, is hot: this heat is interrupted by occasional perspirations, which, however, do not give much relief, or tend to diminish the amount of increased temperature. Sometimes the skin is hot, and at the same time bedewed with perspiration during the whole course of the disease; but this is rather unusual. The pulse is seldom the same throughout; one time you will find it quick and rather hard; in six hours after-

wards it will be quick and soft; in six or eight hours more it will appear as if about to fall to the normal standard; and next day you will find it quick and jerking again. These changes are accompanied by corresponding alterations in the temperature and humidity of the skin. But what is most remarkable with regard to the pulse is, that it sometimes becomes full, and rather strong and wiry towards the termination of the disease; and this you will observe in patients who have been suffering for days, or even weeks. I have been attending for the last fortnight, with Mr. Colles, a gentleman in Castle-street, aged sixty, of a full habit, and subject to attacks of dyspnœa and cough during winter. This gentleman was attacked with influenza, ushered in and accompanied by severe fever; and it was observed, that as the disease advanced, his pulse became fuller and stronger, so that it was thought advisable to bleed him. He was bled with apparent relief, and the blood was extensively buffed and cupped. This phenomenon I have observed in every case attended with fever, and indeed in some where no appreciable fever existed. Thus, a gentleman in Dame-street, who had no fever, and who merely laboured under teasing cough, distress of respiration, and oppression of the chest, the blood, on being drawn, exhibited very distinct buffing and cupping. The same thing happened in the case of a gentleman, in Dominick-street, whom I ordered to be bled under exactly the same circumstances. The gentleman in Castle-street, whom I attended with Mr. Colles, exhibited a very curious state of pulse. In him, as in many others, the pulse was extremely variable as to its strength, being at one time hard and firm, and at another soft and weak. If you were to visit him in the morning, from the feel of the pulse you would be inclined to give him stimulants; if you saw him for the first time on the evening of the same day, you would think venesection indispensable. This gentleman's state was hopeless; he laboured under great suffering, dyspnœa, and inability to cough up the viscid mucous secretion, and yet his pulse was both strong and firm. Mr. Colles, whose attention I directed to the state of the pulse, observed, that were he to feel it without seeing the patient, or knowing his previous history, he would be greatly inclined to bleed him immediately. I have adverted in a former lecture to this state of the pulse, as connected with irritation of the nervous system, rather than with any inflammatory state of the constitution in general; and, therefore, I shall not now recur to the subject further, than to remark, that I have never observed any disease in which the pulse formed so bad a guide as to the propriety of venesection, as the present epidemic. In some cases, venesection was most useful, although the pulse was in every respect natural; in others, it could not be borne even to the smallest amount, although the pulse was hard and wiry. Neither was the state of the blood an unerring guide; for even in those who sank rapidly, from the debilitating effects of moderate bleeding, the blood was very much cupped and buffed.*

* "The most important question," says Dr. HOLLAND, "in the treatment in influenza doubtless regards the extent to which antiphlogistic means may be carried, or the fitness of employing them at all. And the point as to bleeding is that which stands foremost here, and has chiefly embarrassed all practitioners. The most general precept on this subject is liable to exceptions; but collecting what on the whole is safest and most expedient, it must be one which forbids bleeding as an ordinary practice in this disorder. The adynamic type throughout in the greater number of cases; the singular disproportion in all between the seeming severity of the inflammatory symptoms and their real slightness or nullity; the actual failure

Before I conclude, I shall mention the particulars of a very remarkable case which came recently under my notice. I was called to visit a lady, somewhat advanced in life, but of a good constitution, and labouring under the ordinary form of influenza, with considerable dyspnoea and cough. In the course of eight or nine days her symptoms began to decline; she got up, and seemed convalescent. As the cough and pulmonary irritation still prevailed to a certain extent, it was thought advisable not to allow her to eat meat, but she obtained leave to take some fresh haddock. After dinner, her cough becoming more troublesome than before, she had frequent recourse to a stale and rancid cough-bottle, containing squill and ipecacuanha. During the evening and night she felt her dinner like an undigested load, and her stomach turned. She vomited, and was purged and griped incessantly, until I saw her next day. On the third day, the medicines I had ordered moderated the purging, but the nausea and occasional vomiting continued. On the fourth day, the purging had entirely ceased, but the sickness of stomach persisted. I sought to appease this by the ordinary means, which failing, I examined her with care on the following day, and discovered a strangulated hernia. At this time the pulse had scarcely risen above the natural standard. Mr. Cusack operated that night with his usual skill, and all the symptoms depending on incarcerated hernia ceased. But they had scarcely disappeared, when the pulmonary symptoms and the copious secretion from the bronchial tubes recurred, and she did not survive this relapse of the influenza more than a few days.

This is an instructive example of an insidious combination of circumstances very likely to mislead a practitioner; for as the vomiting was for a day or two accompanied by a looseness of the bowels, the suspicion of hernia would not strike the attention. It is plain that in this case indigestion produced an increased and morbid activity in the motions of the alimentary canal, which led to the incarceration of the portion of gut. Up to a certain moment the symptoms depended merely on one cause; after that period, strangulation took place—an occurrence which could not be easily diagnosed, as vomiting, one of the most striking symptoms, had previously existed.

When diarrhoea occurs, it is generally at the commencement of the disease; and it is remarkable that this state is frequently exchanged, rather suddenly, for one of an opposite character. Thus, when you have succeeded in checking the diarrhoea with chalk-mixture and opium, a state of costiveness will frequently ensue, requiring the daily use of purgatives and enemata. I have now witnessed several cases in which the moderate use of opiates and astringents brought on constipation, requiring the use of strong purgatives and enemata, thrown up with Read's syringe.

In influenza, as in many other febrile affections, the lungs become con-
 of bleeding in mitigating the violent and painful cough which seems most expressly to require it; and the frequent success of remedies precisely the reverse of this; all show a speciality in the disease, to which we must refer, more or less directly, in every question of practice. Whatever the cause or precise seat of irritation, it is certain that it has rarely the character of true membranous inflammation. In truth, the same reasons which prevent or limit bleeding in hooping-cough, apply no less to the peculiar cough and irritation of the influenza. We have rarely any authority for it in the state of the pulse, which neither in strength nor frequency bears relation to these inflammatory symptoms; while the difficult or painful respiration, which often suggests the remedy, furnishes evidence against its fitness by becoming frequently more laborious than before—the effect of larger accumulation in the bronchial cells, and of diminished power.”—*Op. cit.*, page 219.

siderably engaged; the disease first attacks the nose and throat, then the larynx and trachea, and, finally, the ultimate ramifications of the bronchi. There are several other affections which commence in a similar way—as ordinary catarrh, bronchitis, and measles. In influenza, most persons have the nose and throat affected in the beginning; the inflammation creeps gradually along the lining membrane of the air-passages, until it involves the greater part, or the whole, of the bronchial mucous membrane. The progress of the inflammation is extremely rapid, and in the course of twenty-four, or even twelve hours, the lungs become engaged. There is, however, much difference as to the extent to which this inflammation proceeds. In many cases, it is limited to the nose and throat; the patients complain of coryza, hoarseness, and slight cough. In others, the trachea also is more or less affected, and the cough is more troublesome; but, generally speaking, the latter as well as the former cases are unattended with fever. The patients eat and drink as usual, go about their ordinary business, and sleep tolerably well at night. This appears to be the general course of the disease when the inflammation is limited to the nose, throat, and upper part of the air-passages; when it spreads farther, and attacks the first ramifications of the bronchi, there is some dyspnoea and tightness of chest, the cough is much more troublesome, and the appetite and digestion are somewhat impaired; but persons in this state, although resting badly and eating but little, will continue to go about—constantly, however, complaining that they are very ill. When the smaller divisions and ultimate ramifications of the bronchi are engaged, there is soreness of chest, remarkable dyspnoea, and constant harassing cough; the headache is also aggravated, the patient loses all inclination for food, sleeps badly at night, and is confined to the bed or house. First, then, you have the mucous membrane of the eyes, nose and throat affected; then the larynx and trachea; then the larger bronchi; and, finally, the smaller and more minute ramifications. When the latter state has continued for some time, more or less serous engorgement of the lung takes place, and this adds to the dyspnoea and cough. On applying the stethoscope over various parts of the lung, you will hear at various parts a moist crepitus, indicating the existence of serous infiltration. The smaller bronchial tubes and air-vesicles are congested and filled with mucus; the blood cannot pass freely through the lung, and consequently must be imperfectly aerated; the secreting and absorbing functions of the lung are deranged, and hence arises a state in which the pulmonary capillaries become congested, and permit the more fluid part of the blood to exude into the parenchyma of the lung, giving rise to what is termed serous infiltration. Something similar to this occurs also in general bronchitis, particularly in fever, but we very seldom have hepatization resulting from such causes. In hepatization, the capillaries pour out, not serum, but lymph, which glues together the cells of the pulmonary tissue, and forms a dense solid mass. Hence, in influenza or bronchitis, you seldom have true pneumonic inflammation. You will have extensive and dangerous engorgement, but when you examine the lung after death you do not find any real solidification, and you can restore the lung almost to its original permeability and buoyancy by squeezing out the infiltrated fluid. Yet I must admit that this is not always the case, and that in influenza, as well as in bronchitis, you may have true pneumonia superadded to the original affection of the lining membrane. This occurred in the case of a lady whom I attended in Capel-street, and who was attacked with influ-

enza shortly before delivery. On the day of her accouchement, pneumonia was superadded to the bronchial inflammation, and she died with extensive hepatization of the right lung. This also occurred in the case of a man of middle age, residing in Suffolk-street, who had been labouring for some days under excessive engorgement of the lung. I have also observed the same occurrence in a gentleman whom I attended with Mr. Colles, in Exchequer-street; and in another case which I saw in Whitefriar-street.

One of the most singular features in the history of the present influenza, is the extraordinary degree of dyspnœa witnessed in most cases where the lung is extensively engaged, but particularly where the patients had been previously subject to pulmonary affections; and even in many cases where the bronchial mucous membrane is but slightly engaged, the amount of dyspnœa is remarkably great. Indeed, it might be said with much truth, that the dyspnœa was by no means proportioned to the extent of pulmonary inflammation. There is at present in the hospital a woman labouring under influenza, whose chest sounds clear on percussion, and in whom every part of the lung is permeable, who presents nothing more than a few sonorous râles in the course of the larger bronchial tubes, and yet she is suffering from considerable dyspnœa, and the respirations amount to forty-six in a minute. We cannot, therefore, attribute the difficulty of breathing to mere bronchitic lesion, for it is not in proportion to this lesion. Another patient admitted into Sir P. Dun's Hospital exhibited a similar train of symptoms. He was a negro sailor, a native of New Brunswick, and was seized with the epidemic a few days after his ship arrived in Dublin; he was a man of Herculean form and finely developed chest, and in the prime of life. His suffering from dyspnœa was intense; his chest heaved, he tossed about in bed in a constant state of agitation and restlessness, and yet the respiratory murmur was everywhere distinctly audible through the lung, and no râle could be heard, except here and there a few bronchitic wheezings. He also laboured under insomnia, and, though he had but little fever, his debility was extreme. Indeed, his pulse was so weak from the commencement, that I could not venture to treat him antiphlogistically; and I accordingly ordered extensive vesication over the chest, with the use of wine, stimulants, and narcotics. This man subsequently recovered—an event which could scarcely have occurred under the plan of treatment adopted, had his dyspnœa depended on mere bronchitis. It should be also borne in mind, that in many bad cases of influenza the dyspnœa is intermittent, or at least undergoes remarkable exacerbations and remissions at certain hours of the day and night. It would appear that the respiratory derangement depends on the same general cause which produces the whole train of symptoms, and that it might exist even where there was no bronchial inflammation at all. It is true, that where the bronchitis is present, it adds to the distress of respiration, but the dyspnœa appears to be chiefly attributable to some impression made on the vital activity of the lung. That the lungs are endowed with an inherent vitality necessary to the aëration of the blood, has been long acknowledged by the Germans, who have described a dyspnœa from paralysis of the lungs; and this opinion is now generally adopted in Great Britain, since the results of the experiments on the eighth pair of nerves have been duly appreciated. We have abundant illustrations of this truth in asthma, in which the greatest dyspnœa is

often present, without any appreciable lesion of the lung. And it would be a fortunate circumstance for the patients in influenza, if this were not the case; for we could then treat the affection of the lung as ordinary bronchitis, and should expect to find it amenable to the ordinary remedies. You are aware that the mortality in cases of ordinary bronchitis is extremely small, if we except very young children and persons advanced in life. In adults, when met by prompt and appropriate treatment, it is generally a very manageable disease, and seldom proves fatal, unless combined with other unfavourable conditions. This, however, is not the case in influenza, nor is the pulmonary affection so easily treated, or the dyspnœa so readily controlled. I saw, some time ago, a fine young woman, servant to a gentleman in Fitzwilliam-street, for whom every thing had been done which the best and most skilful practice could devise; but her condition, when I saw her, was desperate, and she died the following day: yet her chest sounded well on percussion, and we could hear nothing over the whole lung, except a few sonorous and sibilous râles, and the respiratory murmur seemed everywhere nearly as loud as natural. Of course, such a lesion of the nervous influence could not last long, without necessarily inducing pulmonary congestion—an inevitable consequence of imperfect aëration of blood. When the eighth pair of nerves is divided, the animal is slowly suffocated; and, on dissection, the lungs are found engorged, and the bronchial mucous membrane congested and inflamed. May not the affection of these parts in influenza be sometimes induced by lesions of nervous power in the lungs? I am indebted to my friend, Dr. George Green, Professor of the Practice of Physic to the College of Physicians, for the following results of his very numerous post-mortem examinations in this disease, and I feel great pleasure in being able to give them—as such examinations, at least in this country, are very rare. Dr. Green observes:—

“The cases which proved fatal at the House of Industry, during the late epidemic influenza, occurred principally among the aged inmates of both sexes. I had an opportunity of examining several of these cases, and the following were the principal post-mortem appearances observed.

“The bronchial mucous membrane was found, in every case, more or less congested and inflamed. The colour varied considerably—being in some of a dull red, and in others of a much darker hue. The inflammation, in most cases, was found to occupy both the trachea and the bronchial tubes of both lungs; in other instances, it was confined to one lung alone. A sanguinolent frothy mucus occupied the area of the tubes, and increased in quantity as they were traced to their minuter divisions. The parenchymatous tissue of the lung was invariably discoloured, being generally of a dark or violet colour; its specific gravity was increased, and it did not crepitate, or at least very feebly, when pressed between the fingers. The surface of its section was not rough to the touch, and when pressed in the hand, a quantity of the mucus described above was driven out. In some cases, the postero-inferior portions of one or both lungs were very dark coloured, and the finger could be passed easily through its substance. When the surface thus torn was examined, it did not appear to be granular; it resembled more a portion of gangrenous lung, except that there was an absence of fetor. This last appearance was found principally in very aged persons. It was rare to find any traces of the second and third stages of ordinary pneumonia in these patients; but

in the young and robust, who were received into the Hardwick Fever Hospital from the neighbouring streets, these degenerations of the structure of the lung were observed, together with the same inflammation of the bronchial mucous membrane.

“ In most of the aged patients, the blood was found dark coloured and fluid in both cavities of the heart, and in every vessel where it was examined. The cases in which fibrinous concretions in the cavities of the heart were found, were very few, and these invariably in the young or middle-aged. In the former class of patients, also, the lung occasionally appeared to be edematous; and, in one or two cases, a considerable effusion of serum had taken place into the pleural cavities. The signs of recent pleuritis were very rare, but old adhesions, as might be expected in such subjects, were very commonly found between the pulmonary and costal pleuræ. In one case of a lunatic, who survived the immediate attack of influenza, tubercles appeared to have been rapidly developed in both lungs. In another lunatic, two tubercular cavities were found in addition to the state of the lung and air-tubes already adverted to.

“ With respect to the nature and duration of the symptoms of those cases which came under my own management, I have little to say in addition to what is already so familiarly known. The physical signs afforded by percussion and auscultation were almost universally as follows: — Dulness, more or less decidedly marked, in the postero-inferior portions of the lungs; sonorous or some form of the bronchial râles throughout the chest, or, what was more common, a mixed sonorous and crepitating râle, or, in the latter stages, a muco-crepitating râle. The sputa were seldom rusty-coloured or tenacious, but rather resembled those of bronchitis. In many cases, the want of power to excrete them appeared to be the immediate cause of death; but in others, the morbid cause, whatever it might be, appeared to have affected the entire respiratory and circulating systems, producing great congestion of the venous system, and a state not unlike asphyxia. The latter cases were almost all among the aged inmates of the House of Industry.

“ The appearances of the other viscera were not such as could in any way account for the result, so often speedily fatal; so that, so far as one could hazard a conjecture, the morbid cause appeared to have made its primary impression on the respiratory mucous surface, thereby interfering with the proper aëration of the blood, and inducing the changes in that fluid and in the structure of the lungs above detailed.”

Such are the appearances observed by Dr. Green in his numerous dissections of persons who died of influenza. They may be relied on as perfectly accurate, for no one is better acquainted with pathological phenomena than Dr. Green, and consequently no one better able to furnish valuable evidence with respect to the appreciable changes produced by influenza in the pulmonary and other tissues.

I have already advanced the opinion, that we should not hastily assume that influenza consists essentially in the morbid changes which dissection reveals; we should examine every side of the question, and consider whether it is not possible that the alterations in the pulmonary tissue may not be, to some extent at least, the consequences of the disease. Let us consider for a moment the method we pursue in reasoning about the progress and causes of the symptoms in ordinary bronchitis. Here a patient is seized with a pectoral affection, attended by cough, dyspnœa, and more

or less fever. We find certain râles, and the expectoration is altered in quality and quantity. Further, observing a number of such cases, we remark that the danger is proportioned to the degree of dyspnœa, and the dyspnœa to the extent and nature of the râles, together with the quantity and quality of the expectoration. To these the general constitutional affection, and the probable results of the disease, have certain definite relations, a knowledge of which is soon obtained by experience. But these râles, and this state of the respiration and expectoration, we have reason to believe, arise from the presence of bronchial inflammation; and to this we refer all the symptoms observed. On this supposition, too, we proceed in our treatment, and the result most commonly justifies its correctness; and we have additional evidence of its truth furnished by post-mortem examinations. Now, in such instances, the chain of inductive evidence is complete, and we feel a conviction that our practice is founded on correct notions of the nature of the disease. But how different is the case when we assume that influenza is caused by bronchial inflammation! In influenza, the dyspnœa is not always proportioned to the bronchitic affection—nay, in some cases we have seen that difficulty of breathing was most urgent in cases where the air entered into all parts of the lung with facility, and where few and unimportant râles existed. Again, although the presence of a copious viscid secretion in the bronchial tubes was sure to aggravate dyspnœa, yet it often occurred in patients whose air-passages were very little, or not at all, obstructed in this way. The effects, too, of remedies, antiphlogistic, expectorant, and derivative, were very different from what they would have been had the disease depended on a mere bronchitis. I have already stated my conviction, that the poison which produced influenza acted on the nervous system in general, and on the pulmonary nerves in particular, in such a way as to produce symptoms of bronchial irritation and dyspnœa, to which bronchial congestion and inflammation were often superadded.

In this view of the subject I am not singular, for I find that it has been advocated by Dr. Peyton Blakiston, in a short treatise on influenza, as it occurred at Birmingham. He states that his researches have led him to the conclusion, "that influenza is an affection of the nervous system, with its concomitant derangements in the organs of digestion, circulation, &c., commonly known under the name of nervous fever, accompanied throughout its whole course by irritation of the pulmonary mucous membrane, which not unfrequently amounts to congestion, and even to inflammation."

This distinction between influenza and feverish cold with bronchitis, is, in a practical point of view, of great importance, and should never be lost sight of in the treatment of influenza—for it prevents us from placing our sole confidence in remedies adapted to mere bronchitic inflammation. Thus, Dr. Blakiston asserts, and most physicians will agree with him in this point at least, that it was often necessary to have recourse to diffusible stimulants at the commencement, and to administer tonic medicines in an early stage of the disease.

In some cases, even where great dyspnœa exists, the cough is hard and dry, and the expectoration scanty; in others, the expectoration is copious, so as to cause constant efforts to cough it up; and, indeed, it is melancholy to look at the distress which patients suffer in this respect. You will hear the wheezing of the phlegm in the throat and air-passages be-

fore you enter the room, and you will see the patient exhausted by successive paroxysms of cough, and ineffectual attempts to expectorate. In other cases, where the vitality of the lung is less injured and the general tone of the system less deranged, the sputa, although copious, are expectorated with considerable facility. The sputa bear considerable analogy to those observed in ordinary bronchitis; they consist at first of a greyish mucus, which, as the disease proceeds, exhibits a globular appearance, or assumes a puriform character, and does not coalesce; in other cases they are extremely viscid and ropy, like solutions of gum or isinglass. A remarkable fact with respect to the sputa in influenza is, that they are very seldom mixed with air-bubbles. On mentioning this to-day to some persons attending my class, I was shown some sputa discharged by a patient labouring under influenza, in which there were some air-bubbles; this, however, is extremely rare. In a lecture which was delivered here some time ago, I took occasion to allude to the secretions of the bronchial mucous membrane, and stated my conviction that this subject had not received as yet the attention which its acknowledged importance demands. There is one point, in particular, of which no adequate explanation has been as yet given—namely, why it is that in some cases of pulmonary inflammation the sputa are filled with air-bubbles, while in other instances, there is no appearance of air-bubbles from the beginning to the end of the disease. The presence of air-bubbles in the sputa has been explained, by supposing that air becomes incorporated with the mucus while it is driven up and down in the bronchial tubes during the acts of respiration and coughing; just as if you shake a solution of soap or any other viscid fluid in a half-empty bottle, it becomes impregnated with air-bubbles. There may be some truth in this, but I think it does not sufficiently explain the presence and intimate incorporation of air with the sputa in certain affections of the lung; and it appears to me that we can scarcely understand this, unless we suppose that the air and mucus are secreted together. You are aware that air is secreted by the bronchial mucous membrane, and that in some cases this secretion is morbidly increased, in others morbidly diminished. Now, it is not very unreasonable to suppose that the mucous membrane may secrete air and mucus together in abnormal quantity; and that this, rather than any mechanical agitation, may be the cause of the intimate combination of air with the expectorated fluids.

I need scarcely make any observation on the cough in influenza. It is in general very troublesome, particularly at night. Many persons are not much annoyed by it during the day, but at night it becomes very harassing, and prevents them from sleeping. When severe, it continues both night and day; and even when persons have recovered from the fever and dyspnoea, and are able to go about, the cough will continue extremely troublesome: this I have observed in the majority of cases. In this state medicines prove of very little service, and one of the best remedies is to change to a mild country air. Cases of cough, in which I had tried every remedy without success, and which had resisted every form of treatment in the city, yielded in a few days to the salubrious influence of change of air.

In influenza, the urine is generally much loaded with lithates and superlithates, and contains a large quantity of erythric or purpuric acid. It is red when voided, deposits a good deal of sediment, and tinges the vessel in which it lies with a pink film. It bears some resemblance to the urine

which accompanies arthritic and gouty affections. In very bad cases, this state of the urine continues up to the period of death. You recollect what I stated with regard to the condition of the blood; it is generally buffed, even where there is scarcely any febrile excitement in the system, and thus affords a very fallacious indication. The same observation holds good with respect to the state of the urine and the temperature of the skin. I may observe here that the heat of skin is very variable; it is sometimes very high, sometimes natural; in fact, like the pulse, it falls and rises in a very remarkable manner, at certain times in the day.

I have already spoken of the affection of the mucous membrane of the bowels. I may observe, that in some cases of influenza the morbid influence is translated to the brain, and symptoms of delirium or coma supervene. Thus, in two instances that have been communicated to me, the patients fell into a state resembling coma, during the course of the disease. In three cases witnessed by the late Mr. Swift, the attack of influenza terminated in a train of symptoms bearing a close analogy to delirium tremens, and requiring the use of blisters to the head and nucha, full doses of opium, purgative enemata, wine, and the occasional use of mercurials. The patients complained of great headache, noise in the ears, some intolerance of light, and more or less sleeplessness from the commencement, along with the usual pulmonary symptoms. After five or six days, they became excessively nervous, lost all sleep, had continued subsultus and tremours, and talked very incoherently, particularly at night. During the prevalence of the cerebral symptoms, the pulmonary affection partially or wholly disappeared, but returned again in some degree after the subsidence of the delirium. All these cases terminated favourably.

I believe I have already remarked, that many persons who have laboured under very severe pulmonary symptoms will struggle through the disease; and I may mention here that I have seen persons recover, who have suffered from continued orthopnœa for three weeks. Still the mortality, particularly among the aged, is very great; and I fear that we shall shortly have but a few octogenarians to tell the occurrences of the last century. Indeed, the mortality has not been confined exclusively to the aged, for many persons in the vigour of life have sunk under the attack. There have been several deaths among the soldiers in our garrisons, notwithstanding the excellent state of health which our troops generally enjoy, and the skilful and judicious treatment of our present army surgeons. The results of the medical treatment and necroscopic observations in the different regiments in London, Dublin, and Edinburgh, will form a most valuable document, and I hope it will be made public for the benefit of the whole profession.

It now remains for me to say a few words concerning treatment. First, as to bleeding. A great deal was expected from general bleeding, because the disease was sudden and violent in its onset, and accompanied by symptoms which seemed to require active measures—such as an inflammatory state of the bronchial mucous membrane, accompanied by quick pulse, hot skin, and high-coloured urine. This led persons to expect much benefit from venesection. The results, however, of its employment are, generally speaking, unsatisfactory. Where venesection was employed promptly and in the beginning of the disease, and where it seemed to be strongly indicated by the buffed and cupped state of the blood, even in such cases it has failed to afford any thing like material or permanent benefit, or to

produce a decided amelioration of the existing symptoms. The general impression among practitioners in Dublin at present seems to be, that bleeding is doubtful in its effects, if not altogether improper. I am much inclined to think that bleeding, unless employed within the first twelve or twenty-four hours, will be likely to do as much or more harm than good. Bleeding on the second or third day, except to relieve congestion of the lungs, seems inadmissible. The same observation holds good with reference to other diseases. Thus, in scarlatina, if you happen to be called in when the rigor commences, and while the disease is beginning to form, you will sometimes accomplish much good by bleeding your patient; but after eighteen or twenty-four hours, when the disease is fully formed, venesection will not do. On this point I can speak from experience. In scarlatina, the difference of a few hours renders venesection inapplicable, and even injurious. It is the same thing with respect to influenza; general bleeding is useful only in the commencement, and, where the symptoms seem to demand it, it should be employed at least within the first twenty-four hours. Where I have been fortunate enough to find the disease just commencing, I bleed to the amount of twelve or fourteen ounces, order the patient to remain in bed and take some aperient, followed by the use of nitre. In this way, by timely bleeding, aperients, sudorifics, and confinement to bed, the attack generally passes over in two or three days. I could mention many instances of the success of this plan of treatment. In one family I treated all the individuals attacked in this way, and I have done the same thing in many cases of persons somewhat advanced in life. In the case of an old gentleman, who was very severely attacked, I succeeded by these means in checking the disease at once. My experience, therefore, is, that bleeding is of service in the very commencement of the disease; but as it seldom happens that a physician is called in at this period, I would qualify my statement by saying, that, as a general measure, bleeding in influenza is seldom admissible. When you are called on to attend cases, you will most generally find that the patients have been ill for two or three days or more; and then the only mode of abstracting blood, which you can have recourse to with safety, is by leeching. About eight or ten leeches applied over the hollow of the neck, just above the sternum, and allowed to bleed pretty freely, will prove very serviceable; and if you apply them in the evening, you will often secure to your patient a good night's rest. This plan of leeching the hollow of the neck, in cases of tracheo-bronchial inflammation, is an excellent one: the leeches are applied at a spot which lies close to the trachea, and particularly to that point to which the irritation accompanying bronchitic affections is chiefly referred.

By the aid of leeching, the use of aperients, if necessary, and confinement to bed, with sudorifics, you will frequently succeed in removing the fever and bronchial inflammation. You will derive much benefit, particularly in the early stage of influenza, from tartar emetic and nitre; but I must say, that neither leeching nor tartar emetic and nitre prove as valuable and as efficacious, in influenza, as they do in ordinary bronchitis. Some of my friends, who used tartar emetic as a nauseant in the commencement of the disease, inform me that they have derived benefit from its use; and others have told me that they have used tartar emetic and opium in the commencement and during the course of the disease, with advantage. I have not employed the first of these, but I have the latter,

and with favourable results. You may, therefore, after using antiphlogistics for a day or two, proceed to the use of opiates, in combination with tartar emetic or nitre. In some cases, the camphorated tincture of opium will answer very well; in others, you will find the acetate or muriate of morphia better. A mixture, composed of six ounces of almond emulsion, a drachm of nitre, and half a drachm or more of the liquor muriatis morphiæ, will be found very useful. The muriate of morphia, which possesses many of the valuable properties of opium without its defects, will serve to tranquilize the system and produce sleep—two most important points in a disease like influenza connected with increased nervous irritability.* A gentleman, on whom I place much reliance, tells me that he has treated many bad cases successfully with camphor-mixture, tincture of opium, and tartar emetic. I need not mention the various remedies which have been recommended in this disease—as Mindererus's spirit, Hoffman's anodyne, ipecacuanha, alone or combined with extract of conium and blue pill, and many other remedies belonging to the class of diaphoretics or expectorants. They are all more or less serviceable, but they have all the common defect of producing less relief than they usually do in cases where the pulmonary affection is simple and idiopathic. Towards the end of the disease, you find it necessary to give stimulating expectorants and light tonics—as decoction of polygala senega, infusion of columba, &c., &c.†

One word about blisters, before I conclude. They are useful in some cases, but in many of the severe ones they do little or no good, and only add to the patient's sufferings. They do not relieve the pulmonary symptoms, and particularly the dyspnœa, in the manner you would be prepared to expect. I do not know a more remarkable circumstance, in the present disease, than the failure of blisters: and in many cases I do not employ them at all. Fomenting the trachea and chest with very hot water appears to be much more serviceable. This has proved extremely valuable in many cases of this as well as other affections of the air-passages; and on referring to the late American journals, I find that the plan of treating croup in its onset, by means of very hot water applied with a sponge to the throat—a plan which I recommended some time ago in the *Dublin Medical Journal*—has been extensively employed in America, and with the most happy results. Sponging the throat and chest with water, as hot as it can be borne, has been found, in many instances, capable of arresting all the threatening symptoms of croup at once. Several cases are mentioned in the American journals, in which the lives of the little patients were evidently saved by this application. I may state, also, that not long since a child was saved in Dublin by the same means. By the advice of Mr. Smyly, who suspected the threatened attack, the child's

* I cannot agree with Dr. Holland in the following opinion concerning opium: "It seems necessary to add opium to the list of medicines, from which little certain benefit is to be had in this disorder. The restlessness at night, which is so general a symptom, would seem to require its use; but from some cause or other, it is rarely effectual in giving much relief: and, though the cough may for a while be mitigated or suppressed by this remedy, it is doubtful whether the good so obtained is an equivalent to the disadvantages in various ways incurred."—*Op. cit.*, p. 219.

† Dr. Blakiston strongly recommends the ethereal tincture of lobelia, in large doses, repeated at short intervals, in influenza where bronchitis was present. As I had not the advantage of perusing his book during the prevalence of the epidemic (it was not published till May), I had no opportunity of trying this medicine in the way he suggests.

mother had every thing prepared, and by her promptitude and care arrested the disease before it had sufficient time to form.

I have nothing more at present to add to the subject of influenza ; we are still much in the dark as to the best mode of giving relief—and this is the more singular, as in general the disease allows full time for the trial and operation of medical agents.

LECTURE XXXVIII.

Connection between diseases of different organs ; between arthritis, jaundice, and urticaria : between periostitis produced by abuse of mercury, and hypertrophy of the liver—Details of cases illustrating this connection—Its explanation—Hypertrophy of the liver produced by scrofula—Enlargement and inflammation of the liver after scarlatina—Importance of recognising this disease—Connection between disease of the liver and disease of the heart—Chronic hepatitis from this source, curable in young persons—Enlargement of the spleen connected with superficial ulceration of the legs—Erysipelas and gangrene, sometimes of a pseudo-inflammatory character—Treatment of this form of the disease.

In order to acquire a correct and available knowledge of human pathology, and to extend the range and confirm the accuracy of diagnosis, it is of the utmost importance to observe attentively the connection between the diseases of certain organs or systems of the body. You are aware that some organs, when labouring under disease, are apt, after the disease has continued some time, to implicate other organs, giving rise to various deranged conditions, which are developed, sometimes simultaneously, but in general consecutively, and in sequence. I have already pointed out several diseased actions thus associated together, each forming a link in the morbid chain. Now it is of the greatest importance to study each link, and ascertain the nature of its connection, so as to have a distinct conception of the whole. Last session I directed the attention of my class to a train of morbid phenomena sometimes observed coexisting with arthritic inflammation. A person labouring under inflammation of the joints gets an attack of hepatitis, accompanied by jaundice, and this is followed by urticaria. I have observed this sequence of disease in eight or nine cases. The first was in a gentleman residing in Lower Mount Street, whom I attended with Dr. Cheyne. This gentleman, in consequence of exposure to cold, was attacked with arthritic inflammation and fever. After he had been about ten days ill, he became suddenly jaundiced, and in a day or two afterwards a copious eruption of urticaria appeared over his body and limbs. Exactly the same train of phenomena, and in a similar order of succession, were observed in a man treated in the Meath Hospital in 1832. A short time before this, I had been attending a medical friend in Baggot Street, who had been affected in the same way ; and I mentioned to the class, as soon as I perceived the man was jaundiced, that he would most probably get urticaria. I made a similar prediction in a case which occurred recently in our wards, and it was verified by the event. Now this is not a mere fortuitous occurrence ; the various symptoms must be connected in the relation of cause and effect. It is interesting to bear this in mind, and it is besides of considerable importance to the practising physician ; it enables him to predict the appearance and form of disease, and inspires his patient with confidence in his opinions and judgment.

There is another sequence of disease, not unfrequently observed, but of which the connection has not been hitherto noticed by any writer, as far as I can ascertain. About two years since, I was consulted by an English gentleman, who had been ill for a considerable time. The history of his case from the commencement was this:—Three years previously he had venereal,—used and abused mercury,—was exposed to cold, and got periostitis. He now got into a bad state of health, used mercury a second time, obtained some relief, and then relapsed again; finally, after having used mercury three or four times, he was attacked with mercurial cachexy, became weak and emaciated; the periostitis degenerated into ostitis, producing superficial caries and nodes of a bad character; he had exfoliation of the bones of the cranium, and rupia, and was reduced to a most miserable state. Under our care the symptoms gradually disappeared; he recovered to all appearance, and even got fat. He then caught cold and relapsed again. At last his liver became engaged; he was attacked with hypertrophy of the liver, ascites, and jaundice, and died soon afterwards. Here, then, we have venereal, abuse of mercury, periostitic inflammation, abuse of mercury followed by exacerbation of the periostitis, and the establishment of mercurial cachexy, and the history of the case is wound up with hypertrophy of the liver. This was the first case in which I had observed this concatenation of diseases; since that period I have seen a similar train of morbid phenomena, twice in private practice and once in hospital. First we have abuse of mercury, then periostitic inflammation and mercurial cachexy, and the scene is closed by morbid enlargement of the liver. Now I do not look upon this sequence as merely fortuitous. The diseased actions are, I think, related as cause and effect, and each successive condition is consequent on the previous one. It may not be amiss to mention here some curious circumstances observed in the case to which I have just alluded. While this gentleman's liver was enlarging, there was no tenderness of the right hypochondrium on pressure. I have observed the same absence of tenderness in all the cases of this description which I have witnessed. The gentleman could bear pressure over the hepatic region without any inconvenience, and yet the liver was so enormously increased in size, that its inferior margin extended almost down to the pelvis. What is equally remarkable, he had no fever, and the tongue was perfectly clean and moist during the whole course of the hepatic affection. In my observations on a case in the fever ward, I remarked a few days since that some persons were too hasty in drawing inferences from the state of the tongue as to the existence of affections of the digestive organs. I shall not touch on this point, however, at present, and shall merely observe that this gentleman's tongue was perfectly clean and moist, notwithstanding the morbid condition and rapid growth of the liver. Another curious circumstance was, that during the hepatic affection, digestion appeared to go on very well, at least so far as the formation and due expulsion of feces are concerned. The alvine evacuations were regular, and the matter discharged presented the form and consistence of that which is passed by a person in good health. But there was a peculiarity in it to which my attention was first directed by the patient, who was an intelligent and observant person. The cylinder of fecal matter was composed of parts differing in colour and appearance: two or three inches consisted of pale clay-coloured substance; and immediately after this another portion, of about the same

length, was observed, presenting the ordinary bilious or brown colour of natural excrement; and then again another mass of clay-coloured matter, without any obvious trace of bile. This appearance I have now frequently witnessed; and the inference to be drawn from it is this,—that in such forms of hepatic disease the functions of the liver are performed, as it were, intermittently; it secretes bile during a certain period of the digestive process, then stops, then secretes again.

This peculiarity is noticed in many diseases of the liver; and it is important to remark, in attempting to explain the *rationale* of these hepatic affections, that in no disease of the liver is this symptom more frequently observed than in the scrofulous. Scrofulous disease of the liver is that state in which there is an increase of size in the organ, with induration and imperfect secretion, but without any remarkable tenderness. This condition in children is accompanied with irritability of the digestive organs, fretfulness, emaciation, loss of sleep, and impaired nutrition. The little patient becomes what is termed “pot-bellied,” and labours under thirst, debility, and febrile excitement. This has been frequently called remittent fever, and disease of the mesenteric glands, but in my opinion unjustly. It is only a form of general cachexy connected with the scrofulous diathesis, affecting secretion and nutrition in general, and the digestive and biliary systems in particular. It would be quite wrong to imagine, that in this form of disease the liver is the cause of the whole train of morbid phenomena; it is merely affected in common with other organs, and forms only an individual feature in the group of symptoms.

Now, in this form of scrofulous cachexy, where you have diarrhœa, emaciation, fever, thirst, and restlessness, the liver is frequently affected in the manner already described; and in the loose stools of such a child, you will find one part bilious, another part clay-coloured; they will be yellow to-day, and pale the next, accordingly as the liver secretes bile or suspends its functions. But in this instance, I repeat that the liver is only one of many organs affected by the same general cachexy. Could we ascertain the derangements of other secreting organs with the same facility, it is very probable we should find similar evidences of the morbid influence which pervades the whole system.

This view of the question shows, that you are not to expect to succeed in removing the disease by the use of calomel or any other mercurial preparation. Many of those persons whose practice is little better than routine, when called to treat a case of this description, first examine or inquire as to the nature of the alvine evacuations, and fixing on the single symptom of deficiency of bile, immediately prescribe calomel, to be repeated or continued until the secretion of the liver is established; but they forget that this state of the biliary system depends on the general state of health, and that the absence of bile is the consequence, and not the cause of the disease. Almost all the organs of the body are affected; and though calomel may restore the secretion of the liver for a time, it cannot bring back the organ to its natural state, or cure the disease. The malady is to be remedied in a different way: the secretions (and that of the liver among the rest) are to be improved by change of air, by an appropriate diet, by exercise, tepid or cold bathing, and the use of those remedies which are adapted to modify or correct that state of the system on which the general derangement depends.

An observation of such cases has led me to a train of reflection respect-

ing the occurrence of the same order of symptoms in persons who have been injured by the abuse of mercury. Many persons who get venereal employ mercury injudiciously, and fall into what has been termed the mercurial cachexy, in which there is a general unhealthy state of the organs. A patient who has fallen into this state very closely resembles a scrofulous person, and is apt to labour under the same emaciation, impaired nutrition, irritability, feverishness, and the same sort of cutaneous, glandular, and periostitic affections. The chronic mercurial cachexy is very like the scrofulous, and attacks very nearly the same organs and tissues. Hence the difficulty of curing affections of the liver, and other organs, when they are the result of this depraved habit. This is the key to the explanation of those horrible ravages which we frequently witness in cases of venereal disease complicated with mercurial cachexy—a state of constitution which is closely allied to the scrofulous. You will frequently meet with this consecutive affection of the liver in cases of morbus coxæ, where the patient has been labouring for years under ulceration of the joint. The growth of the rest of the body appears checked, the patient is stunted and emaciated, while the liver increases rapidly in size. It was from observing the occurrence of liver disease in persons labouring under the scrofulous cachexy, that my attention was first turned to its occurrence in persons broken down by long or injudicious courses of mercury.

One word, gentlemen, as to the curability of hepatic affections of this kind. I believe that it is always an unpromising form of disease; but persons of originally good constitution, and under the age of thirty, will generally escape, if treated judiciously, and with proper care and attention. Some months ago I attended, with Sir Henry Marsh, a young gentleman labouring under this affection, as a consequence of the abuse of mercury. We found him greatly emaciated, and labouring under considerable enlargement of the liver, with commencing ascites. He had also great determination of blood to the abdomen, diarrhœa, and hemorrhoids. By strict attention to his bowels a well-regulated diet, change of air, and the use of taraxacum, conium, and hydriodate of potash, he was ultimately cured, after an illness of nearly two years, during which the liver had grown to an enormous size. I may state, that he is at present in good health, and that the liver is nearly reduced to its natural dimensions; this gentleman's age is about four-and-twenty.

I observed one circumstance in the progress of this case which is worth noting. He was suddenly attacked with a papular form of purpura, accompanied by much tingling and itchiness, and answering to the description given of *Purpura urticans*. This peculiar eruption was very troublesome at night, and formed several successive crops, which altogether lasted a month. It occupied the extremities, upper and lower, and was very abundant on the latter. The gentleman wore a bandage to relieve a varicose state of the veins of the left leg. Now the eruption never appeared in the parts subjected to the pressure of the bandage, although it was very thick immediately below and above those parts.

In persons below thirty the liver may become enlarged to a very considerable extent, and yet return again to its natural size under proper treatment. I could point out several persons in Dublin, in whom the liver had been so much enlarged, that I thought their case hopeless, and yet they have recovered, and are at present in the enjoyment of good health. The process by which the organ returns to its natural state and

dimensions is generally slow ; in two or three cases it occupied a space of time varying from one to two years. I attended a gentleman some time ago with Mr. Carmichael ; and from the history of the case, as well as the symptoms present, we were induced to look upon it as incurable ; and yet the patient has completely recovered. The late Mr. Macnamara and I attended a lady who had a very remarkable enlargement of the liver, but in the course of a year the viscus diminished so much in size, as to be very little above the normal dimensions. Within the last year (1842) Dr. Stokes and I have treated successfully an old gentleman between seventy and eighty years of age, who had an enormously enlarged liver and ascites. We agreed to try a combination of blue pill and hydriodate of potash. This he took for nearly six months, and its use was attended by a visible, almost daily, decrease in the size of the liver, and his general health gradually improved. He took the pills for a couple of months before his mouth got a little sore ; but full salivation was not produced. He called on us a few weeks ago to thank us for our successful treatment, and took no small pleasure in directing attention to his altered appearance and renovated health. This is a matter of no common interest ; for cases of this description have been generally looked upon as beyond the reach of medical aid. You should, therefore, be very careful in your prognosis of such cases, and not give them up at once as incurable.

I may observe in conclusion, that it is entirely as the result of the cachectic habit that this enlargement of the liver is observed. I have assumed this principle as the basis of my argument, and I think it is founded in fact and truth. It is also curious to observe, that the same cachectic state which gives rise to emaciation and decay of the body, generally occasions hypertrophy of some particular organs. What we most commonly observe in such conditions is, general wasting of the system, accompanied by increased morbid nutrition in certain organs. This appears to be the general law. You perceive that in the explanation I have given, I have supposed that enlarged liver is the result of a general cachectic state of the system, and it is of importance to recollect, that this state may be brought on by the injudicious exhibition of mercury, or by carrying mercurialization further than the constitution will bear. In this instance, we are compelled to allow, that our practice may furnish weapons to be turned against us by the disciples of homœopathy. It cannot, however, be denied, that the immoderate use of mercury has been productive of liver disease. The late Mr. Hewson pointed out this to the attention of those who visited the Lock Hospital while under his care. At this period it was the custom to salivate every patient, and keep him under the full mercurial influence for a month or two ; and it frequently happened, that just as the mercurial course was finished, the patient got disease and enlargement of the liver. Were I inclined to theorise, I might, perhaps, offer some fanciful hypothesis in explanation of this occurrence, and might trace some connection between the stimulant effects of mercury on the liver, and the subsequent hypertrophy. I shall, however, content myself at present with noticing the fact, and leave the explanation to my juniors, who always explain matters, according to my observation, much more readily than their seniors.

There are also other diseased states of the system, in which we have enlargement and morbid alteration of the liver. I can point out to you four different states of the system in which hypertrophy and disease of

the liver forms one of the results of the general affection of the system. The next of those to which I shall direct your attention is scarlatina. Those who have attended the wards during the past month have seen examples of this. We have observed during the same week two patients labouring under scarlatina, who got disease of the liver and jaundice. One of the patients, a little boy, was attacked with the disease in an extremely violent form, accompanied with high fever, and a very remarkable eruption. In a few hours after the exanthema appeared, the entire cutaneous surface was dyed of a brilliant red; in fact, the skin looked as if it had been painted over, and there was not a single spot free. In cases of this kind the violence of the cutaneous inflammation is sufficient to kill, without any other unfavourable complication; and the patient seldom lives more than three or four days. You observed in this case, that the whole epidermis peeled off. But what I wish to direct your attention to is, that this boy after two days had evident symptoms of disease and enlargement of the liver. A young man, in the same ward, had also an attack of scarlatina, but in a milder form. On the third day he likewise got inflammation of the liver, but was cured by general and local antiphlogistic treatment. You are aware that scarlatina is one of those diseases in which a train of unfavourable sequelæ are apt to remain after the removal of the original complaint. Persons, after recovering from the exanthematous fever, will sometimes get into a bad state of health, and instead of convalescing, become restless and feverish towards evening, have an irritable jerking pulse, hot skin, derangement of the digestive organs, diminished urinary secretion, and finally become dropsical. Now, from observing the supervention of hepatic disease in such cases, both in hospital and private practice, my attention has been directed to the liver; and I never omit making an examination of that organ when called to treat those symptoms which are looked upon as the sequelæ of scarlatina. In many of these patients I have found the liver in a state of inflammation of rather a chronic character, and without any of that remarkable pain or tenderness which characterizes acute hepatitis. But still it was inflamed, as proved by the benefit derived from local antiphlogistic means; and, moreover, its condition appeared to retard and prevent convalescence. Not long since, a friend of mine, a very intelligent practitioner, who was attending a case of this description, and had tried a variety of remedies without any benefit, was very much surprised when I drew down the bed-clothes and showed him that the liver was diseased. He had not thought of the existence of any thing like an hepatic affection, and was very much surprised that his treatment had proved so ineffectual. By the use of leeches to the right hypochondrium, the employment of mercury, and a proper regulation of diet, the patient was soon relieved, and the fever, thirst, and anasarca, quickly disappeared. In cases of this kind, the hepatic affection is the result of the general inflammatory diathesis, superinduced by scarlatina. You are all aware that nothing is more common after scarlatina, than inflammation of various organs. Thus some persons are attacked with pleuritis, some with pneumonia, others with inflammation of the liver. Many persons continue in a valetudinary state after the eruption has declined; they do not convalesce according to our expectations; the pulse remains rather quicker than natural; the bowels are deranged; the appetite bad; thirst urgent; and urine scanty. In many of these cases you will find that there is a species of chronic hepa-

titis going on, which keeps up the feverishness, and retards convalescence. This is a point of great importance, to which I am the more anxious to draw your attention, because even the latest writers on scarlatina have either entirely omitted or very insufficiently noticed it.

There is another organ whose morbid affections frequently implicate the liver; I allude here to the heart. I have already spoken of certain cachectic states, in which the liver becomes enlarged and hypertrophied as the result of the general derangement of the system. In the present case the hypertrophy and disease of the liver originate in a morbid condition of the heart; this is a very frequent cause of hepatic derangement. You have an example of it at present in the chronic ward, in the case of a poor man labouring under bronchitis of long standing, with disease of the heart, dropsy, and enlargement of the liver. In cases of this description it is a matter of some difficulty to determine in what organ the morbid sequence commences; for where many diseases coexist, it is not easy to ascertain how they are related to each other as cause and effect. I have, however, had several opportunities of observing the progress of the disease from the commencement, and the manner in which the different organs become successively implicated.

Some time ago there occurred a remarkable example of this form of hepatic affection in a relative of mine, aged 14, who, in consequence of exposure to cold, was attacked with rheumatic inflammation of the joints of a very intense character. Owing to a want of proper care, the disease was allowed to go on unchecked, and metastasis to the pericardium took place. I happened to be out of town at the time, and he had no advice or assistance for nearly twenty-four hours. Pericarditis of a violent character became developed, and it was only by the most energetic treatment that he escaped with his life. He had pericarditis with effusion, and all the physical signs and symptoms of carditis. After the acute symptoms were removed, the signs of adhesion of the pericardium, hypertrophy, and partial valvular disease, continued; and for a long time the heart's action was invariably accompanied by a long bruit de soufflét. These affections were followed by dyspnœa and increased action of the heart. But this was not all. He next got inflammation of the testicle, and finally chronic hepatitis with enlargement. The liver grew to a very considerable size; it continued to enlarge for about seven months; and altogether he laboured under a chronic form of hepatitis for more than a year. At last the disease yielded to treatment, and he recovered completely.

This, you will say, was a fortunate termination; but in young persons the powers of nature often act in a very remarkable manner in remedying or removing disease, and cures are sometimes effected in such patients which it would be quite absurd to expect in persons advanced in life. After having laboured under a long train of diseases, and having continued an invalid for nearly five years, this young gentleman at last, owing to his youth and favourable constitution, surmounted all his maladies, and is at present as strong and healthy as any person I am acquainted with. In this instance the chronic hepatitis was the result of the pericarditis, which formed the first link in the chain; and for the space of a year this young gentleman continued to labour under an affection of the liver, the result of disease commencing in the heart. This is a morbid sequence very frequently observed. You have pericarditis, accompanied with

inflammation of the lining membrane of the heart, partial disease of the valves, hypertrophy of the muscular substance, and then enlargement and induration of the liver. This is a very common complication, and deserves your most particular attention. When you see a patient whose appearance indicates disease of the heart—who has swelling of the face, dyspnœa, lividity of the lips, and turgescence of the cutaneous vessels—in fact, that peculiar expression of countenance which at once informs the practised observer that the patient is labouring under disease of the heart, you should not neglect to inquire after the condition of the liver, for in such cases it is very frequently in a state of chronic disease. I pointed out this circumstance some time since, in the case of a late surgeon, Mr. M., and directed the attention of the medical gentlemen engaged in the treatment of the case to the liver, in which no one had suspected the existence of disease. Recollect, therefore, that in many cases of disease of the heart you will also, on examination, find disease of the liver, produced, as far as I can judge, in the majority of instances, by disease of the heart; at least, I think I have never seen any case in which the hepatic affection had the initiative, and seemed to have brought on the organic affection of the heart. In Mr. M.'s case, and several others which I had an opportunity of watching from the commencement, I have no doubt that the disease of the liver was secondary, and that the morbid sequence commenced with the heart. I am quite convinced that disease of the liver may give rise to functional derangement of the heart; for whatever impairs secretion and deranges digestion, will give rise to palpitations, tendency to syncope, and other phenomena of functional disease of the heart; but I have never seen any example of organic disease of the heart as the result of disease of the liver.*

It is of some importance to be aware of this complication; for in treating the disease of the heart you must also attend to the hepatic affection, because it has a tendency to aggravate and confirm the cardiac symptoms. This affection, however, is not to be looked upon as acute, or even sub-acute hepatitis. There is scarcely any pain of the side or tenderness present, and the patient is not always jaundiced; it appears to be scarcely any thing more than congestion, causing hypertrophy and chronic morbid growth. I shall not, however, speak too positively on the subject, as the difference between hypertrophy and inflammation of a low and obscure character cannot be easily determined.†

There is another disease in which derangement of the liver is a common

* [The disease of the liver is almost a necessary consequence of important disorder of the heart. It probably results directly from the difficulty in the circulation, which of course tends to keep this organ turgid with blood. The disease is thus frequently almost mechanical, produced directly by the difficulty in the circulation, and cannot be removed unless its cause is susceptible of cure. The symptoms of this secondary disease are not always well marked, and its very existence is often not suspected until the fatal termination of the case.—W. W. G.]

† I am glad to find that this subject has been taken up by so able an observer as Dr. Bright, who, in the third number of *Guy's Hospital Reports*, p. 605, has made some excellent remarks on the influence of heart disease in producing congestion of the liver. In *Dr. Elliotson's Human Physiology*, Part I. p. 103, there are some observations which throw much light on the intimate relation existing between the circulation within the chest and liver.

symptom, and I bring it forward chiefly for the purpose of rendering the subject under discussion more complete, as it is an occurrence well known to practitioners, and sufficiently dwelt on in medical books. I allude to that affection of the liver which is observed in cases of intermittent fever. Ague frequently produces a powerful determination to the internal organs, particularly the liver and spleen, and if treated badly, or unsuccessfully, is apt to bring on disease of the liver. The organ becomes congested, hypertrophied, and indurated, and presents a condition somewhat analogous to that which supervenes on disease of the heart, or results from the cachectic state of constitution produced by mercury or scrofula.

The next form of organic derangement which I shall briefly touch on, is that of the spleen. It is of advantage to place cognate affections beside each other, for the purpose of comparison; by doing so, we frequently derive many instructive and useful analogies. Besides, we have had a remarkable case of enlargement of the spleen in our wards at the same time we had the cases of hepatic disease to which I have alluded. I may observe, that the circumstances under which enlargement of the spleen takes place, differ in many points from those which determine hypertrophy of the liver. We have but few examples of inflammation of the spleen, while the cases in which enlargement and congestion of that organ take place are numerous. From the peculiarities of its anatomical structure, the spleen is very apt to become suddenly enlarged. Like the liver, it may become indurated and hypertrophied from intermittent, or from some general disease affecting the system, and thus lead to a train of secondary phenomena; the most remarkable of which is dropsy. But there is one peculiar symptom attending enlargement of the spleen, which I have frequently pointed out to the attention of the class, as observed at least in two-thirds of the cases, and of which we had an excellent specimen in the patient under treatment in the chronic ward. The history of this symptom is the more curious as showing a remarkable uniformity in the phenomena of a particular disease at very distant periods of time. This is seen by comparing the most recent descriptions of Indian splenitis, as given in an able analysis of Voight's work on the Spleen, published in a late number of the *British and Foreign Medical Review*, and the description of enlargement and disease of the spleen given by Aretæus. The ancients, it is true, cannot be now considered as authorities to be followed either in pathology or practice; for they were ignorant of many of the most important facts connected with the healthy and diseased states of the human body. In consequence of their inaccurate anatomical notions, they were unable to appreciate or describe many of those details which now enrich the domain of pathological anatomy; their writings, however, are invaluable in many respects, as containing admirable descriptions of diseases which still continue to infest the human body, and as recording certain groups of symptoms which are still associated. A comparison of their descriptions with those of modern times, cannot fail to be extremely curious, and may even prove highly instructive; for if we find that certain internal affections have, from the most remote antiquity up to the present period, been generally accompanied by peculiar derangements of distant parts, we are authorized in considering this connection to be something more than accidental, and consequently we may be led to discover relations between organs generally believed to be quite unconnected with each other. Thus, some years, I had three patients in

succession under my care, who laboured under chronic enlargement of the spleen, who were all affected with a similar sort of cachexy, and had all the same affection of the skin—namely, superficial ulceration of the legs. This coincidence forcibly arrested my attention, and I was still more struck with the observation, on finding that Aretæus had noticed this very circumstance in his admirable description of splenitis. “If” (says he), “the spleen does not suppurate, but becomes chronically enlarged, then the patients lose their appetite, and become cachectic, swollen, and of an unnatural colour, while the surface of the body manifests a disposition to ulcerate, particularly on the legs: the ulcers are hollow, round, livid, sanious, and difficult to heal.” This description agrees precisely with the cases to which I have already referred, and it coincides, in a very remarkable manner, with the account lately given by Dr. Voight, of chronic disease of the spleen, as it occurs in India. He observes, that the cachexy connected with the splenalgia Bengalensis frequently manifests itself by a tendency to ulceration; the disposition to which is so great, that leech-bites and blisters occasionally give rise to foul or phagedenic ulcers, which, under certain circumstances, as where the patient has used mercury and is residing in a swampy district, will sometimes run on to a fatal termination. It is also curious, that the predisposing causes of the different varieties of chronic enlargement of the spleen, as given by Voight, are exactly the same as those detailed by Aretæus; and both writers correspond in their statements as to the age and habits of life of persons most liable to this disease, as well as the nature of the locality and the season of the year most favourable to its production. This agreement between authors separated from each other by so many centuries, and who describe the disease as it occurred in distinct regions, and among different races of mankind, is extremely curious, and exhibits a very remarkable example of the identity of the morbid phenomena produced by the same causes.

So far of the pathological states of particular organs which arise in certain conditions of the system, and most generally form a terminating link in the chain of diseased action. You will perceive that my observations are chiefly limited to a detail of the most important pathological observations made in our wards during the preceding three months. After we have made a brief review of what has occurred during this period, we shall take up the consideration of the cases at present under treatment.

The next disease which came under our notice so often as to deserve a separate notice, was erysipelas. There were some points of interest connected with the history of the erysipelas which prevailed in this hospital during the months of August, September, and October. In the space of somewhat more than two months, we had about twenty cases of this disease; and, indeed, the morbid cause appears to be still lingering in our wards, though less frequently manifesting itself, for we have had only one case within the last ten days. Before, however, I proceed to notice the phenomena of the disease, as observed here, I shall make a few observations connected with the treatment of this affection in general. I am anxious to direct your attention to this point, because the history of this epidemic has furnished some useful lessons, and has shown how much the treatment of any disease will depend on its epidemic character and existing peculiarities. The disease was treated here in every instance, and through all its stages, with wine, quinine, and opium; and, with the ex-

ception of a single case, this treatment has proved uniformly successful. Erysipelas, you are aware, is generally looked upon as an inflammatory disease, and its treatment is always more or less antiphlogistic, particularly during the early stage. At this period, it is customary to treat it with general bleeding, leeching, scarifications, purgatives, mercury, and tartar emetic; and I will allow that many cases should be treated in this manner. But the gentlemen who have attended this hospital within the last three months, have witnessed a form of erysipelas which required from the beginning an exactly opposite line of treatment. In the management of the cases which fell under our observation, no one in his senses would think of using general or local depletion, purgatives, or tartar emetic. The moment the disease appeared, we were obliged to attack it with tonics, narcotics, and stimulants. You perceive, then, that in erysipelas there are two very distinct extremes, between which there are many intermediate shades and varieties. It is well to bear this in mind. When you are called to treat a case of erysipelas, you should recollect that it is a disease capable of exhibiting a great variety of forms, amenable to no fixed line of treatment, and requiring for its management all the sagacity and skill of an accomplished practitioner. I have seen many instances in which this affection appeared in a distinct and well-marked inflammatory form; and I have treated cases with venesection, leeching, purgatives, and tartar emetic, and found these means admirably well fitted to remove the disease. Here, on the contrary, wine, opium and sulphate of quinine, were the only remedies on which we could rely with any degree of confidence. On the other hand, you will meet with intermediate cases in which these different modes of practice should be employed, either at distinct stages of the complaint and at a considerable interval, or should succeed each other by a rapid transition. Erysipelas, I must again repeat, should not be treated from its name. Many persons have maintained, that when gangrene supervenes on inflammatory affections, and among the rest, on erysipelas, that it is the result of an excessive degree of inflammation, and that it might be successfully combated by judicious depletion. This, however, is by no means generally true; and it is of importance that, in forming proper notions of the pathology and treatment of erysipelas, you should dismiss from your minds all preconceived opinions, and be regulated solely by the impressions derived from correct observation and facts. What I wish to impress upon your minds is, that gangrene may and does occur in cases of erysipelas quite independently of excessive inflammatory action, and requiring a plan of practice quite different from the antiphlogistic. I do not assert that gangrene does not arise in many instances from the violence of erysipelatous inflammation, and that in such cases it is to be met by prompt and decided antiphlogistic treatment, but I think your views of the pathology of this disease will be both imperfect and false, if you look upon the gangrene which frequently supervenes in erysipelas as the result of immoderate inflammatory action. The following case, which is one of extreme interest, will, I think, bear me out in my assertion.

Mrs. B., a lady of middle age, was attacked with feverish symptoms on the 24th of last March. Notwithstanding the diligent employment of antiphlogistic treatment by Mr. Barker, the pyrexia increased; in the course of a few days her throat became sore, and shortly afterwards erysipelas appeared on the face. Her case assumed a very dangerous aspect: she

continued seriously ill for some days, and was saved with difficulty. On the 1st of April Mr. Carmichael advised the diligent application of fomentations, with the view of relieving the local symptoms; and her son, a young man of eighteen, of temperate habits, florid complexion, muscular frame, and who had always enjoyed a vigorous state of health, undertook the duty of applying the fomentations with much zeal and assiduity. Towards evening, he thought, but without reason, that her case was hopeless, and fell into a violent paroxysm of grief, from which he was induced to rouse himself for the purpose of resuming his occupation of applying the fomentations. While thus engaged, he got, to use his own expression, "a whiff of sickening air from the bed-clothes," and immediately felt unwell. This was on the 1st of April. On the second he was feverish, and complained of headache, for which he got aperient medicine, and was leeches. On the 3d there was no improvement, and he had passed the night without any sleep. On the 4th, Mr. Carmichael considered it necessary to leech the temples again, and to continue the exhibition of antiphlogistic and aperient medicines. He now began to complain of severe pain in the right shoulder, which at first appeared to be of a rheumatic nature. He became more and more restless, and on the 7th of April was reported to have slept none for the three preceding nights. A very perceptible fulness was now observed under the right clavicle, extending down over the pectoral muscle; the parts were tender to the touch, but not red. Mr. Carmichael now examined the hand and arm of the same side with much attention, for the purpose of ascertaining whether any wound or injury had existed, for the symptoms seemed to resemble closely those produced by poisoned wounds. None, however, could be detected. The restlessness now increased to an extraordinary height; during the following night the patient changed from one bed to another at least one hundred times, and the servants were incessantly employed in making and adjusting three beds, from one of which he wandered to another, impelled by an intolerable feeling of anxiety and uneasiness. During this period his bowels were free, his urine copious; and though his fever was considerable, it was by no means proportioned to the nervous excitement, nor was it accompanied by delirium or pain in the head. The swollen parts of the trunk were leeches freely twice, and diligently fomented, and continued to present the same appearance until the 10th, when a red patch appeared near the shoulder, subsequently spreading into a vividly red erysipelatous blush, which occupied the skin covering the pectoral muscle, and right axillary region. I saw him for the first time on the 11th. His pulse was 120, and by no means deficient in strength; skin hot, but covered with perspiration; he did not complain of headache, but was quite sleepless, and excessively uneasy. His muscular strength was apparently not much reduced, and, indeed, until a few hours before his death, he was able to turn in bed with ease. His tongue was dry in the centre, and furred, but moist at the edges. The erysipelas was now spreading rapidly towards the left side, and down the front of the abdomen. An attempt was made, but in vain, to arrest its progress by the application of nitrate of silver to the skin around its margin, an operation which was performed with great care by Mr. Carmichael. Mercurial ointment was next applied to the inflamed surface, and although the erysipelas continued to spread, we were led to entertain some hopes of our patient, having succeeded, by means of tartar emetic, followed by opium, in procuring for him much, and

as he said, refreshing sleep. On the morning of the 13th, however, a black colour of the corium was observed in the situation of one of the bullæ on his left side. This alarmed us; and in a few hours afterwards our suspicions were confirmed by the appearances of dark maculæ in many parts of the erysipelatous surface. These livid patches spread very rapidly, and were in some places accompanied by effusion beneath the cuticle, but in others they appeared to consist in a mere change of colour in the external surface of the erysipelatous corium, without any detachment of the epidermis. The patient took abundant nourishment, and got wine and cordials, but without any favourable effect. The scrotum now became engaged, and speedily assumed a gangrenous appearance. In some places the epidermis separated, and the gangrenous surface of the corium secreted sanies in large quantity, but in many parts no detachment of the cuticle took place. On the 14th, nearly the whole of the right side of the abdomen and the scrotum were superficially gangrenous, and the belly became tympanic. During this time apparently healthy feces were discharged in considerable quantity; the skin was covered with perspiration; the urine was copious and natural; and we had here, what is worthy of notice, seemingly healthy secretions from the bowels, liver, skin, and kidneys, co-existing with extensive gangrene of the surface. His tongue, however, continued dry and furred; his restlessness unabated; and the sleep previously procured by means of opium now ceased, although that medicine was repeated in the same doses. His pulse also began to sink, but he remained quite sensible and free from delirium until immediately before his death, which took place on the evening of the 15th. During the latter days of his illness he had sweated copiously, and there was nothing remarkable in the odour of the perspiration. I may also observe, that the pulse likewise furnished but very fallacious indications; for I can assert with truth, that six hours before his death, though soft and compressible, it still possessed a steadiness and a volume by no means calculated to impart a suspicion of his approaching dissolution. His strength was also such as would lead to an erroneous conception of his real danger: for, as I have before observed, he was able to turn in bed shortly before his death. This observation is borne out by other cases, in which persons with extensive gangrenous erysipelas, and in imminent danger, have been known to be capable of walking about.

The evidently contagious nature of the erysipelas in this instance, and the youth and previous good health of the patient, render this case sufficiently remarkable. It is likewise worthy of notice, as proved by the circumstances, that the gangrene did not originate in the excessive violence of the cutaneous inflammation, for it did not appear in those portions of the skin which were primarily and most violently affected. On the contrary, we observed that the parts which became gangrenous had been paler and less tense than those which did not assume that condition, and that the portions of the skin which died, were those which had become engaged at the latter stage of the disease. This is of importance; for, combined with other facts, it forms an obvious refutation of the opinion not long since maintained, that gangrene and sphacelus are in all inflammations the result of immoderate inflammatory action, and consequently to be averted by antiphlogistic treatment only. In many instances, this opinion, and the treatment founded on it, are, no doubt, judicious; but that there are cases in which the gangrenous tendency supervenes on

inflammation, or, in other words, is superadded to the inflammatory process, but independent of its intensity, no one will deny who candidly weighs the details of the case which I have just related, and recollects that the conclusions deducible from them have of late received too frequent a confirmation from the rapidly fatal progress of putrid sore throat—a form of cyanche which has reappeared in Ireland, after having almost disappeared for upwards of twenty years. In both cases the disease appears to be infectious, and in both the gangrene seems to be quite independent of the intensity of the inflammation.

This is a question so important in a practical point of view, that I shall make no apology for detaining you, as I am anxious to impress upon the minds of my younger auditors, that there are certain forms of disease termed inflammatory, in which the ordinary treatment by depletion is quite inadmissible.

LECTURE XXXIX.

GOUT.

On constitutional inflammation in general—on fugitive swellings and pains—Curious case of erratic gout causing transient swellings—Gout affecting the lobe of the ear—Fatty hypertrophy of the ears—Gouty grinding of the teeth—Gouty neuralgia of the skin—Remarks connected with Dr. Kingston's researches on consumption—On paralysis in general—On paralysis depending on affections spreading from the extremities of the nervous system to its centre—Gouty ramollissement of the spinal marrow, two remarkable cases of—History of this hitherto undescribed form of the disease—Gout may affect the spinal marrow—Combination of arthritic inflammation with bronchitis—Effects of various remedies, particularly mercury—Effects of this in chronic bronchitis—Dr. O'Beirnes's plan of rapid mercurialization in certain affections of the joints—Application of the same method to inflammation of the lungs of a scrofulous character—Cases in illustration.

I TAKE the present occasion of making a few remarks on certain varieties of gout, of which I have recently seen several singular examples, premising some observations on constitutional inflammation in general.

There is no proposition in pathology better established than that there exist certain constitutional affections capable of generating and modifying local inflammatory action; and that local inflammations, depending on a constitutional cause, are subject to very different laws from those which regulate the phenomena of common inflammation.

Another fact of equal importance in many points of view, is, that local inflammations depending on a constitutional cause differ remarkably from each other, and in general present specific characters easily recognized. Thus, local affections arising from scrofula are not likely to be confounded with those depending on gout or rheumatism, and the inflammations produced by syphilis and other animal poisons exhibit peculiarities by which their respective origin and nature may be satisfactorily ascertained. It must, however, be admitted, that although advanced considerably in our knowledge of the phenomena of local disease depending on a constitutional cause, the subject still displays a wide field for investigation, and many points of much importance in pathology and practice require still further investigation. Professor Cayol, in his *Leçons Orales*, has made some observations on this subject well worthy of attention. Speaking of the dependence of local disease on constitutional causes, he says, "Il faut

nécessairement conclure que les dégénération organiques ne sont pas *cause*, mais effet. Et dès lors, nous sommes fondés à vous dire, qu'au lieu d'user votre vie à chercher toujours quelles sont les dégénération organiques et les altérations de texture qui *produisent* les symptômes des maladies, il serait bien temps de s'inquiéter un peu de savoir ce qui *produit* ces dégénération elles mêmes, en étudiant sérieusement les caractères, la marche, et la tendance des actes vitaux qui les préparent, et qui les *produisent* réellement."

There is one fact connected with local inflammation depending on a constitutional cause not sufficiently noticed, namely, that certain affections of this kind are sometimes remarkably fugitive and transient. We are accustomed to regard the process of inflammation, whether common or specific, as one which generally lasts for some days; but it occasionally happens, that a peculiar diathesis will give rise to local affections having the characters of inflammation, and which run their course and terminate in the space of a few hours. This observation, which should be borne in mind in the investigation of diseases connected with the general habit, will serve to explain some of the anomalies which strike us occasionally in the study of constitutional maladies. The first instance of this kind that came under my notice occurred in the case of a florid healthy-looking boy, aged six years, in whom, on attentive examination, I was led to suspect the existence of a scrofulous taint. At the time I saw him he was subject to a sudden and rapid formation of bumps, or tumours, on various parts of his body; sometimes on the arms, sometimes on the legs, and occasionally on the trunk. These circumscribed tumefactions were accompanied by a feeling of heat and tenderness, and apparently depended on local congestion, or effusion in the subcutaneous cellular tissue. But what was most remarkable in them was, they arose, ran through their course, and terminated in the space of four or five hours; they were suddenly developed, and disappeared with equal rapidity. In the course of a month, other more permanent inflammations were set up; scrofulous ophthalmia, glandular swellings, and ulcers supervened; the joints became affected, and the boy died in about a year and a half, with all the characteristic marks of the scrofulous diathesis. I have detailed this case before, and shall not dwell on it any farther at present; but it is well worthy of notice, in consequence of the very brief duration of the first local affections.

Gout is another disease which occasionally exhibits examples of its peculiar inflammation attacking various parts and tissues of the body, and that for an extremely short period of time. It is well known that persons of a gouty habit are subject to sudden pains or twitches, which last only for a few minutes, or even seconds. I shall not stop here to consider what may be the nature of these fugitive pains; I may observe, that certain facts seem to prove, that these pains are the result of a momentary congestion. Thus in various neuralgic affections, and in inflammatory diseases in which the nerves are considerably engaged, pain is suddenly produced by coughing. If a man labours under neuralgia of the frontal or facial nerves, or if he be affected with sciatica, how are his sufferings increased when he has unfortunately at the same time a cough! Every time he coughs, the affected nerve gives notice that it feels the congestion by a sudden pain. Now the only way in which coughing can increase a local pain, is by favouring local congestion; that it is capable of doing

this is proved by the redness of the face it occasions, as also by the hemorrhage from the nose, or from recent wounds, which is so often produced by a fit of coughing.

As there can be no doubt, then, that a momentary congestion may produce a momentary pain, we may infer that in many instances gouty twitches are owing to some cause which determines an instantaneous congestion of the affected part. Sometimes the congestion is more lasting, and then the pain is proportionally intense and persistent. Thus Mr. Daly, of Henry-street, knows a gentleman, the lobe of whose ear is sometimes attacked suddenly by gouty congestion, accompanied by agonizing pain, but which never lasts more than a few hours.

This fact brings to my mind a curious case which some years ago came under the notice of the Surgeon-General, Mr. O'Ferrall, and myself. A young gentleman of fortune perceived that the pendent lobes or tips of his ears were becoming elongated; they increased gradually in such a manner that he considered himself disfigured by their unseemly length, and therefore attempted their concealment by allowing his hair to grow in long curls, so as to hide the ears. This gentleman soon afterwards became dropsical and died; and, on dissection, Mr. O'Ferrall found his liver in a state of fatty degeneration. On slitting up the elongated portion of the ears, he discovered that their hypertrophy had been occasioned by the deposition of a large quantity of fat. The subcutaneous adipose tissue, and the omentum, were likewise much loaded with fat. This observation is of some importance, as teaching us that fatty degeneration may be the consequence of a general tendency in the system to manufacture and deposit fat in the textures of the different organs. In this point of view the change of structure in the liver must be regarded as an effect, and not as a cause, of the general derangement of the system, and the fatal termination of the case.

One of the most remarkable instances of fugitive inflammation affecting various parts of the body, which has come under my notice, occurred in the person of a gentleman lately under my care. I shall not go through the whole history of his disease, of which he has favoured me with a very minute account, but shall merely state, that he is of a gouty habit, has had an attack of gout in the stomach, and is at present subject to a gouty affection of a very extraordinary character. After labouring for some time under languor and weakness, accompanied by spasms, pain, and sense of weight in the stomach, the pain of the stomach ceases, and his face begins to swell at various points, generally commencing on the forehead, and involving the cheek and eye, so as to close up the latter. He first feels as if a small current of air was directed on the face; then, as it were, the filip of a finger, or the bite of a gnat; and, on looking in the glass, he suddenly perceives a tumour rising on the forehead, which, in the space of half an hour, becomes as large as a pigeon's egg, and, as he expresses it, moves down until it closes the eye. Sometimes it attacks his lips, and other parts of his face, but never affects his nose. These tumours have also appeared on various parts of his body; and he observes in his letter to me, that he is sometimes led to think that they attack his stomach also. Before and during an attack of the face, which generally occurs on the left side, the discharge from the nostril of the affected side ceases. But what is chiefly remarkable in this case is, the singular character of the local affection. The tumours arise, run through their course,

and disappear, in the space of a few hours; and on the following day there is no trace of their existence. Sometimes the lips, inside of the mouth, palate, and uvula, are attacked, giving rise to very considerable inconvenience. Were such tumours to occur in the neighbourhood of the glottis, I need not say that they would be pregnant with danger of no ordinary character. I may observe, that this gentleman has derived great benefit from the use of hydriodate of potash, and from decoction of sarsaparilla with nitric acid, and that his health is at present much improved. His case presents a very curious example of transient local inflammation depending on the gouty diathesis.

Having touched on the subject of anomalous local affections as connected with the gouty habit, I may be allowed to refer to a subject on which I have already published some observations.

In a paper inserted in the *Dublin Med. Journal* for March, 1836, I noticed the morbid habit which some individuals have of grinding the teeth, and detailed some facts in illustration of this affection. I have now seen several cases of this kind, and I have observed that they all occurred in persons of the gouty diathesis. The grinding of the teeth continues for years as a daily habit, and produces very remarkable changes in the conformation of these organs, affecting sometimes one side of the jaw, sometimes both; so that in confirmed cases we frequently find the teeth ground down to the level of the gums. There is not at present the slightest doubt on my mind, that the irritable state of the dental nerves, which gives rise to this irresistible tendency to grind the teeth, depends chiefly on the existence of gout in the constitution. I may observe, however, that in many persons in whom the teeth are found worn nearly to the gums, there appears to be another cause in operation. Thus, in cases of indigestion it is not unusual to find the enamel of the teeth partially or considerably worn away, long before the natural time; and in such instances we used formerly to attribute the injury to the generation of acids in the stomach. The researches of Donné and Thomson, however, have shown that the saliva is subject to very remarkable alterations in certain forms of dyspepsia, and that whenever the disease is accompanied by much irritation of the gastric mucous membrane, and derangement of its secreting functions, the saliva becomes extremely acid, and, of course, capable of corroding the enamel of the teeth. The following case has recently come under the notice of Mr. Pakenham, of Henry-street:—

A gentleman, aged 45, slightly made, but muscular, and born of healthy parents, was attacked with shivering and loss of power of the right side after a severe wetting. He recovered under appropriate treatment; but, about a year afterwards, began to observe in himself a tendency to grind his teeth, which gradually increased to such an extent as to prove a nuisance to himself and every one about him. Under these circumstances he consulted an eminent surgeon in Dublin, who applied the actual cautery behind one of his ears, slightly affected his system with mercury, and extracted one of his teeth,—all with considerable relief, which lasted for about six months. He then became as bad as ever, and applied to another surgeon, who tried iron in every form without success: and subsequently to a third practitioner, who used in addition leeching, blistering, pustulation with tartar emetic and various other remedies, but without any favourable result. All this time his medical attendants, so far from suspecting the presence of gout, ridiculed the idea of its existence.

About three months ago, this gentleman came to Dublin, went to dine at the house of a friend, and with some others, supped late at night, and drank some whiskey punch. Next day he had vomiting, purging, and epigastric tenderness, and on the day after the ball of his great toe became swollen, hot, and exquisitely painful, leaving no doubt as to the nature of the affection. In this gentleman's case the grinding of the teeth is not constant, but it is always greatest when the stomach is most deranged. The teeth in the under jaw are all sound: three or four of the molars of the upper jaw have been extracted. The four upper incisors are ground nearly half way through to the gum on the inside, while the lower are very little worn. By pressing the tongue against the upper incisors, or by touching a certain point of one particular tooth, he can at any time arrest the tendency to grind, and can suspend it as long as pressure is continued in the manner just described.

With the view of further illustrating the varieties of gout, I shall detail the following remarkable case, which came recently under my notice:—The patient, a gentleman of large fortune, is of a strong and athletic frame, about five-and-thirty years of age, and a member of a family subject to gout. He was much addicted to field sports, and accustomed, in cold weather, to frequent immersion of his feet in cold water, in pursuit of his favourite amusement, snipe-shooting. The consequence of this exposure has been, that he has been labouring for some time under a neuralgic affection of the lower extremities, which commenced in his feet and ankles, and extended gradually upwards, involving the whole of the lower extremities as far as the hips, and giving rise to sufferings of a very intense character. In a lecture formerly published, on Creeping Paralysis, I noticed, that repeated exposure of the feet to cold seems often to lay the foundation of this disease. Now in this case there is some danger that the gentleman, were proper measures neglected, may ultimately become paraplegic, or even generally paralytic. I do not bring this case forward as an example of gouty pains gradually advancing from the extremities towards the spine; for although I strongly incline to the opinion that his complaint is of a gouty nature, and although most of his medical advisers have suspected a gouty complication, still this is by no means a decided point.* Be this as it may, his case presents a very interesting specimen of creeping neuralgia, chiefly affecting the cutaneous nerves (nerves exclusively destined to perform the function of sensation), but gradually implicating the nerves of motion in the disease. I shall now proceed to lay before you the details of this case, which have been noted with singular accuracy and ability by the gentleman himself. In a letter to me he observes:—

“As you wish for a description in writing of the manner in which I am affected, I subjoin every particular I can think of which seems likely to throw any light on the subject.

“It is now nearly five years since I began to suffer severely from pains in my limbs, which for the last two or three years I have looked upon as neuralgic. About a year previous to that time I had occasional pains in one foot, which increased so as to become violent on one occasion, after a long ride. I had, however, been always in the habit of riding, and

* I have since seen his usual attendant, Dr. Little, of Sligo, one of the most experienced and skilful physicians in Ireland, and am much gratified by finding that Dr. Little's opinion exactly agrees with mine, as he considers the case to be gouty neuralgia.

considered that exercise to agree particularly well with my health. Indeed, I had found hunting of great use to me, when suffering from liver complaint, having had inflammation of the liver twice in my life. It is now fourteen years since I had the last attack of liver disease, and I very seldom have pain in my side ; whenever it occurs, it is generally removed by the use of a little blue pill.

“ When first the pains in my limbs commenced, they were confined to my feet ; then, for a long time, extended no higher than my knees ; latterly they have ascended as far as my hips, where, and in the groin, I sometimes experience great suffering. I have had occasional twitches in my arms, and very slightly across the chest. The pain always comes on with sudden violence, which renders it very hard to bear, especially when it attacks me during sleep. I am frequently aware of its approach, from a general feeling of discomfort and depression ; from which, in the beginning of my complaint, I used to suffer very much for two or three days before an attack. These paroxysms have, for four years, shown a great tendency to periodicity, recurring generally once every week, commencing on Saturday or Sunday, sometimes on Friday, and lasting till Monday. They have twice or thrice lasted for a week together, but sometimes continue only a few hours. In the commencement I have occasionally been free from them for two or three months together ; and within the last year was free from them, at two different periods, for a whole month. When in pain, I have never experienced the slightest alleviation from any thing, except at times from a full meal with wine, particularly champagne. I have often been unable to remain in bed, from the violence of the pain, which is increased by the weight of the bed-clothes, or the slightest touch of any thing ; even the air blowing on the part brings on violent torture : at the same time I can bear strong pressure, or even a blow on the parts, without making me worse. The pain appears to be quite on the surface, except that sometimes it seems deeply seated, particularly in the ankle-joint and shin bone. It is unaccompanied by any redness or swelling, and flies instantaneously from one limb to the other, rarely occurring in both at the same time. It leaves behind great weakness of the affected limb, so as to oblige me to walk with a stick for some time, and occasionally with two.

“ One very unpleasant consequence of the pains in my limbs is, that I now find I cannot use exercise on horseback, if I leave it off for any time. I have found this and walking at all times conducive to my general health. Indeed, I can still walk a good deal, even during an attack, although it is very painful, particularly when setting out. I find it necessary almost constantly to have recourse to aperient medicine—generally rhubarb pill. At times I have had giddiness of my head, and noise in my ears, to a very distressing degree ; and have had recourse to powerful purgatives, and even bleeding, to remove the symptoms, without effect. A medicine, principally nervous, in which gentian was an ingredient, relieved me at one time, after finding the above remedies ineffectual. I have already tried iron, mercury, nitro-muriatic acid, stramonium, arsenic, and the external use of croton oil, without benefit, except that I felt rather better for a month after two of these remedies, but no longer, and the pain returned with great violence at the end of that period. The counter-irritation appeared to increase my sufferings. I have also tried anodyne embrocations without effect. Anxiety of mind, or annoyance, often brings on an attack.

I even remarked, the other day, that it came on instantaneously, on breaking a tooth whilst eating. On the other hand, excitement, whether from a sudden necessity for exertion, as on occasion of an accident, or any thing that gives a pleasing interest and occupation to my mind, such as travelling through an interesting country, seems to keep off, and sometimes even remove an attack."

In general, a regular attack of gout in the extremities is preceded by a longer or shorter period of constitutional disturbance and dyspepsia. We must not, however, in making the diagnosis between gout and rheumatism, consider this distinction as not liable to exceptions, for I have seen more than one case of hereditary gout, in which the arthritic attacks came on suddenly, without the slightest precursory derangement of the health, or the operation of any assignable cause. I have as yet seen no instance of a similar nature in acquired gout.

Another exception to the general rule is also worthy of notice. In general, a fit of the gout is preceded and accompanied by a scanty secretion of turbid, high-coloured urine. As the fit goes off, the urine increases in quantity, becomes clearer and paler, and loses its tendency to deposit the lithates and purpurates. Now, in two cases of hereditary gout, I have seen this order reversed, and the approach of the fit announced by a great increase in the secretion of urine, which was quite watery and limpid, and continued so until the violence of the articular inflammation began to decline. The urine then became scanty, and deposited the lateritious and pink sediment in great abundance.

That the gouty diathesis may excite its specific inflammation in most of the tissues of our organs, is a fact generally admitted; but I regret to state that our knowledge concerning the effects which it produces in these various tissues, is far from being accurate or extensive. Beere, M'Kenzie, Middlemore, and others, have done much towards elucidating its effects on the eye and its appendages; and we are tolerably well acquainted with its progress in serous, synovial, and fibrous membranes. What changes it produces in the secretions of mucous membranes, is a question which has not been studied with an attention commensurate to its importance. Thus, though all acknowledge the existence of gouty cough or bronchitis, the diagnosis and history of this affection are still very incomplete. This has been acknowledged by Dr. Stokes, who has published by far the best account of bronchitis which has yet appeared.* The effects of gout on the lining membrane of the urethra and bladder are better known and studied, but I think that much still remains to be done in this as in every other class of inflammatory diseases where the inflammation depends upon a constitutional taint.

In my published lectures I have long since expressed an opinion at variance with that generally taught concerning the bronchitis and pneumonia which accompany pulmonary consumption, and I have brought forward strong reasons for believing that too much importance has been attached, and attention too exclusively devoted, to the tubercles in this disease. Thus authors talk of tubercular pneumonia, where it would be more correct to designate the affection as scrofulous pneumonia accompanied by tubercles; they speak of tubercular cavities and abscesses in

* See a treatise "On the Diagnosis and Treatment of Diseases of the Chest," by W. Stokes, M.D. This work places its author among the first medical observers of the day, and has acquired for him a European fame.

the lung, in cases where scrofulous cavities and abscesses exist. In fact, I repeat it emphatically, that the essential characteristics of phthisis pulmonalis are derived from scrofula. This it is which converts what would be common into consumptive pneumonia or bronchitis; this it is which so often renders both incurable.

Tubercles and tubercular infiltration are mere results of nutrition morbidly modified by scrofula; they are effects, not causes: they often exist without scrofulous inflammation, and the latter may exist without them. It gives me much pleasure to find that these opinions, which I published many years ago, have received ample confirmation from the observations of Dr. Kingston, in a paper read before the Royal Medical and Chirurgical Society of London, and shortly noticed in the *Medical Gazette*, April 29, 1837.

In pursuing the subject of my lecture, I shall now turn to the consideration of some phenomena connected with the gouty diathesis which possess a much deeper interest, and lead to views of far greater importance. I mentioned before, that we frequently observe flying-pains, or twitches, in various parts of the body, arising from a rheumatic or gouty cause; that in some instances these affections appear to be limited chiefly to the nervous trunks or branches, and that we have thus what may be termed gouty or rheumatic neuralgia. We are familiar with rheumatic and gouty sciatica, and we know that the history and termination of this form of disease often prove it to be inflammation of a specific character, chiefly confined to the trunk of the sciatic nerve. Now it is not unreasonable to suppose that this specific inflammation of a nervous trunk or branch, may, like other inflammations, extend farther, so as to involve parts of more importance to the economy. What I wish to draw your attention to is this—that in certain cases, where gout attacks the nerves, giving rise to gouty congestion or inflammation, frequently recurring, and acquiring increased strength and deeper root as it proceeds, the morbid affection may, after years, or even months, run on until it reaches the spinal cord, involving a certain portion or portions of that organ, and producing loss of sensation and motion commensurate to the amount of spinal derangement. This is by no means an anomalous occurrence; it is merely an instance of disease originating in the periphery of the nervous system, passing along the trunk of the affected nerve with a retrograde motion, and finally reaching the central parts. I have already pointed out this peculiarity in many affections commencing in the periphery of the nervous system, and showed how the disease extends gradually until it reaches the spinal cord, giving rise to various forms of paralysis. It is too much the custom to look upon paralysis as depending upon original disease of the nervous centres. I have proved that, very often, disease commencing in the nerves of some particular part or organ, may be gradually propagated to the spine, producing all the symptoms which are referable to an original affection of the nervous centres. In my lectures on this subject, I have brought forward numerous facts in proof of the propagation of disease from the circumference to the centre of the nervous system; and the pathological deductions I drew from these facts seem to me to include all the physiological discoveries made by Müller and Marshall Hall, concerning what the latter terms the reflex function of the spinal marrow. In these lectures I showed that enteritis, arising suddenly in two young and healthy persons, from indigestion and obstruction caused by an error in

diet, was followed in both by well-marked paraplegia. I instanced, likewise, examples of paraplegia connected with stricture of the urethra, and which were relieved by curing the stricture; and I detailed cases of acute and chronic affections of the uterus and kidneys, which had entailed on the patients, as a remote consequence of the original disease, loss of the power of motion in the lower extremities, sometimes partial and curable, sometimes irremediable and complete. The cases I am about to relate form a most interesting and valuable addition to those referred to, and enable me to carry the principle then advanced still farther by proving *that gouty inflammation of the nerves and their neurilema, may, in process of time, extend to the spinal marrow and its investments, and give rise to derangements of the latter, terminating in ramollissement and structural degeneration.*

The subject of gouty degeneration of the spinal cord has not been alluded to distinctly by any author with whom I am acquainted, and is, as far as I can learn, quite new. The deductions, therefore, which are drawn from my cases, must, of course, be subject to such modifications as may be derived from future experience, and must remain to be confirmed by further observation. It has been long known that gout may attack the brain, and the existence of gouty paraplegia is well known by practitioners who have studied attentively the progress of arthritic affections. Thus, in a case which I witnessed some time back, in consultation with Mr. Kirby, he prognosed the supervention of paraplegia at a time when the indications of its approach could not have been discovered by any observer of less experience and sagacity. I have already stated that gouty affections of the brain have long been known, and I am not sure that some of the older authors may not have alluded to gouty affections of the spinal marrow; but as our knowledge of the peculiar state of the brain and spinal cord, termed ramollissement, is comparatively recent, and not dating with any degree of accuracy earlier than the works of Abercrombie, Roston, and other modern authors, it is obvious that any observations made by the older writers concerning gouty affections of the nervous centres, can have no distinct reference to this lesion. The connection, therefore, of ramollissement of the spinal cord with gout, may be considered now, for the first time, distinctly pointed out. As one of the cases which I am about to detail presented an example of the most extensive ramollissement of the spinal marrow on record, it would, on this account alone, be especially deserving of attention; but its interest is increased tenfold when placed in juxtaposition with the second case, so as to exhibit, in a striking point of view, the close resemblance observable in the march or progress of both, as well as the identity of the lesion discovered after death.

Mr. —, residing in the Island of Anglesey, was very much addicted to field sports, and, while thus engaged, would occasionally remain for a whole day without food. He was also very fond of angling, and has been frequently known to wade up to his waist in water for many hours together, during very cold weather. His general health was good, and his habits were abstemious. In 1825, when about twenty-five years of age, he had fever, attended with inflammation of the joints, and said to be rheumatic: some pain and stiffness, and an evident enlargement of the knee-joints, remained, after the other articular affections had disappeared; these symptoms, however, yielded, in a few months, to rest and appro-

appropriate treatment. His health also improved greatly, and he had no complaint of any kind whatever until the autumn of 1828, when he had a slight attack of ordinary cholera, after returning from a shooting excursion. In the spring of 1832, he was attacked with pain in one foot, supposed to be of a gouty nature: this pain disappeared during a drive of fifteen miles in an open carriage, but a certain degree of tenderness remained, and was always felt, more or less, in the part originally affected. He had a similar attack of pain and tenderness in the same foot in the following autumn. At the time when this attack commenced he was twenty miles from home, and observed that during his journey the pain became diminished as before, and in a few days subsided altogether. In August, 1833, he had a similar, but much more severe attack; the pain was much more violent than before, and both feet were affected. This, however, did not prevent him from following field sports as usual; he went on horseback to the mountains to shoot grouse, and to this exercise, and drinking a bottle of wine, he attributed his speedy, or rather sudden, recovery from the pain in his feet.

Hitherto we have seen a naturally strong constitution struggling successfully against exposure to cold, imprudent habits, and a most injudicious method of disturbing, or rather repelling, local inflammation depending on a gouty diathesis. It is not easy to explain how it happened that driving in an open carriage, or riding over the mountains, so effectually cut short the paroxysms of gout in the feet: but it is enough to know that the fits were suddenly and imprudently arrested, to be prepared for the consequences which ensued—viz., an irregular distribution of the gouty effort, and its determination to internal organs.

In September, 1833—that is, about a month after the sudden subsidence of the last attack—he was seized with a violent colic, accompanied by obstinate constipation. The pain was very severe, but he suffered more from a general feeling of restlessness (a restlessness beyond belief, as he expressed it) than from actual pain. He was also greatly annoyed by singultus, and was jaundiced after recovering from the attack of colic. In a lecture already published, I have mentioned some cases of jaundice supervening on arthritic affections: in such instances, I am inclined to think that it depends on rheumatic or gouty hepatitis. In January, 1834, he had another attack of colic, preceded by a fit, the precise nature of which I was unable to ascertain. As these abdominal attacks frequently occurred, I shall give a description of one of them, as communicated to me by Dr. Llewelyn Jones, jun., his attending physician, a gentleman who justly enjoys a high reputation in his profession. “A dull, wearing, and fixed pain would attack the patient in the region of the colon: this pain was not increased by pressure, and was accompanied by nausea, occasionally by vomiting, and always by obstinate constipation. These symptoms were attended by a most distressing sensation of restlessness and anxiety. They lasted on one occasion for three days and nights before I could get the bowels opened, when they were immediately mitigated. The pulse was never quickened, and in general remained natural; but if the attack was prolonged, it became weak. There never was any fever, or any well-marked indication of inflammation in the abdomen. These attacks were always preceded or followed by a gouty affection of the feet.”

The attacks in the stomach and bowels recurred frequently, and always with the same symptoms, until August, 1835, when a visible tremour of

the fingers became observable: during some preceding attacks he used to complain of weakness of the wrists and pains in the fingers, particularly the last joints. As the disease progressed, these pains became more intense and extensive, and the torture he felt in the hands and arms was beyond description. After August, 1835, he began to lose the use of his arms, the tremours increased, and he began to complain of stiffness about the neck, with great restlessness and anxiety. The abdominal attacks came on occasionally, but not so severely as before. The arms became gradually weaker, until the loss of muscular power was complete, and they were greatly emaciated; but Dr. Jones, who had the patient under his observation until August, 1836, could not detect any evident diminution, either in the upper or lower extremities, and the intellectual faculties remained perfectly unimpaired. In October, 1835, two months after the state of the upper extremities had indicated the approach of paralysis, the lower extremities became similarly engaged: they were affected with tremours and weakness, and in the following December the patient had an attack of violent pain, with swelling and increased heat in the ball of one foot, which was pronounced to be of a distinctly gouty character. After each attack of pain in the feet, as I have been informed by this gentleman's sister, the loss of power in all his limbs increased, and if he gained a little strength in the intervals between these attacks, a recurrence of the paroxysm always made him worse than before.

In February, 1836, I went to Anglesey to visit this gentleman, and saw him in consultation with Dr. Jones and Dr. Williams of Denbigh. After a minute examination of the history and symptoms of the case, I declared it to be my opinion that a gouty inflammation had attacked the nerves of the extremities, and had finally extended to the spinal cord and its sheath. I said, that at an earlier period of the disease I would have advised salivation by mercury, but as that was inadmissible under the existing circumstances, we should have recourse to other measures. I forgot to state, that from the commencement of the disease, the advice of Sir B. Brodie and other eminent practitioners in London had been obtained by letter.

It would be useless to detail the various general and local remedies fruitlessly employed in this gentleman's case. He went to Liverpool in August, 1836, for the benefit of further advice; but finding no relief, returned to Denbigh, where he died in the ensuing October. For some time before his death he was greatly emaciated, and quite paralytic in all his limbs, but retained his intellectual faculties to the last. His body was examined by Mr. Williams, whom I had met in consultation in the preceding February. This gentleman informs me, that the viscera of the thorax and abdomen were healthy and normal, that no derangement or lesion of the brain could be detected, but that the spinal cord, opposite to the last cervical and first dorsal vertebræ, was softened to the consistence of thick cream; the remainder of the cord was also softer than natural, but did not present any thing peculiar in other respects.

In a letter which I have since received from Mr. Williams (to whose kindness I am much indebted, and to whose zeal and professional skill I can bear ample testimony), he expresses himself with regard to the nature of the patient's disease, in a way which confirms the views I have taken. He observes—"I once saw Mr. — in an attack of the gout in the feet, about three years before his death. There was much pain, and a decided

gouty blush. Exposure in fishing and shooting to a very imprudent degree, while under the influence of these gouty attacks, I have no doubt, did much to render the disease irregular and erratic."

The fact that the tremours and loss of power commenced in the arms two months before indications of paralysis of the lower extremities appeared, is sufficient evidence to prove that the spinal marrow was not the point from which the diseased action proceeded originally; for had this been the case, an affection of this organ, sufficiently violent to give rise to paralysis of the upper extremities so gradual in its progress, and so well developed, must long before this period have occasioned paralysis of the legs also. There is a striking analogy between the progress of the tremours and paralytic symptoms in this case and in cases of painter's colic; and the analogy likewise holds good as to the violent spasmodic affection of the bowels, and the constipation observed in both. It is further worthy of notice, that in painter's colic the nervous affection is accompanied by pain and weakness of the extremities, and ultimately, although long after the commencement of the disease, by spinal tenderness,—a fact which has been already noticed by Dr. Bright. Again, in painter's colic, as in the disease which I have just detailed, the affection of the spinal cord, and the consequent paralysis, are evidently subsequent to the disease of the peripheral portion of the nerves.

The next case, which I shall now proceed to detail, is one of equal interest and importance. A gentleman of robust frame, aged about fifty-five, and having an hereditary predisposition to gout, to which his father had been a martyr, and which had exhibited itself in one of his sons at the early age of thirteen, consulted me on the 7th of June, 1836. Being a man of extensive landed property, he resided chiefly in the country, and was in the habit of using much active employment and exercise, but indulged rather freely in the pleasures of the table. After suffering much annoyance from dyspeptic attacks, and various premonitory symptoms, he had a regular paroxysm of gout in the spring of 1828; he had a similar one in 1830, and another in 1832, each occurring, as before, during the spring season, and remarkably severe. During the year 1832, he had several slight returns of the complaint, and in January, 1833, had an alarming attack of an enteric character, accompanied by spasms of the stomach and acute pain of the extremities. In the autumn of 1834 he suffered greatly from a nephritic affection, and got relief after passing a considerable quantity of uric acid gravel. In the spring of 1835 he had a fall from his horse, and for some time afterwards complained of pain in the small of the back and around the trunk. He recovered, however, and during the summer and autumn of that year remained pretty well; but in the last week of December caught cold, which was followed by severe cough, and pains in the chest and feet: the latter were then considered to be the effects of gout. From this period, his health, though often apparently restored, was never firm: he became subject to sudden attacks of pain, particularly in the chest, which gave him much uneasiness. On the 3d of June he consulted a physician in his neighbourhood, to whom he described his ailment as "a slight pain in the right side, which troubled him only a short time before he got up in the morning;" this he stated he had felt occasionally for two months before. A very careful examination was made over the situation of the liver, the place in which he said he felt pain, but no tenderness or swelling whatever was

detected, nor was there any in the direction of the spinal cord. His pulse was at this time perfectly regular, his bowels natural, and no dyspeptic symptoms existed. He used, by the advice of this physician, tonic and laxative pills, and a stimulant embrocation.

When he consulted me on the 7th of June, 1836, I found him labouring under what appeared to me to be pleurodynia of an intermittent and gouty character. During the day he was perfectly free from pain, but in the evening the pain commenced, and continued with violence until morning. It is unnecessary to detail here the various local and constitutional remedies which I employed in this gentleman's case, but without any favourable result. From the middle of June his symptoms became worse; during the first part of the night his pains were very severe; towards morning he usually obtained relief by lying on his face, and carefully avoiding all motion. About the latter end of July, the pain, which had been almost constantly felt at the right side, moved to the left, imparting at one time the feeling as if a spear were passing through the diaphragm, and at another resembling the sensation as if these parts were squeezed in a vice. When he was in the horizontal position this pain was accompanied by a sense of weight; and at times the pain would shoot upwards to the clavicles, producing tenderness of the intercostal spaces. When the diaphragm was free from pain, it most commonly attacked the postero-inferior edges of the scapula, and the dorsal region in its vicinity. In August he tried the use of the warm bath, and found temporary relief from the first he took; he remained too long in the second, which was heated to the temperature of 100, and nearly fainted. He used the warm bath six or eight times, but found no material benefit from it, and could not bear the pain produced by the jolting of his carriage in going thither. About this time there was a visible alteration in his gait and figure: the left shoulder was elevated, his whole frame attenuated, and his face pale; he had nearly lost all power of bending the spine, and walked with a peculiar stiffness of gait, as if his arms were pinioned. On the morning of the 21st of August he stated that he had suffered great agony during the night, and on its abating, considerable tumefaction was observable under the right ribs. Dyspeptic symptoms now became urgent, his urine scanty and turbid; he became melancholy, and his mind was wholly occupied with sad presentiments. At my recommendation he came to town, in order to place himself under my more immediate observation, and to have the benefit of a consultation. About the 30th of August he got, to his great joy, an attack of gout in both feet; while this lasted, which was for about six days, he had complete relief from the agonizing pains in the diaphragm and chest. The interval of tranquillity was, however, but of brief duration; the inflammatory affection of the feet suddenly subsided, and the pain attacked the diaphragm with increased intensity. His strength, which had been rapidly failing, now gave way, and he became quite paraplegic. About the 10th of September the abdomen became engaged, without any alleviation of the thoracic symptoms, and he began to complain of constipation, tympanitis, and abdominal tenderness. The mucous membrane of the bladder became next affected; he had retention of urine, with great irritation of the prostate gland, and it was necessary to draw off the water with the catheter several times in the day. This state continued from the 22d of September to the 10th of November, when the sphincter of the bladder became paralyzed, and the urine drained off as fast as it was secreted. During all this time

the urine continued to present the characteristic marks of the lithic acid diathesis in an extreme degree, and contrasted strongly with the secretion, furnished by the inflamed mucous membrane of the bladder, which consisted of a greyish or whitish yellow, viscid, and somewhat puriform mucus containing either a free alkali, or an alkaline carbonate. This secretion was extremely adhesive, and hung down in long ropy filaments when the vessel in which it stood was inverted. The nature of this mucus was such as to prevent any reaction from taking place between its own alkali and the acid of the urine. The coexistence of two secretions in the bladder, the one alkaline and the other acid, as observed in this case, is extremely curious.

In this way the patient's sufferings went on every day increasing, and requiring the most extraordinary care to produce any alleviation, a task which was discharged with the most indefatigable humanity and attention by Mr. Richardson, of Sackville-street, to whom I am indebted for most of the details connected with the earlier history of this case. About ten days before his death, the extremities, upper as well as lower, and the trunk, became quite paralytic; and from the cervical vertebræ downwards, all power of motion and sensation was lost. His voice now became weak and inarticulate, deglutition was greatly impeded, and he finally sunk on the 27th of November, 1836.

It may be necessary to state, that at the time the paraplegia was beginning to seize on the extremities, the patient was much annoyed by occasional involuntary jerkings of the weakened limbs. This morbid action of the voluntary muscles continued when all power of voluntary motion had completely ceased.

This gentleman's body was examined twenty hours after death, by Mr. Adams. The body and limbs were greatly emaciated, and there were several sloughing sores on various parts of the body and limbs, particularly over the scapulæ, sacrum, and ilium. The brain was perfectly healthy, with the exception of a slight effusion under the arachnoid, and into the fourth ventricle. On opening the spinal canal, which was done with extraordinary care and accuracy, the spinal marrow, from the fourth cervical vertebra down to its dorsal termination, was found converted into a morbid mass, of an ash-grey colour and pulpy consistence. The theca was quite healthy; but on the first transverse section of it a great quantity of yellow serum flowed out, emptying at the same time the fluid contained in the fourth ventricle of the brain. When the medulla spinalis was slit from above downwards, various shades of colour were noticed on the surfaces of the sections. Opposite to the third dorsal vertebra a blackish colour prevailed; and from this downwards a yellowish hue was noticed. Two little tumours, about the size of filberts, were found attached to the crura of the fourth dorsal vertebra; these, as Mr. Adams remarked, were in all probability merely accidental formations. The bladder was very much thickened in all its coats, and was so contracted that it could not contain more than three ounces; its internal surface was of a dark green colour approaching to black. The ureters were also thickened, the kidneys enlarged, and their lining membrane of the same dark colour as the bladder. The pelvis and infundibula of the kidneys were dilated, and contained a reddish diseased urine, with some puriform matter, the odour of which resembled that of the urine passed during the three weeks previous to his death. The other viscera did not present any thing worthy of remark.

In order to understand the nature and progress of a disease like this, which travelled in a retrograde direction along the nerves and their sheaths to the spinal marrow, it may be well to point out some of the more striking phenomena by which it is characterized. In the first place, the long continuance of the pains at one side of the body only, is in itself a demonstration that the disease was then situated in the peripheral extremities of the nerves, and not in the spinal marrow; for it has been well observed by Ollivier, that inflammation of the spinal marrow or its sheath can never remain confined to one-half of either for more than a very limited period. Indeed, so narrow is the cavity in which these parts are contained, and so intimate is the connection of their constituent parts, that it is quite impossible for inflammation to remain more than a few hours, or at most a day or two, confined to either side.

Some facts connected with disease of the spinal vertebræ, and the pains accompanying the progress of that disease, may appear to contradict this view of the subject; for in vertebral caries pains are often felt at one side, or in one limb—nay, they often cease, or seem intermittent. Now in order to explain this we have only to recollect that here the inflammation does not commence in the spinal marrow or theca, but in the bones, and that the nerves, after their exit from the spinal cord, are affected in all cases before the cord itself. The reason is obvious; the affection of the nerves is secondary, and solely derived from their proximity to the inflamed bone and investing tissues; and consequently the nerves on one side may be affected, while the corresponding nerves on the other side escape for the time, and until the disease in the bone extends itself to their neighbourhood also. This view of the subject has not escaped the notice of German pathologists.

In the case above related the pains continued in one side for months, and were then suddenly transferred to the other, an occurrence which is quite irreconcilable with the idea of their dependence on primary spinal disease. The well-marked ease the patient experienced when the gout appeared in the feet, and the perfect intermissions of pain which he frequently enjoyed during the earlier stages of the complaint, afford strong evidence that the pains, however violent and excruciating they might have been during the paroxysms, did not depend on an original affection of the spinal cord. Had the fall which this gentleman received, or any other injury, induced inflammation of the spinal cord, and subsequent degeneration of structure, the order and course of his symptoms would have been very different, and long intervals of comparative ease would not have intervened between the appearance of the first pains and the subsequent paralysis.

When paraplegia originates in disease of the spinal cord itself, retention of urine, or irritability of the bladder, often announce the approach of the disease long before the loss of power in the limbs becomes evident; whereas, in all those cases in which the paralysis creeps from the extremities along the nerves towards the spinal marrow, the bladder is affected only at a late period of the disease, as occurred in the case which I have just detailed. Finally, the remarkable similarity which exists, in various points, between this case and that of the Welch gentleman, who had never met with any accident or injury, and in whom a considerable degree of ramollissement was observed, leaves no doubt that in both instances the disease commenced with gouty neuralgia, and inflammation of the nervous extremities

and their sheaths, which gradually extended to the central portions of the nervous system, and ultimately involved the spinal cord.

It is of great importance that practitioners should be aware of this termination, and know that in gouty habits the sad results already noticed may be produced, particularly as a knowledge of this fact may lead them to the timely adoption of preventive measures. Having experienced the total inefficacy of colchicum, hydriodate of potash, strychnine, and all the usual remedies, in relieving or removing this form of disease, I would be strongly inclined to recommend the early insertion of issues over the spine, with prompt and decided mercurialization. Mr. Colles has recommended the use of mercury in paraplegia, and cites some cases in support of the utility of the practice. It is to be regretted that he has not given any hints as to the mode of diagnosing the cases likely to be benefitted by the mercurial treatment, from those in which mercury would be inadmissible. Hence his recommendation loses much of its value, and cannot serve as a guide to those who have to treat spinal disease connected with paralytic symptoms. It appears, however, sufficiently plain, that mercury, employed at an early period of the disease, is most likely to prove serviceable where symptoms of paralysis arise from inflammatory affections of the nerves or their neurilema, or of the spinal cord and its sheath.

So far at present on the subject of paralysis, as connected with the gouty diathesis. I hope to be able, at some future period, to bring it again before you in a more complete and extended form.

In the preceding observations we proved that gout often attacks the nerves of the extremities in the first instance, and then pursues a retrograde course until it reaches the spinal marrow. It is an acknowledged character of gout that it wanders from one organ to another, and that it is very uncertain as to the periods and duration of its attacks, sometimes appearing to have ceased altogether, again only to return with redoubled violence. These characters of gout are strikingly displayed in the two cases I have related, where it finally seized on the spinal marrow; and it is quite possible that what took place towards the fatal terminations of these cases, may in other gouty subjects occur at a much earlier period, and without the previous occupation by the disease of the nerves of the extremities: indeed, there is no reason why gout should not attack the spinal marrow and its investing membranes in the first instance, or in consequence of metastasis. That rheumatism, the disease most closely allied to gout, may do so, has been proved by numerous examples, of which we owe some of the most striking to Dr. Copland and Dr. Prichard, for the result of whose researches on this subject I must refer you to the article *Chorea*, in Copland's Dictionary of Practical Medicine, where you will find that rheumatism not unfrequently produces both acute and chronic inflammation of the spinal membranes. These observations I make with the intention of proving that my views concerning gouty affections of the spinal cord are borne out by analogy, and the experience of others with respect to rheumatism.

The case of Coghlan, who has been for some time an inmate of our chronic ward, demands a few observations. He was admitted for an attack of arthritis on the 10th of December, and since that period has been subjected to various modes of treatment. You will recollect that on his admission he stated that he had been attacked several times with rheumatic inflammation of the joints. Like most persons of his class, he has suffered greatly

from repeated fits of illness, brought on by exposure to the same causes. One of the greatest misfortunes that can fall upon labouring men, is a severe attack of rheumatic fever accompanied by inflammatory affections of the joints; it not only renders them helpless and useless for a considerable time, but also in some cases leaves them cripples for life, and in addition, the nature of their employment constantly exposes them to relapses, which at length bring on incurable affections of the joints; we have, moreover, in this young man's case, a combination not unfrequent in patients of this description, namely, the effects of cold on the chest as well as on the joints; arthritis combined with inflammation of the bronchial mucous membrane. Now where the arthritic affection is very severe, and accompanied by high fever, the addition of bronchitis is a great aggravation. Every time the patient coughs he feels like one stretched upon the rack; at every convulsive motion of the chest a severe pang is felt in every joint, and the ordinary rate of suffering is increased to positive agony. A case of this kind is often hard to be managed, even when the disease is recent and the constitution sound; but when you have to treat a severe attack in a person who has repeatedly laboured under the disease, and whose vigour has been consequently impaired, the difficulty is greatly increased. Here much attention is required on the part of the physician. Where the combination is met with in a primary attack, I am generally disposed to regard both affections as of the same character, and not requiring any difference of treatment; I therefore attack the arthritis and the bronchitis with the same remedies, that is to say, venesection, leeches to the affected joints and over the chest, and large doses of nitre and tartar emetic. These remedies, however, are only calculated for the acute stage of a primary attack, and where the patient's strength is unimpaired; for when the disease is chronic, and debility present, you cannot venture on the use of large doses of tartar emetic and nitre. In such cases much benefit is derived from the use of colchicum, particularly where the patient labours under more or less fever. The following is the form which I am in the habit of using, and from which I have occasionally derived much benefit—

R. Misturæ Amygdalarum, ℥vij., Aceti Colchici, ℥ss., Acetatis Morphæ, gr. i., Nitratis Potassæ, ℥ss. Sumat cochleare unum amplum omni vel secundâ quaque horâ.

In Coghlan's case we tried this mixture with local applications to the joints and a blister to the chest, but found at the end of some days that there was no visible improvement in the patient. Now whenever a state of things of this kind occurs, no time should be lost; for rely on it, that where colchicum does not afford relief *in a short time*, and *in moderate doses*, there is no use in giving it a further trial. You have here to contend with two affections of a very serious character—one capable of rendering your patient a cripple for life, the other threatening him with suffocation, from an extension of the inflammation into the minute bronchial tubes, an occurrence which is most commonly followed by dangerous congestion of the lung. Under such circumstances, the only treatment you can adopt with a hope of speedy relief and ultimate success, is to lay aside all other remedies, and trust almost exclusively to the use of mercury. In cases of this kind do not hesitate a moment, but mercurialize your patient at once, if his constitution be at all capable of bearing it. The treatment which was followed in the case under consideration was this:—we gave the patient ten grains of hydrargyrum cum cretâ, four

times a-day ; and with the view of relieving pain and the irritation of the bronchial mucous membrane, he took one drop of hydrocyanic acid, and ten drops of tincture of hyoseyamus, in half an ounce of almond emulsion, three times daily.

Permit me here, gentlemen, to direct your attention for a moment to the influence which mercury exercises over inflammatory affections of the joints, and over certain forms of inflammation of the mucous membrane. I, in common with most practitioners, look upon mercury as a most valuable remedy in the treatment of arthritic inflammation, and in certain forms of bronchitis, but I do not, however, advise its indiscriminate employment, or bid you mercurialize every case of bronchitis or arthritic inflammation ; you can cure very many cases of both without mercury, and you should only have recourse to it in emergencies, of which I shall speak afterwards, and where other remedies have failed. In treating bronchitis in general, I always try bleeding, leeching, blisters, and expectorants, before I have recourse to mercury. But where these fail, and the disease continues to wear a threatening aspect, you will often find that mercury will cure it in a very rapid and surprising manner. You had an example of this in a boy who was lately under treatment in the chronic ward. He had severe laryngitis, with an extensive inflammation of the smaller bronchial tubes, great dyspnœa, and considerable congestion of the lung, and you perceived that the moment he came under the influence of mercury all his symptoms were ameliorated. We gave the mercury originally for the laryngeal affection, but in giving it, remarked that it would also cure the bronchitis, and such was actually the case. Observe, I do not give mercury in bronchitis as a general rule,—it is often unnecessary, and even sometimes wholly inadmissible. I will except from this that severe form of bronchitis, with congestion of the lung, in children after measles, which is best treated with calomel and ipecacuanha, as recommended by Dr. Cheyne. Many children were lost by severe attacks of this form of bronchitis, and by hooping-cough, accompanied by congestion of the lung, until Dr. Cheyne hit upon this simple but effectual plan of treatment. But in ordinary bronchitis of an acute character, and producing a tendency to congestion of the lung, I do not prescribe mercury until other means have failed.

Now I believe every practical man is aware that mercury is one of the best remedies we can employ in many cases of acute and subacute bronchitis, but perhaps it is not generally known, that even in some cases of chronic bronchitis, that is to say, where the patient labours under chronic catarrh, with asthmatic symptoms, not only relief, but even a complete cure, is occasionally effected by the use of mercury. One of the first cases of this kind which struck me very forcibly, was under the care of Mr. Porter. The patient, who laboured under an attack of venereal laryngitis, had at the same time chronic bronchitis, with puriform expectoration and hectic, and as the use of the stethoscope was not then well understood, was supposed to be labouring under phthisis. From the violence of the laryngeal symptoms, however, Mr. Porter was obliged to give mercury, which not only arrested the laryngeal inflammation, but also cured the chronic bronchitis. I recollect, also, the case of an elderly gentleman, treated by Surgeon Mitchell, of Harcourt-street, for an attack of very long-continued chronic bronchitis, with asthmatic symptoms, and who was subject to paroxysms of coughing and violent dyspnœa, which

sometimes lasted for twelve hours together. Now this gentleman, after the failure of various remedies, took mercury, and with the most marked and permanent relief of his pulmonary symptoms. I was, it must be confessed, greatly surprised by the effects of mercurialization in this case, and it was quite a novel thing to me to witness a chronic, a very chronic bronchitis, with copious expectoration and frequently-recurring dyspnœa, aggravated so as to endanger life by the least cold; it was, I say, novel to me to see a patient so affected radically cured by a mercurial salivation. Perhaps, however, nothing but the absolute refusal of the disease to yield to other remedies, could authorize the adoption of such a plan in the present state of our knowledge.

This puts me in mind of a plan which I have adopted within the last six or seven years, in the treatment of certain diseases of the lungs, and on which I shall make a few observations, as it has not been spoken of by those who treat of the cure of pulmonary affections. I must here in justice confess that the idea of this plan of treatment is not solely mine, but was founded on an analogy derived from the researches and experiments of Dr. O'Beirne, on scrofulous inflammation of the joints. An extensive experience and deep reflection first led Dr. O'Beirne to think that the acute stage of scrofulous inflammation of the hip and knee-joint might be made amenable to active and energetic treatment; in other words, that inflammatory affections of the joints, which terminate in some of the worst and most fatal forms of disease, viz., morbus coxæ and white swelling, might be checked *in limine*, and before the stage of hopeless ulceration was established. He therefore proceeded boldly and at once to try whether the disease might not be arrested in the commencement by rapid mercurialization.

Observe, gentlemen, this idea was completely new, it had never occurred to any other person, and was diametrically opposed to the theories of the day. The prevailing opinion on this subject was, that mercury was inadmissible, and could only produce mischief in persons of the scrofulous diathesis. Every one said, do not give mercury in such a case, it exacerbates scrofula, it even brings on scrofula in many instances where there had been no appearance of it previously; you can do no good with it, and may do infinite mischief. Dr. O'Beirne, however, knew the difference between the proper and improper exhibition of mercury—between mercurializing the patient at once and fully, and then stopping, and the pernicious custom of giving long and irregular courses of mercury. He tried the remedy and succeeded, and the surgeons of Europe have justly appreciated the value and importance of his discovery. About two or three months before Dr. O'Beirne made his discovery public, I had translated for the *Dublin Medical Journal*, a paper from a German author on the use of corrosive sublimate in baths, in the treatment of white swelling, and Dr. O'Beirne states that the publication of this paper gave him courage at the time in pursuing a plan of treatment so much at variance with the opinions of the day. I published this paper, however, at the time merely as a curiosity; it was a novelty in practice of which I had no experience, and could not offer any explanation. This was reserved for Dr. O'Beirne. He has shown in his memoir on the subject, that if you give mercury so as to affect the system rapidly you will frequently succeed in curing the disease, particularly in the commencement.

From this I was led by analogy to apply the same principle of treatment to incipient scrofulous inflammation of the lung, and I think I have often succeeded in checking at once this most formidable of human maladies. Phthisis, as every medical man knows, is capable of assuming a variety of forms, and presents at its origin much difference of aspect. In some, it arises slowly and insidiously, and the pulmonary symptoms are so quietly and gradually developed that it would puzzle an intelligent practitioner, who had the most ample opportunities of observing his patient from the beginning, to say at what particular period distinct evidence of danger had been noticed. The reason of this is because the tubercular affection of the lung is in such patients only of secondary importance, the disease which produced it having affected the whole system before the lung was contaminated. This happens in some, but in others an opposite train of phenomena is observed, and scrofulous inflammation commences in the lung before any general contamination of the system has taken place. It is in such cases, and such only, that mercury ought to be tried, and it will avail nothing except where the commencement of the scrofulous inflammation of the lung has arisen suddenly, and in consequence of the operation of some obvious cause, as catching cold or the occurrence of hæmoptysis. I think that too much stress has been laid on the affection of the lung by writers on phthisis. In some cases (I will admit even in the majority of instances), the disease commences in the lung, but in others it passes through many changes, and affects various organs before it attacks the lung. You will frequently see persons labouring under scrofulous irritation, accompanied by hectic, emaciation, loss of appetite, and excitement of pulse, long before you can find any trace of tubercular deposition in the lung. I am of opinion that many persons would die of phthisis even supposing they had no such organ as the lung.

But let us suppose the case of a person of scrofulous habit who gets an attack of fever, with local inflammation, and that this inflammation fastens on the lung. Take for instance the following case: a young man of robust and vigorous frame, but evidently of the scrofulous habit, who has laboured repeatedly under scrofulous ophthalmia in his infancy, and who has lost several members of his family by consumption, gets, we will suppose, a severe cold by overheating himself in walking into Dublin from the country on a damp evening. He is attacked next day with feverish symptoms and severe catarrh, which soon becomes a formidable bronchitis; but the young man being of a vigorous habit and fond of company, continues to go out and expose himself to night air, until at length the catarrhal fever is changed into hectic, the bronchitis into organic disease of the lungs, tubercles become developed, and the disease passes into phthisis. Here, you perceive, a man gets an ordinary cold, which becomes a bronchitis; he neglects this, and it passes into disease of the pulmonary tissue and tubercular ulceration. Now this is a very common course of diseased action in persons of a scrofulous habit, and I have in many such cases been able to trace the fatal malady to a common cold exacerbated by neglect and bad treatment. You perceive I do not use the ordinary nomenclature of writers on consumption; I do not recognize the terms "tubercular inflammation" as connected with cases of this description; indeed, I am inclined to think that the whole theory of inflammation being excited in the lung by the presence of tubercles is founded on erroneous views. I have repeatedly found tubercles in the

lungs of persons who died of other diseases, without any trace of inflammation around them, and I believe every pathologist will confirm this statement. From this and other reasons, I have been led to the conclusion that tubercles do not act in all cases as foreign bodies, and that the theory which attributes the origin of inflammation to their presence is wrong. In one of the preceding lectures, I have brought forward numerous arguments to show that we are in possession of a much truer and more intelligible pathological explanation of the fact in question. You may have scrofulous inflammation of the bronchial mucous membrane, or you may have scrofulous inflammation of the lung singly or combined, or, what is most frequently the case, you may have either or both accompanied by tubercular development. The development of tubercles, however, in a case of scrofulous bronchitis or scrofulous pneumonia, is a coincidence, and not a cause; and you may have either of those affections singly or combined, without any coexistent or preceding tubercular development. Most commonly scrofulous bronchitis and scrofulous pneumonia are conjoined; the former seldom exists for any length of time without producing the latter, and the latter is usually attended by more or less derangement of the bronchial mucous membrane.

But what I chiefly wish to direct your attention to on the present occasion (and it is a matter of the deepest importance) is, can we prevent the development of phthisis in a person of scrofulous habit who has caught cold, got a dangerous attack of bronchitis or pneumonia, and is threatened with hectic? I do not wish to enter here into any disquisition concerning the means to be adopted with the view of preventing tubercular deposition, or producing absorption when tubercular matter has been deposited in the tissue of the lung. To prevent tubercular deposition you must cure the scrofulous diathesis if you can. But suppose you are called to a case of the kind I have already described, where a young man of scrofulous diathesis gets a bad bronchitis or pneumonia, exacerbates it by neglect, and is threatened with hectic, what is the best plan you can pursue? My impression is that you should treat it as you would treat acute scrofulous inflammation of the knee or hip-joint; in other words, that you should mercurialize your patient rapidly and at once; do it suddenly and decidedly, but without pushing the mercury too far, and you will often arrest all the symptoms of the disease as it were by a charm. I could mention many cases which have been treated successfully in this way. I was very much struck by the case of two eminent medical practitioners who came to Dublin within this last year to place themselves under the care of Dr. Stokes and myself. One was a person of scrofulous habit, who had caught cold after taking mercury, and neglected it for three weeks. At the time we saw him he laboured under severe and harassing cough, considerable fever and emaciation, and was greatly alarmed about his condition. He had been several times leeches over the trachea by Dr. Stokes, but this, although an admirable remedy in many cases of bronchitis, failed in producing an amelioration of his symptoms, and from the persistence of his feverishness, emaciations, and harassing cough, serious apprehensions were entertained that his disease would terminate in phthisis. Having explained to our patient our views of the case, and our impression that mercury was the only remedy on which we could rely with any hopes of success, we ordered him to confine himself to his room, continue the application of leeches to the trachea, and take mercury. Now as this gentleman had

come up to town under the impression that he was consumptive, we found some difficulty in persuading him to submit to this mode of treatment. He yielded, however, but with great reluctance. In the space of a week all his bad symptoms had nearly disappeared. As soon as he came under the influence of mercury the cough became notably diminished, and he recovered flesh and strength with surprising rapidity. The other was a physician from the north of Ireland, who was suddenly attacked by pulmonary apoplexy, and in a few weeks came to Dublin, harassed by a constant dry cough, which prevented sleep at night, and he was visibly emaciated and anxious. In him no hereditary tendency to phthisis could be ascertained, but nevertheless Sir Henry Marsh, Dr. Stokes, and I considered the case as very unpromising, for although there was no acceleration of the pulse, the breathing was easily disturbed, and we could detect crepitus and some dulness above the right mamma, where it was evident the original seat of the hemorrhage had been. This case, too, which had resisted a mere antiphlogistic treatment, yielded in a most satisfactory manner to mercury.

Bearing these facts in mind, I think, gentlemen, you will be prepared to admit that mercury is a most valuable remedy in the treatment of scrofulous bronchitis and scrofulous pneumonia—diseases which too often resist the ordinary modes of treatment, and which are unfortunately so often followed by fatal disease of the lung. Where a sudden attack of cold has produced inflammation of the substance or lining membrane of the lung in a person of scrofulous habit—where the attack is recent, and has occurred under circumstances which preclude any suspicion of previous tubercular disease—in such a case as this you will find mercury a most admirable remedy in checking symptoms often not amenable to other plans of treatment, and which if neglected or maltreated would in all probability end in phthisis. I was led to the adoption of this plan by the success which has attended Dr. O'Beirnes's practice in acute scrofulous inflammation of the joints, and from observing that cases of unmanageable chronic bronchitis had been occasionally cured perfectly where mercury had been exhibited for other affections; and it is a curious fact that about the time I had fallen upon this mode of treatment, it suggested itself likewise to the minds of Dr. Stokes and Sir Henry Marsh, who can testify to its utility; of course it will not succeed in all cases; and I have seen it fail in others where I had confidently expected benefit. Notwithstanding this, it is a most valuable addition to our resources in certain cases that would end in phthisis.

About a year ago I attended a young gentleman, apparently of robust constitution, who died of phthisis ushered in by a frequent-recurring hæmoptysis. Shortly after his death, I was called on to visit the elder brother of my former patient. He had a constant hard, dry, and very distressing cough, which deprived him of sleep, and having continued many weeks had produced a most formidable degree of emaciation. Consumption was naturally dreaded. His pulse, however, was normal, and the stethoscope did not indicate any pulmonary lesion; still, as the case had refused to yield to all the ordinary remedies, including change of air, we felt very apprehensive as to the result. I confined him to bed, applied leeches over the trachea several times, and rapidly mercurialized him, and with complete success. He has continued well ever since.

POSTSCRIPT.—Since the remarks on the use of mercury in some cases of incipient phthisis were published, I have continued to employ it in the class of cases then pointed out. It has also been adopted by others, amongst whom Dr. Munk must rank foremost, for the great attention he has paid to the action of this remedy in the disease in question. This gentleman's communication first appeared in the *London Medical Gazette*, from which it was transferred to the pages of the *Dublin Medical Journal*, for March and May, 1841. I shall here introduce the principal part of his memoir, which deserves great attention, from the zeal and ability with which the author has followed up the subject:—

“*Cases and Observations illustrative of the Mercurial Treatment of some Forms of Incipient Phthisis Pulmonalis, by William Munk, M.D., Physician to the Tower Hamlets Dispensary.*”

“The idea of employing mercury as a curative agent in the early stage of some forms of phthisis pulmonalis, occurred, we are informed, about the same time, and without any mutual communication, to Sir Henry Marsh, Dr. Graves, and Dr. William Stokes. The two latter of these gentlemen have laid before the public some of their earlier experience on this interesting subject. The first communication which appeared was from Dr. Graves, and is contained in his published clinical lectures, whilst the experience of Dr. Stokes will be found detailed in his excellent treatise on the Diagnosis and Treatment of Diseases of the Chest. The results of this practice in the hands of Sir Henry Marsh are not, so far as we know, yet before the profession. Dr. Corrigan, more recently, in a very interesting lecture, has pointed out the class of cases, and the stage, in which this mode of treatment is inadmissible.

[Dr. Munk quotes here from the preceding lecture, which we shall omit repeating.]

“The results of this practice, as hitherto published, are as follows. Dr. Graves states in general terms, that he could mention many cases which have been treated successfully on this plan, and then proceeds to particularize three in which its action was manifestly curative. It failed, however, in two cases in which he made the trial of mercurial treatment. In two of these a permanent recovery ensued; in two, temporary, though well-marked relief, was experienced; in one instance it was useless; and in another, the medicine manifestly disagreed. Dr. Corrigan narrates but one case; yet this is decidedly in favour of the treatment; for the patient speedily recovered. Exclusive, then, of the experience of Sir Henry Marsh, who is reported by Dr. Graves to have found this mode of treatment beneficial, there are for reference twelve cases. In six of these a cure resulted, in two considerable benefit, in three it was useless, and in one the medicine disagreed.

“Small as is this experience when numerically considered, and insufficient as to the decision of a point so completely at variance with the doctrines of the schools, it nevertheless appears to us, that the evidence above adduced, coming as it does from persons so well qualified to form an opinion on the subject, has attracted far less of attention than its intrinsic importance legitimately demands. Out of twelve cases of a disease so uniformly fatal as phthisis, there have, under a new and peculiar mode of treatment, been six cures. This will, probably, to many persons

be a startling assertion ; and I have, therefore, before making it, been careful to state distinctly from what sources the information has been derived.

“ On investigating the pathological condition to which the observations of the authors above quoted refer, we shall find, that conclusions as to its nature and seat must be based almost wholly on the general symptoms and general signs ; post-mortem examinations serving our purpose but little, inasmuch as few cases prove fatal at this period of its course. These circumstances combined, make necessary a large amount of observations before any certain conclusions can be obtained ; and they tend, in no inconsiderable degree, to render doubtful to many members of the profession the opinions maintained by those who have given attention to the subject, whilst they no less cause the treatment pursued, and the success which is stated to have resulted therefrom, to be regarded with some degree of suspicion. This is, perhaps, but an illustration of that salutary caution which, within certain limits, should mark our conduct in reference to new views and novel modes of practice hence derived, more especially when, as in cases like the present, many of the arguments are deduced from negative, rather than from positive facts.

“ The form of disease now under consideration, very commonly attacks individuals in tolerable or even apparently perfect health ; although if their previous state be minutely investigated, it will, I believe, in such instances, be found that there exist more or fewer indications of deterioration of habit, in the shape of scrofulous cachexia—whether that be of hereditary origin, or has been acquired by error in some of the non-naturals. Its commencement is, in the majority of instances, sudden and well marked ; its immediate exciting cause clearly ascertainable, being in general owing to the application of some of the common causes of inflammation ; or it originates, as do other local inflammatory affections, during the course of fever, of the exanthemata, influenza, &c. The phenomena attending it are those which point to a lesion of the bronchial mucous membrane, pulmonary parenchyma, or, as is most frequently the case, the two combined ; that lesion being evidently inflammatory in its character, as evinced by pyrexia, and by the existence of the physical signs and general symptoms of bronchitis and pneumonia.

“ The disease, in its most frequent form, commences after the manner of a common catarrh. The patient having been exposed to moisture, or a low temperature, often the two combined, experiences a sensation of chilliness, which may augment to actual rigors. These are attended by languor and indisposition to bodily or mental exertion, pains about the back, and aching of the limbs ; to which succeed heat of skin, increased frequency and strength of pulse, thirst, and a more or less unnatural appearance of the tongue. The respiratory organs evidence disorder ; the voice becomes somewhat altered ; irritation is perceived about the larynx, giving rise to frequent, dry, and irritative cough. As the case proceeds, soreness is experienced beneath the sternum, a sense of tightness across the thorax ; more frequent cough, which either then, or within a short period, is accompanied by expectoration, at first of a watery, saline, and irritating character, but which soon mellows down into a clear, tasteless, viscid fluid, scanty in quantity, and expelled with some difficulty. In other cases the expectoration presents characters different from those just mentioned ; it is more abundant, brought up with ease, and, in lieu of being

clear and tasteless, is opaque, sweetish, and pus-like. These symptoms, individually or collectively, may be more or less severe; they do not, in the majority of instances, arrive at such a height as to induce the individual to place himself at this period under medical care. The indisposition is looked upon as a common cold, perhaps more than ordinarily severe. Yet it is subjected at this time to domestic remedies alone. Should the practitioner, however, have an opportunity of examining a case at this period, he will find bronchitic râles over more or fewer parts of the chest, existing perhaps only, or at any rate greatly preponderating, in one or both lungs. After continuing for an uncertain period, these symptoms undergo modification; some may altogether disappear; but, in general, a diminution of severity is alone experienced. The patient hence flatters himself that he is improving; but the speedy addition to the category of symptoms of no mean import, dispel the illusion, excite fears as to the indisposition, and cause him then to seek professional advice. There is emaciation and loss of strength; the phenomena of common pyrexia merge into, or are changed for those of hectic, among the symptoms of which, rapidity of pulse and morning perspirations will be found the most marked. There is severe and harassing cough, with or without a viscid purulent expectoration, considerable hurry of respiration, shooting pains about the shoulders, disturbed and sleepless nights. The stethoscopic signs at this period consist of a minute and clear mucous rhonchus, more properly, perhaps, designated by the term *muco*, or *subcrepitant*, and existing only in the superior portions of the lung. In other cases there is heard at this part of the chest a modification of the normal respiratory sound, which, when once distinguished, can never afterwards be mistaken, but the description of which in words, as of most other sensations, is a task of difficulty. The respiratory murmur is here somewhat modified, scarcely if at all diminished in intensity, yet giving the sensation of being moister, as though the bronchial tubes were lubricated with more fluid than in their healthy state; not, however, as it would seem, in sufficient quantity to produce the *subcrepitant* or *mucous rhonchi*.

“In these instances we may occasionally, by very careful and prolonged examinations, detect at long intervals, especially on a deep inspiration, a solitary and minute mucous bubble. Here we generally find that expectoration is exceedingly slight, or altogether wanting; whilst in the cases presenting the *subcrepitant* or *mucous rhonchi*, expectoration does exist, although rarely to any great extent. Little or no information can be obtained from percussion during the earlier periods of the disease, the chest then sounding perfectly well. As the case, however, advances, more or less dulness is perceived; and when this occurs, the active auscultatory signs undergo a corresponding modification. At first there is an increase in duration and intensity of the expiratory sound, giving to the whole respiration a sensation of greater roughness; this increasing, passes onwards into well-marked bronchial respiration, coincident with which there is *bronchophony* and bronchial cough. It were useless to trace these cases further; tubercular matter has now been deposited in considerable quantity, the case is one of confirmed phthisis, and the period for the employment of mercury has passed.

“Such will be found the commencement and course of many of the cases of phthisis which are amenable to mercury in their earlier stages.

Sometimes, however, the disease takes its origin in a severe and universal bronchitis, which at once calls for medical interference and for active treatment. There is here great feverishness, considerable embarrassment of respiration, and intense bronchial rattles over the whole chest. General and local blood-letting, with tartar emetic, seem to be here clearly indicated; and although it be found in the sequel that these measures are not so well borne as the symptoms would have led us to expect, still from their employment the patient derives considerable relief. The activity of the disease is broken, the fever is diminished, the respiratory oppression relieved, and the bronchial râles lessened both in intensity and in extent. The stethoscope indicates, however, that the morbid action still lingers within the lung, and that the superior lobes are the parts now alone affected. The remedies which had proved effectual in the removal of inflammation from the other parts are powerless over these; and their continuance serves but to debilitate the patient, and to hasten on the disease to an incurable stage. The lesion here existing may, however, be removed, but its removal can be accomplished in no other way than by the employment of mercury, so as to produce its specific effects upon the constitution. If the mineral be not had recourse to, the case goes on from bad to worse; percussion and auscultation evidence the deposition of tubercular matter within the lung, and incurable consumption is thus induced.

“Another and not unfrequent mode in which this disease originates remains now to be noticed. Allusion is here made to those cases the commencement of which is distinctly traceable to some general disorder of the whole system, as, for instance, essential fever, the exanthemata, influenza, &c. In the course of all these there is a great liability to congestions, determinations of blood and inflammation. The bronchial mucous membrane and pulmonary parenchyma become frequently affected in this manner, the supervention of such morbid state being, in some instances, proclaimed by symptoms so well-marked, that the lesion from whence they originate cannot be overlooked. In far the greater number of instances, however, the local disease is to a greater or less degree latent, the marks of general disturbance being so numerous and severe as to cast into shade or obscure the more feeble manifestations of low morbid action in the lung. The former class of cases being at once recognised, are promptly met by appropriate treatment, the local disease is subdued, and the disastrous consequences to which it tends thus averted. In the latter instance, however, the local affection often goes unrecognised, and no measures are adopted for its removal; or, if it be discovered, its severity is frequently underrated, and means employed which prove inadequate to the end proposed. In either case the phenomena are similar to those before enumerated; they indicate a low inflammatory action of one or more tissues of the lung, existing only in the top of the organ, or, if more extensively spread, greatly preponderating in these parts. Should this condition continue, the patient presents a like succession of symptoms to those we have described above as occurring when phthisis supervenes upon catarrh, modified, however, in some measure, by the nature and usual course of the disease in whose progress they have arisen. There is an analogous mitigation and modification of the local and general symptoms, together with the addition of other phenomena dependent on the disordered state of the lung, and the disturbances in other organs

to which its sympathetic relations give rise. The patient experiences what appears to be a long, tedious, and unsatisfactory convalescence. After a time he retrogrades considerably, and the symptoms of pulmonary disease come prominently forward. The efforts of the practitioner to relieve the condition of general disorder are set at nought by the local disease, which proves an insurmountable weight to the resiliency of the constitution. Emaciation progresses, the symptoms of hectic appear, and after a time the physical signs testify the deposit of tubercle in the lung.

“It may probably be urged by some that the term phthisis cannot with propriety attach to the lesion of the respiratory organs above described, inasmuch as the active and passive auscultatory signs differ widely from those commonly laid down by writers as indicative of this disease, and point only to low bronchitis or pneumonia. The justice of this objection we are forced to admit, if the term phthisis be employed in a limited sense, and as expressive only of those cases in which tuberculous matter has already been deposited within the lung. But regarding the subject in a practical point of view, we come to an opposite conclusion: for abundant experience testifies that the transition from the state above described to that of confirmed phthisis is gradual and progressive; that in point of fact the condition now under consideration is neither more nor less than that which determines scrofulous deposition to the lung, whilst it is, at the same time, the very action by which this deposit is effected.

“In the three cases above described, phthisis, from neglected though mild bronchitis—as the sequel of severe bronchial inflammation inefficiently treated, or as ensuing upon bronchial or parenchymatous inflammation occurring during the course of other and general disease—there is found only a sibilant, clear, mucous, crepitant, or muco-crepitant rhonchus; these persist for a long period, and are, during the early stage, unaccompanied by other signs. The sonorous rhonchus is rarely heard; the mucous exists in a diminutive form, approximating in character to the crepitant; the expectoration but rarely undergoes the same rapid succession of changes observed in pure ordinary bronchitis, but remains clear, tenacious, spumous, observing more the habitudes of peripneumonic or of bronchopneumonic disease. This combination of symptoms points therefore more to the minute bronchial tubes as the seat of disease, than to either the larger tubes or the parenchyma. It presents much resemblance to that form of disease termed capillary bronchitis, but is attended by less expectoration than is usually found in this disease, when occurring in its more usual site, the lower portions of the lung.

“Now if it be asked, says Dr. Stokes,* what gives these signs of bronchitis their value as diagnostics of incipient tubercle, the answer is, that it is not by their mere characters (for these do not differ from ordinary bronchitis), but it is from their situation,† localization, and combination, with comparative dulness of sound, that they derive their value! The

* “Treatise on the Diagnosis and Treatment of Diseases of the Chest, p. 392.

† “Louis, says Dr. Cowan, has *invariably* found that the sibilant, mucous, and submucous râles resulting from simple catarrh, originate in the *lower part of the chest*, while bronchitis complicated with pulmonary tubercles is always situated in the *upper lobes*. Simple bronchitis usually attacks *both sides* of the chest, while rhonchus from tubercles is *at first* almost constantly confined to the upper lobe of one side. Of the immense importance of this law there can only be one opinion, and, in many instances, attention to the seat of bronchitis would dissipate much doubt and anxiety, and early indicate the real nature of an affection which, without the knowledge of this fact, would frequently be confounded with simple catarrh, and thus frustrate the hopes both of the patient and practitioner.

same phenomena scattered over, or even existing intensely throughout the lung, but being equable, and unaccompanied by dulness, would not only have no value in the diagnosis of phthisis, but would render the existence of tubercle improbable. Simple bronchitis is seldom circumscribed, while that of the consumptive is commonly so: the latter begins in the upper portion of the lung, remains obstinately fixed in the air-tubes, gradually spreads downwards, and while in its first stages in the lower lobe is combined with tuberculous ulceration in the upper: it may be intense in the upper lobe while the lower is altogether free, or engage the whole of one lung while the other is scarcely affected. These are not the characters of ordinary bronchitis.

“A new aspect has been given to the pathology of tubercular disease by the investigations of Sir James Clark,* Dr. Carswell,† and the late Dr. T. J. Todd,‡ who have proved that, for its production, a previous morbid condition of the system must exist: in other words that a necessary element in the causation of scrofula is a certain cachexia or abnormal state of the fluids of the body. In what this consists has been most clearly shown by Dr. Carswell, whilst the circumstances leading thereto have no less satisfactorily been elucidated by Sir James Clark and Dr. Todd. From the united labours of these gentlemen have resulted the important pathological law, that *tuberculous matter exists as a morbid constituent of the blood, is eliminated from it by a process analogous to, if not identical with, secretion, and is thus deposited, in a visible form, in different organs or parts.*

“The contamination of the blood exists in some cases for a long period, and proceeds to a great extent before the deposition of tubercle commences. It seems not improbable that in such instances the sanguineous fluid becomes so thoroughly saturated (if the phrase be allowable) that an attempt at relief is then commenced, and nature sets about the work by eliminating the morbid product in conjunction with the secretions. Dr. Carswell is of opinion that the surfaces of mucous and serous tissues are those upon which tubercular matter is chiefly deposited; that as regards relative frequency the former very far exceeds the latter: for here, he says, ‘as into the great emunctory of the system, it appears to be separated from the blood, and becomes visible to us under a variety of forms.’ Dr. Carswell is at issue with most pathologists as to its deposition in the molecular structure of organs. In no one instance has he witnessed it so situated. Our own observations tend to an opposite conclusion, although we doubt not that the most frequent sites of tubercle are those pointed out by Dr. Carswell. We believe with most pathologists, that tubercular matter has no peculiar site; that it *may*, under certain circumstances, appear in any organ or part of the body, making its appearance thereby a lesion of nutrition, whereby such matter is secreted in place of, or in union with, those molecules of the blood, which, appropriated to the organ itself, become an integral portion of its structure, and thus repair the losses it is ever undergoing.

“This deposition is frequently a silent process; it commences and proceeds to a certain point, unaccompanied by any known pathological

* “Treatise on Pulmonary Consumption, Lond., 1835.

† “Art. Tubercle, Cyclop. of Practical Medicine, and Illustrations of the Elementary Forms of Disease. Fascic. Tubercle.

‡ “Art. Indigestion, Cyclop. of Practical Medicine, and in Sir James Clark’s work on the Influence of Climate, and Change of Air, &c.

state, or, if phenomena of disorder do occur, they are to be regarded as effects or coincidences rather than as causes. It will probably be found that this relation obtains only in those cases where scrofulous cachexia, and the contamination of the blood, which is its essence, has proceeded to a considerable degree, and where the local deposit is the result of the overcharged condition of the blood, rendering relief by the elimination of some portion of the morbid constituent, indispensable.

“In other, and, perhaps, the majority of instances, tubercle is deposited long ere the cachectic state has arrived at the degree above supposed. In these, such an event is determined by irritation or inflammation, under the influence of which there is a large afflux of blood to the part, and coincident with it an increase and modification of secretion. In lieu of the results of common inflammation, as occurring in a healthy subject, there is here deposited tubercle, or coagulable lymph variously modified, the modification consisting in the approximation of that product, more or less closely in character to tubercle. The analogy which exists between these two morbid products, and the mode in which one may pass into or give origin to the other, has been clearly shown by Dr. C. J. B. Williams. Its further consideration here would extend these remarks to an inconvenient length; I shall, therefore, content myself with referring those who may wish to enter fully on the subject to the third volume of the Library of Medicine, p. 166, *et seq.*

“The close connection existing between irritation or inflammation in one or other of the tissues of the lung and tubercle, as cause and effect, has been particularly dwelt upon by Andral,* who enumerates the following as the principal morbid alterations accompanying the development of tubercle: first, hyperæmia of the bronchia of a certain size; second, hyperæmia of the air-cells and ultimate ramifications of the bronchia without obliteration of their cavities; third, hyperæmia of the same parts with considerable thickening of their parietes, and obliteration of their cavities; fourth, an effusion of blood into the tissue of the lung; the blood thus effused coagulates, becomes a living part, and secretes tubercle.† In reference to these pathological conditions he states that, in certain cases, and those not the least numerous, *the morbid alterations of the lung were evidently prior to the formation of the tubercles, and contributed to produce them.* In the Clinique Médicale there is a passage explanatory, in some respects, of that just quoted. In it the author alludes to the influence of bronchial inflammation as giving rise to tubercle; but the explanation will, *mutatis mutandis*, apply with equal force to the same pathological condition elsewhere situated. ‘What ought never to be lost sight of,’ says he, ‘is this—that, in order that inflammation of the mucous membrane of the air-passages shall be followed by the production of pulmonary tubercles, it is necessary to admit a predisposition. This being admitted, we can easily conceive how, in one individual, very slight bronchitis is sufficient to produce tubercles, whilst others do not become phthisical from the most severe and long-continued pulmonary catarrh.’ Sir James Clark also expresses his belief that inflammation in a tuberculous constitution may give rise to the deposition of tuberculous matter in place of coagulable lymph, which, in healthy subjects, is its natural product, and thus inflammation may be one of the immediate causes of tuberculous disease.‡

* Pathological Anatomy, translated by Drs. Townsend and West, vol. ii., p. 553.

† This opinion of the secretion of tubercle by the blood itself, M. Andral has since eschewed.

‡ *Op. citat.*, p. 46.

“I have quoted these authorities at length, because I conceive that the recognition and just appreciation of the facts and opinions therein contained will have a most important bearing upon practice, and because each day’s experience leads me to the opinion that cases like to these are far more numerous than is now generally admitted. The existence, in one class of cases, of inflammation within the lung, to be succeeded by the deposition of tubercle as cause and effect, is widely different from those in which an inverse relation obtains—where tubercular matter is first laid down, and inflammation follows either as consequence or coincidence. The causes determining tuberculous disease towards the lung are, in these instances, widely different; in one it is well known, and within the reach of medicine; in the other it is unknown, and the means at our command are comparatively inoperative. One class of cases are curable, though, from circumstances, not always cured; the other are incurable, as regards medicine, though nature’s efforts are, in a few rare instances, more successful.

“As inflammatory action is in these cases the distinguishing characteristic, and throughout performs so important a part, it is but natural that, to its consideration, much attention should be given, and that its removal should be held as a canon of the first importance in our treatment. Blood-letting, either general or local, counter-irritants, emetics, digitalis, &c., the means which experience testifies to have been the most efficient in the treatment of phthisis, act principally by the removal or diminution of inflammation, determination of blood, congestion, and the disordered movements in the system to which their existence gives rise. These measures are, however, rarely sufficient for the perfect cure of the pathological conditions above-mentioned, more particularly of the variety termed scrofulous, or the modification impressed upon inflammation by its occurrence in a scrofulous constitution. Highly important as auxiliaries, they must in no case be neglected, but as controllers of the disordered action of the capillaries, which constitutes inflammation, they are, in the majority of instances, inoperative. A medicine was wanting more potent in its effects, one whose action was evidenced not so much upon the central organs of the circulation as are blood-letting and digitalis, but on the periphery of the system, the capillaries.

“Iodine and its numerous preparations have been recommended to public confidence, as a medicine calculated in some degree to meet this want. The action of iodine is manifested principally as a stimulant of the capillaries; by giving tone to these vessels it expedites the circulation through them, obviates and removes congestion, and frees the secretions. It exercises little, if any control, upon the peculiar action, whatever it be that constitutes inflammation; but after the removal of this state a degree of congestion commonly remains, and here iodine is most effectual. Reliance must not, therefore, be placed on iodine in the class of cases and stage above described, although it comes in, as we shall show, with excellent effects, at a somewhat later period of the treatment.*

“It has, by abundant experience, satisfactorily been proved, that in the

* There are peculiarities in the action of the analogous substance, bromide, which seem to point it out as peculiarly adapted to certain forms of scrofulous disease, especially phthisis. I am at this time making comparative trials with the bromide and iodide of potassium, the results of which, I hope, at a future period, to lay before the profession. Of its superiority in some forms of cardiac disease, I am already pretty fully convinced.

treatment of common inflammation there are no means at our command which, in point of efficacy, will bear comparison with mercury. However much pathologists may differ as to the proximate cause of this state, or writers on the effects of medicines to the mode of action of this mineral, they one and all agree in the truth of the above assertion. The knowledge of this fact suggested to the mind of Dr. O'Beirne the employment of mercury in scrofulous affections of the joints. He regarded the inflammatory action attending these cases as a point of primary importance, and to its immediate removal directed all his attention. The results of the practice he was thus led to adopt proved the correctness of his ideas, no less than the value of the measures upon which he relied, whilst the adaptation of a like practice to those forms of phthisis during the earlier periods, of which inflammatory action is the predominant and all-important local condition, led to scarcely less successful results in the hands of Drs. Graves, Stokes, and Corrigan.

“Mercury has heretofore been frequently proposed by distinguished authorities as a remedy in consumptive cases. It has never, however, acquired any great celebrity in the treatment of this disease; the proposals and recommendations for its employment, whensoever or from whomsoever originating, appearing to have passed unheeded by the bulk of the profession, or if attended to or followed to have fallen short of the expectations which its too sanguine advocates had raised, and thus to have dropped again into disuse. Among those who have recommended mercury we may mention Dr. Rush, and other physicians, his contemporaries in Philadelphia. A perusal of their writings will clearly substantiate the charge of what to us must appear indiscriminate practice—a fault less justly perhaps to be attributed to them than to the imperfect state of our science at that period. Upon no point in practical medicine were our predecessors more likely to run into error. The absence, until a very short period, of any correct information as to the precise nature and production of tubercle, the limited period during which mercury is in truth available, and the difficulty which existed, previous to the introduction of the new methods of diagnosis, of distinguishing the proper cases and their stage, were circumstances which one and all tended to render somewhat indiscriminate the application of mercury. Here, as in all other instances of indiscriminate practice, the evil results must have far exceeded the beneficial. Under such circumstances it cannot be matter for wonder that careful practitioners should have opposed the practice, or that teachers should have laid it down to students as an axiom in practical medicine—that the employment of mercury in scrofulous diseases, but especially in phthisis, was fraught with danger, and could be productive of no good.

“The injurious effects now alluded to as ensuing from the employment of mercury in phthisis, are less attributable to the existence of pulmonary disease than to that of general disordered action of the whole system, of which the former is the consequence, and a certain indication. Our best writers agree in the belief that the full action of mercury in the scrofulous cachexia is singularly injurious; that the depression which the medicine thus given produces is more effectual than any other in increasing the cachectic state, and, should tubercle exist, in hurrying it through its various changes. It has, moreover, been asserted, and probably with some justice, that the mercurial fever once excited has a great tendency

to increase hectic, and even in cases where this last condition has never appeared, to pass gradually into and terminate in it. Hence will appear the justice of the view entertained by Dr. Stokes, when he terms the remedy a two-edged sword, and expresses his conviction that its exhibition must not be lightly attempted.

“In coming to a conclusion as to the employment of mercury in any particular case, we have to decide on the propriety of employing means which are calculated to remove local disease, but do so at the expense of, and with some detriment to, the general constitution. In a word, our conclusion hinges on this, whether the local or the general disease be at this time the most important. Dr. Stokes writes as follows:—‘As to the general employment of mercury in incipient phthisis, I am any thing but sanguine, yet that by its assistance in removing irritation from the mucous membrane and parenchyma we may occasionally arrest the development and progress of tubercle, seems more than probable, for there can be little doubt that in the scrofulous habit there is more danger from the persistence of irritation of the lung, than from the action of mercury on the system.’

“The existence, then, of such irritation or inflammation, whether membranous, parenchymatous, or, as is most frequently the case, the two combined, is that which calls for immediate attention to the lung, even at a temporary disregard to the constitution. Dr. Corrigan says,† that the use of mercury is in removing that degree of low local inflammation, which, allowed to remain unchecked or improperly treated, would terminate in tubercular deposition and consequent phthisis. And Dr. Graves,‡ after mentioning those cases of consumption which arise gradually and insidiously, whose commencement it is impossible accurately to determine, goes on to say, ‘the reason of this is because the tubercular affection of the lung is in such patients only of secondary importance, the disease which produced it having affected the whole system before the lung was contaminated. This happens in some, but in others an opposite train of phenomena is observed, and scrofulous inflammation commences in the lung before any general contamination of the system has taken place. It is in such cases, and such only, that mercury ought to be tried, and it will avail nothing except where the commencement of the scrofulous inflammation of the lung has arisen suddenly, and in consequence of the operation of some obvious cause, as catching cold, or the occurrence of hæmoptysis.’

“It may then, in general terms, be stated, that the absence of pre-existing tubercular deposit from every organ of the body is the circumstance justifying our neglect of the contra-indication which scrofulous cachexia presents to the employment of mercury. The word ‘pre-existing’ has been here introduced, because it seems likely from the physical signs that, in some cases terminating favourably, tubercular matter has been present in the lung before the mercurial treatment was commenced. In them, however, such deposit was trifling in amount, and secondary to, and dependent upon, the bronchial or parenchymatous inflammation, for the cure of which mercury had been employed.

“An interesting and most important object of inquiry is, how far such

* *Op. citat.*, p. 450.

† *London Medical Gazette*, 2d Series, vol. iv., p. 74.

‡ *Loc. citat.*

tuberculization may proceed, and the case nevertheless be amenable to mercury. Facts are wanting to decide this point. In one of Dr. Stokes's favourable cases, 'the antero-superior portion of the left side sounded comparatively dull.' In another, 'the right clavicle and scapular ridge sounded slightly, but decidedly dull.' In one of my cases (No. 4), there was slight dulness of the left scapular ridge; in another (No. 6), the same phenomenon, in an exceedingly slight degree, was perceptible upon percussing the left scapular ridge, the clavicle, and the two superior ribs. I must, nevertheless, in the face of these cases, express my conviction, that the presence of dulness diminishes greatly our chance of success; and did the previous history and general symptoms leave me in much doubt as to the propriety of employing mercury in any particular case, the existence of a very moderate amount of dulness would induce me at once to omit its use. I agree, indeed, with Dr. Hughes in thinking, 'that appreciable dulness on percussion is very far from being an early physical sign of phthisis, and that when it is clearly distinguishable below one or both clavicles, or in the acromial regions, the complaint has generally advanced too far to be effectively treated.' It must, notwithstanding, be borne in mind, that dulness on percussion may even in cases of undoubted phthisis arise from other causes than the deposition of tubercle, and may either spontaneously, or from the effects of treatment, be considerably diminished, and even altogether removed from certain portions of the lung. The cause of dulness in such cases is either inflammation or congestion, and it is to intercurrent attacks of this nature, and their subsequent removal, that we are to attribute the alteration of the phenomena above mentioned. Many writers are of opinion, that the dulness occurring very early in consumptive cases is more owing to congestion or inflammation of the lung, than to the presence of tubercle. That such is the correct explanation of the cases above referred to, where dulness has been recovered from, seems more than probable. Every one at least must admit, that such an explanation is more consonant with our knowledge of the habitudes of tubercle, and the effects of medicine, than that which would attribute it to the absorption of tubercle itself. Admitting the occasional absorption of tubercular matter to be a well-established fact, it yet remains to be proved, that such a process is favoured by the action of mercury upon the system. Without, however, denying that such may be the case, and allowing that analogy is in favour of the supposition, it must be confessed, that the present state of our science by no means warrants us in receiving this effect of mercury as more than probable.

"The period, however, which may elapse between the commencement of the indisposition and the deposit of such a quantity of tubercle as to produce dulness, varies much in different cases. It may be stated, perhaps, as ranging between three weeks and three months. I have known the lung so far solidified within the former period, as to put the use of mercury quite out of question. The attack supervened in this instance upon measles. In the course of three weeks the superior portions of each lung gave a perfectly dead sound upon percussion, and there was an entire absence of respiratory murmur in the same parts. The patient, aged 18, died within nine weeks from the commencement of his illness, and upon examination, cavities were found in the apex of each lung; the surrounding parts being completely solidified. That the condition above described may continue for eleven weeks, and so small an amount of tubercle be de-

posited, as but slightly to impair the sonoriety of the lung, is proved by the case of Thomas Smith (No. 6), below detailed. My experience has not been sufficiently extensive to enable me to say whether or not it may last longer without giving rise to marked dulness. Two cases I have witnessed, the histories of which were so perfect, as to leave little or no doubt as to their nature, where a period little exceeding three months sufficed to induce well-marked dulness, and render the use of mercury inadmissible. One of these cases came under my observation fourteen, the other fifteen weeks from the commencement of the illness. That the usual course and tendency of scrofulous bronchitis or pneumonia are not represented by these extremes is sufficiently probable. The rapidity of progress observed in one instance, and its protracted duration in another, must be looked upon as exceptions to a general rule. The average duration of this primary stage will, I think, be found in a period about intermediate between the extremes above mentioned. Although speaking doubtfully on this point, I am at least certain that the rapidity of progress within a given period increases in a direct ratio with the duration of the disease. Thus, for instance, if we compare two patients, one of whom has been suffering five weeks, the other eight, and whose symptoms at the time of our comparison are as nearly alike as possible, we shall find that after a given time, say a week or a fortnight, a much greater progress has been made in the latter than the former. It is thus only we can explain a circumstance constantly noticed by such patients, that their symptoms were at the commencement comparatively stationary, or at most made but slight progress; that subsequently they became more and more rapid in their course, and latterly each day has sufficed to induce a well-marked increase in every symptom. We deduce from this fact an important practical precept—to lose no time in putting the patient under the specific influence of mercury, and this more especially when the case has been at all protracted. The delay of a few days early in its course may be without ill effects, and will probably, in many instances, be advantageous, by giving time for the employment of important preparatory or auxiliary means; but where such symptoms have persisted for a much longer period, any considerable delay is likely to be followed by serious consequences; for the disease may thus advance to such a degree, as to place it out of reach of medical assistance.

“Admitting the injurious influence of mercury upon the general constitution, yet having determined upon its employment for the removal of local disease, an object of no slight importance is to administer the medicine in such a manner as to obtain to the utmost the beneficial effects it is capable of producing upon the lung, whilst we avoid, as far as possible, the damage it may do to the constitution. The more immediate of the injurious consequences of mercury are fever, great nervous irritability or disorder of the alimentary canal, whilst the more remote, though not less important, morbid states are, in a great measure, dependent upon, and originate in, one or other of the three conditions just enumerated. To obviate, then, or diminish these as far as practicable, is our only chance for good. Much may be done in the way of prevention, by the employment of preparatory treatment—a point too much neglected in the present day, but to which the attention of the profession has recently been directed in a forcible manner by Dr. Colles. Fever, in the proper sense of the word, is a rare result of mercury in the scrofulous diathesis. It does, however, sometimes occur, and chiefly in those individuals who present more or fewer

of the indications of plethora—who have a firm, unyielding pulse, and other indications of the phlogistic habit. These, it must be confessed, are rare concomitants of the scrofulous diathesis: they frequently occur, however, in the form of pyrexia, as symptomatic of local inflammatory action; but whether primary or secondary, their existence predisposes strongly to the occurrence of mercurial fever. In a primary or idiopathic state we rely chiefly on aperient medicines, saline diaphoretics, quiet, and low diet. These means, pursued for a few days, are usually sufficient to reduce all inflammatory disposition, and to pave the way for the mercurial course. But when originating in local inflammation, other measures, as blood-letting, either local or general, may be required in addition. This feverish condition, despite all preparation, will commonly occur in a greater or less degree immediately preceding the establishment of mercurial action on the gums. It is evidenced by the usual phenomena of pyrexia, and by an aggravation of the local symptoms, for the cure of which mercury has been employed. The application of a small number of leeches, and the administration of saline diaphoretics, will suffice to control these symptoms, which, however, either spontaneously diminish or subside on the establishment of ptyalism. As the more frequent consequence of mercury, we notice nervous irritability, which, in the scrofulous habit, it is next to impossible wholly to avoid. A clear state of the intestinal canal, and a healthy aspect of the evacuations, are the conditions best calculated to ward off such a state. If not already existing, they should, therefore, be obtained by medicine ere the use of mercury is commenced. Notwithstanding this preparatory treatment, it will usually be advisable to combine either sedatives or narcotics with the mercurial. A light bitter infusion may, in some cases, be advantageously substituted for or combined with the sedative. This practice is called for more particularly where, in addition to great debility, there is a clean, moist tongue, healthy condition of the excreta, and copious perspirations. Sarsaparilla often acts kindly as a soother of the irritable state of the nervous system, producing a greater tranquillity during the day, and more comfortable nights, than will any selection or combination of narcotics. To this end the infusion of Dr. O'Beirne, prepared with lime-water, seems peculiarly adapted. Disordered condition of the alimentary canal is a frequent accompaniment and cause of the nervous irritation above mentioned. It may, however, occur, *per se*, but whether alone, or in combination, its removal is a point of the first importance in our treatment. Where there is reason to apprehend the supervention of this condition, the exhibition of mercury should be preceded by a mild, yet efficient laxative. Rhubarb with soda and a few drops of tincture of hyoscyamus in an aromatic water, will here be found highly beneficial. Any irritation or uneasiness remaining after the free evacuation of the bowels, will commonly subside in a short time under the use of alkalis with hyoscyamus and mucilage. Mercury, in its mildest form, should then be entered on, and its action may be guarded by combination with an alkali, as chalk, or with this and Dover's powder.

“During the mercurial course attention to diet and regimen must be rigidly enforced. The patient should be placed on the farinacea, or milk; animal food, fruit, vegetables, fermented, vinous, and spirituous liquors, being altogether proscribed. He should inhabit a large, airy, well-ventilated apartment, constantly maintained at one temperature, and, in addition, should wear next the skin a fine flannel garment, enveloping the

whole body from neck to foot. With the preparatory and concomitant measures now recommended, mercury will generally be well borne, and its use, when once commenced, must be regularly continued until the gums become affected. From an irregular and indecisive administration of this medicine, ill effects will almost invariably result. Should it, therefore, manifestly disagree, its exhibition must be immediately and finally desisted from. In other instances, where but slight phenomena of disorder occur, it becomes a question, to be decided only by the circumstances of the individual case, whether, despite of these, to continue its employment or withdraw the medicine and attempt to remove the cause upon which its injurious effects appear to have depended. In the latter instance we may, perhaps, be justified in once more resorting to its use; but if it again disappears, the medicine must be at once withdrawn, never more to be employed.

“ I have usually combined in one formula, with the mercurial, ipecacuanha and a sedative; the frequent irritative and distressing cough commonly attending this disease, proving, as it does, a constant source of inquietude through the day, and of restless nights, with the results of broken rest, are indications sufficiently clear (independent of those derived from the general habit) for the administration of sedatives. Hyoscyamus, or conium, are those which I principally employ; but where these fail of producing the desired effect, recourse may be had to hydrocyanic acid, belladonna, the salts of morphia, &c. Ipecacuanha acts beneficially in freeing the expectoration, and I am inclined to think, determines the action of mercury more particularly to the bronchial mucous membrane.

“ However beneficially these measures may operate, it must not be forgotten that the employment of mercury is but preparatory to other and more strictly curative treatment. After the removal or suspension of local disease by mercury, an equally or even more difficult task remains of correcting the cachectic condition upon which has mainly depended the local lesion. The patient, no less than the practitioner, should remember that from extreme and immediate danger he has only been snatched by severe and almost equally dangerous means; that the same liability to local disease exists as before, ready again to start into existence upon the application of the slightest exciting cause. One great object in administering mercury is to gain time for the employment of measures to restore the general health, by removing a local action which, allowed to continue, would give rise to such disorganization as quickly to place the patient out of the pale of cure, and long ere means calculated to work a salutary influence on the constitution could take effect. Unless this truth can be fully admitted, and the practice to which it leads rigidly enforced, mercury should upon no account be administered. It does not fall within the purport of this paper to discuss the treatment best adapted to the cure of scrofulous cachexia. This has, indeed, been so fully done by Sir James Clark, in his thirteenth chapter, as to leave nothing to be desired.*

“ With these prefatory remarks, I proceed to detail the nine cases

* “ Pitcarne, as quoted by Allen, *Synop. Univ. Med.*, ed. v. p. 159, Lond., pursued a practice not unlike that herein recommended:— *Quamdiu tabes est in primo gradu et probabile est sanguinem non esse extravasatum ulcusve nondum factum debet ante usam decoct: ex lignis et dum purgantibus utimur adhiberi mercurius dulcis non quicem cum purgantibus simul eodem die sed sine purgantibus post aliquot dies.*”

which I have subjected to the mercurial mode of treatment. Five of them have recovered ; one was temporarily relieved, but died subsequently of phthisis ; three experienced little or no benefit from the treatment adopted. These, with the cases of the Dublin physicians, are twenty-one in number, of which eleven were cured, three considerably benefited, six experienced no relief, and in one, the medicine disagreeing, could not obtain a fair trial."

I regret exceedingly that space will not admit of the insertion of the notes of Dr. Munk's nine cases of this disease treated by mercury.

LECTURE XL.

PERIOSTITIS.

GENTLEMEN,—Before I enter on the subject of our intended lecture, I have to remark, that there are some cases in the hospital possessing considerable interest. Those to which I would particularly direct your attention, are three cases of pneumonia, in which the stethoscopic phenomena are palpably and distinctly marked. I am anxious that junior students should examine these patients, and with them commence the investigation of chest diseases, because the indications in the cases alluded to are so extremely plain and obvious. Much of the discouragement which students experience in endeavouring to become stethoscopists, arises from the obscure and doubtful nature of the cases which are too often presented to them in the very commencement of this study.

I would recommend beginners to examine, at first, the peculiarities of healthy respiration in boys, and then in adults, and never to apply the stethoscope to a diseased chest until they have been first informed, by some competent person, of the presence of well-marked phenomena. In one of the cases above stairs, the *râle crepitant* is exceedingly distinct ; and having once heard it, you will always be able to recognise it with facility. There is also a man affected with phthisis, in whom the *gargouillement* is so audible, that the merest beginner, on applying the stethoscope under the clavicle, would say he heard the gurgling of air entering a cavity containing fluid. I point your attention particularly to this case, because its self-evident nature renders it highly valuable. We have also a well-marked case of hæmoptysis, or spitting of blood, a term which I prefer to that of pulmonary apoplexy. This man had laboured under this affection for some time, and two days since spat, during the course of the night, about three pints of blood. There are many cases of cerebral disease, vertigo, epilepsy, and paralysis arising from apoplexy, or following painter's colic ; so that those willing to instruct themselves will find the field for observation sufficiently ample.

I shall now proceed to make some remarks on the general pathology and treatment of periostitis. I regret to state that the articles on this subject in Cooper's Surgical Dictionary and other works are deficient in a practical point of view. It is a disease which has been known as long as syphilis ; but its true pathological nature was not pointed out until Sir Philip Crampton described it in the first volume of the Dublin Hospital

Reports. We have frequently heard tenderness of the skin, with increase of size, termed swelling, or diseased growth of the bone; but you will find that, in most of these cases, the swelling and other symptoms are owing to the peculiar state of the periosteum alone. Periostitis is a disease of considerable importance, because its symptoms are produced by scrofula and other cachectic states of the constitution, as well as by the abuse of mercury and other remedies. You will have occasion to observe instances of this disease superinduced by cold, or by giving mercury under unfavourable circumstances, and in the latter case frequently confounded with syphilis. This is an important fact, and you should hold it in memory. Another great mistake is, confounding it with neuralgia, or where it attacks the head, with hemicrania, because one side of the head only may be affected, and the pain may be increased at a stated hour, generally towards night. I have seen the carbonate of iron given in large doses by a medical gentleman of considerable eminence, to cure a pain in the side of the head, which arose from inflammation of the periosteum. Another instance of a similar kind has lately come under my observation in private practice, and once I committed the same mistake myself.

Before I enter into the further consideration of this subject, I must state to you that an opinion was formerly entertained, that membrane or periosteum was the repairer of bone, where its regeneration was necessary. But in this process, the vessels of the bone itself are as much concerned, and membrane contributes nothing to the formation of bone, *except so far as its vessels are engaged*. The formation of callus in fractures, the development of healthy bone in necrosis, the organization of node and exostosis, depend not on any membrane, but on the vascular part of the periosteum, and on the vessels of the bone itself. It is true, however, that where other vascular channels are cut off, the periosteum will, to a certain degree, supply their place, thus becoming the sole means of establishing vascular communication. It is to Scarpa we owe our information on the true nature of the reparation of bone. You will find, on this subject, a great number of experiments detailed in Cooper's Surgical Dictionary.

With respect to the periosteum, it is, like other parts of the system, liable to inflammation; but you are not to suppose that its liability is greater than that of other tissues. This would contradict the arrangements of nature; for it is with this membrane she has clothed many parts of the body which lie close to the surface, as the shins, head, ribs, elbow, and other joints, which, besides the periosteum, have, for the most part, only a thin covering of integuments. You all know how frequently the periosteum is exposed to injury in the foot-ball matches at schools, and at our Irish fairs, and with how much impunity. I may observe here, that the term I shall employ in speaking of the affections of this membrane, periostitis, is a name introduced by Sir Philip Crampton. Now, according to the view which I have taken of the formation of bone, it will appear that the subjacent bone is often as much diseased as the periosteum, and, indeed, sometimes the disease commences in the bone, and afterwards extends to the periosteum. With this exception, the definition given by Sir Philip Crampton is good. I beg leave to mention, *en passant*, that Mr. Howship's papers on the Formation and Diseases of Bone are deserving of your perusal. He has examined and given delineations of the various structures of diseased bone; but I do not consider his account of

the structure of bone to be sufficiently established to enable us to deduce important pathological facts.

There are numerous interesting preparations, illustrative of this subject, in the Museum of the Dublin College of Surgeons; and there is none who can do more towards improving our notions on the structure of bone than its late scientific curator, Dr. Houston. He has formed a classified catalogue, in which a minute account is given of the pathological circumstances of each case, and the attendant symptoms during life. I need not say this is a valuable acquisition to our stock of knowledge. In the course of our inquiry I shall communicate to you several useful hints on periostitis, which I received from Dr. Houston.

You will observe, gentlemen, that, in inflammation of the periosteum, the peculiar texture of this membrane modifies the symptoms of the disease. The periosteum is fibrous, and, though not thick, is remarkably strong and unyielding, lacerated with difficulty, and does not accommodate itself, except to that which it was intended by nature to cover; hence, if a part increases in size, the periosteum over it is stretched and tightened, and this is one of the principal causes of the severe pain usually felt. You are aware of the swelling which attends the common forms of inflammation of cellular substance, where the parts can extend themselves on every side, must be differently circumstanced from that which arises from abscess, under fascia, or lying close to a bone, and that there must be a corresponding difference in the pain. You will find, in various surgical works, that, in periostitis, the pain is sometimes great where very slight changes have taken place, and that little pain is felt in some cases where there is considerable alteration of structure.

It is a remarkable fact, that, in many instances of periostitis, exactly corresponding parts of the bones of different extremities, on different sides of the mesial line, will be found simultaneously or successively attacked. Thus, if a certain spot on the bones of one fore-arm, or one acromion, or any other part of the scapula, be attacked by inflammation, similar appearances will manifest themselves in the other, either at the same time, or in a few days after. If it seizes on one clavicle, you soon observe it in the other. You will have occasion to treat this disease in perhaps most of the human bones, but particularly in the head, tibia, femur, sternum, and scapula. In the sternum it sometimes leads to a carious destruction, forming a large hole in the bone, as happened in a young man, formerly in this hospital; in his case, each stroke of the heart caused matter, mixed with air, to bubble out, presenting a very curious and frightful appearance. Periostitis, occurring in the neighbourhood of joints, often spreads to the joint itself, giving rise to periostitic arthritis. Thus, from the tibia, it frequently spreads to the knee, or ankle, and from the humerus, or scapula, to the shoulder-joint. The sternal articulation of the clavicle is a favourite seat of periostitis. In the ribs, it much more frequently attacks them in their anterior portion, not far from the sternum, or from their cartilages, and occasionally gives rise to costal caries, for which Cittadini has recommended a particular operation. I would recommend you to hold in memory, that when the disease affects the thigh-bone, it is almost invariably about the *junction of the middle and lower thirds*, and generally on its anterior or inner surface; this is a practical observation which I have not seen noticed in books.* There is also, in

* Mr. Colles has, since this lecture was delivered, alluded to the occurrence of nodes in

this form of periostitis, one peculiarity that, besides the very great severity of the pain which attends it, we find that it yields with the greatest possible difficulty to medicine, and that the means of curing it are a desideratum we have still to discover. The next species, most remarkable for its painful symptoms, and one which deserves to be explained more fully, is periostitis of the head. There are three subdivisions of this species. The first kind is very easily recognised, for you will find the affected spots sore, slightly swelled, and hardened, with marked tenderness on pressure, and the headache, which accompanies them, radiating from these spots as from so many centres. In the second form you will find the pain obscure and not confined to a certain spot, but the swelling and thickening of the scalp are evident, and give certain indications of the nature of the disease. You may also observe cases where the inflammation is diffused over one side of the cranium, and not fixed to a small distinct spot, and these are attended with severe pain. With respect to these varieties, you will not find much difficulty in ascertaining their nature; but there is another kind in which the diagnosis is much more obscure. A patient, for instance, complains of severe headache, at first attended with intermissions, generally increased towards night, and accompanied with a sense of weight in the head; his eyes look watery and heavy, and lose their usual animation, and his spirits are depressed? Ask him in what part of his head he feels the pain, and he cannot tell you exactly. Sometimes he refers it to the forehead, sometimes to the side of his head. There is no point of the scalp in which you can detect any soreness or swelling. Matters go on in this way for some time, he begins to lose his rest, the intermissions become shorter and not so perfect, and the pain increases. During the day it is tolerable, but, towards evening, it is excruciating, and does not allow him to enjoy one hour's rest in the twenty-four. The largest doses of opium, and other strong narcotics, are useless. Rest in bed, stupes, cold lotions, narcotic liniments, even bleeding and leeches, give but very small relief. After exerting all your ingenuity, you still have the mortification of finding that there is something wrong going on, which eludes your skill. On your first visit, from the appearance of the patient and the detail of his symptoms, you are led to suspect that the brain is the part diseased. You employ your antiphlogistic remedies, but find no improvement, and begin to doubt the correctness of the diagnosis. Moreover, in cases of this kind (where you will find a tenderness in the integuments on close examination, and pain limited to one side of the head), there is, occasionally, a partial ptosis of one eyelid, which creates alarm, and leads you to imagine that it is the brain itself which is affected. Ptosis, or falling down of the upper eyelid, is a very frequent symptom of cerebral disease; and, consequently, in determinations to the head, in fever, and other complaints, it is a bad sign when one eye, in consequence of some degree of ptosis, appears smaller than the other. There is certainly some degree of paralysis in this case, but it is only secondary, and not depending on the brain, but on the inflammation, affecting the nerves themselves. I mention this because it is not generally known or described, and because it is liable to excite alarm. Now, why is this disease not easily recognised,

this situation, in his work on the Venereal Disease. He points out the many symptoms generally supposed to characterize morbus coxæ, which attend this affection, and particularizes the diagnostic features of the two diseases.—*Vide Colles on Venereal.*

or why is the bone so often devoid of tenderness to the touch? It is because the internal surface of the bone is the part first engaged, and the disease cannot become evident until after some time. After your usual treatment has been continued for a week or ten days with little improvement, a certain spot on the head will be found tender on pressure, and it is only then that the true nature of the case will appear. For this disease there is no cure but mercury iodine. However useful depletion may be to prepare the system, nothing but the seremedies in large doses will relieve the disease. Give a scruple, or half a drachm of calomel, in the course of the day, and bring the system thoroughly under its influence. You will do well to combine different proportions of this remedy, as there are some constitutions which are more quickly affected by one preparation than by another, and then combination is always valuable. It is very remarkable, that though you have made the mouth sore, relief is not immediately obtained; you must go on and affect the system, very decidedly, and when you have accomplished this, the pain and other symptoms will disappear. Of this we have an instance in the chronic ward. A periostitic patient had his mouth sensibly affected for several days, but with very little relief of pain. What did we do? We doubled the dose of calomel, and in a few days the pains had altogether disappeared. You may have perceived analogous instances in cases of iritis, where the disease begins to diminish on the mouth being made sore, and even may appear to have entirely subsided. Encouraged by this, the practitioner decreases the dose of mercury; the mouth continues sore, but in a few days, although the small doses of calomel are continued, and although the mouth is still affected, the characteristic symptoms of iritis again recur, and go on increasing, if you continue to trust to the diminished doses of calomel. Under such circumstances, a beginner might be discouraged, and lose confidence in mercury, because the iritis had returned while the mouth was still sore, and before the remedy was discontinued. What is to be done? Instantly resume the large doses of calomel, with a more decided mercurial action, and the iritis disappears.* In the mercurial treatment of periostitis, arthritis, peritonitis, and pleurisy, a similar method of managing this remedy is occasionally required, and it is of vital importance that you should know this.

With respect to that species of periostitis which affects the femur you must recollect, that this bone lies so deep, that it is sometimes not very easy to detect the periostitic swelling. Generally it is the part of the bone before mentioned which is attacked, and in the cases I have seen, the inflammation was on the inner side of the bone. From its situation, this species is very apt to be mistaken for various diseases, particularly neuralgia, sciatica, abscess in the shaft of the bone, morbus coxæ, &c. After some time, a certain degree of tumefaction may be distinctly felt, but not until the patient has suffered excruciating agony and distressing want of sleep; indeed in one case the poor sufferer scarcely slept at all for twenty nights in succession. One of these cases was relieved by corrosive sublimate, but two others were not in the least improved by mercury pushed to the utmost. Narcotics totally failed, but a seton over the affected part seemed to do some good. But, to return to periostitis affecting the cranium; it occasionally assumes the chronic form, attacking both sur-

* These are the kind of cases that have since been found to yield rapidly to the influence of spirit of turpentine, as first recommended by Mr. Hugh Carmichael.

faces of the bone, in a slow insidious manner. The following instructive example of this affection fell lately under my observation :—

A young man, of good constitution, previously healthy, became subject to epilepsy, very frequent and violent. Some time previously he had complained of headache, chiefly referred to the left side of his forehead. The convulsions on the right side were stronger than on the left. He continued in this state for many months, and became incapable of pursuing his usual occupation. The convulsions became more frequent, recurring at different times in the day ; and some of his medical friends thought they observed a prominence in the frontal part of the skull, and were anxious to have him trephined in that spot. On looking at him in front, you could not at once perceive any unnatural elevation in the forehead ; but, by examining it from above downwards, according to the *norma verticalis* of Blumenbach, there was a perceptible swelling, as if the whole bone had been pushed forward in that situation. After seven months' illness, he was seen by Dr. Colles, Sir Philip Crampton, and myself. We objected to his friends' proposal to trephine, because we could not be certain that there was any projecting growth of bone pressing on the brain in this place, and because it had a certain degree of tenderness on pressure. We were afraid, also, that there was an intimate union between the internal periosteum and the *dura mater*, as well as between the latter and the surface of the brain ; consequently there was danger that the operation might induce inflammation in all these parts. Considering it to be a case of internal periostitis, in which the inner table of the bone and corresponding part of the *dura mater* were affected, we agreed to try the effect of mercury. We employed frictions for this purpose, as the internal exhibition of mercury produced sickness and vomiting ; and at the end of eight or ten days, when the mouth became affected, we had another consultation. We were told there was no improvement ; the fits still continued ; his friends exclaimed that mercury was useless, and called for the application of the trephine : we were almost in despair. On closer inquiry, however, we found that though the fits had displayed the same violence, there was some slight diminution in their frequency, and on this slender hope we urged the continuance of the same remedy. As soon as his system was completely affected, the disease began to decline perceptibly, and he became free from pain, and the convulsions ceased.

When the *vertebræ* become the seat of periostitis from syphilis, scrofula, or abuse of mercury, it will be generally found in the bodies of the *vertebræ*. When brought on by syphilis alone, I believe, it seldom attacks the bodies, such cases arising chiefly from the abuse of mercury or scrofula. In persons of broken constitution from combined venereal and improper mercurialization, it is not an uncommon occurrence to find the neck presenting the symptoms of subacute crick, or *collum obstipatum*, which, if treated in the common mode, the disease becomes confirmed ; and of this I have seen an instance in a gentleman, whose neck became permanently stiff for want of skill in his medical attendants. It will be obvious that inflammation of this kind, affecting the *vertebræ*, may be readily communicated to their ligaments and the adjoining tendons, and in this way produce the deformity. I have treated some such cases, and would turn your attention to it, because you will not find it mentioned in books. You will be able to know it by careful examination, by pressure, and find that its cause was disease of the periosteum of one, two, or three of the

vertebræ ; and you will employ, in treating it, leeches, repeated blistering, and compound decoction of sarsaparilla, with hydriodate of potash. If this does not do, mercury, and, except the disease has continued too long, you will cure it. Other vertebræ, as those of the back and loins, may become the seat of periostitis, and it may be mistaken in those cases for Pott's disease, or for Teale's spinal neuralgia, from which it is sometimes difficult to distinguish it. Periostitis sometimes attacks the sacrum and os coccygis, and is then peculiarly painful, as is now exemplified in the male ward. In females, I have been twice consulted within the last year for a pain in these same parts, which was at times excruciating, and always considerable ; it was increased to an intolerable degree by sitting down, and hence they were obliged to avoid society. It appeared to be a variety of hysterical neuralgia, and yielded to nervous medicines combined with tonics, together with the local application of stupes, narcotic liniments, &c., &c. I know not whether authors have mentioned this peculiar neuralgia.

When periostitis attacks the sternum, it is very liable to be mistaken for disease of the chest. I remember a young gentleman, some time ago, who had a severe pain in his chest, which gave his father such alarm, lest it might be consumption, that he brought him with him to London for the benefit of change of air and to have medical advice. On his way thither he caught a cold, and in this condition waited on a medical gentleman, who prescribed medicines for him adapted to the cure of pulmonary disease. On his return to Dublin (his pain still continuing) I was called in to treat him for a complaint in the chest. On placing the stethoscope over the spot where he complained of pain, he winced, and, after a minute examination, I discovered that the disease was entirely confined to the periosteum. It is possible, however, that in such cases, the disease may ultimately reach the chest, for the sternum is a very porous and spongy bone, and a complete perforation of its substance may be the result of periostitis long continued. Another way in which it may be confounded with rheumatism of the intercostal muscles, or pleurisy, is where periostitis attacks the ribs. This is a very common source of pain, tenderness, and stitch of the side.

There is a form of periostitis which extends from the bones of the foot to the plantar aponeurosis ; it is found chiefly in labouring men ; and the predisposition to it seems to arise from the use of the spade in digging. I do not know that this form has been mentioned by any author I am acquainted with. The following symptoms are generally present. The patient complains of excessive pain in the sole of the foot, extending into one or both malleoli whenever he attempts to lay the plantar surface flat on the ground, and in order to save himself, he walks either on the heel or outer edge of the affected foot, the toes of which are strongly contracted, so as to relieve the tense condition of the plantar fascia. The pain is much increased when pressure is made in the centre of the sole or on one of the malleoli, these latter processes being generally enlarged, and accompanied with swelling of the adjacent parts. Besides the pain produced by pressure on the plantar surface, the patient generally suffers from lancinating pain through the ankle-joint. This disease is one of frequent occurrence, and many cases of it are admitted every winter into the Meath Hospital, where it is familiarly known by the name I have given to it, viz., "Plantar Rheumatism." The most severely painful instance of all the varieties of peri-

ostitis is, perhaps, the paronychia periostei, or bone-whitlow, to which, as it belongs to surgery, and its treatment is well known, I shall merely allude.

I shall now enter into the consideration of the special pathology of periostitis. This disease may be divided into two kinds, the diffused and the circumscribed. With the former we have nothing to do, it is never found in the medical wards, and comes properly under the care of the surgeon. It may, however, be well to mention its chief characteristics. By diffused periostitis I mean that form which occupies a large portion of the periosteum, which arises from cold, accident, and other similar causes, which has no connection with, or dependence on particular states of constitution, or specific diseases, and which frequently terminates in necrosis. The other species, which comes more immediately under the care of the physician, I have termed circumscribed, from its comparatively small extent. Circumscribed periostitis may arise from cold, but, in the majority of instances, its origin may be traced to some specific cause, as mercury, syphilis, or scrofula. It is a much more frequent disease than the former, and presents several varieties. In the first place, it may exist without detachment of the periosteum from the subjacent bone. Here the periosteum becomes inflamed and thickened, while the bone beneath assumes a greater degree of vascularity and consequent increase of size. By this process, which is always comparatively slow, the connection between these parts is increased, and the tendency of the augmented vascular action is to form depositions. Hence, the thickening of the periosteum is sometimes very great, and, in process of time, forms a very considerable circumscribed tumour, which to the touch feels so solid, that it is often mistaken for bone. In this stage of the inflammation, pain and tenderness are complained of in the affected part, and we sometimes find the integuments swollen and discoloured. Matters, however, after some time, assume a more chronic form, and the intensity of the symptoms diminishes, there is little or no tendency to grow larger, and the pain and tenderness undergo a change for the better, though they do not cease altogether. It is at this period that the periosteum, previously thickened, becomes more dense in its structure, and in some cases seems to be almost converted into a fibro-cartilaginous tissue. When this change has been effected, it is doubtful whether the diseased mass is ever again absorbed, though it must be confessed, that swellings, whose history and physical characters strongly indicate their having undergone this change, occasionally disappear altogether in the course of a few months. Many instances will occur in the practice of medicine, where cartilage, or even bone are absorbed under other circumstances, evincing the value of proper treatment, or the efficacy of unaided nature. To recapitulate: inflammation of the periosteum, attended by deposition and thickening, without effusion of fluid, by increased vascularity of the subjacent bone, and adhesion between it and the periosteum, after remaining for some time, will be found to decrease in the violence of its symptoms, and to assume a fibro-cartilaginous hardness, and in this state it may be absorbed or not. That it may be absorbed, we are led to expect from analogy; for we see frequent instances of the absorption of cartilage and bone; but it will be often found to continue for life, and in some instances, to be converted into a true bony node. It is worth your while to consider how the latter process takes place. Ossification commences in the thickened periosteum, and bone is formed, constituting

in general a circumscribed bony node which rises from the external surface of subjacent bone. In process of time the external lamina of the true bone becomes absorbed, and at the same time, a cancellated structure is developed in the node, which becomes continuous with the cancelli of the bone beneath, and thus there is formed on it a kind of bony arch. We are not able to ascertain at what period this takes place; but you will find instances of this formation in a state of progress in Mr. Howship's account of some specimens in Mr. Heavyside's museum, in which he discovered that the external surface of the old bone was not quite absorbed, and that no cancelli were as yet formed. A considerable disfigurement is frequently the consequence, where this affection attacks various parts of the same limb; and you may have observed a man in the chronic wards, in whom the shape of the tibia is lost from this cause. A recurrence of those attacks gives rise to several irregular and partial elevations on the bone, which blunt its edges, and fill up its natural concavities, so as to leave scarcely a vestige of its original symmetry, a circumstance which may be frequently observed in the deformed tibiæ of prostitutes. You observe, gentlemen, in the first stage of this disease, the thickened periosteum presents a uniform density, but in process of time a cancellated structure makes its appearance in their deep-seated portion, while, as in the natural shafts of long bones, a layer of firm osseous structure constitutes their surface. It is obvious, therefore, that in the first stage there is a distinct line of demarcation between the new and the original structure; while, in the second stage, no such distinct boundary exists, the cancellated portion of both being perfectly identified.

The next form of periostitis is that which is attended with detachment from the subjacent bone, of which there are several varieties. In the first kind, you find that, in a space varying from twenty-four hours to eight or ten days, an elevation appears on some part of a bone, with pain and tenderness on pressure, and forming a hard tumour, giving to the touch the feeling of a solid substance. This error may be detected by a more accurate examination, and there will be some elasticity discovered in the swelling. The cause of its seeming to be a solid tumour arises from the manner in which the periosteum is tensely stretched over the effused fluid. In the second stage of this variety, there is a gradual diminution of the pain and swelling; the fluid, which was effused under the periosteum, is absorbed, and the subjacent bone and periosteum become again united. This process generally occupies some time; but there are instances where its accomplishment is more speedy. Of this nature are the tumours which arise and disappear with such rapidity on the scalp and elsewhere, which yield quickly to leeches and blistering, and after existing for some weeks, or perhaps even days, vanish, and leave no sensible trace behind. The pathological distinction of these tumours consists in this: that the surface of the subjacent bone does not die, and, consequently, the process of reparation is short; for when the effused matter is absorbed, there is nothing to prevent the adhesion of the bone and periosteum.

The variety just described is not attended necessarily with ulceration of the skin; but there is another kind, in which effusion, as just described, takes place, accompanied by increased vascularity on the surface of the bone beneath. The matter effused at length escapes through an opening, made by ulceration in the integuments, and nature effects a cure by means

of granulations, arising from the vascular surface of the bone, which, uniting with granulations from the periosteum and integuments, repairs the breach of substance, and produces consolidation of the separated parts.

In the next variety, matter is effused beneath the periosteum, and the bone of the affected portion becomes vascular at a little depth, while the surface is white and dead, consisting of a thin, worm-eaten, cribriform lamina, which, after some time, separates and opens for itself a passage through the integuments. This exfoliation is followed by a growth of granulations from the vascular bone beneath, and the process of healing is perfected in the manner before described. In some instances, the dead lamina is not thrown off at once, but undergoes a very curious process, being perforated, and as if worm-eaten, and thus allowing the granulations thrown out by the healthy bone to pass through its structure until the whole of the disorganised plate is removed. Such are the chief varieties of periostitis, exclusive of that species which is observed in scrofula, and which, from the disease simultaneously affecting the bones and periosteum, can scarcely be called periostitis. In some vitiated and cachectic constitutions, the periosteum becomes affected, in consequence of ulceration commencing in the skin from rupia, boils, or ecthyma; this, however, I shall not enter into at present. With respect to the derangement which takes place in the skin, it always bears proportion to the internal ulceration, and in the first species mentioned there is scarcely any. In the other kinds, it is of great use at the commencement to cut down to the bone through the integuments and periosteum, as recommended by Sir P. Crampton; for this practice, by lessening the inflammation, limits the quantity of bone which is about to die, and consequently the extent of integument likely to be removed by ulceration.

When we come to consider periostitis, and investigate its causes, we find that it frequently arises from specific poisons, as scrofula, mercury, or syphilis. You have many opportunities, in the surgical wards, of becoming acquainted with the characteristic marks of that form which owes its existence to scrofula; it is generally milder in its symptoms; there is less pain and tenderness; the swelling is less; and it is most commonly observed in young persons, in whom we cannot suspect the operation of syphilitic or mercurial causes. I do not, however, mean to say, that you will not find the latter causes combined with scrofula, even in very young persons; but such an occurrence is rare. But where this disease occurs at later periods of life, you are sometimes puzzled to decide whether it is a consequence of syphilis, or whether it is superinduced by mercury. When called to a case of this kind, inquire accurately into its history, and if you find that the person has taken mercury for the cure of primary or secondary symptoms, that it cured the disease, and the cure was decided; that in a week, a fortnight, or a month after this the patient was exposed to cold; that a great number of spots are simultaneously affected, and in corresponding parts of the limb,—you will be led to conclude that the disease is mercurial periostitis. About a week ago, a young gentleman called on me with several periostitic swellings on his bones. I said to him, “You were taking mercury within the last six weeks.” He said he was. “You then went out and got cold.” He said he had; and in this way I extracted from him the history of his complaint, and guessed it with such accuracy, that he stared at me as if I had a hundred heads.

Such a case as this, gentlemen, arises from cold affecting the constitution, while under the influence of mercury. But there is still a more perplexing one; you may have mercurial periostitis mixed up with venereal symptoms. This is no uncommon thing among persons advanced in life, who have had frequent attacks of venereal, and undergone repeated courses of mercury. You have the two diseases blended in a very complicated form, and then indeed are we placed between Scylla and Charybdis, mercurial action producing a cachectic state of constitution, and venereal a diseased state of certain parts. Moreover, you are all aware every thing that impairs the constitution has a tendency to bring on scrofula. Now, take a person who is suffering from syphilis; deprive him, as you often must (from the confinement a mercurial course requires), of pure open air, keep him on low diet, and what is the consequence? To the syphilis and mercurial cachexy, you have scrofula frequently super-added, and that hideous combination of disease which we sometimes meet with at the present day, but fortunately not so often as formerly. Some years ago, all such cases were mercurialized—often to death. In the wards of the Lock Hospital in this city, the progress of the patient towards cure was calculated in proportion to the number of pints he spat during the day. In the skulls of persons who lived during the last century, preserved at Leyden, the destruction of the bony tissue is extraordinary: indeed, a phrenologist would be often puzzled by the havoc made by disease among the organs of our forefathers. An old writer, I think it is Herodotus or Zenophon, says, that the skulls of the Egyptians, lying on a field of battle, could be recognised by their hardness. Those of the last century, it seems, we can distinguish by their softness. This is no longer the case; longevity, in the present century, is remarkably increased; and I think there are some countries which will be considerably raised in the scale of population from the improvements introduced in the treatment of venereal; for this we are chiefly indebted to English surgeons and physicians. Much credit is due to Sir Thomas Moriarty, Mr. Mathias, Mr. Carnichael, and other surgeons, who were the first in pointing out the baneful effects of excessive courses of mercury. Dr. Thomson, of Edinburgh, has also done a great deal in promoting our knowledge on this point. It is but justice to mention, while speaking on this subject, the valuable and important services of our fellow townsman, Mr. Carmichael. When he first published his observations on the treatment of venereal disease, his opinions were looked upon as merely theoretical by most of the surgical profession here, and his practice industriously decried. I do not go so far as to admit all that Mr. Carnichael has advanced; but it is from him we first received abundant proofs, that the majority of the cases of syphilis can be cured without mercury, and this is highly important. To the knowledge of this fact, to the more judicious employment of mercury, to the introduction of vaccination by Jenner, at the beginning of the last century, and to the general improvement, not only in diet, but also in medical and surgical treatment, we are to attribute the increased longevity of the present period. Human life had almost doubled, and we began to hope that in 1900, it might be quadrupled. The mortality in London decreased in the proportion of 15 per cent., and the profits of Insurance Companies declined. In Dr. Hawkin's book, which was published in 1829, you will find that he strongly expressed his gratification and delight at the cheering prospect which lay before us; and we were

all ready to sympathize in his anticipations, when, unfortunately, the cholera came, and brought us back to our original position. But to return to our subject. It is unnecessary for me to bring proofs in support of the opinion, that mercury alone brings on diseases of the bones. You are aware of the case of a man named William Byrne, in this Hospital, who got mercury for disease of the liver, and returned in a fortnight after he was discharged with periostitis. Dr. Lendrick had a case of poisoning by corrosive sublimate some time ago. The stomach pump, and white of egg, succeeded in saving the man's life, but he got a severe attack of periostitis.

I shall now detain you for a short time in speaking of the treatment of periostitis. As to the local means, you will find much good from leeching, and blisters dressed with mercurial ointment, particularly when the disease is recent, and the inflammation circumscribed. I have also found the greatest benefit from mercurial inunction over the affected part. If the blisters produce but little effect, try the tartar-emetic ointment; I have found it useful where blistering failed. In obstinate cases, Sir P. Cramp-ton's plan of cutting down to the bone may be had recourse to. When a periosteal node breaks and matter is discharged, and you observe the bottom of the sore covered with pale unhealthy granulations, or a piece of diseased bone lying in it which ought to be detached, introduce a stick of nitrate of silver, and touch, not the whole, but some given part of the surface every day, and you will produce a rapid improvement in its appearance. This treatment was introduced by Mr. Nichol, and you will find a detail of it in the *Edinburgh Med. and Surg. Journal* deserving your attentive perusal. As to the general treatment of periostitis, where the constitution is strong, and there is no objection to the use of mercury, this remedy, in the form of corrosive sublimate, affords a very certain and speedy relief, having premised venesection and leeching. Even when the disease arises after a course of mercury, or in consequence of syphilis, where its symptoms are violent and the constitution is strong, the rapid introduction of mercury is the best treatment you can adopt. This is particularly suited to that painful species of cranial periostitis which I have described, and which scarcely yields to any other remedy, and also to those cases where the disease attacks the shaft of the femur. In both of these affections the mercurialization, to be effectual, must be carried to decided salivation, and must be continued for three or four days after the mouth becomes sore, though you will meet some cases which yield before salivation. This, however, is an uncommon occurrence. Where the symptoms are less violent we may content ourselves with Plummer's pill or blue pill, in alterative doses. In persons of delicate habit, who are much worn out by disease, and where all other means fail, corrosive sublimate sometimes succeeds, or De Velno's vegetable syrup. The latter acts on the constitution in a mild and beneficial manner, and I have seen many persons restored to health by its agency. We must never forget, however, that there is a material objection to the use of mercury in hospitals among the poor; for, on returning home, they are almost invariably exposed to fatigue and cold, have consequently a strong liability to relapses, and are then of course worse than before. This unfortunate occurrence may be generally avoided among the wealthy, and to them the mercurial cure is therefore more applicable. Besides mercury, the most effectual remedies are colchicum and tartar emetic, but particularly hydriodate of potash. You

will find, that after bleeding or leeching, by employing colchicum with narcotics, as, for instance, the wine or tincture of the seeds of colchicum with Battley's sedative liquor, or black drop, combined with magnesia, you will produce a very powerful effect. You are aware of the power which colchicum produces in subduing inflammatory affections of the heart, and also of the joints, and it must be looked on as a very valuable remedy. You have, in addition to this, the different antimonial preparations. The antimonial wine and James's powder will be particularly serviceable. You cannot combine colchicum with antimonials, in consequence of their effect on the stomach, but you can combine either of them with narcotics. During the whole course of the disease you must employ narcotics; they relieve pain, and are to be used plentifully, but with discrimination. When the disease becomes chronic, give sarsaparilla with nitric acid. The latter enhances the value of the sarsaparilla, though we are unacquainted with its *modus operandi*. You have, therefore, gentlemen, four modes of treatment, first the mercurial, which, where it is admissible, is the most speedy and effectual; next, the antiphlogistic, consisting of bleeding, leeches, colchicum, antimonials, and narcotics; thirdly, the chronic treatment, which comprises sarsaparilla and nitric acid with narcotics, change of air, and time, and fourthly, that by hydriodate of potash, either by itself, or what is better, combination with sarsaparilla.

POSTSCRIPT.—When these lectures were delivered in 1832-3, I was not so well acquainted with the great utility of hydriodate of potash, in periostitis, but I have since made most ample trial of it and am convinced that it possesses greater power over this, than almost any other disease. It is of extreme service in all forms of periostitis, whether arising spontaneously, or as a symptom of syphilis, rheumatism, or abuse of mercury. The same rule should be observed, which was before laid down, namely, to increase the dose gradually, until a decided impression is made on the disease.

I shall refer briefly to some points connected with the case of an old man in the chronic ward, who died lately of inflammation of the lung. At the period of his admission, he had been ill for some time; both sides of the chest, but particularly the left, sounded dull on percussion; he had extensive bronchial respiration and *crachét rouille*, in fact, it was a very bad case of double pneumonia, a disease which at his time of life is very seldom cured. We did all we could to arrest the progress of the disease; we cupped him over the left side, gave him mercury so as to affect his system, and applied blisters to both sides of the chest, anteriorly and posteriorly. These were the only active measures which remained for us to employ; from the man's age, the weakness of his pulse, and the duration of the disease, we could not venture on general bleeding; we could only attack the disease with local depletion, mercury, and counter-irritation. All these remedies were applied with great diligence, but unfortunately proved incapable of checking the disease. His cough continued, respiration became more difficult, and though his mouth became affected, the dulness on percussion increased day after day; and though the patient was removed into a warmer room, and every attention paid to his comfort, it was evident that he was getting gradually worse. About

a fortnight after his admission, his expectoration assumed the purulent character, and it was obvious that the lung had passed from the stage of hepatization into that of interstitial suppuration. He took the decoction of polygala, with Iceland moss and syrup of white poppies, but without any relief to his symptoms; the disease increased, and he died on the nineteenth, sixteen days from the date of his admission.

On examining the lung, the ordinary phenomena of pneumonic inflammation were discovered; parts of the lung were in the state of grey hepatization, others were infiltrated with pus, and broke down easily under the finger. We found, too, that he had not only pneumonia, but also extensive pleuritis and pericarditis. The pleurisy had probably commenced about eight or nine days before his death; the pericarditis was of an origin somewhat more recent.

You may ask why I did not recognise these affections before death. The reason is twofold. The man was in a very weak and hopeless condition, and both sides of his chest were sore from the blisters; these are circumstances under which I have strong objections to torment a patient with examinations, and therefore I made none in this case. The other reason is, that in a patient who has been greatly reduced by some acute disease, new inflammations are apt to spring up with great rapidity, and with still greater latency. I remember a very remarkable case of the same description which occurred at the Meath Hospital, where the patient had a very extensive inflammation of the pleura with exudation of lymph and effusion of a considerable quantity of fluid, and yet not one of these symptoms was recognised during life. This man, you will recollect, never complained of pain in the side, nor had he orthopnœa, irregularity of pulse, lividity of countenance, or any of those symptoms which are looked upon as indicative of pericardial inflammation, yet on dissection we find the pleura extensively engaged, lymph exuded on its surface, and a small quantity of sero-purulent effusion in its cavity; and on examining the heart, we find the pericardium covered internally with an extensive gelatinous layer, consisting of lymph and puriform fluid intimately mixed together. You perceive, then, in this case, a confirmation of what I have so often insisted on, that pleuritis may occasionally run through its course, unaccompanied by pain in the side, and that inflammation of the pericardium may exist without orthopnœa, irregularity of pulse, lividity of countenance, or fainting, symptoms formerly believed to be more or less manifest in every case of pericarditis. The pathology of pericarditis has been investigated but lately with the care it deserves: the labours of our French brethren have been mainly instrumental in producing its present degree of advancement. In England some valuable observations have been contributed by Dr. Elliotson and others, but they have been more than rivaled by the contributions to the diagnosis of this disease, which have appeared in the *Dublin Medical Journal*.

To return to our subject. Pericarditis is a disease of quite as frequent occurrence as pleurisy, and often, as in the present instance, associated with the latter; on the whole, I do not consider pericarditis as more dangerous or more difficult to cure than pleuritic inflammation, neither does its existence seem less easily ascertained. Some cases, it is true, are extremely insidious in their nature, but the same may be said of cerebritis, pneumonia, and all other phlegmasiæ; usually, however, a careful and attentive physician will at once detect the existence of pericardial in-

flammation. When he finds that a patient has been exposed to causes capable of exciting fever, that he has been liable to gout or rheumatism, or has been actually attacked with either, then will his attention be directed to the heart; if he perceives that its action is either unusually violent or irregular, or if he observes that uneasiness and oppression of chest are complained of to a degree not to be accounted for by any pulmonary lesions present; if he finds that his patient has the appearance of a person labouring under some serious disease, and that none such exists in the lungs themselves, then will he be called on to examine the region of the heart with the greatest accuracy. One of the most common symptoms of pericarditis is tenderness in the intercostal spaces over or near the heart. This is not perceived in many cases until pressure is made with the fingers. Tenderness occurs in many who do not complain of pain or stitch in this portion of the chest; when the latter coexists with tenderness, the presumption in favour of the presence of pericarditis is still greater. The pain and uneasiness about the heart, are, as Dr. Elliotson remarks, generally increased by pressing in the left hypochondrium, upwards towards the diaphragm. I must refer you to Dr. Stokes's and Dr. Mayne's papers for any analysis of the physical signs derived from percussion and auscultation, and also for an explanation of the reasons why the general symptoms are subject to such striking variations in this disease. In some you have, soon after its commencement, lividity, orthopnoea, and tendency to fainting, combined with irregularity of pulse; in others the disease runs its whole course, whether it terminates fatally or in health, without any of these symptoms; in fact, no disease is more inconstant in its characters, and none more requires the aid of investigation by means of physical signs, which, if well-conducted, seldom fails to clear up all doubts. Of one thing I am certain, that inflammation of the pericardium in a person of tolerably good constitution may be generally arrested in its progress by bleeding, frequent leeching, and scruple doses of calomel. It is mere trifling on such occasions to have recourse to tartar emetic, digitalis, or the common antiphlogistic remedies. Instantly use every effort to produce the full action of mercury on the system. Apply the ointment to the axillæ; smear it over the inside of the thighs; make your patient respire the vapour of *hydrargyrum cum creta* as often in the day as he can bear the process, and be assured that you are pursuing the proper course. Well has it been observed by Dr. Elliotson, when speaking of a fatal case of pericarditis,—“The only chance I had to save the life of this person would have been to have pushed the mercury further. I am quite sure that more lives are saved in inflammatory diseases by carrying mercury to a great extent, than by merely having recourse to it for the simple production of ptyalism.” It is the want of decision in the practice of the French physicians—it is to their want of confidence in mercury, that we must attribute the greater mortality of pericarditis in Paris than in Dublin; for most of our patients recover, most of theirs die. Of course, gentlemen, the most unfavourable of all cases is where pericarditis attacks a person debilitated by previous sickness, such as fever, dropsy, &c. Here the disease runs a very rapid, and too often a fatal course, and cannot be controlled. One practical remark, and I have done. Before effusion takes place into the pericardial sac never apply a blister; after it has occurred, repeated and severe blistering over and about the region of the heart is one of our best remedies.

Two years ago I had an opportunity of studying a case which subsequently proved to be an example of inflammation of the muscular substance of the ventricles, ending in suppuration and the formation of a large abscess in the ventricular parietes. This is a very rare occurrence, for the simple reason, that inflammation of the substance of the heart generally proves fatal before pus is formed. A very robust gentleman, aged fifty-five, from the neighbourhood of Wicklow, came to Dublin for the benefit of advice. He had complained of cough for many months, together with dyspnœa and palpitation of the heart; latterly he had become anasarctous, and suffered much from distress and pain referred to the region of the heart. This pain formed the chief subject of his complaint, and darted over the chest. On examination, I immediately detected hypertrophy and dilatation of both ventricles, and I announced the existence of valvular disease, inasmuch as a loud and extensive *bruit de soufflet* existed, together with a remarkable *frémissement cataire*, and a very irregular pulse. This opinion was delivered in the presence of Dr. Sherwood and Mr. Hetherington. Our patient returned to the country, where he continued to complain of pain in the heart that was at times excruciating. He died suddenly at the end of a few weeks. The results of the post-mortem examination were kindly communicated to me by Dr. Sherwood. Considerable dropsical effusion into both pleural cavities; heart exceedingly enlarged. "On slitting open the pericardium, I found (says Dr. Sherwood) that the heart adhered to its entire surface by means of bands of coagulable lymph, which were easily broken down except at the apex of the heart, where they were very strong and firm. In attempting to break them, more than two ounces of purulent matter escaped into the cavity of the pericardium, which caused me to institute a very close examination of the parts, in order to discover whence the pus came. I found a small rent in the apex of the heart, immediately below the floor of the left ventricle, exactly in the situation of the firm adhesions before spoken of. On enlarging this opening, I discovered a cavity in the substance of the heart, with a regularly-defined wall, capable of containing more than two ounces of fluid. The walls of both ventricles were enormously thickened; all the valves were more or less affected; but the chief disease lay in the semi-lunar valves of the aorta, which were nearly altogether ossified."

This case was extremely remarkable, and exhibits an example not merely of the dropsy and dyspnœa which so usually attend hypertrophy and valvular disease of the heart, but also of a combination of chronic pericarditis and chronic inflammation of the muscular substance of the ventricles, *ending in the very rare termination,—abscess.*

Having made these observations, I shall next call your attention to the disease of Francis Thorpe, which is important both in itself and from the circumstance of such cases being frequently met with. This lad, who was much exposed to the weather, being an outside servant, was attacked about six months ago with cold, followed by hoarseness and sore throat, with cough, then slight, but at present rather troublesome. A certain degree of rawness about the fauces was observed soon after the attack, and latterly the sub-maxillary glands have become slightly enlarged. On looking into the throat, the velum and fauces appear redder than natural, the amygdalæ are swollen, and the mucous membrane covering the back and sides of the pharynx is dry, and covered with irregular superficial

excoriations. The hoarseness still continues, and he can only speak in whispers. His general health, however, does not seem in any degree impaired; he has no fever, his appetite is good, and his sleep natural.

This case, however, is one which demands particular attention. A boy is attacked with cold; he gets slight local inflammation of the fauces and larynx; this produces cough and hoarseness, which go on for months rather increasing than diminishing, and his symptoms finally assume a chronic and intractable character. Still he does not fall away in flesh, has no symptom of hectic, and, on examining his chest, you cannot find any evidence of the existence of tubercles. In making the prognosis in such a case, you should always act with great caution. Though an examination of the chest should detect no distinct sign of tubercles, and a review of the state of the constitution should satisfy you that there was no fever, night-sweats, or wasting of flesh, yet the obstinacy and persistence of the inflammatory condition of the larynx and fauces would seem to show that the affection, though not decidedly of the scrofulous character, was still very analogous to it, and might end in phthisis. You should not be so sanguine as to anticipate a certain cure, because the cough and laryngeal symptoms are unaccompanied by fever, or by stethoscopic phenomena, indicating the approach of phthisis. The disease, by fixing itself in the larynx, and keeping up a constant irritation in the neighbourhood of the lungs, would probably, after some time (if exacerbated by fresh colds, and confirmed by neglect), give rise to tubercular development.

Allow me to allude here briefly to a form of chronic laryngeal inflammation which has been described under the name of phthisis laryngea. Of this disease there are two varieties. In one case the hoarseness and sore throat follow the development of tubercles in the lung; in the other they precede it. Consumptive persons very frequently get, shortly after the occurrence of scrofulous inflammation of the lungs, sore throat, hoarseness, and laryngeal cough. But this is different from the hoarseness and cough which precede phthisis. In the former, the laryngeal symptoms are secondary, and form only a part of the general disease; in the latter, they constitute the first link in the chain of morbid action. The former take place only in a constitution decidedly scrofulous; the latter occur most commonly in constitutions which have been impaired by various debilitating causes, and thereby rendered analogous to, or identical with, the scrofulous. One disease, however, explains the other; for it is clear that if a certain state of the constitution is capable of occasioning scrofulous inflammation of the lungs and tubercular development in the pulmonary tissue, in the first instance, and laryngeal disease in the second, it is clear, I say, that the order of succession may be very easily inverted, and, that in such a constitution, the accidental circumstance of a cold falling on the larynx, may determine the appearance of disease in that part long before the lungs become engaged. Hence, whenever you are called on to treat a case of chronic laryngitis, where the disease has lasted for any length of time, and where the patient's system has been impaired by any debilitating cause, or where you have any reason to suspect that he is of a strumous diathesis, your prognosis should be always guarded.

You should not, however, give up the case at once; particularly if an examination of the chest assures you that there is no scrofulous deposition going on in the lung. In the first place, endeavour to remove the inflammation of the throat, if possible; by doing this, you will accomplish a

vast deal; and in the next, you should direct all your efforts towards improving the state of the constitution; for in this way you make the greatest progress in checking the tendency of the individual to scrofula. If there be much tenderness of the larynx on pressure, as you can easily ascertain by placing your finger and thumb on each side of the thyroid cartilage, pressing the larynx backwards, and moving it from side to side, you should commence with the local detraction of blood. A small number of leeches should be applied to the throat every second or third night, and this should be continued for a week or fortnight. If there be no tenderness of any amount, and the patient can bear pressure freely, there is no necessity for applying leeches. Your means must then be confined to those remedies which act immediately on the diseased mucous surface, and for this purpose, one of the best applications is a solution of nitrate of silver, ten grains to the ounce, or a solution of the sulphate of copper, in the same proportions. The best mode of applying it is to take a probang, or a small piece of sponge, fastened to the end of a quill, dip it in the solution, and having slightly squeezed it to prevent the fluid from dropping, touch the excoriated and red parts of the fauces as far as you can conveniently go, rather by pressing the sponge gently against the inflamed mucous membrane than by rubbing. It will be essentially necessary to touch every portion of the diseased surface of the pharynx; for if any part be omitted, it will have the effect of keeping up the disease. You perceive the object here is to change the action of the mucous membrane. By acting powerfully in this way on the mucous membrane covering the pharynx, fauces, and entrance of the larynx, you will often succeed in bringing on a healthy action, which spreads to the parts in the vicinity. Of this we have an illustration, afforded by the results of treatment in chronic diseases of the skin, where local applications to a particular part not only cure that part, but also extend their influence to a considerable distance on every side. It is the same with respect to irritation or inflammation of the lower part of the digestive tube; the use of astringent injections, which can only affect the lower part of the rectum, is often found of essential service in relieving dysenteric affections of the colon.

In addition to the use of the nitrate of silver, we have employed a remedy in this boy's case, which has been found beneficial in several instances where no sign of pulmonary irritation is present—I allude to the use of iodine inhalations. This was also intended to make a still further change in the condition of the diseased mucous membrane. It is made by putting from five to ten drops of the tincture of iodine with half a drachm of tincture of conium, and four ounces of hot water into an inhaler, and making the patient draw the vapour into his throat for about ten minutes, every night and morning. This form of inhalation proved extremely serviceable in the case of a gentleman who has attended my lectures this winter. About the commencement of November, while in a delicate state of health, he was attacked with cold, and got sore throat, followed by slight huskiness of voice, and hard, incessant, laryngeal cough. These symptoms continued during December and the greater part of January, and were not completely removed until the beginning of February. He had considerable rawness of the back and sides of the fauces and larynx; we observed that the mucous membranes of those parts had a strong tendency to become excoriated; for whenever an exa-

cerbation of his symptoms occurred, and that his cough in the morning was harder than usual, small portions of the detached pellicles of lymph, exuded by the mucous membrane, came away at each fit of coughing, and his sputa were tinged with blood. There was another symptom in this case, which you will very frequently meet with in similar instances, namely, a remarkable feeling of chilliness in the integuments of the fore part of the neck and external fauces. This he was in the habit of remarking, and could always foretell the occurrence of an exacerbation of his laryngeal symptoms, by the increased feeling of cold in the cutaneous surface over the diseased parts. In this case a great deal of good was effected by the inhalation of iodine with conium. The mode in which this gentleman employed it was by dissolving from six to nine grains of the extract of conium in hot water, and then adding the tincture of iodine. Instead of the common inhaler, which contains but a small quantity of fluid, and in which the inhalation becomes cold in a very short time, he employed for the purpose a high old-fashioned teapot, which contained a large quantity of fluid, and could be used for a much longer period. Under the use of this, with counter-irritation, and the internal use of iodine with sarsaparilla, the laryngitis disappeared. It returned, however, about a month afterwards on fresh exposure; but was speedily removed by the use of the nitrate of silver solution.

Another thing which we have prescribed for this boy, and which proves an excellent adjuvant in the treatment of such cases, is counter-irritation by croton-oil frictions. To an ounce of compound camphor liniment, we add twenty or thirty drops of croton oil; and of this lotion about one or two drachms are to be rubbed over the parts, night and morning, until the eruption appears. Two rubbings are generally sufficient to produce a copious eruption of papulæ, about the size of a pin's head, and having exactly the appearance of a disease at present very rare—the *eczema mercuriale*.

We have not, however, been able to effect any remarkable improvement in this boy's symptoms, by the means to which I have just now alluded; and the question is, what other remedies have we left from which we could hope to derive any advantage? The boy has no fever or emaciation; his appetite is good, his sleep regular, and the stethoscope informs us that there are no symptoms of tubercular development; we are, therefore, I think, authorised in attempting to arrest the disease by the only means of which we have a choice under such circumstances. It is my intention to attempt its removal by mercury, and I have therefore ordered him to take, three times a-day, half a grain of calomel, three grains of blue pill, with a grain of the extract of conium; and instead of iodine, we have directed him to inhale the vapour of hydrargyrum cum cretâ twice or three times daily. If, however, we find that this does not produce speedy improvement of his symptoms, we shall stop it immediately, as the use of mercury in such cases is generally a perilous experiment. I shall also take care to pay attention to the general state of his health, as this is a matter of great importance in cases of chronic diseases. I had almost forgotten to observe, that in such cases the use of the decoction of sarsaparilla with nitric acid has been found extremely beneficial. There is one point in the treatment of chronic laryngitis which you should never forget—and that is, to make the patients refrain as much as possible from speaking. Unless they do this, you will find it very difficult to effect a cure. A per-

son with an inflamed larynx, who exercises his voice as usual, acts as foolishly as a man who reads with inflamed eyes, or walks with a sprained ankle. The only thing I have to add with respect to the treatment of this disease is, that the patient should be kept as much as possible in an equal temperature, and hence it will be necessary, in many instances, to confine him to the house, or at least to prevent him from exposing himself to a cold and damp atmosphere. When he recovers, he should use cold gargles and cold lotions to the throat, in order to render the parts less susceptible of cold.

Allow me now to direct your attention to two cases of *prurigo* which have been recently admitted. The first is that of Jane Cassady, a woman advanced in life, but of tolerably good constitution, considering her age, station, and circumstances. About three months before admission, a rash appeared over her arms, legs, and body, which was preceded and accompanied by pain of the stomach, head, and limbs, with recurring rigors. As far as we can learn from her description, this appears to have been urticaria; of this, however, we cannot by any means be certain; and besides, it is of little consequence, as *prurigo* may come on without it. She is at present labouring under *prurigo senilis*, not thickly disseminated, but still a source of constant annoyance to her from the intolerable itching it produces. Several of the papulæ have formed dark red crusts, but this is in consequence of their bleeding from being scratched.

This affection has been so well described by writers on cutaneous diseases, and is so easily recognised, that I shall not take up your time in detailing its characters: a few circumstances connected with treatment, however, should be mentioned as deserving your notice. In the first place, I may observe that *prurigo* is a most harassing complaint, and, if not checked, has a tendency to undermine the constitution by disturbing the patient's rest. The warmth of the bed-clothes, by increasing the vascularity of the skin, occasions an aggravation of the symptoms; the patient passes a miserable and restless night, and rises in the morning quite unrefreshed. This, in process of time, gives rise to a kind of febrile condition of the system; the mouth and fauces become dry; the appetite is impaired; the secretions deranged, and debility and emaciation gradually produced. It is a disease which has broken many a constitution, which, previous to its accession, was to all appearance unimpaired and healthy.

Prurigo has been confounded with common itch, but if you examine the parts it occupies, you will easily distinguish them. It is most likely to be confounded with the small vesicular itch, where the vesicular papulæ (this is the most expressive term I can think of) are extremely minute. There is a papular itch, and there is also one which is intermediate between the vesicular and the papular; it is with the latter that *prurigo* is most apt to be confounded. The difference between them, however, may be recognised by observing the parts of the body on which they appear. Itch generally attacks the extremities, and particularly the inside of the joints and the spaces between the fingers. *Prurigo*, however, does not occupy the same situations. If you examine this woman, you will not be able to find any trace of the eruption about the joints or between the fingers—and this circumstance is of itself sufficient to make the distinction, for itch would not have lasted for three months without attacking these parts. I may also observe, that *prurigo senilis* is generally accompanied by derangement of some of the important secretions of the body,

but particularly of the urine. Its appearance is in many instances preceded by a scanty flow of urine, and it is frequently accompanied by the deposition of a copious whitish sediment, which is the lithate of ammonia. This observation is worthy of attention, because it furnishes us with a hint towards the treatment, of which we may sometimes avail ourselves with great benefit to the patient. You will, in such cases, often effect a great deal by the use of diuretic medicines—as cream of tartar with decoction of juniper berries and squill; or with the more stimulant diuretics—as turpentine and cantharides. It will be also good to vary these remedies according to the circumstances of the case, and they should be always given in combination with medicines calculated to act beneficially on the digestive organs. In this case, we have given decoction of sarsaparilla with nitric acid for the last two days; before this we gave cream of tartar with powdered bark. These are some of the best medicines which can be used internally in the treatment of prurigo senilis. It is, however, a very obstinate disease, and you will be often obliged to try many internal and external remedies before you can hit on one that will prove serviceable. Cooling diuretic aperients, aperients combined with tonics, and the decoction of sarsaparilla with nitric acid,—these are the chief internal remedies; as to external ones, they are extremely numerous. In the present case we have, in the first place, directed the patient's body to be washed with a lather of soap and warm water every night and morning. The water for this purpose should be used as hot as the patient can bear it, and a very soft brush or sponge should be employed. In prurigo, a vast deal of good has been done by merely washing the itchy parts with soap and warm water; how it acts I cannot say, but I have seen a great deal of advantage derived from a long-continued perseverance in its use. After this you may have recourse to more powerful applications—such, for instance, as sponging the parts at bed-time with hot whiskey and laudanum, a pint of the former to a drachm of the latter. Here you have the stimulant effect of the whiskey, the narcotic of the laudanum, and the peculiar action of heat on the skin, all combined, and calculated therefore to make a very decided impression. How this effect of heat is produced I cannot tell, but we all know that, whether applied in a moist or dry form, it exercises a powerful influence over the vascularity and nervous vitality of the skin. Neither can I tell you what description of cases are most likely to benefit by it; some cases of prurigo senilis are much relieved by warm applications, others are not; you should, however, always make a trial.

There was one application used in this woman's case, to which I shall briefly call your attention. A drachm of acetate of lead was dissolved in two ounces of wine vinegar mixed with the same quantity of water, and this was rubbed up with olive oil so as to form a liniment. Mr. Nalty, who mixed up the ingredients, says that three ounces of olive oil were absorbed. You are aware that oil conducts itself, with respect to the metallic oxides, as it does with the alkalies. This formed a liniment, which, when allowed to stand, separates; but its ingredients are at once miscible by shaking the bottle. From its use the woman has derived great relief, and I can recommend it to you as one of the best applications in prurigo.

Before I conclude this lecture I shall allude briefly to the very interesting case of Sarah O'Neil. This young woman was admitted on the

17th of February, having been attacked, on the 10th, with fever of the ordinary type. On the day after her admission, she complained of want of sleep, and pain of the forehead and temples; but she had no raving, tinnitus aurium, intolerance of light, or other symptoms of inflammation of the brain. She had been confined about a fortnight before she came in, and complained that her breasts were very troublesome to her. Her belly was soft and fallen, quite free from tenderness or soreness, and she stated that her bowels were free. Her tongue was furred, her pulse 130, the lochia suppressed for the last two days. Things went on tolerably well for four or five days, when her belly became tympanitic, and she began to complain of pain on pressure. The action of the heart now became more violent; her pulse rose to 140, and blood began to appear in her stools. On the 24th of February—that is to say, about the fourteenth day of her illness—her pulse was 150; she passed a large quantity of blood from the bowels, and the tympanitis subsided.

In cases of fever accompanied by tympanitis and signs of intestinal congestion, hemorrhage from the bowels, particularly when it occurs on one of the critical days, should not be interfered with. It is in this way that nature very frequently brings about relief of the congestion and irritation of the gastro-intestinal mucous membrane, just as she relieves congestion of the head by bleeding from the nose. In the case of a lady whom I attended along with Mr. Palmer, some time ago, at Drumcondra, the occurrence of intestinal hemorrhage was followed by the most marked effects; her belly became soft, the tympanitis disappeared, and all her febrile symptoms were speedily removed. The appearance of blood, therefore, at such periods and under such circumstances, is to be looked on as a favourable occurrence; nor should it be interfered with in any way until, from its continuance or its quantity, it appears likely to produce debilitating effects. In the present case, however, this hemorrhage will require to be very carefully watched. The woman's system is that which is favourable to profuse fluxes of blood, for it is not long since her accouchement, and she has had suppression of the lochia. She has had but little fever for the last two or three days, but the action of the heart still continues extremely violent, and her pulse is still rising. Respiration, too, has been considerably accelerated; and, where this occurs, you have always reason to apprehend danger. I have accordingly endeavoured to moderate the hemorrhage by the use of acetate of lead and opium. A draught composed of two grains of acetate of lead, eight minims of tincture of opium, and fifteen minims of wine vinegar in six drachms of water, has been prescribed to be taken as occasion requires. A large blister has been applied, so as to cover the epigastrium and sternum, and she has been allowed port wine and chicken-broth. Where a patient, debilitated by previous fever, has been attacked with hemorrhage, you should be careful in supporting the system by small quantities of wine, and light nutritious food; for there is always more or less danger to be apprehended of a sinking of the powers of life. In cases of this kind the cautious use of acetate of lead, with opium and wine, are the only means on which we can rely with any confidence.

A man was admitted into the chronic ward a few days ago who cannot separate the lower from the upper jaw to the distance of more than two lines. What are the cases in which we find this immobility of the lower jaw? Most commonly in tetanus or locked-jaw; but here this cannot be

the case, for the man has no sign indicative of a tetanic affection, no rigidity of the muscles of the neck; his countenance is very different from that of a tetanic patient, and he has not been exposed to any of the ordinary exciting causes of that disease. But leaving all consideration of the nature of the disease out of the question, what is it that prevents him from moving his lower jaw? It must depend on one of two causes; either the muscles which perform the motions of the lower jaw are stiff, rigid, and incapable of motion, or else there is some disease of the articulation which obstructs the motion of the bone. This proposition is universally true of all articulations, that when they become impeded or completely obstructed in their motions, the derangement arises from some abnormal condition of the muscles, or of the bones and ligaments which form the joint.

In this case we find, that, in addition to being unable to perform the proper motions of the lower jaw, the patient has intense pain, darting from the angle of the jaw towards the temple, the ear, and the side of the neck. This pain is of an extremely violent character, so as to resemble *tic douloureux*, and the resemblance is still farther increased by its being more or less intermittent. Now, on inquiry into the history of this case, we find that the patient had some time ago laboured under toothache, for which he got the last molar tooth but one of the upper jaw extracted, and that immediately afterwards he was seized with violent pain in the part, and found that he could no longer move his lower jaw as usual. I have seen many cases of this kind, in which a painful or carious tooth, or an injury done to the gum or jaw, has been followed by violent darting pain in the nerves of the face, simulating in many particulars *tic douloureux*. I remember being sent for to Middleton, near Cork, some time since, to see a young lady of delicate constitution, whose health was materially deranged from what was said to be an attack of *tic douloureux*. She had been under the care of many practitioners, and had used very large doses of the carbonate of iron and sulphate of quinine, and at the time I visited her was taking arsenic. The first thing I did on my arrival was to examine her teeth. On close inspection I observed that on the crown of one of the upper molar teeth there was a spot which appeared to be decayed, and found on inquiry that she had frequently suffered from pain in this spot when she drank any cold liquid. I had the tooth drawn and soon afterwards the pain completely ceased. Yet in this case the pain was not only of an intense character, preventing sleep and wearing out her strength, but it had its intermissions, and was aggravated at particular hours of the day. Another instance of the same kind came under my notice about twelve months ago. A young lady was brought to me by a medical friend of her's to have my advice for an attack of *tic douloureux*. She had been attended by this gentleman with great care, and no mode of relief left untried, for her sufferings were intense, and she had constant exacerbations of pain. I asked him, were her teeth sound, or had she any disease of the gum or jaw? He said not, and that he was sure of this, for he had examined her teeth over and over again. On opening her mouth, however, I thought I saw some appearance of unsoundness in one of her teeth, and recommended her to go to Mr. M'Clellan and get it drawn. She did so, and the pain quickly disappeared. I could also give many cases in which an injury done to some of the branches of the dental nerve has given rise to symptoms closely resembling those of the *tic douloureux*. One of the most curious circum-

stances connected with such cases is, that the pain is always of a more or less intermittent character. The same thing is observed in that form of headache which arises from irritation of the brain, produced by spiculæ of bone growing from the internal table of the skull. In a case which occurred some time back at the Meath Hospital, where several spiculæ, some of them more than a quarter of an inch in length, were pressing on the brain, the headache was of a distinctly intermittent character. This remarkable periodicity of exacerbation, in cases where the operation of the exciting cause continues still the same, seems to be peculiar to the nervous system.

In many cases considerable derangement of the facial nerves is found to follow an injury done to some branch of the dental nerve in drawing a tooth. When the bone has been injured by the force used in extracting the tooth, it frequently happens that, if the injury be not quickly repaired, and the parts healed up, symptoms resembling those of *tic douloureux* or rheumatic neuralgia will supervene, and give the patient a great deal of annoyance. Such was the origin of the mischief in the case before us; the man received an injury of the upper jaw in drawing a tooth which is not as yet healed, as you may perceive by introducing a probe between the separated portions of gum, when you will find it grate against the rough surface of the bone. In addition to this, there is considerable tenderness of the gum and swelling of the neighbouring parts, which have extended to the muscles, their sheaths, and finally to the articulation of the lower jaw. You can satisfy yourselves of this by examining the parts and striking the lower jaw, so as to press it suddenly upwards and backwards into the glenoid cavity, just in the same way as you press the thigh bone against the acetabulum when you wish to ascertain whether there is inflammation of the hip-joint. The motion of the lower jaw is here prevented by inflammation, extending from the upper jaw so as to involve its ligaments and the neighbouring muscular sheaths. There are other causes, also, which may be attended with the same diminution of motion in the joint. Thus a man may get an attack of rheumatism in the scalp, which may extend to the temporal muscles and prevent him from being able to depress his lower jaw, and I have known cases in which this condition of the temporal muscle has given rise to suspicions of the existence of trismus. When you examine the articulation you find nothing amiss, but when you come to press on the temporal muscle above the zygoma, the patient complains of pain and tenderness. The irritation produced by rheumatic inflammation gives rise to a fixed rigid state of the muscle, and hence the patient cannot open his mouth. This form of disease I have described long since, in a paper published in the Dublin Hospital Reports. It can be relieved with great ease by applying leeches to the temple, and ordering the patient to rub over the part a small portion of mercurial ointment with extract of belladonna, two or three times a-day. The same state of the temporal muscle is sometimes observed as resulting from an extension of inflammation, in case of a wound of the scalp in its vicinity.

In the case before us, almost every thing will depend on the process which nature may adopt with respect to the injury of the maxillary bone. If the bone throws up healthy granulations, and the inflammatory process ceases, the affection of the nerves, as well as of the muscles and joint, will quickly subside. All we can do under the circumstances is to apply

leeches over the side of the face, and order the man to rub in mercurial ointment; every thing, however, will depend on the turn the disease of the bone may take.

I wish to make a few observations on a case of jaundice in the small chronic ward. I do not intend to enter into any particular inquiry concerning the causes of this disease; you are aware that it may depend upon many causes, upon affections of the mind, gastro-duodenitis, inflammation or abscess of the liver, the presence of gall-stones, diseases of the head of the pancreas, aneurism of the hepatic artery, and, what is more remarkable, in some cases may arise without any assignable cause whatever. In the present instance it seems to have been the result of acute hepatitis. The man was attacked with symptoms of inflammation of the liver, and about a fortnight afterwards became jaundiced. It is unnecessary for me to draw your attention to the history of the case, or the present state of the patient; all I shall do at present is to make a few remarks on some points of treatment.

In the first place, the jaundice is, as you perceive, of an intense character: the man is as yellow as he could be. Now this I look upon as a favourable sign; the deeper the colour is in recent cases the greater is the chance of effecting a cure. There are no cases so intractable as those in which the tinge of yellowness is so faint that you would be likely to overlook it, as in the case of a man in the chronic ward, in whom the colouring is so slight, that it requires some attention to ascertain whether he is jaundiced or not. Such a case as this is always of a chronic, intractable character, and this is too frequently connected with a scirrhus state of the liver. Again, in this man's case we cannot detect any appearance of bile in the evacuations; this is another good sign. When jaundice coexists with bilious stools, the prognosis is, generally speaking, bad. A but slight tinge of yellowness of skin, and the continued presence of bile in the stools, are two circumstances which I always look upon as indicative of an unmanageable and frequently incurable affection. It generally depends on a scirrhus state of the liver, or some organic derangement beyond the power of medical treatment. Again, another good sign in jaundice is, that as long as the bile is absent in the stools it should be present in the urine. If a patient labouring under jaundice has clay-coloured stools, and you find on examination that his urine becomes heavily laden with it, it is a very favourable circumstance, for it shows that, although the usual channel for the exit of bile from the system is stopped up, nature has provided a remedy for the evil by establishing another emunctory. You can understand then the reason of the anxiety I felt at finding that this patient's urine was becoming paler and diminishing in quantity, at a time when bile was not present in the stools. In acute cases of jaundice, you should always bear in mind that patients will sometimes have a complete suppression of the biliary discharge, followed by coma, without any symptoms of disease of the brain. Why this occurs in some and not in all cases we cannot understand, but, from whatever cause it may arise, we find that in some instances jaundiced patients become stupid and lethargic, and die in a state of confirmed coma. In such cases there is always very great danger, and where coma has appeared as a prominent symptom of jaundice, you should always give an unfavourable prognosis. I have never seen but one patient recover under such circumstances. On the other hand, it is equally curious

that derangement of the urinary system is one of the most common symptoms of disease of the brain. You will therefore understand the cause of my alarm, when I observed a diminution of the urinary secretion in this patient. As soon as I perceived this symptom, though the patient had been taking mercury, and was improving at the time, I immediately administered a diuretic, and this fortunately succeeded in producing a copious flow of urine. We prescribed the following diuretic, which had not been taken for many hours when it produced a decided determination to the kidneys:—

R. Misturæ amygdalarum, ℥viij.
 Nitrat. potassæ, ℥ij.
 Tinct. digitalis, gtt. xv.
 Spiritus ætheris nitrosi, ℥ij.

of which a tablespoonful was to be taken every second hour.

There is one practical remark to be made on this and other similar cases. As soon as the symptoms of jaundice begin to decline, and bile makes its appearance in the stools, you should attend carefully to the state of the patient, and note any symptom which may occur of an anomalous character. Now, in this patient's case, we observed that a degree of restlessness was present, which terminated in a complete want of sleep. About the time when he began to manifest a degree of improvement, he became quite sleepless without any evident cause, and continued so for two or three nights; and I have already stated in a former lecture that, no matter when this symptom occurs, whether in fever or towards the termination of some acute disease, it always requires your attention. I therefore immediately took proper steps to restore sleep; and accordingly we find, on inquiring this morning, that he has rested well and feels much better. The man had been taking mercury, and his bowels were free; but, not content with this, I gave him a purgative, consisting of infusion of senna with electuary of scammony. This he was directed to take early in the morning, so as to secure its operation before night; and about nine or ten in the evening, after his bowels had been freely opened, he took a full opiate, which produced a long and refreshing sleep.

Before I conclude, allow me again to communicate a few detached observations on the connection which exists between jaundice and some other diseases—as, for example, inflammation of the joints. It is now many years since Dr. Cheyne and I attended a gentleman in Lower Mount-street, who, in consequence of exposure to cold, was attacked with inflammation of the joints, accompanied by considerable general fever; almost every joint was attacked in succession, and his sufferings were excessive. The disease bore the form I have so often described under the name of *acute sweating arthritis*—a form very obstinate and difficult to treat, and accompanied after some time with great constitutional debility. When this gentleman had been about ten days confined to bed under treatment, he suddenly became jaundiced, and it was now evident that acute, but not violent, *hepatitis* was superadded to the original disease.

In a day or two afterwards, a copious eruption of nettle-rash—*urticaria*—appeared over his body and extremities. Exactly the same diseases appeared, and in a similar order of succession, in a man treated in the Meath Hospital, in June, 1832—an occurrence which at the time excited some interest among the students; for when I observed that jaundice had supervened on arthritis, I mentioned to the class that it was not at all

unlikely that the jaundice would be soon attended by urticaria. I was induced at the time to make this prediction, as my mind was full of the subject, having been engaged, along with Mr. Porter, in attending a medical friend residing in Baggot-street, in whom jaundice was soon followed by urticaria. Since my attention has been drawn to the connection between these three diseases, I have seen and heard of several other instances in which they appeared thus associated together. A circumstance so remarkable deserves to be studied with more than ordinary interest. Let us, therefore, consider what facts are supplied by physiology and pathology capable of throwing some light upon this hitherto unobserved and uncultivated subject. In the first place, nothing has been longer recognised by physicians, as an established fact, than the intimate sympathy which exists, both in health and disease, between the digestive organs and the skin. Now, acute hepatitis always produces more or less derangement of the stomach and alimentary canal, and we may therefore consider its connection with urticaria in the same way that we are in the habit of viewing the cases, so frequently observed, in which certain sorts of fish have produced serious symptoms of indigestion followed by nettle-rash. The association between these two diseases is rendered more remarkable by the fact, that, when fish taken as food exerts a poisonous effect on the system, it frequently produces not merely violent stomach and bowel complaint, but also inflammation of the joints and rheumatic pains. If I can establish this, you will allow that the connection between arthritis, disease of the digestive organs, and urticaria, can no longer be considered as fortuitous and depending on the accidental concurrence of causes having no determinate relation, but must be looked on as owing to and arising from the operation of some fixed law which regulates and originates this development of morbid actions in, if not a frequent, at least a uniform mode of succession.

The Otaheitan eel (pubhe pirre rowte) produces, when eaten, a most copious scarlet eruption of the skin—most probably urticaria—and occasions *sudden tumefaction of the abdomen*, together with swelling of the extremities, hands, and feet, the pain felt in the limbs is so excruciating that the patient becomes quite frantic. I may remark here that this and many other species of fish which act as poisons on the system, give rise very speedily to paralysis of the extremities. You will find in the *Edinburgh Medical and Surgical Journal*, vol. iv., p. 396, in an excellent review of Dr. Chisholm's work on the poison of fish, an account of the effects produced by eating the *muræna conger*, the following passage: "In the course of the following night, they were all seized with violent griping and cholera, together with a peculiar sensation of the lower extremities, attended with violent convulsive twitches, faintings, &c. They all perceived a brassy taste in the mouth, and a rawness of the œsophagus, as if it had been excoriated. These symptoms continued to afflict the negroes for a fortnight, and then terminated in paralysis of the lower extremities. After suffering for several months, they recovered with difficulty."

Are we not here forcibly reminded of what I said in a former lecture concerning the connection between enteric disease and paraplegia?

Werlhoff, as cited by my friend Dr. Autenrieth in a book* of extraordinary ability and research, gave a case where the *gadus æglesinus asellus* produced a violent affection of the stomach and bowels, together with

* Ueber das Gift der Fische. Tubingen, 1833.

urticaria. Chisholm relates the same of the flesh of the dolphin. Urticaria, diarrhœa, dysentery, paraplegia, are said, by the same author, to be frequently observed in consequence of eating the flesh of the *grey snapper*. Forster relates a similar train of accidents produced by eating the *sparus pargus* (porgee). In short, I could bring forward citation after citation in proof of the truth above advanced; but I have done, for enough has been already said to establish the point in question.

Having established the fact that disease of the digestive organs is often intimately associated with urticaria, it remains to prove that a similar connection exists between hepatitis—the cause of the derangement in the digestive organs (in the case before us)—and arthritis. Every one has observed how frequently inflammation of the joints becomes in its course complicated with inflammatory affections of internal viscera. In general, those viscera whose component tissues are most similar to the articular are the organs affected. Hence the heart and pericardium are so often attacked in the course of rheumatic fevers. It sometimes happens, however, although less frequently, that the internal organ attacked has little analogy in point of tissue with the joints. Thus, in rheumatism and in gout, the stomach, the bowels, the lungs, or the liver, may become engaged; and of these none, perhaps, so frequently as the liver. We need not be surprised at this, when we consider how intimately the digestive function is connected with arthritic inflammation, which is indeed generally preceded or accompanied by well-marked symptoms of hepatic and stomach complaints. Indeed, almost all medicines that afford relief in arthritis are attended with well-marked symptoms of their having acted upon the secretions of the alimentary canal and liver. Thus, colchicum seldom diminishes the pain and inflammation of the joints, until it produces copious bilious evacuations.

LECTURE XLI.

Case of secondary symptoms which made their appearance soon after a mercurial course; method of treatment—Case of syphilitic eruption—Mouth suddenly affected by a small quantity of mercury—Effects of this on the progress of the cure—Erasche preceded by rigors coming on during the course of fever; danger of; treatment—External tenderness; value of, as a symptom in inflammation of brain, lungs, abdomen &c., &c.—Vomiting considered as a symptom in fever; its treatment—Chronic rheumatism; successful treatment of—Obstinate case of arthritis; cure of, by local applications—Observations on the effects of mercury applied locally—Case of syphilitic iritis; action of belladonna in.

You have observed that we have two cases of syphilis under treatment—one in the female, the other in the male chronic ward. They possess no peculiar interest beyond the ordinary run of syphilitic affections, still they deserve a share of your attention; for it is on your experience of individual cases, much more than on the knowledge derived from books, that your treatment of this obscure and protean malady will depend.

It is now more than a year since the female patient received the syphilitic poison into her constitution. What the nature of the primary sore was we cannot ascertain, but, from the account she has given, it seems to have been true chancre. Some time after this occurred, she got sore throat, articular pains, and an eruption, for which she was treated in this hospital

about ten months since, and dismissed apparently cured. The disease, however, returned in a few weeks, and she has been labouring under its effects up to the present moment. Three circumstances in this case demand our attention: first, the re-appearance of syphilis after a mercurial course—for she was mercurialized here soon after her first admission; secondly, she exhibits a degree of syphilitic cachexy, being rather pale and emaciated; and, thirdly, the slow progress which the disease has made in her system, being limited to a few blotches on the skin, some periostitic swelling of the bones of the leg, pains, and slight arthritis.

In treating this case I intend to give mercury, so as to affect her system; and, having accomplished this, I shall keep her under its influence for some time. I shall also, should it appear necessary, order her a free allowance of the decoction of sarsaparilla. Under this treatment you will find that the eruption will soon disappear, the periostitic pains and swelling be removed, and the constitution begin to improve. She has been ordered three grains of blue pill, and half a grain of calomel, three times a-day—a quantity which you will generally find sufficient to bring on mercurial action in females. I have no doubt but that the disease will, in this case, yield to mercury in a very short time, and that her health will be completely restored. The failure of mercury in producing a permanent cure, on a former occasion, is no argument against its employment here; if there were no syphilitic taint in question, I do not know any remedy by which the cutaneous affection and the periostitis could be more effectually relieved. On another occasion I shall speak more at large upon this important subject, and shall bring forward facts in proof of the assertion, that mercury may fail to eradicate the effects of the venereal poison at a certain period of the disease, and may nevertheless be capable of curing the disease effectually at a future time. This may appear paradoxical, but it is not the less true.

The other patient, John Kelly, presents an eruption of red scaly blotches, extensively diffused over the trunk and extremities, and closely resembling psoriasis. This man, like many others, denies the occurrence of a recent syphilitic taint, and gravely states that it is some years since he exposed himself to infection. Instances of this kind are to be met with every day; patients will not tell the truth about these matters, and false statements tend to throw a darker shadow over a disease in itself sufficiently obscure. However, in this case, the poison seems to have confined its effects to the cutaneous surface; there is no affection of the throat, periosteum, or joints. The eruption covers almost every portion of his body; it made its appearance two months before admission, and was preceded by feverish symptoms and pains in the larger articulations.

In undertaking the treatment of this case, there is one practical point to be held in view. The man's general health is good, his strength undiminished, and his circulation active. I therefore ordered him to be bled, and have kept him for eight or nine days on antimonials and low diet. By preparing him in this way, I knew that the mercury which I intended to give him would act more rapidly on his system; and such was the case—for on the second day after he commenced using it his mouth became affected. But here a difficulty arose, which, in cases of this description, is apt to embarrass our treatment; the mercurial influence appeared much sooner than I expected or wished. He had been ordered three grains of blue pill, and half a grain of calomel, three times a-day; and on the second

day, before he had taken six pills, salivation commenced. Now, in all cases where mercury affects the mouth sooner than you desire, and as it were in spite of you, it will not do as much good as where its action proceeds regularly and in accordance with your purpose. It is a general rule, that most benefit is to be expected from mercury where its action is regularly progressive, or where the quantity taken is in proportion to the effect produced on the system. Hence we look upon it as an unfavourable occurrence, when a small quantity of mercury occasions sudden and copious salivation; such an event deranges our calculations, and tends to embarrass our practice. Now, in this case the patient, after taking five pills, became salivated on the second day. We found we had been going on too fast; it was necessary therefore to pause, but not desist. We accordingly reduced the quantity of mercury to three grains of blue pill, and half a grain of calomel, to be taken every second night. By these means we kept up a slight discharge of saliva, and the man's symptoms began to improve. The eruption is now disappearing rapidly, and it is to this point I wish to call your attention. What are the marks which indicate the subsidence of an eruption of this kind, and by what criterion are you enabled to judge of the progress of the cure? When the parts are about to return to their healthy condition, three circumstances occur: first, the vivid red or copper colour of the eruption begins to fade; secondly, the heat of the affected parts becomes reduced; thirdly, the excessive secretion of morbid cuticle is arrested, and the quantity of minute scales covering the blotches diminished. In such cases, the affected parts of the skin are highly vascular, and the secretion of cuticle is morbidly excessive in quantity; hence the continued desquamation from the surface of the blotches. You should, therefore, attend not merely to the colour of the eruption, but also to the quantity of minute scales on each blotch, when you wish to ascertain whether an eruption is fading or not. You can judge of this by your eye, or you can tell it by passing your finger over the diseased surfaces. The fading of the colour of the eruption, the decrease of the elevation and roughness in the blotches, and the gradual disappearance of the minute scales—these are the circumstances by which you can ascertain the subsidence of a syphilitic eruption. As the cure progresses, you find the parts assuming a more natural appearance: the same quantity of morbid cuticle is no longer thrown out by the affected spots of corium; the blotches become smooth and lose their elevation, and, finally, the red colour of the skin disappears. Of all the symptoms, discoloration of skin is the last to recede, and it generally happens that enough has been done in the way of treatment long before the skin resumes its natural complexion. If you were to continue the administration of mercury until the natural colour returned, you would very often push it to a useless and even dangerous extent. In such cases, a faded brownish or dirty tinge remains long after the re-establishment of healthy action.

There is a case in the female fever ward which requires a passing observation. A young woman, previously in the enjoyment of good health, was seized with symptoms of fever after exposure to cold; she got rigors, followed by headache, hot skin, thirst, nausea, and acceleration of pulse. It is unnecessary for me to detail the symptoms which attended her illness during the past week; I shall content myself with pointing out the symptoms which particularly attracted my attention to her case on Saturday morning. At that time her fever had increased;

she complained of severe headache and restlessness; had foul tongue, thirst, and symptoms of gastro-intestinal irritation. Such matters, however, demand no very particular consideration; what chiefly fixed my attention was the occurrence of slight and transient rigors during my examination: I observed her shuddering three or four times in the space of a few minutes. On questioning her respecting these brief rigors, she informed me that they had occurred with more or less frequency for the last three days. Now, whenever you meet with a symptom of this description in fever, be on your guard; watch the case with anxious, unremitting attention, and never omit making a careful examination. It is in this way that one of the worst complications of fever—treacherous and fatal disease of the brain—very often commences. On examining this girl, we found that she had not only headache, but also acute pain referred to the left ear, the external meatus of which was observed to be hot and tender to the touch. In addition to this we were informed by the nurse that she had been seized with a sudden fit of vomiting shortly after we left the ward on the day before. Here was an array of threatening symptoms calculated to awaken attention in any, even the most heedless observer. A patient, after exposure to cold, is attacked with symptoms of fever; she has headache and restlessness; she then begins to complain of acute pain in the ear, darting inwardly towards the brain; and, finally, is seized with sudden vomiting. Under these circumstances, it is not difficult to form a diagnosis, and there can be little doubt but that the phenomena here present were indicative of incipient inflammation of the membranes of the brain. It is not easy to say whether in such cases the inflammatory affection of the membranes precedes the external otitis, or whether the inflammation commences in the external ear and spreads inwards, though I am inclined to adopt the latter supposition, and the circumstance of the fever and earache arising from cold seems to give an additional degree of probability to this view of the question. Be this as it may, there could be no doubt but that this girl was, on Saturday, labouring under incipient inflammation of the membranes of the brain, as denoted by headache, rigors, acute pain in the ear, and vomiting.

Here let me observe, gentlemen, that in cases of this description, I look on the occurrence of external tenderness, not merely as an indication of internal disease, but also as a favourable symptom. I have remarked that in all cases where this happens, the physician becomes more speedily and sensibly aware of the existence of internal disease, and the remedial means employed act with a more decidedly beneficial effect. I would prefer having to deal with an inflammatory affection of the brain or bowels, accompanied by external tenderness, and would feel much more certain as to the result, than if this symptom were but faintly marked, or totally absent. This observation is founded on experience.

In treating this case, you have seen that I have ordered relays of leeches to be applied in the vicinity of the affected ear until the earache has ceased. I have long followed this practice of applying a number of leeches in succession for the relief of local inflammation, and I can state with confidence that the result has been, in the majority of cases, highly satisfactory. Some prefer the application of a great many leeches at once; but my experience speaks strongly in favour of the practice of applying a small number, repeated at short intervals, until the violence of the local inflammation is subdued. Relays of six or eight leeches will

suffice in the majority of cases of pectoral, cerebral or abdominal inflammation. In some, however, when the attack is violent, fifteen or twenty must be applied at once; each succeeding relay may consist of a smaller number than that which preceded it. In this manner I have maintained a constant oozing of blood from the integuments over an inflamed organ for twenty-four, or even thirty-six hours. In addition to this, I determined to bring her system rapidly under the influence of mercury, and, with this intent, administered calomel to the amount of a scruple in the twenty-four hours. These means have acted favourably, and she feels much better to-day. (This patient perfectly recovered.)

Allow me to make one observation more which this case suggests. This young woman, you recollect, had, on her admission, some epigastric tenderness, which we removed by leeching, and she remained free from any symptoms of gastric irritation until last Saturday, when she got a sudden attack of vomiting. Now, *in all feverish complaints, where, during the course of the disease, the stomach becomes irritable without any obvious cause, and where vomiting occurs without any epigastric tenderness*, you may expect congestion, or incipient inflammation of the brain or its membranes. If called to a case of scarlatina, where there is severe vomiting, and perhaps diarrhœa, unaccompanied by thirst or epigastric tenderness, what should your practice be? Are you to direct your attention to the alimentary canal, and endeavour to arrest these symptoms? No. The vomiting here depends on active congestion of the head, and such cases are very apt to end in coma, convulsions, or death, from disease of the brain. You are all aware, that in cases of injuries of the head, followed by congestion of the brain, vomiting is one of the most prominent symptoms. The same thing occurs in febrile affections, attended with determination to the head. You are not to conclude that a fever is gastric, because it commences with nausea and vomiting: this is a serious, and very often a fatal mistake; yet I am sorry to say it has been committed by many practitioners, and I have been guilty of it myself. In such cases, you should not waste time in attempting to relieve gastric irritation by cold drinks, and leeches to the epigastrium, or to check diarrhœa by chalk-mixture and opiates; you should direct your attention at once to the seat and origin of the mischief, and employ prompt and effectual means to relieve the cerebral congestion. Where the disease sets in with severe vomiting, unaccompanied by distinct evidences of gastric inflammation, whether it be common fever, or scarlatina, or measles, or small-pox, I commence the treatment by applying leeches to the head, convinced that in this way I shall be most likely to prevent an approaching dangerous congestion of the brain. I am anxious to impress this observation on your minds, because I am fully sensible of its importance, and feel certain that you will derive much advantage from bearing it in recollection during the course of your future practice.

The next affection to which I shall draw your attention is chronic rheumatism, of which we have a well-marked instance in the man who lies in the chronic ward immediately under the window. He complains of pain, weakness, and numbness of the lower extremities, for which he used the decoction of sarsaparilla and minute doses of corrosive sublimate, for a fortnight, without any obvious improvement in his symptoms. His complaint is of considerable duration, it being now fifteen weeks since he was first attacked. This, I need not tell you, is a very unpromising feature

in his case. When rheumatism has continued for three or four months, it becomes a very intractable disease ; indeed, there is scarcely any affection which tasks the ingenuity, and tries the patience, of a medical man more than chronic rheumatism. In this case, however, we have been so fortunate as to hit on a remedy suited to the complaint ; the man has been rapidly improving within the last fortnight, and is now nearly well. You will recollect that, when I undertook the treatment of this case, the patient was free from fever, his general health but little impaired, his pulse tranquil, his appetite good, no remarkable tenderness or redness of the joints—in fact, nothing to indicate the existence of acute local inflammation ; consequently, it would have been useless to have recourse to leeches or blood-letting, or to administer antimonials, nitre, or colchicum. In such cases as this a different line of practice must be followed ; you must have recourse to stimulant diaphoretics—remedies which will increase the secretion from the skin, at the same time that they exercise a stimulating action on the nervous and capillary systems. Accordingly we prescribed for this man the following electuary, of which he was to take a teaspoonful three times a-day :—Powdered bark ℥j., powdered guaiacum ℥j., cream of tartar ℥j., flower of sulphur ℥ss., powdered ginger ℥j. ; to be made into an electuary with the common syrup used in hospitals. The guaiacum not only acts on the nerves, tending to remove chronic pains, but also acts on the skin ; you will find these, and other properties possessed by it, detailed at large in your works on *Materia Medica*. Whether given in the form of powder or tincture, it often proves an extremely useful remedy in cases of chronic rheumatism, where no symptoms of active local inflammation or general fever exist ; where either of these are present it is inadmissible. Ginger has also a stimulant effect, although its action is much more limited. It is a favourite domestic remedy, and is very frequently prescribed by our rival candidates for therapeutic celebrity—old ladies—in cases of chronic, or, as they term it, cold rheumatism ; and I must confess that I have seen some benefit derived from their specific—ginger tea. With these we combined sulphur, which exerts a peculiar stimulant operation on the skin and alimentary canal. Sulphur is an extremely active remedy, and singularly penetrating in its nature, finding its way into many of the secretions and most of the tissues of the body. You will find it in the urine in the form of sulphates, and it is exhaled from the skin and mucous membrane of the bowels in the form of sulphuretted hydrogen. Having said so much respecting sulphur, you will perhaps inquire why I prescribed the bark ? It is not easy to give a satisfactory explanation of this ; but we know, from experience, that in cases of rheumatism, after fever and local inflammation are removed, bark and other tonics have been found extremely valuable. The cream of tartar is given with the view of tempering the other stimulant remedies, it being known to possess cooling and aperient properties. The whole form a combination which is similar in its composition to a well-known popular remedy for rheumatism—the Chelsea Pensioner.

Having thus explained the general tendency of these medicines, and mentioned that they are to be made up into an electuary, it only remains to speak of the effect produced, and the dose or quantity to be given. I have stated that the ordinary dose is a teaspoonful three times a-day ; this, however, will be too much for some, and too little for others. The object in every case should be to keep up a mild but steady action on the

bowels, and to procure a full alvine discharge at least once a-day. If the dose mentioned already does not answer this purpose, it must be increased; if the bowels are too free, it must be diminished. You should never omit making regular inquiries after the state of the bowels, while the patient is using this electuary; for, if these matters are neglected, the patient will not obtain the full benefit to be derived from it. Besides opening the bowels this electuary acts on the skin, and frequently causes a rapid disappearance of the disease. I need not say that, in addition to this, I ordered warm baths; they coincide in effect with the electuary, acting on the skin, and tending to relieve the rheumatic pains.

There is another very remarkable case bearing some affinity to the preceding, on which it may be necessary to offer a few remarks; I allude to the patient with sweating arthritis, to whom I drew your attention this morning. This poor man, who is somewhat advanced in life, has been labouring for several months under inflammation of the joints of a rheumatic character, manifesting itself by pain, stiffness, swelling, and probably some slight effusion into the synovial membranes. These symptoms were accompanied by profuse and constant perspirations, with a tendency to diarrhœa—circumstances which caused a manifest deterioration of his health and strength; he became pale, cachectic, and emaciated. His case had been very tedious and intractable; he had been a long time in the hospital, and had used all the most appropriate remedies, but without any appreciable improvement; his joints remained stiff, painful, and almost useless; he was greatly reduced in strength, and entirely confined to his bed. In addition to this, his pulse continued unreduced in frequency, and this is always a bad sign; cases of rheumatic arthritis, attended by prolonged excitement of the circulation and copious sweating, are generally found to exhibit an intractable chronicity, and too often terminate in rendering the unfortunate patient a cripple for life.

Now in this case many remedies had been tried without effect, and the state of the man's constitution, combined with the circumstance of his having a tendency to bowel complaint, contributed to reduce still further the scanty list of our remedial agents. Alterative remedies, to affect the general system, were almost entirely out of the question, and a vast number of local applications had proved unsuccessful. It occurred to me here, that some benefit might be derived from mercurial ointment, gently rubbed over the affected parts, assisting its action by the use of rollers applied around the joints. Fortunately, the experiment proved successful; in the course of a week or ten days, the swelling diminished considerably, the pain is nearly gone, and the power of motion is returning. His mouth has become affected, but the relief experienced appears to be proportioned, not to the influence of mercury on the general system, but to its effect on each individual joint. As a proof of this, I may state that the man has been mercurialized before, but without any favourable result.

Here, gentlemen, is an important point for consideration. A patient labours under a certain number of local inflammations, for which mercury is given internally, so as to affect the mouth, but without any manifest improvement of symptoms; we afterwards try the same remedy in another form; we apply it locally, in the shape of ointment, rubbed into the skin over the diseased parts, and we succeed in giving relief. This is a fact deserving of attention. You will perhaps ask me to explain this—I cannot do it; but I can bring forward many other analogous examples. If you

refer to the late Mr. M'Dowel's valuable paper on Erysipelas, published in an early number of the *Dublin Medical Journal*, you will find that many cases of this affection derived great benefit from the use of mercurial ointment; in fact, much more than they could by giving mercury internally. In the next place, I have met with many cases of enteritis and peritonitis, where the disease continued after the system became affected by mercury; and I have observed that these cases yielded rapidly to blistering the abdomen, and dressing the raw surfaces with mercurial ointment. Sir H. Marsh and I attended a young gentleman lately, who had low fever, accompanied by a quick but feeble pulse, and great restlessness. About the tenth day, his belly became tender and exquisitely painful; he had thirst, diarrhœa, and other symptoms of enteric and peritoneal inflammation. Before his illness, he had been of rather delicate habit, and had further impaired his health by close study. He was therefore unfit for depletion, and of this we were convinced by the debility which followed the application of a few leeches. Under these circumstances, we ordered a large blister to be applied to the abdomen, and the vesicated surface to be dressed with mercurial ointment. This proved eminently successful; the peritonitis, enteric irritation, and fever, soon disappeared, and the young gentleman recovered completely. The same thing is seen in many cases of pleuritis; the constitutional effect of mercury will fail in removing the affection of the pleura until it is applied locally. I might also refer to instances of common inflammation of the testicle, in which mercurial ointment, smeared over the part, has been found decidedly beneficial. It is unnecessary for me, however, to multiply examples; what I have stated give ample proof of the utility of mercury applied locally. When I was a student, it was the fashion to scout the doctrine that any distinct effect could be produced by the local application of mercury; our teachers laid it down as an axiom, that, to produce any sensible effect, it was necessary that it should first enter the system through the lymphatics. Thus, when you rub mercurial ointment over the liver to remove hepatic derangement, they said, before it could exert any influence on the liver it had to pass along the thoracic duct, become mixed with the circulation, and manifest its peculiar action on the whole economy. Hence, in a case of hepatitis or testitis, it was deemed useless to apply mercurial ointment over the liver or testicle, since it had, as they expressed it, to go its round through the whole system, before it could affect either of these organs. This reasoning has an appearance of plausibility, but it is contradicted by facts. Numerous examples might be cited to prove that the greatest advantage may be derived from the local application of mercury, independent of any effect produced by it on the general system. How often do we see an incipient bubo dispersed by mercurial frictions, before any constitutional effects occur? How frequently do we see laryngeal and hepatic inflammation relieved by the use of mercurial ointment without salivation? Do the beneficial effects, which we so often observe from the emplastrum ammoniaci cum hydrargyro, depend necessarily upon the mouth being affected? Is the relief which follows the use of mercurial ointment in erysipelas or testitis, unattainable unless preceded by mercurial action in the whole system? Indeed, any person who reviews this subject dispassionately, will see that the doctrine of a preliminary constitutional affection being absolutely necessary, in order to obtain the specific action of mer-

cury on any particular organ, is wholly untenable ; while, on the other hand, there is a host of evidence to prove that, locally applied, it produces a primary and distinct effect, totally independent of its action on the general economy.

The last case to which I shall direct your attention, is one of syphilitic iritis. A young man has been admitted this morning, presenting symptoms of secondary syphilis in a well-marked form, but simple and uncomplicated by any previous treatment. He took no medicine for the primary or secondary symptoms, except two pills, which he got at the dispensary about two months ago, and which were not followed by any sensible effect. The secondary symptoms came on with pains and feverishness, and are at present extensively diffused over his body in the form of elevated blotches, of a character intermediate between the papular and squamous. About four or five days back, he was advised to take a warm bath for his pains, but having to walk a considerable distance afterwards, the day also happening to be chilly and sharp, he got cold in returning home, and soon after experienced pain in the left eye, with lachrymation, and diminution of the power of vision. Had he been exposed in the same way while in health, he would probably get slight conjunctivitis, or sore throat, or bronchitis ; but the case was altogether different with a man labouring under a constitutional affection, having a tendency to manifest itself in almost every tissue of the body, and prepared to modify every form of inflammation to which accident might give rise. Again, if the man's constitution was in a sound state, his feverish cold, or conjunctivitis, or sore throat, could be removed by very simple means, such as bathing the feet, taking a little warm whey on going to bed, and some opening medicine the next morning. But here the state of the constitution occasions the substitution of syphilitic iritis for simple conjunctival inflammation, and demands a peculiar plan of treatment. You are all aware, that persons who have taken mercury for syphilis, without being entirely cured, are very liable to get iritis on slight exposures. Some persons attribute this entirely to the mercury ; but mercury, in such cases, merely acts by rendering the patient more liable to cold, so that when iritis occurs in a patient who has been under a mercurial course, it is not in consequence of the direct operation of mercury, but by its increasing his liability to be affected by impression from cold. For the same reason, the circumstance of his having taken mercury before, is not, as some persons maintain, any argument against his using it a second time.

On examining this man, we found that he had some pain referred to the eyebrow ; the eye is also more vascular than natural, and presents that appearance which is so characteristic of iritis ; there is some alteration in the colour of the iris along its free margin, but no irregularity of pupil. Along with these symptoms, there is dimness of vision, and objects appear as if seen through a veil. This arises not from any opacity of the cornea, or opalescence of the aqueous or vitreous humours, but from inflammation affecting the iris, ciliary zone, and, probably, the coats of the retina. In such cases, where the inflammation spreads from the iris to the ciliary zone, it would appear that the ciliary nerves and retina partake in the mischief, for vision becomes affected before we can discover any appearance of derangement in the optical instrument. The peculiar appearance of the eye in this man, the change of colour in the free margin of the iris, and the diminution of the power of vision co-existing with an

eruption of the skin, point out the nature of the disease, and show that the affection of the eye, though proceeding from a common cold, has been modified by the syphilitic taint in the constitution.

We next come to consider the plan of treatment to be pursued. In order to prepare his system for mercury, I have ordered him to be bled, purged, and put on the use of antimonials for two or three days. Venesection, purging, and tartar emetic, may be of some use in relieving or arresting the symptoms of iritis, but I do not place any great reliance on them for removing the disease; I merely employ them as auxiliaries, depending on mercury for the cure. Here it may be necessary to observe, that there is considerable variety in cases of iritis. Some are extremely mild; there is no palpable sign of acute inflammation present, and the chief symptom is diminution of the power of vision. Such attacks are sometimes not perceived by the patient until some accident informs him that the sight of one eye is nearly gone. In other cases, after reaching a certain point, it begins to decline, and frequently terminates spontaneously. Others present symptoms of a more decided character, but still are free from danger. Every attack, however, where the inflammation is at all of an intense character, will go on to destroy vision, unless met by prompt and efficacious treatment. In this man's case the symptoms are not very acute, and hence there is no necessity for having recourse to mercury at once; the disease might certainly terminate in disorganization of the eye, but it would be some weeks before this would be accomplished. On the other hand, there are cases which, if neglected, would destroy vision irremediably in the space of three or four days. Such cases require extremely prompt and energetic measures. But where iritis is not of a violent kind, you need not depart from the plan of treatment you would have laid down for the cure of syphilitic affections where no iritis existed. Here you bleed, purge, give antimonials and mercury, and you find that the syphilitic eruption and iritis disappear together. But where the symptoms of iritis are so severe as to threaten rapid disorganization of the eye, you disregard the syphilitic affection, and direct your entire attention to the preservation of the eye. Here you bleed, leech, apply belladonna to the eye, and give calomel, in doses of ten grains or a scruple, every third or fourth hour, so as to bring the system as rapidly as possible under the influence of mercury.

With respect to belladonna, I believe you are all aware of its value in iritis. Some think that its action is merely mechanical, that it dilates the pupil and no more; but I am firmly convinced that its influence is not limited to mere dilatation of the pupil. I believe that it acts on the vitality of the eye, and that when employed externally or internally, it possesses the property of diminishing the irritability of that organ, and thus tends indirectly to remove local inflammation. In scrofulous ophthalmia, where the eye is exquisitely sensible, where the slightest exposure to light causes intense pain and copious lachrymation, one of the best remedies I am acquainted with is belladonna, given internally. Thus you perceive that belladonna has not only a mechanical action, producing dilatation of the pupil, and tending to prevent adhesions, but also, by its influence on the retina and ciliary nerves, diminishes the irritability of the eye, and aids materially in effecting the removal of local inflammation.

I have spoken on a former occasion of the utility of mercury in certain cases of rheumatic fever, where the inflammation of the joints will not yield

to other means: I have now to add, that for the last seven or eight years the hydriodate of potash has been found to be a most useful adjunct to mercury, and well calculated for following up and completing the beneficial effects produced by that remedy. In fact, in treating arthritic or rheumatic fever, when I have reduced the violence of the fever and of the inflammatory affection of the joints by means of bleeding and leeching, followed by tartar emetic or nitre, or both combined; or when after the antiphlogistic treatment, both local and general, I have produced a marked alleviation of the patient's sufferings, either by the use of colchicum or by the use of mercury combined with opiates—then, I say, we can employ the hydriodate of potash with the greatest possible advantage, as it quickly dissipates the remaining pain and swelling of the joints, and contributes powerfully to bring the disease to a speedy termination, while at the same time it greatly diminishes the danger of a relapse. I have experienced much comfort and feel much confidence in the treatment of rheumatic fever since I adopted this practice; and it now never happens to me to meet with cases which, in spite of all my efforts, become chronic, and confine the unfortunate sufferers to bed for months. You have observed, that in most cases of acute rheumatism affecting the joints, no matter what mode of treatment I adopt in the commencement and during the acme of the disease, I generally complete the cure with the hydriodate of potash, beginning with doses of ten grains, which are quickly augmented to twenty or thirty grains, three times a-day. It is generally given in decoction of sarsaparilla, to which some preparation of morphia forms a useful addition.

Iodine and hydriodate of potash exert a very powerful influence over scrofulous inflammation: but their influence, as has been proved by recent experience, extends likewise to inflammations connected with other states of the constitution, and they are frequently exhibited now with the best effects in certain varieties of syphilis, pseudo-syphilis, gout, mercurial cachexy, and rheumatism. The power of iodine in moderating mercurial salivation and the severe ulceration of the mouth which frequently accompanies it, has been asserted by some and denied by others. Be this as it may, it certainly is an excellent adjuvant to our usual means for diminishing the pain and inflammation which attend periostitic affections, and many of the troublesome sequelæ of syphilis. I may observe also, that the hydriodate of potash has been found to prove a most valuable auxiliary in the treatment of chronic anasarca and the ascites that follows scarlatina. In another place I have spoken more fully of the utility of hydriodate of potash in arthritic rheumatism, lumbago, and sciatica; and Dr. Osbrey has likewise directed the attention of the profession to its powers in these affections, in an extremely valuable practical paper on the combinations of iodine, published in a late number of the *Dublin Medical Journal*, to which I feel pleasure in referring the reader.

I have been told likewise by some excellent practitioners, that they have derived much advantage from the ioduret of iron in rheumatic affections of the joints, after the acute stage has subsided. My own experience of the effects of this remedy is too limited to allow me to express any opinion on its merits.

Having spoken of mercurial salivation, it occurs to me this moment, that the remarkable fact of the difficulty of salivating infants and very old persons must depend, in some measure, on the undeveloped state of the

parotid glands of the former, and their shrunken and atrophied condition in the latter. The apparatus connected with the insalivation of the food is comparatively but little required before the teeth appear in infancy, or after they have fallen in advanced age.

I wish now to make a few observations on the use of decoction of sarsaparilla and nitric acid in certain cases of chronic cough. The utility of this combination has been long recognised in cachectic states of the system and affections of the skin, whether syphilitic or mercurial; and it has also proved itself very efficacious in various species of sore throat, chronic pains, and other textural derangements of a slow and tedious character. The marked effects which the decoction of sarsaparilla and nitric acid produce in these diseases of the general habit, skin, and mucous membrane of the throat, led me to infer, that the same combination might be employed with advantage in cases of chronic cough, attended with redness and relaxation of the mucous membrane of the fauces, elongation of the uvula, and some degree of general debility. I have observed that such cases are almost invariably accompanied by more or less derangement of the digestive organs and an irritable state of the general system; and from their analogy to other states of the constitution, in which nitric acid and sarsaparilla have proved extremely beneficial, I was induced to give this combination a trial; and I can now state, that it has not disappointed my expectations. Decoction of sarsaparilla, given in doses of a pint daily, with a drachm or more of nitric acid, has proved a most useful and valuable remedy in the treatment of cases of this description. It is scarcely necessary to observe, that in addition to the use of this remedy, change of air, moderate exercise and recreation, and a nutritious but not heating diet, are required. In some of these cases it will be also necessary to apply lotions of the nitrate of silver or sulphate of copper to the fauces and tonsils; and where the uvula is greatly relaxed, it will require to be frequently touched with the nitrate of silver, or even to be shortened by an operation. Guided by the same principles, I have frequently exhibited decoction of sarsaparilla with nitric acid in cases of persons of a reduced and relaxed habit, who are troubled with a slight but frequently-recurring cough or hem, and the expectoration of a few bronchial sputa, occasionally mixed with blood, which appears to come, not from the lungs, but from the eroded mucous membrane at the top of the pharynx and larynx. In such cases I have observed, that the cough and expectoration took place chiefly in the morning after awaking, and in some had continued for weeks without any dyspnœa, pain in the chest, or fever. I may also remark, that the same combination may be often given with advantage to patients whose mouths have been recently made sore by mercury administered for the cure of bronchitis or pneumonia, and will occasionally be found useful in removing the still lingering remnant of pulmonary disease, at a time when mercury could not be pushed farther with safety.

Speaking of pulmonary affections leads me to notice a collateral subject of very great importance: I allude to percussion as a means of arriving at a true diagnosis in cases where solidification of the lung has taken place. It is generally believed, that in cases where the actual quantity of air in the lungs is morbidly increased or diminished, percussion furnishes us with means of information adapted to every variety of case, and capable of unlimited application. This, however, is not the fact. It is true that when percussion furnishes positive evidence of increased pulmonary soli-

dity, we may be pretty sure that solidification exists; but such evidence is not furnished by percussion in every case of the kind indiscriminately; for it now and then happens, that percussion elicits a very clear sound from the parietes of the chest, corresponding to considerable solidification of the lungs within. Of this I have now witnessed several instances. You will ask, how then are to explain this apparent contradiction between the results afforded by percussion? This is a question of much importance, and I hope the solution which I am about to offer will be found adequate and satisfactory.

An old man named Foy died lately at Sir P. Dun's Hospital, of hepatization of the inferior lobe of the right lung, with numerous tubercular depositions in the upper lobes of both lungs. During his illness, I pointed out the existence of extensive hepatization of the lower lobe of the right lung, in which perfect and decided dulness marked out accurately the space occupied internally by the solidified pulmonary tissue. But anteriorly and above, the parietes of the chest returned a clear sound on percussion, nor could a vestige of dulness be anywhere detected. Yet the whole of the upper lobes of this patient's lungs were occupied to such an extent by crude tubercles, that no portion of the upper lobes could be selected, equal to half the size of a fist, which would not sink in water. This was owing to tubercular matter, which occupied the pulmonary tissue in detached infiltrated masses, or in single crude tubercles. How, then, did it happen that such extensive solidification of the upper lobes existed without any corresponding dulness on percussion? A careful examination of the pathological condition of these lobes satisfactorily explained the anomaly. On accurate inspection, we found that although the solidified masses of the pulmonary tissue were extremely numerous, and predominated over the parts which still retained their natural vesicular texture, so that an extensive portion of the upper lobes seemed to be quite solid, yet the solidified portions were insulated and divided from each other, throughout the interior of the lobe, by intervening laminae of healthy pulmonary tissue, and on their surface were, for the most part, covered by a stratum of healthy vesicular lung, from a quarter to half an inch in thickness. Indeed, although the solidified masses (to use a geological expression) sometimes cropped up, and came to the surface, yet this was comparatively a rare occurrence; and by far the greater portion of that surface was composed of a thin stratum of pervious vesicular tissue. To this was owing the clear sound elicited by percussion.

You will recollect, therefore, that in certain (I will admit rare) cases of tubercular deposition in the lungs, the tubercular development may have proceeded to the extent of rendering the greater portion of the upper lobes impervious to the air, and may have solidified those lobes considerably, and yet the solidified portions may be so divided from each other by laminae of healthy lung, and may be so covered by a stratum of vesicular tissue, that the general result of percussion is to elicit a clear sound over the whole of the parietes of the chest corresponding to the affected lobes.

LECTURE XLII.

Persesquinitrate of iron in chronic diarrhœa—Newly observed affection of the thyroid gland in females—Its connection with palpitation; with fits of hysteria—Erysipelas—Remarks on the formation of acidity of the stomach in indigestion—Psoriasis—Treatment by arsenic.

HAVING lately used, with very considerable success, a preparation introduced by Dr. Christison, namely, the persesquinitrate of iron, I shall make a few observations here on its properties and use.

The combination of iron with nitric acid forms a remedy possessing tonic, and, at the same time, astringent powers, and hence peculiarly well adapted for the treatment of certain forms of chronic diarrhœa and dysentery. You will be consulted by females of a delicate and weakly habit, who frequently exhibit symptoms of nervous derangement, such as palpitations, sleeplessness, and headache, who are easily excited or alarmed, have a tendency to emaciation and paleness, and have little or no appetite. Combined with these general symptoms, you find that they have been labouring under diarrhœa for weeks, and even months, and that this, with the other causes of debility, has rendered their condition exceedingly uncomfortable. You will also be informed by the patient, that she has tried many remedies without benefit, and that she is extremely anxious to have something done to give relief; and hence it is a matter of importance to be acquainted with any remedy which may be likely to prove serviceable in such emergencies.

It would appear that this form of diarrhœa does not depend on an inflammatory condition of the stomach and intestinal canal, for the indications of inflammation are absent, such as pain, tenderness on pressure, thirst, redness of tongue, and severe or continued griping. It would rather seem to be connected with congestion of the mucous membrane of the digestive tube of a passive nature, and resembling the scrofulous; it is also of an unmanageable character, and very seldom amenable to the ordinary modes of treatment. The common astringent remedies totally fail; chalk-mixture, kino, rhatany root, and catechu, are useless, and in such cases it has been observed that opium is generally injurious. If you prescribe opium it certainly checks the disease for a time, but this temporary relief is accompanied by debility, malaise, restlessness, and many other uneasy symptoms, and the diarrhœa soon returns, and is as bad as ever. The medicine which I have found most effectual in such cases, is the persesquinitrate of iron, in the form recommended by Dr. Christison. With it I have succeeded in curing many cases which had been exceedingly obstinate and of very considerable duration, the disease having in one case resisted all the efforts of medical skill for seven months, and in the other for two years. Seven or eight drops of the liq. ferri persesquinitratis, increased gradually to twelve or fifteen in the course of the day, was the quantity prescribed in both cases. In the course of four days a slight diminution of the diarrhœa was perceived, in a fortnight the patient felt much better, and in a month or five weeks it had disappeared altogether. This took place without being followed by any bad effects; there was no swelling of the stomach, no tympanitis, no tormina, no restless-

ness or nervous derangement; the patients recovered their health and strength, and the cure was at once safe and permanent.

The effect of this remedy admits of an explanation on either of two grounds. You are aware that nitric acid exercises a very powerful influence over many morbid discharges. In chronic diarrhœa or dysentery, and in a certain form of diabetes, it is one of the most efficient and appropriate medicines which can be prescribed. We can therefore understand its peculiar adaptation to the case of which I have spoken. The nature of the complaint requires a tonic as well as an astringent; and you all know that nitric acid is used as a tonic in many cases attended with debility and emaciation. With respect to iron, its mode of action is equally intelligible. Many of the salts of iron exert a very remarkable influence on the conditions of mucous membranes. The sulphate, tartrate, and many other preparations are prescribed with great advantage in chronic fluxes from mucous membrane; hence the benefit so frequently derived from the use of Griffiths' myrrh mixture in the treatment of chronic bronchitis characterized by a supersecretion from the bronchial membrane, unaccompanied by fever. You perceive, then, both the medicines which enter into the composition of persesquinitrate of iron are well calculated to check morbid discharges and strengthen the tone of the system. The only objection to this remedy is, that it is apt to spoil: if kept longer than a week it is decomposed, and hence you should always take care to have it quite fresh when you prescribe it, in order to secure its full operation.

I have lately had occasion to observe the good effects resulting from a combination of nitric acid, with vegetable astringents, in a little girl three years of age, in whose case I was consulted by Mr. Wallace, of Townsend-street. She was of a strumous habit; her appearance was that of a delicate but not very sickly child, and, in spite of the long continuance of the complaint, she was active and lively, although her appetite was small. Four or five times during the day, and six or seven during the night, she was seized with a slight griping pain, and a sudden desire to evacuate the bowels. Each evacuation was scanty, and consisting of muco-fœcal matter. A great variety of the usual remedies had been tried—alterative doses of mercury, purgatives, astringents, opiates, &c. I prescribed the following mixture, which had the happiest effect, and performed a speedy cure:

℞. Decocti hæmatoxyli (P.D.), ℥iv.
 Vini rubri Lusitanici, ℥j.
 Acidi nitrici dilut., gt. x.
 Tincturæ opii, gt. v.
 M. sumat coch. j. medium, quarter in die.

You will recollect that nitric acid, when given in large doses, often produces diarrhœa, as in the common combination of one drachm of dilute acid with a pint of decoction of sarsaparilla.

I have lately seen three cases of violent and long-continued palpitations in females, in each of which the same peculiarity presented itself—viz., enlargement of the thyroid gland; the size of this gland, at all times considerably greater than natural, was subject to remarkable variations in every one of these patients. When the palpitations were violent, the gland used notably to swell and become distended, having all the appear-

ance of being increased in size, in consequence of an interstitial and sudden effusion of fluid into its substance. The swelling immediately began to subside as the violence of the paroxysm of palpitation decreased, and during the intervals the size of the gland remained stationary. Its increase of size, and the variations to which it was liable, had attracted forcibly the attention both of the patients and of their friends. There was not the slightest evidence of any thing like inflammation of the gland. One of these ladies, residing in the neighbourhood of Black Rock, was seen by Dr. Harvey and Dr. Stokes; another of them, the wife of a clergyman in the county of Wicklow, was seen by Sir Henry Marsh; and the third lives in Grafton Street. The palpitations have in all lasted considerably more than a year, and with such violence as to be at times exceedingly distressing; and yet there seems no certain grounds for concluding that organic disease of the heart exists. In one, the beating of the heart could be heard during the paroxysm at some distance from the bed—a phenomenon I had never before witnessed, and which strongly excited my attention and curiosity. She herself, her friends, and Dr. Harvey, all testified the frequency of this occurrence, and said that the sound was at times much louder than when I examined the patient, and yet I could distinctly hear the heart beating when my ear was distant at least four feet from her chest! It was the first or dull sound which was thus audible. The sudden manner in which the thyroid, in the above three females, used to increase and again diminish in size, and the connection of this with the state of the heart's action, are circumstances which may be considered as indicating that the thyroid is slightly analogous in structure to the tissues properly called erectile. It is well known that no part of the body is so subject to increase in size as the thyroid gland, and not unfrequently this increase has been observed to be remarkably rapid, constituting the different varieties of bronchocele or goitre. The enlargement of the thyroid, of which I am now speaking, seems to be essentially different from goitre in not attaining a size at all equal to that observed in the latter disease. Indeed, this enlargement deserves rather the name of hypertrophy, and is at once distinguishable from bronchocele by its becoming stationary, just at that period of its development when the growth of the latter usually begins to be accelerated. In fact, although the tumour is very observable when the attention is directed to it, yet it never amounts to actual deformity. The well-known connection which exists between the uterine functions of the female and the development of the thyroid observed at puberty, renders this affection worthy of attention, particularly when we find it is so closely related by sympathy to those palpitations of the heart which are of so frequent occurrence in hysterical and nervous females.

Another fact well worthy of notice is, that females liable to attacks of palpitation almost invariably complain of a sense of fulness, referred to the throat, and exactly corresponding to the situation of the thyroid. This sensation only continues while the paroxysm of palpitation lasts, and frequently is so urgent as forcibly to attract the patient's notice, who now complains of its inducing a sense of suffocation. Here the interesting question occurs, whether this feeling of something that impedes the respiration at the bottom of the throat, during the hysterical fit, and which has been included under the general term *globus hystericus*—the question arises, I say, whether this feeling is always of purely nervous origin. To me it

appears probable that it is often induced by the pressure arising from a sudden enlargement of the thyroid, which enlargement subsides as soon as the fit is over. Of this I am certain, that the lump in the throat, of which such females complain, is often exactly referred to the situation of the thyroid; and, indeed, I have been told by other practitioners, upon the accuracy of whose observations I can rely, that this swelling in the throat of females during the hysteric paroxysm has more than once excited their wonder. It is obvious that if palpitations depending on functional disease of the heart are capable of exciting this swollen state of the thyroid, we may expect to observe the tumefaction of this gland also where the palpitation depends on organic disease of the heart, as in the following case detailed to me by a friend.

A lady, aged twenty, became affected with some symptoms which were supposed to be hysterical. This occurred more than two years ago; her health previously had been good. After she had been in this nervous state about three months, it was observed that her pulse had become singularly rapid. This rapidity existed without any apparent cause, and was constant, the pulse being never under 120, and often much higher. She next complained of weakness on exertion, and began to look pale and thin. Thus she continued for a year, but during this time she manifestly lost ground on the whole, the rapidity of the heart's action having never ceased. It was now observed that the eyes assumed a singular appearance, for the eyeballs were apparently enlarged, so that when she slept, or tried to shut her eyes, the lids were incapable of closing. When the eyes were open, the white sclerotic could be seen, to a breadth of several lines, all round the cornea. In a few months, the action of the heart continuing with unceasing violence, a tumour, of a horseshoe shape, appeared on the front of the throat and exactly in the situation of the thyroid gland. This was at first soft, but soon attained a greater hardness, though still elastic. From the time it was first observed, it has increased little, if at all, in size, and is now about thrice the natural bulk of the fully developed gland in a female after the age of puberty. It is somewhat larger on the right side than on the left. A circumstance well worthy of notice has been observed in this young lady's case, and which may serve to throw some light on the nature of this thyroid tumefaction. The circumstance I allude to is, that from an early period of the disease a remarkable disproportion was found to exist between the beats of the radial and of the carotid arteries, the pulsations of the former being comparatively feeble, while those of the latter were violent, causing a most evident throbbing of the neck, and accompanied by a loud rustling sound. In about fourteen months the heart presented all the signs of Laennec's passive aneurism; the tumour in the neck is subject to remarkable variations in size, sometimes diminishing nearly one-half. None of her family have had goitres, nor was she ever in any of the usual localities of the disease.

Some time ago, you will recollect, we had a case of erysipelas in a young woman, which came on towards the termination of fever; a similar occurrence has taken place in a patient in the male fever ward. A man who has been for some time labouring under fever, got, about two days since, an attack of erysipelas of the scalp, spreading downwards over the neck and shoulders. The man had been ill of fever of a nervous type, and unaccompanied by any decided marks of visceral congestion; his condition was to a certain extent modified by previous habits of intemperance, but

still his strength was not much prostrated, nor did he appear to be in a very dangerous state. About the fourth week of his illness he gets an attack of erysipelas of the scalp, which runs downwards over the neck and shoulders, and threatens very dangerous if not fatal consequences. How were we to treat this case? The man's constitution, habits, and the period of his fever, contra-indicated depletion in any form, and the only thing which we could expect benefit from, was the use of sulphate of quinine, which we had prescribed in two former cases of this kind with good effects. We gave it here, also, in the form of an enema, for the state of the man's stomach was such as to preclude the possibility of giving it by the mouth without hazard. An enema composed of five grains of quinine, five drops of laudanum, and two or three ounces of mucilage of starch, was injected three times a-day. I cannot as yet state what the result of this case may be, but the disease is certainly not progressing, and the man says he feels better to-day, so that there are grounds to hope for a favourable termination.

Internally I have given the man magnesia with camphor-mixture, on an empirical principle. It has been stated by some of the older writers, that when erysipelas occurs in a weak habit, or supervenes on other diseases, that there is an acescent condition of the stomach, and that it is on this condition the erysipelatous tendency chiefly depends. I have with this view been induced to try the exhibition of small doses of magnesia; I have ordered a mixture composed of six ounces of camphor-mixture with a drachm of magnesia, of which the patient is to take an ounce every second hour.

I may take this opportunity of observing, that since I published some remarks in the *Dublin Medical Journal*, upon the occasional symmetrical march of erysipelas at both sides of the median line, I have seen other examples of this symmetry. One occurred very lately in Sir P. Dun's Hospital, in a woman in whom the point of departure for the disease was the face. From this the erysipelas spread over the scalp, and then advanced downwards over the neck and shoulders. During its daily progress I pointed out to the students how precisely its outline at one side of the median line corresponded with that at the other. This coincidence was the more singular, for the boundary of the advancing erysipelas was at each side very irregular in form. I think, therefore, that more accurate observations on this subject will cause a change of opinion in the minds of some who at first opposed my views.

There is another case in which I gave magnesia to a man labouring under a particular species of indigestion. He had been for a long time suffering from chronic rheumatism, and this was combined with dyspepsia, characterized by a tendency to supersecretion of acid in the stomach, with gastrodynia and sour eructations. In addition to anti-rheumatic medicines, and enemata to keep the bowels open, we prescribed the subnitrate of bismuth with magnesia, for the purpose of relieving pain and acidity. In gastrodynia, with increased secretion of acid from the stomach, one of the best remedies we possess is the subnitrate of bismuth, with which I am in the habit of combining morphia, or, as in the present case, magnesia. I ordered ten grains of magnesia, twenty of powdered gum arabic, and six of the subnitrate of bismuth, to be taken two or three times a-day, according to circumstances; this powder was to be followed by a tablespoonful of water, containing one sixteenth of a grain of

muriate of morphia. In such cases, if milk does not disagree with the patient, you may pour the powder into a quantity of boiled milk; allow it to cool, and then stir it with a spoon, and make the patient swallow it. The gum arabic is used for its demulcent properties, and because it enables the patient to swallow the powder with more facility; and the fluid in which you mix the powder, whether it be water or milk, is to be used warm in order to dissolve the gum more speedily. This is a very good combination, and I have seen many cases of dyspepsia, with acid eructations, which had resisted bismuth, prussic acid, or morphia, given singly, yield to it.

I need not state to you the reasons why magnesia and other antacid remedies are given in such cases; but it may be necessary to mention briefly the principle on which opiates are prescribed. Dr. Elliotson has shown, that many of the morbid states of the stomach depend on deranged nervous energy, that in such cases, the most efficient means we can use are narcotics. As to the subnitrate of bismuth, its mode of action is not very obvious; but we know that the metallic salts possess great influence over various nervous diseases, as well as over morbid secretions. Witness the effects of carbonate of iron, oxide of zinc, the preparations of arsenic and antimony, and several others. On this account we prescribed the subnitrate, hoping to derive some benefit from its use, as well with respect to checking the sour eructations, as to relieving the gastrodynia. It may be well to make a few observations in explanation of the manner in which tonics and narcotics act in diseases of the stomach. Formerly physiologists were of opinion, that in weakly stomachs the act of digestion was accompanied by the formation of acid and flatulence, because the food being imperfectly acted on, was allowed to undergo the process of fermentation, a process which gave rise to the acid and the wind in the stomach. In compliance with this view, physicians endeavoured to procure relief in these cases by prescribing a regimen little likely to undergo a fermentation capable of causing a production of either air or acid; and they endeavoured to neutralise the bad effects of these, when produced by means of the administration of alkaline medicines. They used, however, to be astonished at observing that many articles of food, which outside the body never formed any acid during the fermentation (or more properly putrefaction), occasioned, nevertheless, when eaten, as much acidity in the stomach as any other aliments.

It was remarked also by practical men, that although present relief was obtained by means of alkalies, yet their constant exhibition seemed rather to increase than diminish the tendency of the formation of acid in the stomach. This fact could not be explained in the then state of physiology. In the year 1821, I read an essay on this subject before the Association of the King and Queen's College of Physicians, in whose transactions it was subsequently published. In this essay I pointed out the true source of the acidity and flatulence observed in dyspepsia, and proved, contrary to the received opinions, that it was the result of a morbid secretion. In fact, I showed that the stomach has the power, when in health, of secreting acids and air, both essentially necessary for the solution of the alimentary mass; and I proved, that in dyspepsia this power is morbidly deranged in such a manner as to give rise to a supersecretion of acids and air. This view of the subject was soon recognised to be correct, and in consequence, new methods of treating dyspepsia were pro-

posed. Among the proposals for obviating acidity, that of Dr. Elliotson, who recommended prussic acids and other narcotics capable of acting upon the nerves of the stomach (through the influence of which secretion is effected), was found to be the most successful, and has been sanctioned by the most extensive experience.

Before I conclude I shall call your attention to the case of Ellen Farrow, who has been for a considerable time labouring under extensively diffused psoriasis. She was admitted about the beginning of last November, and we are now come to the 10th of December; so that she has been a patient here for nearly six weeks. Her disease is of better than two years' standing, and the eruption covered almost every part of the surface of the upper and lower extremities, the trunk remaining unaffected. The patient, you perceive, is a fine healthy country girl; and though the complaint has lasted so long, her system does not seem to be in the slightest degree impaired—appetite, digestion, and sleep are perfectly good. Now, on examining her soon after her admission, you will recollect that I told you that the duration of the disease, the absence of constitutional irritation, and of irritation in the parts affected by psoriasis, all contra-indicated a mode of treatment which frequently proves highly useful, namely, the antiphlogistic. If called to a case in which the disease was recent, and attended with heat of skin, redness, and itching, I would bleed, leech the affected parts, and put the patient on a spare diet. Even in some cases of a chronic character, this treatment may be employed with great advantage. Here, however, the state of the patient was such as not to require antiphlogistics, and accordingly we put her on the use of Fowler's arsenical solution. By the way, when you give this remedy in private practice, where patients or their friends are very curious in scanning your prescription, you may, in order to prevent alarm, or have the action of the medicine interfered with, write on your prescription—"Liquor mineralis Fowleri."

I mention this case of Farrow's chiefly for the purpose of showing the extent to which the arsenical solution may be carried. Bear in mind, I do not mean to boast of the quantities of medicine my patients swallow. Some persons appear to think, that there is something very brilliant in prescribing enormous doses: I should, however, be very sorry to make such experiments. Arsenic is a very powerful remedy, and its effect on diseases of the skin can be amply secured by moderate doses; where these fail, it is very often from not continuing the use of the remedy for a sufficient length of time. Latterly this girl has taken ten drops of Fowler's solution three times a-day; and, as she is getting well, I do not intend to increase the dose. We began with three drops three times a-day; after a few days this was increased to five, and then to seven drops three times daily. She then began to take ten drops three times a-day; but after a few days having got an attack of shivering, followed by symptoms of feverish excitement and herpes labialis, we stopped the arsenic for five days, and then began to give it again in small doses, which were gradually increased until we came to the quantity she is taking at present. Whenever you have a patient under the use of arsenic, you must never omit making daily inquiries as to the state of the head and stomach; if the patient complains of gastrodynia or nausea, if there be pain or giddiness of head, or if, these being absent, a state of feverishness or general nervous excitement supervene, it is a proof that the remedy has been

pushed sufficiently far, and under such circumstances you should suspend or give up its employment. In this case, being unwilling to give up the use of arsenic, as it appeared to be curing the patient, I merely suspended it for a few days, and then had recourse to it again. In order, however, to prevent it from acting unfavourably on the stomach, I have latterly prescribed it in the following form :—

R. Liq. arsenicalis, M. x.
 Aquæ distillatæ, ℥j.
 Tinct. opii, M. x.
 Spirit. lavandulæ, compos. ℥ss.—℥t. haust.

This appears to agree very well with the stomach ; and as she is improving very rapidly, I intend to continue it for some time without increasing the dose.

The only other point worthy of remark in the case is, that we observed in it a phenomenon connected with the state of the skin, such as usually occurs when a patient is using sulphur or sulphureous waters for the cure of chronic cutaneous affections. After they have been taking these remedies for some time, they experience a slight exacerbation of symptoms, and complain that the eruption is growing worse. This, however, should never induce you to give up the remedy without further trial ; for this temporary aggravation generally precedes the disappearance of the disease.

We dismissed a case of dysentery lately from our wards, concerning which I promised to make a few observations. During the months of August and September last, we had in Dublin several cases bearing a decided analogy to the dysentery of Cullen. There were fever, griping, tenesmus, a constant inclination to go to stool without being able to pass any thing but a little mucus and blood, and occasionally scybalæ. In this form of disease, some authors are inclined to attribute all the bad symptoms to the presence of these scybalæ, which are small hard lumps of fecal matter, evidently formed in the sacculi of the great intestine. You will find others asserting that this cannot be the case ; for in many dysenteries there are no scybalæ at all, and that even when they do occur, they have no connection with the disease. The latter take no account of scybalæ, while the former state that the diseased condition of the intestine depends upon the irritation produced by them, and that you never can expect to cure the disease without getting rid of them by active purgatives. For my part, I believe that there are certain dysenteric states of the great intestine, in which the main cause of the disease arises from the lodgment of quantities of hard, unhealthy, and long-retained fecal matter ; but in cases of epidemic dysentery, I do not think that scybalæ have any thing to do with the formation of the disease, or the aggravation of its symptoms.

In the present case, the affection appears to have been pure rectal dysentery, depending almost exclusively on inflammation of the rectum, not extending to the sigmoid flexure of the colon, and certainly never as far as its arch. The symptoms present were fever, increased heat of skin and quickness of pulse, with a feeling of heat and pain in the situation of the rectum ; for the first day the discharges consisted of mucus and blood, combined with fecal matter, but after this the mucus and blood were voided alone with great griping and tenesmus, and the patient was obliged to get up to the night chair thirty times in the course of twenty-four hours. There was, however, no symptom indicating that any portion of the intes-

tine beyond the rectum was affected. Now, what was the consequence of this state of things? The inflammation of the rectum gave rise to constant spasm of that organ; the colon partook more or less in its spasmodic action, and hence every attempt to pass the stools was resisted. Here, however, the feces lay in a portion of the intestine free from inflammation; they could not produce any aggravation of the symptoms, and the scybala were to be looked on as the consequence and not the cause of the disease. Now, whether purgatives were given by injection, or by the mouth, they would have done no good in such a case as this; we might have copious fecal discharges, but without the slightest diminution of the local symptoms. I do not mean to say that there are not dysenteries in which purgatives are highly useful; but in the case before us, where the disease was limited to the rectum, I did not think that any benefit could be derived from them. I confined my attention, therefore, entirely to local means directed to the part inflamed, applied leeches to the anus, gave narcotic and emollient enemata, and after I had in this way relieved pain and irritation, I combined with the enemata, first, a small quantity of the acetate of lead, with the view of restoring the tone of the relaxed mucous membrane, and afterwards changed it for the sulphate of zinc. Under this treatment the case went on very favourably, and we have been able to dismiss the man in a very short space of time.

LECTURE XLIII.

Pleuro-pneumonia—Cases of latent pleurisy; of pneumonia—Phtisis; latent ulceration of the bowels in—Diarrhœa of phtisis—Observations on the stammering of paralytic persons—Its explanation—Very remarkable case of stuttering cured by chronic laryngitis—Treatment of hoarseness—Velpeau's method of treating sore throat.

LET me now direct your attention to another topic. You have seen that a principal feature in the character of the present pneumonia is its complication with pleuritis; we have had several cases of inflammation of the lungs, combined with inflammation of their investing membranes, but I do not recollect that we have had a single case of pure pleuritis, or pure pneumonia. In the patient who lies at present in the chronic ward, labouring under pleuro-pneumonia, the inflammation occupied the superior part of the right lung in the first instance, and this is rather remarkable, as pneumonia generally commences in the lower part of the lung. Here, however, the pneumonia and pleuritis were located above, each being in point of extent nearly of the same dimensions, the portion of inflamed lung corresponding in its area to the portion of pleura engaged in the disease. Soon after his admission we found that the inflammation was making further progress, but its spreading was attended with this remarkable peculiarity, that while the pleuritic inflammation in the superior part of the right side of the chest became limited and ceased to extend itself, the pneumonic inflammation commenced travelling downwards and backwards, so that after two or three days we had pleuro-pneumonia in the upper part of the lung, and further down in the lower and back part of the lung it was merely pneumonia unaccompanied by pleuritis. This is an occurrence which I have frequently witnessed, that when pleuritis and pneumonia co-

exist, the latter will spread, often in spite of all our efforts, while the former remains stationary. I wish to impress this fact on your minds, that pleuritis never exhibits such a tendency to extend itself gradually, day after day, as pneumonia; if the pleura becomes inflamed, the extent to which it is likely to be engaged will be determined in twenty-four hours; whereas, in cases of pneumonia, the disease, though limited at the commencement to one or two small insulated spots, will frequently begin to extend in every direction from these points, until in the course of a few days it involves a large portion of the lung. In other cases, many days are required before the spreading of pneumonia ceases.

This case is of considerable interest to the stethoscopic student, as exhibiting in a very satisfactory manner all the physical signs of pneumonia, as well in its pure state as where it is complicated with pleuritis. It is unnecessary for me to enter into any detail of the symptoms or of the physical signs, but I invite you to study them as well worthy of your attention.

A patient has recently died, who came into hospital labouring under a disease which generally proves fatal, namely, double pleuro-pneumonia. He had violent pleuritis and pneumonia in both sides of the chest under these peculiar circumstances; that in the left side the pneumonia was situated above and anteriorly, in the right side below and posteriorly; so that the lungs were affected nearly at the opposite ends of their transverse diameters. On his admission, he appeared extremely low and weak, and it was obvious that the case must terminate fatally. His respiration was extremely quick and laboured; he had great oppression about the chest, constant anxiety, incessant harassing cough, quick weak pulse, and a countenance expressive of intense suffering. On examining the chest with the stethoscope, we found that both lungs were extensively solidified; and this, combined with his age, and the manifest sinking of the powers of life, prevented us from indulging in any hope of being able to arrest, much less to remove, his complaint. He was a poor creature, moving in the very lowest class of life, ill fed, without sufficient clothing, most wretchedly lodged, and constantly exposed to cold and hardships. He had been employed in breaking stones on a road at fourpence per day, and out of this miserable pittance endeavoured to maintain a family. From repeated exposure to inclement weather, he got a violent attack of pleuro-pneumonia, which, being neglected at the commencement, assumed an intractable character, and when he came into hospital, the disease had been of several weeks' standing, his system reduced to the lowest state, and no sign whatever of reaction.

In estimating the danger of a patient labouring under pneumonia, I have told you that it is not so much in proportion to the extent of lung engaged, as to the quickness of respiration, and the presence or absence of symptoms of asphyxia. You will see one man in pneumonia, having nearly the whole right or left lung inflamed and solidified, breathing easily with the other lung and apparently suffering but little inconvenience; while you will find others, with a smaller amount of disease, exhibiting symptoms of distress bordering on asphyxia. I attended a young gentleman eighteen months ago, who had complete carnification of the left lung, and pleuritic effusion on the same side, pushing the heart so far out of its place, that it could be felt pulsating under the right mamma. His illness lasted for nearly four months; yet the fluid was afterwards completely

absorbed, the lung gradually assumed its natural condition, and he recovered perfectly. About six months after, I was again called to see him, and found that after exposure to cold he had got a violent attack of pneumonia in the right lung, which had run on to hepatization, and on examining him by the stethoscope and percussion, I found that almost the whole of the lung was solidified. In this case, there never was any thing like an approach to asphyxia; indeed, the distress of breathing was extremely slight, and he recovered completely in two months. This was rather a singular case; the patient one year getting violent pleuritis, followed by extensive effusion, forcibly compressing the lung so as to render it quite useless, and pushing the heart out of its place; and the next year getting an attack of pneumonia in the other lung, ending in solidification of nearly the whole organ, and yet recovering completely from both. I need not say that there could have been no scrofulous taint in this gentleman's constitution, for if there had, the chances were that he would have sunk under either of these attacks. He lives at Crumlin; and in both instances his attending physician was Dr. Adams, of Stephen's Green.

In such a case as this, the utility of the stethoscope was obvious; by its means we not only learned the nature and extent of the disease we had to combat, but also the exact situation where topical applications, such as leeches, blisters, setons, &c., should be applied with greatest advantage. I had lately an opportunity of witnessing an extremely interesting case of perfectly latent pleurisy. It was seen in the first instance by my friend and former pupil, Mr. B. Guinness. A fine young gentleman, catching cold, contracted some slight fever apparently catarrhal, which altogether subsided in five or six days, but he remained very weak. I saw him on the tenth day; a very slight cough remained, his breathing was regular, and he felt no want of breath; he had had no pain in the side from the commencement; he was weak and rather sleepless; otherwise he could specify no complaint. I do not know what induced me to percuss his chest—perhaps it was the force of habit; be this as it may, percussion led me to the discovery of extensive pleuritic effusion on the right side. He recovered perfectly under the use of proper remedies.

Let me now direct your attention for a few moments to the case of M. Murphy, who died on Saturday last. This man, aged sixty, was admitted on the first of November. He had been ill for nine months before his admission, and stated that his illness originated in exposure to cold. It commenced with cough, oppression of chest, dyspnoea, and hæmoptysis. During the first month, the hæmoptysis recurred frequently, and, as he thought, generally with more or less relief; but during the latter period of his illness, it was entirely absent. On his admission, he had well-marked hectic fever, with copious puriform expectoration, and appeared very much emaciated. The right clavicle sounded pretty clear, but under the left clavicle there was well-marked dullness, with a full mucous r le approaching to gargouillement and pectoriloquy. The two latter symptoms became much more decided in about a week after his admission, and I accordingly marked on his card "Phthisis Senilis." The only other circumstance connected with the history of his case which deserves attention, was, that he laboured under constant costiveness, which continued up to the period of his death, his bowels never yielding except when he used purgative medicines.

It is unnecessary for me to enter into a detail of the remedies employed

to alleviate his symptoms—the only duty which remains for the physician under such circumstances; I shall therefore content myself with noticing the phenomena observed on dissection, with one or two particulars which seem to demand a brief observation. You will recollect that this man exhibited, for several weeks before his death, unequivocal signs of a large cavity in the left lung, and that latterly the right lung also had become dull on percussion, and that the stethoscopic phenomena indicated the formation of a new cavity at its upper portion. Here are the lungs; the left, you perceive, is larger than the right, and exhibits a marked depression at its upper portion, where the phthisical cavity is situated. You perceive also, that the pleura investing it is very much thickened, and very rough on its surface; this appearance was in consequence of its intimate and universal adhesion to the corresponding pleura costalis, from which it was separated with considerable difficulty. You perceive that the right lung is rather smaller than the left; the left, being rendered more extensively solid by disease, has become incapable of collapsing after death to the same extent. We shall now make a section of the lung, to show the extent of the cavity. Here is the cavity; you perceive that it is nearly large enough to contain a small orange, and that its walls are lined with a firm semi-cartilaginous membrane. At the upper and internal part there is a small opening, which seems to be the commencement of a fistulous passage, a very common occurrence in cases of phthisis senilis; I shall introduce a probe and lay it open. Here is the track of this fistulous opening, and you perceive it terminates in one of the large ramifications of the left bronchus. You may perceive, also, that the section I have made displays masses of small granular tubercles in the upper and anterior portion of the lung, quite different in size and appearance from the large tubercles seen in the child and adult. I shall now make a section of the right lung. It is much more natural in its feel and appearance than the left, but still in all chronic cases of phthisis we seldom have the disease limited to a single lung. Here you perceive are a few patches of granular tubercles, looking as if they were infiltrated into the substance of the lung, and not surrounded as the large tubercles of the adult and child are, by vascular condensed pulmonary tissue. Here, you see, I have cut into a small cavity; from its contents and appearance, you can judge that it is of comparatively recent formation; it has no semi-cartilaginous lining, and is of very inconsiderable size. You perceive, also, that it communicates freely with a pretty large sized bronchial tube, and contains a quantity of muco-purulent secretion.

With respect to the state of the viscera of the abdomen, I may observe, that with the exception of some portions of the intestinal tube, which I am about to show you, they presented nothing very remarkable. The liver and kidneys were found to be of the natural size, somewhat indurated, and very friable, and the spleen exhibited several small tubercular spots on its surface. Here are the stomach and the duodenum, which you perceive retain their normal appearance; and the same remark is to be made of the colon and rectum. In the cæcum, however, which you see here, and here also in the ilcum, there are several ulcerated patches of an oval form, and corresponding to the situation of the glands of Peyer. In some places you perceive the ulcers have destroyed not only the mucous membrane, but also the muscular coat of the intestine, and have very nearly produced perforation.

A most important inference may be drawn from this fact. Here we have several ulcers destroying the mucous coat of the intestine, and eating their way through its muscular tissue, so that the only barrier left to prevent an effusion of the intestinal contents into the cavity of the peritoneum, is a thin layer of serous membrane. Yet, during the whole time he remained in the hospital, his bowels were so obstinately costive, that we were obliged to give him purgative medicine every second or third day, to procure an evacuation. You would suppose, *à priori*, that a man, in whom ulceration of the bowels existed, would suffer considerably from pain, griping, and tympanitis, and that he would labour under the diarrhœa so frequently observed in the advanced stage of phthisis. Our predecessors entertained a notion that the diarrhœa of phthisis is a species of internal sweating; they observed, that when the patient ceased perspiring from the skin, he was generally attacked with a watery diarrhœa, and hence they termed the diarrhœa, *colliquative*. Afterwards it was found, on numerous examinations, that where this diarrhœa had existed, there was in most cases ulceration of the bowels; hence pathologists began to believe that this ulceration had a great deal to do with the intestinal symptoms observed towards the termination of phthisis, referring to it the abdominal pain and tenderness, the unmanageable character of the diarrhœa, and the aggravation of the hectic symptoms.

Now it strikes me that this mode of accounting for these symptoms was, perhaps, too hastily adopted. No doubt ulceration of the bowels may produce all the symptoms detailed; but, on the other hand, it may exist to a very remarkable extent, and yet produce no symptoms by which it could be recognised. Here was a patient who never had the slightest tendency to diarrhœa, who never complained of pain, griping, flatulencé, or abdominal tenderness; on the contrary, his bowels were not merely slow, but even confirmedly costive, and he always felt more or less relief from the use of purgative medicine. None of us ever suspected that any thing like ulceration existed; we gave him a full dose of castor oil every second day, which produced one rather scanty evacuation, and yet when we come to examine his intestines, we find numerous patches of ulceration. This case is calculated to make a deep impression on every reflecting mind; in a practical point of view, it is of great importance. If the scrofulous disease had in this case been entirely limited to the bowels, and had not touched the lung, the great probability is that it would have been almost wholly latent; that the man would have taken no notice of it, would have thought himself well, and eaten, drunk, and worked as usual; that the disease would have gone on stealthily committing its ravages, and that one of the first symptoms of danger would have been the occurrence of perforation, followed by universal and fatal peritonitis. The question would then be as to the cause of death. The pathologist would open the body, and find at once that the cause of the whole mischief was ulceration of the intestines; but he would be mortified to think that the work of destruction had gone on silently and unobserved, and that it could not be recognised until a new disease appeared, under which the patient sank. I have read of more than one case in which a person killed by accident was found to have large ulcerated patches in the ileum, and yet had not been known during life to complain of any intestinal symptoms. In one case, a strong and apparently healthy Lascar, who had eaten heartily an hour before he was killed, and whose digestion was,

according to his friends' account, unaffected by any morbid derangement, presented, on examination, a number of deep ulcers in the ileum, which would in all probability have ended in perforation and peritonitis in the course of a few days.

At the conclusion of this lecture I intend to speak of hoarseness and chronic laryngitis, and shall most probably return to this interesting topic again. At present I shall detain you for a few moments with a brief outline of a case of total loss of voice, which I have recently witnessed, and which is in itself so singular, that I make no apology for giving it.

Before I mention this case, allow me to observe that loss of speech arises sometimes from lesions of apparently a very trifling character. A person may totally lose his speech without any previously existing or premonitory symptoms indicative of nervous lesion—without having experienced any sensation of pain or vertigo, any noise in the ears, any indications of determination to the head—in fact, without any thing to show that the aphonia was connected with any particular state of the brain. Thus, a barrister, whom I attended with Dr. Beatty, was walking up and down the hall of the Four Courts, waiting for a case to come on, and chatting with one friend and another: as the hall was rather crowded and hot, he went out into the area of the courts for the sake of the air, and had not remained there more than ten minutes when an old friend from the country came up and spoke to him. He was pleased to see his friend, and wished to inquire about his family, when he found, to his great surprise, that he could not utter a single audible sound; he had completely lost his voice. He recovered the use of his tongue in about three weeks, but not completely, for some slowness of speech remained. When the loss of speech was first perceived, his friend brought him home in a carriage; and during the day he had several attacks of vertigo, and afterwards hemiplegia. For several hours, however, before distortion of the face or any of the usual symptoms of paralysis had commenced, the only existing symptom was loss of speech. This gentleman died of apoplexy in about two months.

In many cases of paralysis you will find that, although the patients have lost the power of utterance, yet the motions of the tongue appear to be nowise deranged. In the majority of cases it can be shortened, elongated, raised, depressed, or moved from side to side, with as much apparent facility as in a state of health; and yet the voice is in some instances very much impaired—in others, totally lost. In such cases it would appear that the defect lies in the glottis, which forms and modulates the voice, and not in the tongue or lips, which divide and articulate it. Indeed, this is evident to any one who observes the interrupted and spasmodic efforts which paralytic persons make when speaking; they are, in fact, all stutterers.

But to return to the case to which I have alluded. A young gentleman of delicate constitution, and who is now about sixteen years of age, continued to enjoy tolerably good health up to his sixth year. When about six years of age, he went to bed one night in health and without any unusual symptom, but on getting up in the morning it was observed that he had lost his speech, and was unable to articulate a single word. His family became alarmed, and sent for a physician immediately; the boy got some internal medicine and a stimulant gargle, and recovered his speech in a few days, without the occurrence of any symptom of laryngeal

inflammation or cerebral disease. But what was remarkable in the case was this: the boy, who up to this period had spoken well and distinctly, now got a terrible stutter. This resisted all kinds of treatment, and for ten years he continued to stammer in the most distressing way, and was so annoyed by it himself that, when a boy, he used to stamp on the ground with vexation whenever he failed in uttering what he wished to express. In the month of May last he got an attack of chronic laryngitis of a scrofulous character, and evidently the precursor of phthisis. Indeed, he is at present labouring under phthisis; Dr. Stokes and I have examined him, and we feel convinced that tubercular deposition is going on in the lungs. But what is most curious in the case is this: after he got the laryngitis, a very peculiar change took place; the laryngeal inflammation modified the tone of his voice so as to make it a little husky, but *the stammering has completely ceased.*

You are aware that stammering has been explained as depending on spasm of the muscles which are employed in modifying the column of air as it rushes through the narrow aperture of the glottis. At certain times, and under a variety of circumstances, those fine muscular organs become spasmodically affected, the vocal chords no longer undergo the same steady and exact tension and relaxation, and speech becomes interrupted in consequence of frequently-recurring closure of the glottis. With respect to this disease, I would beg leave to refer you to a very excellent chapter in Dr. Arnott's work on the Elements of Physic, vol. i. p. 644.

In the case to which I have referred, inflammation taking place in the mucous membrane covering these delicate muscular fibres, you can conceive that either the thickening of the mucous membrane, or the alteration in the state of its vitality, may have so modified the disposition of the parts, that they become incapable or indisposed to undergo those rapid contractions necessary to produce stammering, by inducing closure of the glottis at the moment that its aperture ought to remain open. The case itself, however, is an extremely curious one, and I do not believe that there is any similar one on record. Every thing which bears on the cure of so important a disease as stammering, even though it be accidental, and not the result of medical care and ingenuity, is of great value, inasmuch as it tends to place the causes of the disease in a clearer light. In this point of view I look upon the case as one of very great interest.

I shall conclude this lecture with a few detached observations on hoarseness, or loss of voice, from sore throat or slight laryngeal inflammation—a form of disease which is now very prevalent.

A form of hoarseness is frequently observed in growing boys or girls, which assumes a very chronic character, and often resists for a long time almost every form of treatment. A boy gets cold, followed by sore throat and feverish symptoms, which may last for a few days, and then disappear under the use of aperient medicines, or perhaps without any interference on the part of the parents or the physicians. The feverishness and soreness of throat subside, but the hoarseness remains, and the boy can speak only in whispers. This condition may last for weeks, and even months, without any other symptoms whatever; the patient has no cough or difficulty of breathing; his appetite is good, sleep and digestion natural, and there is no appearance of emaciation. The only thing amiss with him is the impairment of voice, and this continues so long that it gives rise to a considerable degree of anxiety on the part of his parents. When you exa-

mine the fauces, you find no appearance of inflammation in the mucous membrane, and there is no superficial or deep-seated tenderness in the region of the larynx. How are you to treat this form of disease? It depends on a relaxed and weakened state of the chordæ vocales, and perhaps the muscles of the larynx—the result of inflammation of an exceedingly chronic character—and will not be benefitted by leeches, or antiphlogistics, or low diet. The best thing you can do in such a case is to have recourse to the use of strong stimulant gargles. You begin with a drachm of the tincture of capsicum in six ounces of decoction of bark, which is to be used five or six times a-day. After some time you can increase the quantity of tincture of capsicum, but you never need go farther than half an ounce in a six-ounce mixture. In the next place, you will have recourse to frictions over the region of the larynx and external fauces with croton oil, which is much better adapted for such cases than tartar-emetic ointment. The eruption produced by tartar-emetic ointment is productive of a great deal of annoyance, and when the pustules break they prevent the boy from wearing his neckcloth. All the purposes of a counter-irritant are quite as well fulfilled by croton oil, and with much less inconvenience. The best form for using it is the following:—

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Olei crotonis tiglii, M. xx.

Of this mixture a small quantity, say a couple of drachms, should be poured into a saucer, and rubbed over the fore part of the neck night and morning, until a full crop of pimples appears. When these have dried up and desquamated, it should be again applied, and in this way a mild and manageable, but very effectual, degree of counter-irritation can be kept up for any length of time. In addition to these measures (should the disease continue), I would strongly recommend small doses of iodine, and change of air. I have been induced to give iodine in such cases from observing that inflammation of a chronic character seems to have many points of resemblance to that which arises from scrofula. The last thing which I have to observe on this form of hoarseness is, that you should, particularly in the beginning, insist on the observance of strict silence—a point which is said to be exceedingly hard to be attained where the patient happens to be a female. In some cases all these means fail, and then something more energetic must be attempted. The inhalation of the vapour arising from tincture of iodine and tincture of conium, added to hot water in a proper apparatus, has proved useful to some; but in all obstinate cases the sheet-anchor is mercury exhibited internally, and by means of inhaling the fumes of hydrargyrum cum cretâ. In general, it is necessary to continue the mercurials until the mouth is slightly touched, when the hoarseness will be found to yield. It is obvious that, before we employ mercury in a case of chronic hoarseness, we must feel well assured that we have not to deal with a hoarseness arising from a phthisical tendency, for in this case mercury would prove injurious to the constitution. In such cases the stethoscope and percussion often afford valuable assistance, by showing that although the patient has had a hoarseness and cough for weeks, or even months, yet there are no symptoms of tubercular development in the lungs. The cough is only the result of laryngeal inflammation or irritation; the submaxillary glands and the amygdalæ are often slightly enlarged, the fauces are red, and the back of the pharynx is covered with irregular superficial

excoriations. Connected with the subject of sore throat is the discovery, lately announced by Velpeau, of the use of alum in powder in acute cyanche tonsillaris. He states that this powder, applied by means of the finger to the fauces and inflamed parts, exercises a wonderful effect. The symptoms, says Velpeau, are stopped as if by enchantment, the fever diminishes, the redness and tumefaction of the inflamed parts subside, the appetite returns, and convalescence is speedily established. This application is successful at any period before suppuration has been established. Alum has long since been applied in substance to the throat, in cases of angina maligna, and in chronic sore throat; but, before Velpeau, no practitioner ever dreamed of making use of alum as a local application during the first stages of acute cyanche tonsillaris. By the way, this use of alum is calculated to throw some light on the good effects which this substance exerts, when taken in large doses, in cases of violent pain in the stomach arising from indigestion, recommended by Dr. Griffin, of Limerick.

LECTURE XLIV.

AMAUROSIS—Acetate of lead in Asiatic cholera—Remarkable mobility of sternum.

THERE is at present in the hospital, a man whose case has been marked imperfect or (to use a better phrase) incomplete amaurosis. He has been complaining at different times during the past year, and for the last six months his vision has been very weak, with the exception of occasional intermissions. He can perceive objects tolerably well with the right eye, but scarcely at all with the left, and in both vision is more or less dim and imperfect.

On examining this man's eyes, you cannot discover in either of them the slightest perceptible defect as an optical instrument. The deficiency of vision, therefore, does not depend on opacity of the cornea, on disease of the lens or its capsule, or on any affection of the aqueous or vitreous humours; it is simply an impairment of the vitality of the organ, connected with functional disease of the retina. Having thus satisfied ourselves as to the seat and nature of the disease, we come next to inquire into its cause and origin. From a careful examination of the man's state of health, we can have no doubt on our minds as to whether the amaurosis in this case has been produced by derangement of the stomach or not. You are all aware that the celebrated Richter has long since shown, that functional disease of the retina is often connected with a deranged state of the alimentary canal, and that it may be treated successfully with emetics and purgatives. Here, however, we have no evidence of the existence of congestion or derangement of the stomach and bowels. The man's appetite is good, his bowels regular, and his health robust. But when we come to examine the head, we find evidence of cerebral congestion sufficient to account for the functional lesion of the optic nerve. Our patient has been a long time complaining, at different periods, of a sense of fulness in the head, and is subject to attacks of vertigo while walking, causing him to stumble occasionally, and labour under frequent apprehensions of falling down in the street. He prefers walking along

the middle of the street to either side, and says that he is always worse when he attempts to walk along the flagway. This is an ordinary symptom observed among persons who have a tendency to vertigo; they are frequently made worse by the operation of causes in themselves apparently inconsequential, and the nature of which we cannot well understand. You are aware that, in many persons, the act of looking for any length of time at objects moving rapidly in a straight line, and still more in a circle, has a tendency to produce giddiness. Thus, looking out of the window of a steam-carriage on the objects apparently moving backwards with great velocity, or looking over a bridge at the current of a rapid river, or gazing at a person whirled round in a gyrating swing, is very apt to give rise to vertigo. Again, persons labouring under a morbid sensibility of the brain, very often become giddy from looking at a succession of objects moving with much less rapidity. Hence you will find such persons made giddy by walking through a crowded city, and having a number of persons pass by them on the flagway, and they seek for an opportunity of getting into the middle of the street, to avoid meeting so many objects. I knew a person who could never pass by a line of railing with any degree of comfort; if he happened to look at them as he moved by, he became almost immediately vertiginous. Giddiness is also generally produced by looking down from a great height, in a vertical direction, or by looking upwards, provided the object be immediately overhead, and at a great distance. Under these circumstances, most persons experience a feeling of vertigo, no matter what their position may be at the time. There seems to be little doubt that the sensation of giddiness does not depend merely on the distance or position of the object looked at. It would appear that, in general, some continuous communication must exist between that object and the spectator. Thus we feel giddy when we look down from a precipice at something below, or when standing beneath the dome of St. Peter's or St. Paul's we regard with attention the vaulted structure above; but we do not feel giddy when we look down from a balloon, or look upwards at the moon or stars near the zenith. It has not been sufficiently remarked by writers, that persons subject to vertigo are often almost as much affected by looking upwards as by looking downwards. Persons who are inclined to vertigo, will also become giddy by directing the eye with a fixed attention for any length of time to the one object,—such as continuing to look in a straight line, or endeavouring to direct the course of their movements along a plank of narrow pathway. These circumstances are all very difficult to explain, and I bring them forward merely as illustrating the fact of this man's preference for walking in the middle of the street.

In this man, as you may have perceived, we had several circumstances calculated to direct our attention to the state of the brain as connected with the impairment of vision; besides vertigo, and a tendency to stumble in walking, he had flashes of light before his eyes, and other luminous hallucinations, with *tiinnitus aurium* on one side. With respect to the flashes of light before the eyes, I may observe, that they may be produced by the operation of various causes; a blow or pressure on the eye will cause them; they may arise also from a particular state of the arteries which supply the optic nerve, and thus at each pulsation of the heart a flash of light is seen. This morbid sensibility of the retina, which, under such circumstances, appears to be itself the source of light, is very often a

symptom which ushers in the extinction of the visual power. It is a very general remark, that hypersensibility of an organ is but too often the prelude to total loss of its functions. Thus we frequently have a morbidly sensitive state of the eye before it becomes incurably amaurotic, a morbid sensibility of the ear, ushering in loss of hearing, and unnatural excitement of the sense of touch preceding paralysis. But in this case we have not only an irritable condition of the retina, but also an affection of the pupil; the iris is sluggish in its motions, and this symptom occurring at this particular period, combined with the vertigo, luminous hallucinations, and gradual but steady progress of the disease, give us some reasons to apprehend that it will end in complete amaurosis. Seeing, however, that the symptoms have originated in a congested state of the brain, it is our duty, as far as possible, to check its progress. This is to be done by cupping over the nape of the neck, leeching the temples and behind the ears, and acting on the bowels by brisk purgatives. With the same view I intend to insert a seton in the nape of his neck, and to administer the nitrate of silver internally, combined with a small quantity of aloes, a remedy which is possessed of some valuable properties in the treatment of chronic congestion of the brain, whether tending to produce amaurosis or headache.

With respect to the causes of amaurosis, I may observe, that they depend either on disease of the brain, as congestion, inflammation, the presence of tumours of various kinds, or on injuries of the retina itself, or of the supra and infra orbital branches of the fifth nerve, or on affections of the alimentary canal. All these matters, however, have been so well detailed in different articles on amaurosis, to which I refer you, that I shall pass over them at present, and close my notice of this case with a few desultory remarks. I believe I mentioned in a former lecture, that I had seen a very curious case of amaurosis, in which the cause of the disease seemed to be connected with an impression made by cold on the facial branches of the fifth nerve. I have already taught the class, that paralysis of any part of the body may arise from an oppression made not only on its own nerves, but also on the peripheral extremities of the nerves of another and even a distant part. I have also remarked that the fifth nerve is connected with the nerves of all the senses, but in particular with the optic, and hence we can explain why injuries of its supra and infra-orbital branches may bring on amaurosis. In the case to which I refer, the patient was exposed, while travelling outside on a stage-coach, to a keen north-easterly wind, and, when he arrived in Dublin, his lips were very much chopped, and the skin of his face bore evident marks of the cold, and drying powers of the wind. Soon afterwards, he began to complain of dimness of vision, and a thin gauze veil seemed to be extended between him and every object he looked at. After five or six days, when he applied to me, I found a considerable degree of amaurosis present, and at the distance of a few feet he was unable to recognise the countenance of a friend. He had no headache, vertigo, or tinnitus aurium; in fact, nothing to indicate cerebral congestion, and his appetite was good, sleep undisturbed, bowels regular. He had never thought himself, nor did a medical gentleman, to whom he had applied, ever suspect, that the impression of cold on the face had produced the amaurosis, and he said that he had been advised to get himself leeches and cupped over the back of the neck. On examining into the cause of his disease, and having

found that he had been exposed to severe cold, it occurred to me that the amaurosis might be connected with the impression made by cold on the superficial branches of the fifth nerve, and, on more accurate investigation, I found that there were some grounds for this opinion. I was further confirmed in this view of the subject by the details of a case communicated to me by my friend, Dr. Montgomery, in which the patient evidently got paralysis of the portio dura from exposure of one side of the face to cold. Of course this paralysis was attended with distortion of countenance, in consequence of many of the muscles of the face depending on the portio dura for their supply of nervous energy. But what was particularly remarkable in this case, was, that vision on the affected side of the face became dim and indistinct. Now, can this be explained? Yes, very easily. You all know that the branches of the portio dura have an extensive communication with the supra and infra orbital branches of the fifth. Now, the paralysis which commenced in the portio dura gradually extended to the branches of the fifth, and through them to the optic nerve, with which the fifth is intimately connected, and hence it was the retina became finally deranged in its function, and dimness was produced.

There is one circumstance more to which, as I am on the subject of amaurosis, I shall briefly call your attention. You will recollect the case of a boy whom we have had very recently under treatment for amaurosis, and may perhaps remember that one of the remarkable points in his case was this:—when he looked straight forward he did not see any thing in the direction to which his eyes were turned, but he could see the objects that were considerably below, or to either side of, the axis of vision. There are two or three circumstances under which a person cannot see an object by looking directly at it, and I wish to state these circumstances. In the first place, it may happen that an opaque spot may be situated on the centre of the cornea and directly in the axis of vision, as we sometimes see in cases of scrofulous ulceration, followed by permanent opacity of the cornea. Now, in this case it is plain that the person cannot see objects placed directly before him and in the axis of vision. The second case is one where the patient cannot see objects directly before him, but can distinguish them tolerably well at a certain angle of obliquity, the cornea being perfectly clear and uninjured in its texture. Now, this may arise from an opacity of the lens, limited to its centre, and not generally diffused through its substance. The lens is a compound body, the structure of which was, until very lately, but little known. When the lens or its capsule is affected with opacity, this opacity is not always equally diffused, but sometimes occupies the central portions of these organs, while the circumferential portions retain their transparency. Hence, when a person under such circumstances wishes to see an object, it is necessary that the rays of light should fall obliquely in order to reach the retina. A third case is, where, although the cornea and crystalline lens are in the natural state, still the patient sees objects a little removed from the axis of vision much better than those which are in it, as in the case to which I have just alluded, where the patient could scarcely distinguish any object placed directly before him, but could see tolerably well objects at either side of, or below, the direct line. The reason of this appears to be, that when a person so circumstanced looks directly at an object, the picture of the object falls on a part of the retina not obedient to the sti-

mulus of light. In the process of ordinary vision the parts around the axis, and corresponding to the field of vision, have the picture of the object looked at, painted on them, and vividly and strongly illuminated. The central portion of the retina bears on it the picture of the object which the mind attends to, for it is surprising how indistinct and how little attended to, any object seen obliquely is. Now, where disease has rendered this central portion of the retina insensible to light, then the attention is immediately turned, with a greater degree of intensity, to the sensations derived from the surrounding portions, and the patient is enabled, so long as this portion retains its sensibility, to enjoy the sight of objects placed obliquely and not in the axis of vision. Even in healthy eyes the non-central portions of the retina may be rendered available in particular cases. This has been proved by Brewster, Herschel, and others. In looking, for instance, at a star of the smallest magnitude, it vanishes from the sight and is lost when looked at directly, but, if you turn a little from it, it will still catch the eye and be visible, because the image of the star will now fall on a part of the retina which is generally in darkness, and which is more sensible from being unaccustomed to the glare of light. Hence in many cases of amaurosis it is not unusual to find that the patient retains the power of vision so far as regards objects placed at an oblique angle with the axis of the eye after direct vision has been all but extinguished. This is all I have to say at present with respect to amaurosis.

As there is no other case presenting peculiarities to which I might call your attention, I shall beg leave to occupy your time for the remaining part of our lecture hour with a detail of the circumstances under which I have been led to employ the acetate of lead in Asiatic cholera, and to communicate briefly the mode of its administration and the results which attended its use. You are aware that during this epidemic, which commenced its fearful career in Dublin in the spring of 1832, the modes of treatment principally relied on were, bleeding in violent spasmodic cases, emetics of ipecacuanha and mustard, the application of heat externally, and internally stimulants, but above all, calomel, not in small but in large and frequently-repeated doses, either alone or combined with opium. I need not tell you that the mercurial treatment came to us sanctioned by high authority: it was a remedy to which the experience of Indian practitioners had given a high character, but in our hands, I must say, it proved of very little value. Be this as it may, I must say that I had reason to be dissatisfied with this mode of treatment; I had tried it myself, and had seen it tried in every way which ingenuity or experience could suggest, but I had seen it fail almost in every instance.

About the middle of last summer the epidemic began to spread fearfully among those who had hitherto been exempt from its attacks; many persons in respectable life were seized, and my private practice afforded numerous opportunities of becoming practically acquainted with the disease. In several cases to which I was called in, the malady had not advanced to the stage of collapse, the symptoms of cholera, properly so called, had merely commenced, the intensity of the disease was still far away, and a fair chance was afforded for the operation of therapeutic agents. In most instances, I tried calomel and all the ordinary remedies with profitless results; my treatment proved too often ineffectual; and some persons, whose lives I highly valued, perished in spite of all my efforts, leaving me grieved for their loss, and mortified by my own want

of success. I found that I could no longer place any confidence in calomel, and determined, in my own mind, to give up a remedy which had so signally failed; it was, however, a question of deep anxiety to me what I should select instead, or to what article in the *Materia Medica* I should have recourse, where so many had proved utterly valueless.

About this period I happened to be called on to attend a case of obstinate diarrhœa with my friend Dr. Hunt. The case was an extremely harassing one, and had resisted all the ordinary remedies. I advised the use of acetate of lead and opium in full doses; this was given, and I had the satisfaction of finding that the diarrhœa soon yielded. Before this period I had received a letter from that able practitioner and excellent man, Dr. Bardsley, of Manchester, directing my attention to the use of acetate of lead in large doses in that form of diarrhœa which occurs towards the termination of long fevers, that is to say, the diarrhœa which precedes and accompanies inflammation of the glands of the small intestines. I had subsequently, at Sir P. Dun's Hospital, several opportunities of witnessing the truth of Dr. Bardsley's remarks. I saw that, in many cases during the course of fever, where the patient was low and prostrated, symptoms of intestinal congestion came on, followed by diarrhœa, which many persons thought would end in ulceration of the glands of Peyer; and I found that in such cases the acetate of lead was the only remedy that could be relied on. I observed, too, that, contrary to the prevailing opinion on the subject, it could be given in large doses with perfect safety. You are aware that Dr. Bardsley has shown that it may be given to children in very considerable doses without any bad effects, and that in adults he has pushed this remedy to the extent of twenty or thirty grains in the day, without any unfavourable consequences.

With these impressions I came to the resolution of trying the acetate of lead in the next case of cholera which offered a chance of deriving benefit from any kind of treatment. It is known that there are some cases in which the disease at once assumes so frightful a malignity, that the patient is lost from the very moment of his seizure. This hopeless and intractable malignity is not peculiar to cholera; it is seen in fever, scarlatina, croup, measles, and hydrocephalus; in fact, there are certain forms of all diseases in which the best-directed efforts of medical skill not only fail in curing the disease, but even in retarding its progress. But there are cases of cholera where the patient is not struck down at once, where the disease is not developed at once in all its awful intensity, and where time, brief though the space may be, is allowed for the play of therapeutic agencies. It is in such cases the acetate of lead may be given with some prospect of success, and it is by such cases alone, and not by those which are necessarily fatal *ab initio*, that its value is to be tested.

Before we proceed further, I may observe, that the principle on which the calomel treatment was employed in cholera arose from almost constantly observing that there was a total deficiency of bile in the stools. Soon after the supervention of an attack, the alvine discharges were observed to be white and without the slightest tinge of bile; and on this very remarkable symptom practitioners dwell almost exclusively, thinking that the patient's only chance lay in restoring the secretion of the liver. Now it is obvious that the absence of bile in the stools is no more a cause of the disease than is the deficiency of urea in the kidneys or of serum in the blood. Viewing the disease in this light, it would be just as reasonable

to give a diuretic to restore the secretion of the kidneys, as to give calomel to produce a flow of bile. The liver ceases to secrete, not only in consequence of the injury done to its vitality by the proximate cause of cholera, whatever that may be, but also from a mechanical cause, namely, from a diminution in its supply of blood. It may appear strange that when the same given number of vessels go to the liver and come from it at all times, that the quantity of blood circulating in it should be greater at one time than another. I have not time at present to enter fully into this subject; but it is a fact admitting of sufficient proof, that the quantity of blood circulating in any organ is very much modified by the state of its capillaries. The quantity of blood also which goes to a gland varies according to the peculiar state of that gland, being greater during its period of active secretion than when it is at rest. But in a case of cholera, where the capillary vessels of the intestinal canal from the stomach and the rectum are actively engaged in taking up the serum from the whole mass of blood, and pouring it into the cavity of the digestive tube, there is an enormous drainage from the system, and there must be, consequently, a deficiency of blood somewhere. Now it would appear that a quantity of blood, sufficient for the purposes of secretion, is abstracted, not only from the biliary, but also from the urinary system; and hence it appears just as reasonable to give diuretics to restore the urinary secretion, as to give calomel to excite the secretion of the liver. It would be, *à priori*, as original a mode of treatment, and be equally as successful. I have therefore no hesitation in saying, that the calomel treatment has no claim to merit on the ground of theory, and, as far as I have observed of it in this country, it seems to be of no practical value in the treatment of cholera.

With regard to the quantity of acetate of lead which may be given in this disease, and the mode of administering it, a few words are necessary. I have already stated, that when I first tried it, I prescribed it in large doses, fortified by the authority of Dr. Bardsley, and by my own experience of its utility in many cases of diarrhœa. It appears, that before I recommended the acetate of lead, it had been used at the Cholera Hospital in Grangegorman-lane. Of this I was not aware, until a book was subsequently published by Dr. Cranfield, which I afterwards reviewed in the *Dublin Medical Journal*, and I feel that on that occasion I did fair and impartial justice to its merits. I certainly did not know that the acetate of lead had been given at the Grangegorman Hospital; for, in the very able report of cholera, as observed at that institution, published by one of its officers, Mr. M'Coy, the treatment relied upon appears to have been the mercurial, and not a word was said of acetate of lead. It had certainly been used there by one physician; but it was given in smaller doses, insufficient to produce decided effects, and no stress had been laid on its value as a remedy in cholera by the practitioners attached to the hospital. Be this as it may, acetate of lead was not known to the medical men of Dublin, and to the practising apothecaries, before I recommended it. It had been frequently employed in the form of injection by them; but no one had given it in large doses by the mouth, or introduced it to the particular notice of the profession. I believe I can fairly claim the merit, such as it is, of being the first to give it in large and effectual doses. The mode in which I prescribed was this:—a scruple of the acetate of lead, combined with a grain of opium, was divided into twelve pills, and of these, one was given every half-

hour, until the rice-water discharges from the stomach and rectum began to diminish. In all cases where medicine promised any chance of relief, this remedy was attended with the very best effects. It gradually checked the serous discharges from the bowels, and stopped the vomiting. I need not say of what importance this is: as long as these exhausting discharges continue, as long as the serum of the entire body continues to be drained off by the intestinal exhalants, what hope can we entertain? What benefit can be expected from calomel and stimulants, when every function of the digestive mucous membrane seems to be totally extinguished, except that of exhalation, and while profuse discharges, occurring every five or ten minutes, are reducing the patient to a state of alarming prostration? Knowing the inevitable fatality of all cases where these discharges went on unchecked, I was happy in having discovered a remedy which seemed to possess more power in arresting them than any yet devised, and this impression was confirmed by the results of subsequent experience. That the acetate of lead will succeed where all other astringents fail, was proved by the case of Mr. Parr, of this hospital. Having got an attack of threatening diarrhœa, at a time when cholera was prevailing in Dublin, this gentleman used various kinds of astringents, and took so large a quantity of opiates, that he became quite narcotized, but without any relief to his symptoms. When I saw him he was as bad as ever, and was beginning to exhibit appearances of collapse. I advised the use of pills, composed of acetate of lead and opium, in the proportions already mentioned, and had the satisfaction of finding that before night the diarrhœa had ceased. The pills are to be used one every half-hour while the diarrhœa remains unchecked, but as it begins to diminish, the intervals between each pill may be prolonged, and in this way the patient may be gradually prepared for leaving off the remedy altogether. I have frequently given in this way as much as forty grains of acetate of lead in twenty-four hours, with great advantage to the patient, and without any bad consequences ensuing.

It is unnecessary for me to say any more on this subject; if I chose to mention names, I could bring forward the names of many medical men in Dublin, whose lives, I am happy to state, were saved by the use of this remedy. I may, however, observe, that this mode of treatment has now become universal here, and that it has almost completely superseded the use of calomel and opium. I will confess that this fact is a source of high gratification to me, and I point also with pleasure to the fact, that since it became extensively known (as it did during the last invasion of the epidemic), the profession has gained more credit than before, and the number of cures has been proportionally greater.

I have referred to this subject also for another reason. I feel it a duty which I owe myself, to defend myself against a series of attacks which were made on me, and to vindicate my claims, not to having been the first to administer acetate of lead, for it had been given previously by Dupuytren, and at the Grangegorman Cholera Hospital, but to having been the first to prescribe it in large and sufficient doses, to render it an available and useful remedy, and to introduce it to the general notice of the profession. The credit to which I lay claim, rests solely on these grounds. I have been attacked on more than one occasion in the public papers, and gentlemen signing themselves *Honestas*, *Candidus*, and *Verax* (*per antiphrasin*, I suppose, for they have shown neither honesty, candour,

nor truth), have attempted to rob me of the merit of what they sneeringly called the lead treatment. I have thought it necessary to say so much in the way of explanation, lest any of my friends or pupils should misinterpret my silence.*

The following case of remarkable mobility of the sternum was observed by Dr. Stokes and myself. A medical student, nineteen years of age, and of a sanguineous temperament, who had often been attacked by violent pectoral inflammation, particularly a few years ago, but who had since become comparatively healthy and robust, applied to me for advice concerning a pain in his chest. This happened after lecture in Sir P. Dun's Hospital, in the presence of several of the students and Dr. Law, who saw with astonishment this young man open his shirt, and with his hand push the sternum deep inwards towards the spine, so as to convert the anterior part of the chest into an extensive and by no means shallow cavity, at the bottom of which was the sternum. The rapidity with which this was effected, and the unnatural appearance the chest then presented, excited a most disagreeable feeling of alarm in the minds of the spectators; for we could not avoid dreading that he was inflicting on himself some serious injury.

The portion of the chest which yielded in this singular manner to pressure, comprised the sternum from within two inches of its superior edge, and seemed below this point to be limited laterally by the lines answering to the junctions of the cartilaginous with the osseous portions of the ribs, so that the whole space capable of being pressed inwards was nearly triangular in shape, and was very extensive. The sternum was so tender to the touch, that in applying the pressure, he was obliged to press at some distance at each side of this bone. When the pressure was carried to the farthest point, the sternum was pushed in, as nearly as we could guess, about two inches, and the action of the heart, as well as that of the subjacent lung, appeared to be notably diminished, and, in consequence of this, the pulse was weakened. This young man was subject not only to constant pain in the sternum, but likewise to frequently-recurring violent palpitations of the heart. His chest was sufficiently ample and well formed, but he had lately become round-shouldered, in consequence of his seeking relief from pain by stooping forward. No other portion of his osseous system exhibited the least trace of softening. The only affection which I can call to mind the least resembling this, is the softening which sometimes affects the female pelvis, giving rise to great distortion, and which softening is accompanied, during the months or even years of its formation, by severe pelvic pains.

* While these pages were passing through the press, I received the following gratifying note from my friend Surgeon Auchinleck, of Dominick Street, which I have much pleasure in laying before the reader:—

“Dominick Street, September 6, 1842.

“DEAR GRAVES,—I have received lately a letter from my brother (Dr. Claudius Auchinleck), at present quartered at French Rocks, Seringapatam, in which he mentions that cholera had broken out among the native troops quartered there, and that he had recourse to the use of calomel and opium in large doses, to arrest its frightful progress, but that he found it totally inadequate. He therefore laid it aside, and adopted in its place the administration of the acetate of lead and opium, as recommended by you, and was much gratified by the favourable results, the mortality being greatly reduced, and finally, on the change of the moon, the disease itself disappearing. He requested that I should mention this fact to you, which I do with much pleasure. Very truly yours,

“WM. AUCHINLECK.

“Doctor Graves, Merrion Square.”

LECTURE XLV.

Case of phlebitis—Remarks on the symptoms and treatment of this disease—Pathology of phlegmasia dolens—Its treatment—Case of cancrum oris—Fatal termination—Remedies employed—Case of ague cake—Observations on the different varieties of ague—True ague, or intermitting fever—Ague produced by inflammation of internal organs—Nervous ague—Hysterical ague—Treatment of ague cake.

AMONG the cases at present under treatment in our wards, that of Mary M'Quade particularly demands your attention. This poor woman was admitted a few days since labouring under an attack of fever, accompanied by considerable prostration, anxiety, and restlessness; in addition to these symptoms, she has a local affection of a very important nature: the right leg, as far as the knee, is swelled to twice its natural size, and a large erysipelatous blotch occupies the fore part of the foot, extending over the ankles on each side. The thigh also is increased in size as far as its upper third, so that the tumefaction embraces more than two-thirds of the whole extremity. There is a considerable degree of tension present, and the limb, particularly along the internal surface as the leg, is extremely tender, the soreness being so great over the course of the veins and lymphatics, that she could not bear the slightest touch.

Here we had a swelling of the lower extremity depending on an inflammatory condition of the part, and the question is, in what tissue did it commence, and what are its characteristic features? Before we discuss this question, it may be proper to observe here that the disease had its origin from cold. When a patient is exposed to cold under unfavourable circumstances, local inflammation is generally the consequence, and it depends on a variety of causes of what description the inflammation will be, and on what particular part it will fall. Where the lower extremities are the parts chiefly exposed, inflammation of the cellular membrane of the leg is apt to ensue, or it may attack the veins, as in the case before us, constituting phlebitis, or the lymphatics may be primarily and almost exclusively engaged. In a few cases inflammation attacks the arteries of the limb, as in a case which has been published by Dr. Stokes and myself in the Dublin Hospital Report, where a person, after exposure of the lower extremities to cold, got an attack of arteritis, terminating in mortification of the limb and death. Exposure of the lower extremities to cold, gives rise to phlebitis much oftener than to arteritis. Dr. Stokes and I have published a striking case where inflammation of the veins of the leg was produced by this cause. You will find this case referred to by Dr. Lee, in the excellent article, *Phlegmasia Dolens*, in the Cyclopædia of Practical Medicine. You perceive, then, that painful swelling of the lower extremities originating in cold, may consist either in the whole cellular membrane being engaged, or it may arise from inflammation of the lymphatics of the veins, or of the arteries. Now when inflammation attacks in the first instance the subcutaneous tissue of the lower extremities, it frequently in its progress involves the lymphatic and venous tissues, the arterial very seldom, for the arteries lie deep, and have no connection with the subcutaneous cellular membrane. There is, however, nothing more common than that inflammation commencing in this way should terminate in phle-

bitis, and disease of the lymphatics. This appears to be the nature of phlegmasia dolens, that peculiar inflammation which generally attacks one, and seldom both, of the lower extremities, which is most commonly observed in females, and which is characterized by swelling not pitting on pressure, by excessive cutaneous tenderness, and by a remarkable whiteness of the skin of the affected limb, accompanied by increased heat, and more or less lesion of the locomotive function. These are the principal symptoms which characterize phlegmasia dolens. The inflammatory condition of the limb causes an exudation of fluid into the cellular membrane, consisting partly of serum and partly of lymph; this produces swelling which is of a firm and rather unyielding character, not pitting on pressure like that which results from anasarca. After some time the inflammation extends to the neighbouring tissues, and attacks the veins and lymphatics, a circumstance which has led many persons, among others Dr. Lee, to believe that phlegmasia dolens arises primarily from phlebitis. This, however, is not borne out by the fact, nor is it true that it consists in inflammation of the lymphatics, as others have suggested; it may engage both the lymphatic and venous tissues, but it differs in many points from pure phlebitis, or true inflammation of the lymphatics.

In the case before us it would appear that the inflammation commenced primarily in the veins, and by a careful examination you will be able to discover some essential points of difference between the disease and phlegmasia dolens. There is a good deal of soreness present in this case, but the exquisite neuralgic tenderness of phlegmasia dolens is wanting. Again, the shining appearance of phlegmasia dolens is absent, and the colour differs greatly from the dead whiteness observed in that disease. The tenderness also is here more localized, being chiefly complained of on the inside of the limb, and along the course of the veins and lymphatics. On the other hand, it may be observed that these affections have many symptoms in common, and you may have remarked that here, as in phlegmasia dolens, the locomotive power of the limb is considerably diminished. This, however, has been remedied, to a certain extent, by the curative means employed, and the patient is now able to raise up the whole limb, and bend the leg on the thigh. Now, whence arises this loss of power so often witnessed in cases of phlegmasia dolens, and phlebitis, and inflammation of the subcutaneous cellular tissue of the lower extremities? I am inclined to think it depends on a morbid impression made on the ultimate ramifications of the sentient nerves, which is propagated along the larger trunk to the spinal cord, and from thence by a reflex course is brought to bear and react on the muscular nerves of the limb. In my remarks on paraplegia, I have spoken of this matter at large, and given several instances of loss of power in a limb, produced by impressions made on the extremities of its cutaneous nerves; and such appears to be the lesion of the locomotive power observed so frequently in cases of phlebitis and phlegmasia dolens. In many cases of paralysis, we find the first stage of the disease attended with an increased sensibility of the nerves of the part affected, tending to show that the primary source of the disease consists in an impression made on the sentient extremities of the nerves; and there is nothing more common in such cases than to find the loss of the motor power accompanied by deranged sensation. In phlegmasia dolens and phlebitis, we have great cutaneous tenderness, and this is very rapidly followed by more or less diminution of the muscular power of the limb.

I shall now refer briefly to the curative means employed in this case, observing that it has this in common with many cases of phlegmasia dolens, viz., the inflammation has engaged in succession the cellular membrane, veins, and lymphatics. When the lymphatics are attacked with inflammation, they become swelled, and have a knotty cord-like feel, and this condition is most commonly attended with the appearance of erysipelatous patches on various parts of the limb, over the place where a number of lymphatics are simultaneously engaged. This appears to be the case in the present instance, and it explains the occurrence of the erysipelatous blush which covers the instep and ankle. I need not tell you that the appearance of erysipelas over any part of a limb so circumstanced, strongly demands our attention, as it might be an indication of the seat of an injury which may have given rise to the disease. In this case, however, it was the product of the disease, and had no connection with its origin. The treatment of a case of this description cannot be conducted on strict antiphlogistic principles. The fever which accompanies venous inflammation is of a low typhoid character, and prostration sets in at a very early period. The intimate connection of the venous system with the whole economy, the peculiar character of the inflammation affecting the venous tissue, and the rapid prostration of strength which ensues, are all circumstances which contra-indicate general depletion. On the other hand, the best effects have been obtained by active local bleeding, and this appears to be so much the more necessary in cases of phlebitis, as the inflammation is apt to run very quickly into the suppurative stage. I therefore ordered forty leeches to be applied along the inside of the affected limb, directing the nurse to encourage the bleeding by warm fomentations. In addition to this, two ounces of mercurial ointment, combined with two drachms of the extract of belladonna, were spread on large pieces of lint, and applied over the limb after the leech-bites had ceased to bleed. That mercurial ointment thus applied has a tendency to subdue inflammation of a low erysipelatous character, has been shown by Mr. M'Dowel in an excellent paper published in an early number of the *Dublin Medical Journal*. To this we added the extract of belladonna, because the local inflammation was attended with hypersensibility of the limb, a condition over which belladonna is known to possess a remarkable influence. Dr. Lee, I should observe, does not appear aware of the great utility of narcotics in the painful swelling of the extremities after fever, or in true phlegmasia dolens. In both these diseases, together with active local depletion by means of the frequent application of leeches, we should employ anodyne ointments, and, above all, large doses of opium internally. Some patients in phlegmasia dolens, if the bowels be regulated, will bear and derive benefit from four, five, or even six grains of opium in the day; I speak of the second stage of the disease. The same observation applies with regard to wine, and to sulphate of quinine. It is obvious that phlegmasia dolens consists of something besides mere inflammation; the pain is altogether different from that attending ordinary phlegmasia; it resembles more a general neuralgia of the extremities of the subcutaneous nerves. The internal treatment consisted in giving a few grains of hydrarg. cum creta three times a-day, to keep up a free state of the bowels, and with a view of gently affecting the system. These means are very likely to be attended with success. The woman at present is much better, and the inflammation is sensibly

declining. I shall not, however, anticipate the result, and for the present shall only call your attention to the case.

You may perhaps ask me to account for the great tumefaction of the limb observed in this case. It has been supposed by some persons that the whole swelling depends on the obstruction of the veins; but if inflammation was entirely limited to the veins, the swelling could not be so extensive. It is true that if you produce artificial obstruction of any of the great veins, by placing a ligature on it, you cause, for the time, very considerable edema of the limb. The obstruction to the passage of blood through an inflamed vein will necessarily give rise to a certain degree of swelling, but I am inclined to think that this is not the only source of the tumefaction; it would appear that in addition to phlebitis we have the inflammatory process communicated to the neighbouring parts; the cellular tissue and probably the lymphatics become engaged, there is a copious effusion of serum and lymph, and to this the general increase in size of the limb is to be chiefly attributed.

With respect to the termination of phlebitis, I may remark that it generally ends in adhesion of the sides of the vein, and obliteration of its cavity, so that when the patient recovers, the affected vein feels like a piece of whip-cord lying under the skin. We had some patients here who had obliteration of this kind, and in one of them who died afterwards of fever, I found some of the smaller subcutaneous veins had become totally impervious through their whole extent, and resembled hard cords. This is all I have at present to say with respect to phlebitis, observing that the diseases which are most analogous to it are phlegmasia dolens, and a particular morbid enlargement of the lower extremity, which has been described by Dr. Tweedie, and by Dr. Stokes and myself, in the Meath Hospital Reports.

A child about four or five years old, who has been for some time in the fever ward, has been recently attacked with a very formidable disease, cancrum oris. Like most patients labouring under this malady, she had been previously debilitated by the occurrence of fever, for a child in good health seldom, indeed I may say never, gets an attack of this kind. A preceding febrile condition of the system, and a depraved habit of body, must have existed in every case where cancrum oris occurs. The disease itself is nothing more than mere local inflammation setting in under unfavourable circumstances, and during a morbid state of the system, and hence the local inflammation rapidly assumes the gangrenous character. In children, many forms of general disease are apt to bring on a state of the system in which inflammation of any part has a strong tendency to run into gangrene, and this is to be borne in mind with reference to the present case, for cancrum oris has nothing peculiar in it except its situation.

It is not my intention at present to enter into any particular description of this disease. It has been well described by many surgical writers, and you will find a very valuable essay on the subject published by Dr. Cuming in the fourth volume of the Dublin Hospital Reports. There is also a very excellent article on cancrum oris in Forbes's Cyclopædia of Practical Medicine, to which I beg leave to refer you. It may, however, be necessary to allude briefly to some points connected with its treatment. In the first place, I may observe, with reference to the general principles of treatment, that you should not be misled by the name of the disease,

or think that because there is a gangrenous condition present, you should rely exclusively on detergent and antiseptic remedies. This is a common but pernicious error—it is the error of prescribing for names and not diseases, the easy but dangerous practice of unreflecting empiricism, by which the reputation of medicine has been so often damaged. He who commences the treatment of *cancrum oris* with the internal and external use of antiseptics, is acting on false principles; his practice may have the sanction of time, but it has not the support of observation and experience. In the early stage of the disease, when the cheek is of a deep red colour, tense, prominent, and shining, I do not know of any means which tend so directly to diminish the amount of inflammation, and check the progress of gangrene, as the application of leeches, few in number, but frequently repeated. This is the mode of treatment which I have found to be most effectual, and which, from my experience of the disease, I can recommend as the most likely to prove beneficial, when, unfortunately, the ordinary resources of medicine are too often ineffectual.

With respect to internal remedies, Dr. Cuming lays great stress on the utility and value of purgative medicines. They may be certainly necessary, and as the little patients very often swallow the sanious discharge from the ulcer, more or less derangement of the intestinal canal must accompany the disease. But along with purgatives I would strongly recommend the use of sulphate of quinine, either in the form of enema, or, if the child can be got to swallow it, made up into a syrup, and its solution favoured by the addition of a little sulphuric acid. With regard to the external applications, you have a choice of many remedies, each of which you will find recommended by authors, but none of which can be exclusively relied on in any case. The balsam of Peru with castor oil forms a good application, or you may blend it with honey, as we did in this case—one ounce of the balsam to two ounces of honey. You may also employ washes composed of solutions of nitric or muriatic acids, or of the chlorides of soda or lime.

In the present instance the sore has, in spite of all our efforts, eat its way from the internal to the external surface of the cheek. On Saturday, the centre of the cheek was characterized by the appearance of a bluish-black spot, indicating the occurrence of sphacelus. In the meantime it was curious to observe how little constitutional disturbance was yet produced; the child, notwithstanding the manifest existence of extensive sphacelation of the cheek, continued for several days to have a tolerable appetite, and to sleep well, being nearly free from fever, and complaining but little; as the mortification progressed, destroying rapidly the external parts of the cheek, &c., matters soon altered, and the poor little patient sunk exhausted and suffering.

Let us now direct your attention to the case of a sailor who has recently been discharged. This boy was one of the crew of a vessel which returned lately from the West Indies, and was exposed to great hardship during his voyage. Boys in his situation suffer a great deal of fatigue and rough treatment; they are the drudges of all on board, and it is impossible to conceive what privations they endure. When the vessels arrive in unhealthy climates they are generally the first who fall victims to the prevailing malady, and such was the case of this lad, who got yellow fever immediately after his arrival at the West Indies. From this he recovered, but on his way home he was attacked with irregular intermittent, which

lasted for a considerable time. He had no treatment, and the disease subsided spontaneously, leaving him extremely weak and emaciated. He was, however, obliged to work as usual on his passage, and he arrived in Dublin about three weeks since, debilitated, thin, and with a countenance expressive of long-continued suffering. He had on his admission that peculiar hue of skin which often follows tedious intermittents, and which those who have once seen will always recognise with facility. This colour is to be distinguished from the hue of light jaundice—it is what has been termed clay colour. In the present instance it was mixed with a faint tinge of jaundice, and on examining the stools we found that they contained scarcely any bile. He had no fever; his pulse was rather slow and regular; he complained of lassitude; his urine was deeply tinged with bile; and his belly tumefied. On examining him, we found that the abdominal tumefaction did not depend on the presence of fluid in the peritoneum: it was produced by enlargement of the liver and spleen, intestinal congestion, and tympanitis.

Here was a case of what has been vulgarly termed ague cake; that species of congestion and enlargement of the liver and spleen which is apt to accompany the paroxysms of an intermittent, and in some cases to remain after the disease has subsided. You are aware that some persons, during the paroxysm of an intermittent, will complain of pain in the right hypochondrium, but more frequently in the left, and on examination the liver or spleen is found increased in size. If you take the trouble of reading the experiments which have been made with the view of illustrating the functions of the liver and spleen, you will have a good idea of the facility with which enlargement of these organs, but particularly of the latter, may take place. The spleen undergoes very remarkable changes, even in its natural state, during the process of digestion, and there is a great difference between its size when an animal is fasting, and its size when an animal has taken food. Indeed, it is surprising how rapidly it will become filled with blood, and how quick the transition is from a state of collapse to a state of congestion. It is easy, therefore, to conceive how the spleen may, during the paroxysms of an intermittent, particularly in the cold or congestive stage, become manifestly enlarged. The increase of size, however, never occurs to such an extent in the liver; unlike the spleen, its magnitude remains nearly the same, and its volume does not vary like that of the spleen with the time of day or the period of digestion. It is obvious, therefore, *à priori*, that the spleen should be more frequently the seat of congestion than the liver, and that its enlargement should be more distinct and palpable. But it is not in the liver or spleen alone that congestion occurs during an aguish paroxysm, it may take place in any organ; and this, in a practical point of view, is worthy of being borne in mind. Thus, in a case which I attended, the patient got intermittent of a tertian type; during each paroxysm he had some distress about the chest and slight cough, but these symptoms disappeared during the intervals. As the disease, however, went on, the fits of coughing and dyspnoea increased, and the sulphate of quinine failed in arresting the paroxysms. The pulmonary congestion became gradually more marked and permanent, and no longer disappeared during the intervals; finally, inflammation of the lung took place, and the patient died with extensive hepatization. This happened about twelve years ago, when the old notion of connecting the cold stage of ague with debility

was universally prevalent, and before the practice of bleeding for the relief of visceral engorgement had been introduced. Subsequently, the practice of bleeding in the cold stage, as introduced by Dr. Mackintosh, was tried on an extensive scale in the Meath Hospital, and it is a practice which I can strongly recommend in those cases where there is recurring inflammation of some internal organ. It is not a mode of treatment applicable to all cases, and in mild cases unaccompanied by excessive congestion of any viscus, it is totally unnecessary; but where an important organ is threatened, it is a valuable remedy, and has on some occasions cut short the paroxysms altogether, or rendered them much milder and more manageable.

Sometimes ague is accompanied by symptoms of congestion and inflammation of some internal organ during the paroxysms; and yet, by giving sulphate of quinine, you will succeed in arresting the intermittent and the visceral disease at the same time. I recollect the case of a boy who was under treatment here for ague, and who, during the paroxysms, had severe bronchitis with dyspnoea. The cough did not leave him even during the intervals, but it was much milder; I was, however, doubtful whether the case would admit of the exhibition of sulphate of quinine, from the violence of the pulmonary symptoms during the fits. I determined, after some time, to try the quinine, and I found that it stopped both the intermittent and the bronchitis. It is to be observed, however, that in this case the bronchitis was of a chronic character; and I believe that in all cases of ague accompanied by visceral derangement, where quinine succeeds in curing the disease, the inflammation is either of a trifling description, or is one of a chronic nature. Where the visceral derangement is great, quinine will not succeed, and hence it is of great importance, in the treatment of ague, that you should carefully attend to the state of the internal organs.

There are several forms of disease which simulate intermittent in a very remarkable manner; and, as this may lead to very dangerous errors, it is necessary on all occasions to make a strict inquiry into the origin and history of the complaint. Some forms of hectic assume the intermittent character, and have been frequently mistaken for ordinary ague. Of this I had lately a very striking instance in the case of a lady, who came from the county of Limerick to consult me for what was stated to be an attack of irregular intermittent. She had been confined in August; had been feverish after her accouchement—the consequence, she believed, of exposure to cold—and got a slight cough. This continued, but without any expectoration, for two or three weeks, and then she was attacked with fever of an intermittent character, and exhibiting a well-marked tertian type. She began to take quinine, but this aggravated the cough very much without having any effect on the paroxysms. Various other remedies were also tried, but their only effect was to render the paroxysms more frequent and irregular. The moment I saw her I was convinced that she was labouring under some visceral disease. I examined her chest, and found dulness under the right clavicle with tubercular crepitus. Her cough had been dry until she came to Dublin, but now it became suddenly moist, and a distinct gargouillement could be heard. The apparent intermittent was nothing more than phthisical hectic; and Dr. Stokes, who was also called in, came to the same conclusion. I recollect having observed something of the same kind in a case which I attended

some time ago with Sir Henry Marsh. The patient had well-marked intermittent, and we treated him for it; but the sulphate of quinine, and the other remedies which we employed, had only the effect of converting the fever into remittent. On a sudden, the gentleman, without having made any complaint of pain in the side, or any thing indicative of derangement of the liver, became suddenly jaundiced, and sank rapidly. On dissection, we found seventeen or eighteen small circumscribed abscesses in the substance of the liver. The intermittent hectic here depended on interstitial inflammation of the liver—a disease which is generally of a latent and incurable character.

I need not refer here to certain forms of fever which accompany disease of the brain and of the urinary system, and which are remarkable for their intermittent character. There is, however, one form of anomalous intermittent, of which it may be necessary to say something: I allude to that species of ague which seems to be exclusively confined to females of a nervous habit—at least I have never met with it in any others. Persons of this description, after an accouchement or some acute disease, or in consequence of violent mental emotions, will sometimes get into a peculiar state of health, in which they are liable to recurring periodic attacks of fever. Some time since, Dr. Stokes called me to see a lady who, shortly after her confinement, had got an attack of well-marked tertian. She had, at the regular time, severe rigors, followed by acceleration of pulse, heat of skin, and profuse sweating. When the paroxysm was over, she felt tolerably well, but still there was much excitement of pulse, and the intermissions were any thing but perfect. Sulphate of quinine had been tried by the accoucheur in attendance, but had failed. On examining the case, I found that the lady was of a decidedly nervous and hysterical habit, and advised the use of nervous and antispasmodic medicines. A mixture containing musk, camphor, and ammoniated tincture of valerian, was prescribed, and the intermittent symptoms rapidly disappeared.

But to return to the case of this boy. How are we to treat this ague cake? The disease has not as yet proceeded so far as to produce ascites; but if permitted to run on, it would soon cause effusion into the peritoneal cavity. In a case of this kind a great deal will depend on whether there is any fever present or not. If there is no remarkable excitement of pulse or heat of skin, general antiphlogistic means will be unnecessary, for any local tenderness or irritation can be relieved by local bleeding. In the case before us, there was a slight degree of tenderness, and we applied leeches once with benefit; but we did not apply them over the abdomen—they were applied to the anus, because it is well known that leeches applied in this situation have a remarkably good effect in removing intestinal congestion, and consequently in relieving hepatic engorgement. Those who have remarked the relief which a flow of blood from piles gives in cases of hepatic engorgement with dyspepsia, will recognise the value of depletion of this kind, and will imitate the natural mode of relief, by art. Hence the use of leeches applied to the anus in cases of intestinal congestion and hepatic or splenic engorgement. There is no necessity here for applying a great number of leeches—three or four every second day will be quite sufficient, and we have found this number answer every necessary purpose. In addition to local bleeding and attention to diet, I ordered this lad to take a few grains of blue pill once a-day, not with the intention of affecting his system, but merely with the view of

keeping up the free action of the bowels. I continued the mercury only as long as the tenderness of the liver remained ; for experience has shown, that in those cases of ague cake where there is merely enlargement of the liver without tenderness, mercury is a bad remedy.

In cases of this kind, where the stage of active congestion is past—where there is no fever—where the tenderness is removed, and nothing but the increased size of the liver remains—how are you to accomplish a cure? First, by inserting one or two setons over the liver ; and secondly, by the use of iodine and tonics. The use of setons in cases of this description is well known, and needs no comment. I recollect the case of a lady, who, after several attacks of jaundice, got chronic enlargement of the liver. The right lobe of the liver, which was the portion chiefly affected, extended down towards the crest of the ilium, and was excessively indurated. This state had occurred after the patient had used mercury and had been copiously salivated. Two setons were inserted over the region of the liver, and these produced rapid diminution of the enlargement, and a perfect cure.

With respect to tonics, I may observe, that they prove extremely useful in chronic enlargements of the liver and spleen. We are in the habit of using, in this hospital, a combination somewhat similar to the celebrated Bengal spleen powder ; it consists of vegetable and mineral tonics, combined with a vegetable purgative—as, for instance, aloes—and we have seen the best results from its use. With respect to iodine, it is a valuable adjuvant in such cases, particularly where the system has been much deranged, and where mercury would be likely to run down the patient. Here iodine gives vigour to the constitution, and tends in a very remarkable manner to promote the absorption of the morbid products, on which the enlargement chiefly depends.

Let me now refer you briefly to the case of Catherine M'Donnel. This girl is labouring under an attack of chorea of considerable standing, and is at present about fourteen years of age. I mention this because it is not improbable that the appearance of the catamenia, which frequently come on about this period, may have some influence on the future progress of her complaint. She states that her disease commenced about seven years ago, and that ever since she has been subject to its attacks at various times. Her health is somewhat impaired, but not, however, to such a degree as to prevent her from following her usual avocations. Her present attack commenced about three weeks ago.

It is unnecessary for me to enter into any description of the convulsive motions of the limbs, and other symptoms which characterize chorea ; neither is it my intention to enter into the general history of the disease : you will find an admirable account of its symptoms, pathology, and treatment, in Copland's Dictionary. I shall merely remark, with reference to this case, that there is no headache, and an accurate examination has failed in detecting any symptoms of determination to the head. Neither have we derangement of muscular motion during sleep ; the girl's sleep is tranquil and regular. There is no evidence of gastric derangement present. She relishes her food, and, what is rather singular, her appetite is better during the attacks than during the intervals. Her tongue is clean and moist, but her bowels are inclined to constipation. It is of importance to bear in mind here, that her symptoms do not appear to have any connection with cerebral or gastric derangement. She has no headache,

flushing of the face, noise in the ears, or throbbing of the temporal arteries, and there is nothing but constipation to show that the digestive organs are out of order. I dwell on these two circumstances particularly, because some persons have attributed chorea to cerebral irritation, and others to indigestion and gastric derangement exclusively. I am quite ready to grant that it may be produced occasionally by either of these two causes, and that the presence of either will tend to aggravate it, but am inclined to look on chorea as chiefly a nervous disease, and to be cured chiefly by nervous medicines. Dr. Copland's remarks upon this question are excellent, and deserve to be attentively studied. For my own part, I think that in this, as in many chronic diseases where indigestion exists, it is often a consequence, not a cause, and is produced by debility of the vital powers of the stomach and intestines, organs which are affected by causes acting on the whole organization. Thus a too rapid growth, premature or unnatural sexual indulgence, confinement, want of exercise, of rest, care and anxiety, &c. &c., may each occasion a weak state of every organ of the body, including debility of the stomach. In a girl of this age, who labours under constipation, it is always proper to commence with the use of purgatives, and I have accordingly ordered her some pills, composed of aloes and capsicum; but I would not persevere in the purgative plan any longer than was necessary for removing constipation. What I mainly depend on for removing the disease is tonics, one of the best of which is carbonate of iron, in doses of half a drachm four times a-day. There was a controversy between Dr. Billing and Dr. Johnson, with respect to the doses of carbonate of iron to be employed in this disease; and it is asserted, that in cases where doses of half a drachm, three or four times a-day, will not succeed, a cure may be effected by giving three, four, or even five drachms, frequently in the day. With regard to this subject, I must confess that I am for moderate doses; and I think, in general, as much good may be accomplished by half a drachm or a drachm, three or four times a-day, as by much larger doses. I have accordingly ordered this girl to take half a drachm four times a-day, and will persevere in the use of the remedy until we have given it a fair trial. The carbonate of iron tends, in general, rather to produce a relaxed than a constipated state of the bowels, and consequently is peculiarly well adapted to chronic cases of debility. The *mistura ferri aromatica*, in moderate doses, is another excellent formula. When we have to deal with constitutional weakness, which has arisen gradually, and continued long, we must trust more to the operation of general physical influences than to medicine; and in graduating the doses of tonics, we must remember that it is impossible in such cases suddenly to strengthen; we must therefore rely upon the gradual operation of tonics, given for a long continuance, and in moderate doses. This rule should never be lost sight of in the treatment of chronic diseases; important as it is, most practitioners seem little influenced by it, or perhaps they are altogether ignorant of it, otherwise we should not see them using concentrated and powerful tonics in such large and repeated doses in chorea. Another general rule as to the use of tonics in chronic diseases—usually you will be more successful with mild and diluted than with powerful and concentrated medicines. Thus, for example, cinchona in powder is often preferable to sulphate of quinine in chronic diseases.

There is a very curious case of paralysis agitans at present in the female

chronic ward, which claims a few remarks. You must have all remarked the patient, Ellen Davis—a young woman about twenty-five years of age. She has a most peculiar expression of countenance, and, as her disease is rather a rare one, I beg that any gentleman who has not seen it, will take the opportunity of paying her a visit. According to the account which she gives of herself, the disease appears to have originated in a sudden and violent mental emotion. The poor girl, like most of the lower class of country people, happened to be a firm believer in the existence of ghosts and such like nonentities, and this superstition has formed the source or exciting cause of the disease in question. She was, unfortunately for herself, located in a very uncomfortable situation, her house being close to a road between two churchyards, a complete thoroughfare for ghosts, and where figures of a very questionable description had been frequently seen by many of her neighbours. Some of her acquaintances, who were aware of the frightful notions she entertained about personages of this kind, resolved to amuse themselves at her expense, and played off a practical joke of a very cruel nature. A churn-dash was procured, to which a sheet was appended, so as to form no unapt representation of a sheeted headless corpse, and this was dandled between two trees by means of a rope. The poor girl, who happened to be going to bed at the time, was utterly appalled by the sight of what she conceived to be one of these ghosts sweeping through the air, and immediately dropped down in a state of total insensibility. The fright deranged her nervous functions in an extraordinary degree, she became vertiginous, lost the use of her limbs on one side, and took to bed, from which she states she did not get up for three months.

The history of this case is of course extremely uncertain. In chronic cases, and among patients in her class of life, you can seldom expect to get an accurate or satisfactory account. It is quite clear that she had hemiplegia, but whether it arose from the fright or not we cannot exactly say. The symptoms of hemiplegia after some time began to decline, and she gradually regained the power of walking. This, however, is but feeble, and though it is now seven years since the occurrence of the attack, the muscular power of the limbs is very slight. She had also during the progress of her complaint an attack of amaurosis, which she says deprived her entirely of sight for nearly a year, and that after this period she recovered the use of one eye completely, but the other still remains amaurotic, and she can distinguish objects with it very imperfectly. At present she affords a very remarkable specimen of paralysis agitans. She cannot walk slowly, and when she has commenced walking she cannot stop without considerable difficulty. The muscles of the extremities, face, and tongue are very little under her control, and are in a state of almost perpetual motion. The muscles of the eyelids and eyeballs are also similarly affected, and this gives to her countenance a strange and peculiar expression. You will find an excellent description of this disease in Dr. Elliotson's lectures; a very interesting case is also detailed in Dr. William Stokes's lectures, published in *Renshaw's London Medical and Surgical Journal*.

It would appear that in this disease the muscles are not by any means beyond the control of the will, but they are so influenced by the operation of some other unknown cause, that their motions are more or less imperfect and inadequate. She can walk quickly with tolerable ease, for in walk-

ing quickly the muscles are contracted more rapidly, and the will more strongly exercised, so that the obstacles to regular motion are in a great measure overcome, but when she walks slowly, time is given for the cause which produces the anomalous motions to come into play, a spasmodic state is established, and the muscles cease to obey the will so implicitly. I knew a gentleman who had a very curious form of this paralysis agitans. When about to walk, he was obliged to have himself balanced, and set off by some other person, just like a piece of machinery. When once set a-going, and on a smooth road, he went on very well for a considerable time, but if interrupted by a hill, or by the unevenness of the ground, he was compelled to run backwards in a right line until stopped by some one, and so little control of his motions had he at this time, that if a pond or precipice lay behind him, he could not prevent himself from tumbling over it. I have occasionally seen him under such circumstances, and the appearance he makes is singular and ludicrous. He goes backwards until he meets with a wall or some other object which resists his further progress. This is a very curious circumstance as connected with the nature of the disease.

I do not intend at present to enter into any inquiry respecting the nature and treatment of paralysis agitans. The prognosis of the disease appears to be, *à priori*, unfavourable, from the total want of any exciting cause which might be discovered and removed. If the disease consisted in congestion of the head or spine, or if there was any apparent lesion by the removal of which we could hope to effect some good, we might entertain a more favourable opinion with respect to its termination, but it unfortunately happens that in too many cases we can do nothing more than observe the curious phenomena which it presents.

Let me now direct your attention to the case of a man named Murphy in the chronic ward, who came in with bronchitis accompanied by anasarca. He had old bronchitic cough, copious expectoration, and orthopnoea; but he had no symptom of disease of the heart; his pulse was regular and rather slow, he had also albuminous and scanty urine, but without any fever, thirst, or nausea. The recent origin and sudden appearance of the disease induced me to look upon it as a case of acute dropsy, and I commenced the treatment by antiphlogistic measures, which, as you may have perceived, have been followed by remarkable benefit. What I wish to call your attention to particularly in this case, is the state of the patient's urine. On his admission, we found that his urine was highly albuminous; when submitted to the action of heat at the temperature of 170° it coagulated rapidly, and showed distinct traces of the presence of a large quantity of albumen. Yet under the use of opium in moderate doses this man's urine became in two or three days perfectly free from every trace of albumen, and has continued so ever since.

Now this case alone would be a sufficient refutation of the opinions of those who look upon albuminous urine as a pathognomonic sign of disease of the kidneys, as described by Dr. Bright, and who are in the habit of marking such cases in the hospital as cases of "Bright's Kidney." It appears rather strange, as in our case, that a man should have "Bright's Kidney" to-day, and not have it the next day. We have had a great many instances of this kind, and in various cases which came under treatment in this hospital, I have shown that this state of the urine may depend on mere functional disease of the kidney. Indeed, nothing is more cor-

mon than to meet albuminous urine in the dropsy which succeeds scarlatina, and yet most of the patients perfectly recover. I had lately an opportunity of examining the kidneys of a boy named William Young, who was admitted into Sir Patrick Dun's Hospital on the sixth day from the commencement of anasarca after scarlatina. This boy's urine had a specific gravity as high as 1027, and contained an enormous proportion of albumen. He died suddenly of convulsions the fourth day after his admission. His kidneys were in every respect healthy.

One word with respect to the diuretic remedies, which in this case I have employed with remarkable success. Having removed the acute symptoms by antiphlogistic treatment, I prescribed the following decoction:—

R. Decocti hordei, lb. j.
 Sacchari albi, ℥j.
 Nitratis potassæ, ℥ij.
 Acidi nitrici diluti, ℥j.
 Spiritus ætheris nitrosi, ℥j.
 Two tablespoonfuls to be taken every second hour.

This is an excellent mixture, and well suited to the stage intermediate between the acute and chronic form of dropsy, where you wish to excite the action of the kidneys, and are afraid of stimulating the system generally. It has acted very favourably in the case before us, having increased the urinary discharge very considerably without producing any constitutional excitement.

LECTURE XLVI.

Glanders and button-farcy in the human subject—Particulars of a case of glanders, with the post-mortem appearances—Remarks on the variety of skin diseases produced by the introduction of an animal poison into the system—Case of button-farcy—Analogous appearances, where, as in typhus, an animal poison is sometimes generated in the body—Furuncular inflammation, or carbuncle, generated by animal poison; also tubercles—Sometimes a preternatural whiteness precedes the purple hue of mortification—Remarks on phlegmasia dolens—Phlegmasia dolens of the eye.

In pursuance of my intention, as announced in a former lecture, I shall proceed to-day to the consideration of two affections resulting from animal poison, one of which has been but recently introduced to the notice of the medical profession; of the other, I am not aware that there are any published cases in existence. I allude here to glanders and button-farcy in the human subject.

The profession is chiefly indebted to the researches of Dr. Elliotson for the first accurate account of glanders in the human subject—a disease which has now excited a very large share of attention here and on the continent. Many other observations, published since Dr. Elliotson undertook the illustration of this disease, have established the fact, that the morbid matter secreted by horses labouring under glanders may communicate the infection to the human subject, and thus give rise to a loathsome, painful, and generally fatal disease. From the notices which I have been able to collect, it appears that glanders in man is of very frequent occurrence in Ireland—so frequent, indeed, that I think the legis-

lature is called on to imitate the wise example of the Prussian government in placing glandered horses under the surveillance of the police.

Like many other animal poisons, that of glanders does not seem capable of affecting every individual indiscriminately; indeed the average susceptibility must be small, for grooms and veterinary surgeons take few or no precautions in examining the diseased animals; and yet the proportion infected, compared with the number exposed, is by no means considerable. That such persons exhibit great carelessness in examining glandered horses appears from the directions given in books on farriery, "that the finger should be introduced into the nostrils for the purpose of ascertaining whether certain spots suspected to be ulcers are so or not." Now, when the viscid gluey nature of the discharge from the nostril is taken into account, we cannot but conclude that this operation of introducing the finger into such a mass of vitiated and poisonous secretion would more frequently prove the means of infection, were the human constitution very susceptible of the poison—for we are to recollect that the fingers of such persons are seldom free from scratches and abrasions.

I shall now read the following case of glanders in the human subject. It is one of extreme interest, and has been most faithfully and graphically detailed. It occurred in the Richmond Hospital, and has been communicated to me by Dr. McDonnell, one of the surgeons of that institution. You will find in it many points of resemblance to a series of cases translated from a German journal, and published in the *Medico-Chirurgical Review* :—

"Patrick Wallace, a healthy muscular man, aged twenty, was admitted into the Richmond Surgical Hospital on the 6th of October, 1836. It is stated that he had been in care of a glandered horse—driving, cleaning, &c.—and that he had been in the habit of drinking out of the vessel from which the horse drank. It appeared, also, that he had had an abrasion on one of his ears. On admission, he had much the appearance of a person labouring under cynanche tonsillaris: he could only open his mouth to the extent of half an inch; this was the only uneasiness complained of. The left tonsil was very much enlarged, red, hard, and projecting towards the middle line; no fluctuation could be felt; there was a general fulness about the angle of the jaw, extending upwards nearly as far as the zygoma. The submaxillary gland on the same side was also enlarged and indurated. These symptoms had been ushered in by feverishness, a few days previous to admission. He was ordered to have eight leeches to the throat, to be followed by a poultice, and a bolus composed of calomel and jalap.

"Next day the external swelling was found to be increased; greater difficulty of opening the mouth; the tonsil still hard and swollen. Twelve leeches were applied to the fauces, and the patient took the tartar-emetic mixture of the hospital, with sulphate of magnesia.

"On the 15th of October, the disease is reported to be on the increase. Tonsil still hard, but no fluctuation; left side of the face greatly swollen; eye of the same side nearly closed, from tumefaction of the lids; general inflammatory appearance over the cheeks, and great hardness of the tissues about the angle of the jaw of the same side, extending towards the chin; several circumscribed spots of redness, varying in extent from the size of a sixpence to that of a halfpenny, with irregular margins, scattered over different parts of the body; two pustules observable on the left leg.

" 16th.—A vesicle containing a yellowish serum observable on the left tonsil ; the same inability of opening the mouth continues ; increase of swelling over the left side of the face ; a small abscess has formed on the posterior part of the left fore-arm ; some delirium during the night ; three evacuations from the bowels. The tonsil to be brushed over with a solution of nitrate of silver ; a blister to the fauces ; the tartar-emetic mixture to be continued.

" 17th.—Some sleep during the night, interrupted by delirium of a low muttering character. Patient appears willing to answer questions, but cannot, from obstruction in the mouth. This, however, lasts but for a moment, and he then lapses into a state of incoherency. Mouth open to the extent of half an inch ; left eye closed ; considerable swelling of the left side of the face, which is indurated, hot, tense, and shining ; all the glands on both sides of the jaw, but particularly on the left, are swollen and hard ; same state of tonsil ; nares dilated ; breathing stertorous, somewhat hurried, about 28 in the minute, and interrupted by frequent sighs. Pulse very small, rapid, intermitted, and cannot be counted ; skin hot, tongue furred, teeth covered with sordes. He complains of great thirst, but says he feels no pain ; it is evident, however, that he feels great uneasiness in the joints and limbs when moved. There is, however, no swelling or redness of the joints ; there is no discharge from the nostrils, nor is there any perceptible ulceration of the mucous membrane of the nose. No apparent affection of the absorbent glands in any other part of the body.

" During this period, vesicles and pustules of various sizes, and at various stages of growth, had made their appearance on different parts of the body, particularly on the back. They varied in size from the head of a pin to the section of an almond. In the first stage they resembled very minute vesicles, scarcely surrounded by any inflammatory border, and containing a limpid serum. In the second stage, the serum was replaced by pus ; there was a considerable blush of redness around each pustule, which at this period became greatly increased in size. When one of the vesicles was punctured, the serum appeared to come from a single cavity under the cuticle : this operation did not produce any subsidence of the tumour, a considerable hardness still remaining in the cutis or beneath it, with a cavity in the centre in which the serum was contained. A number of *achores* existed in various parts, congregated together, and not much larger than the head of a pin. These clusters were surrounded by *white raised margins*, having much the appearance of wheals, and about a line and a half or two lines in breadth ; between these margins and the *achores* there existed a line of redness. The whole taken together are rather of an oval shape. There also existed numerous inflammatory spots on the right shoulder, left arm, and other parts of the body. These were of a dark brown, approaching to a livid colour ; when pressure is made on them the colour disappears, but returns immediately when it is removed. On running the finger over them, a small hard tumour was felt in the centre ; the margins of these spots were irregular.

" On the 17th, the character of the disease became more plainly developed : at three o'clock, P.M., pus in considerable quantity was observed to issue from both nostrils. The patient was ordered to take the solution of chloride of soda internally, in drachm doses, three times a-day ; and also a mixture composed of carbonate of ammonia, liquor ætheris oleosus,

and camphor-mixture. At five o'clock, P.M., he was found half out of bed, his head resting on the pillow; still able to express his wants; pulse not to be counted; legs and feet cold; breathing stertorous; numerous stigmata scattered over the surface of the body. The purulent discharge from the nostrils has ceased, but there is a discharge of mucus from the mouth, with considerable fetor of breath.

"Eight o'clock, P.M.—A copious perspiration has broken out over the body; face red, tense, shining, and very much swelled; swelling has now extended to the right side of the face; right eye nearly closed; can open the left better; a few pustules have made their appearance at the inner canthus of the eye. Pulse, tongue, and skin, as in last report; delirium and muttering continue.

"Died at 4 o'clock, A.M., October 18th.

"On examining the body ten hours after death the redness was found to have disappeared from the face; the glands about the left angle of the lower jaw as before mentioned: they were found matted to the surrounding parts. The cellular tissue covering the submaxillary and parotid glands was infiltrated with serum, and indurated; numerous depositions of pus were found in the tissue of the sub-maxillary and parotid glands. The brain was firm, but its ventricles contained a considerable quantity of fluid; the arachnoid membrane was opaque in many places; several patches of vascularity were observed on the pia mater. The lungs presented a congested appearance; numerous pustules were scattered over their surface—some separate, yellow in the centre, and surrounded by an ecchymosed border; others existing in clusters. They resembled, in every respect, those found on the surface of the body. The lining membrane of the larynx was very much inflamed, especially about its upper part and about the epiglottis. The inflamed parts in this situation were of a livid hue. There was some appearance of vesicles in the trachea, but this could not be satisfactorily ascertained. The bronchial tubes were filled with mucus; the stomach contained a quantity of yellowish green mucus—its lining membrane presented an ecchymosed and inflamed appearance. The liver was somewhat enlarged, and adhered by its inferior margin to a few folds of intestine. The periosteum did not exhibit any appreciable deviation from the normal state."

One of the chief things to be noticed in the foregoing case is the variety of inflammatory affections observed in the skin, as the result of the introduction of an animal poison into the system. There was, in the first place, the general diffused redness of the face, then superficial inflammatory spots on the shoulders and arms, resembling erythema nodosum; in the next place, scattered pustules of various sizes, commencing in the form of a vesicle, which afterwards became a pustule surrounded by an inflammatory zone; and lastly, aches congregated together and surrounded by an elevated white margin, within which there existed an inflammatory ring of a red colour. Another point worthy of notice is the state of the lungs and bronchial mucous membrane. The lining membrane of the larynx, particularly in the vicinity of the epiglottis, was inflamed and of a livid colour, and there was an indistinct appearance of vesicles in the trachea. But what was particularly deserving of note in the lungs, was the existence of pustules on their surface, bearing the closest resemblance to those found on the surface of the body. It is not stated whether there was any appearance of vesicles or pustules in the nose, pharynx, or

œsophagus; but we are told that the stomach was ecchymosed and inflamed.

The following case was witnessed by myself and Dr. Halahan, and seems more nearly allied to the variety of glanders termed button-farcy. I regret that want of time has prevented me from arranging its details in a form more worthy of your attention; and were not the disease one of comparatively rare occurrence, I should not have ventured to lay the case before you in its present imperfect state.

The subject of this case was a gentleman residing in Rathmines, an extensive proprietor of horses, and who, having originally graduated as a surgeon, exhibited much skill in the veterinary art. About the time of his illness he had some horses in his establishment labouring under glanders and button-farcy, to which he paid particular attention. After having laboured for some days under considerable lassitude and derangement of the stomach and bowels, he was attacked on the 8th of July with rigors, followed by great thirst, excessive heat of skin, and pains in his limbs. The moment he felt himself attacked in this way, he said he was sure that he had got some dangerous infection from the horses, and would never recover. He took some blue pill and colocynth, which produced a few dark and very fetid evacuations. On the 9th, his pulse was 94, his urine very high-coloured, his thirst and feverish symptoms rather increased, and he suffered greatly from constant nausea and vomiting. A tumour now began to appear about three inches above the inner ankle of the right foot. He applied a poultice over it, but was obliged to remove it in a short time, in consequence of the pain occasioned by its weight. The tumour was about the size of half a walnut, of a dull red colour, tense, shining, and exquisitely painful. Its external aspect was peculiar, and might be compared to something intermediate between a boil and a spot of erythema nodosum. On the 10th, another tumour of the same character appeared near the outer ankle of the same leg; and in this way the disease went on, tumour after tumour appearing on different parts of the body, with an increase of the feverish symptoms, until the 20th of July, when he was first seen by Dr. Halahan. At this time several tumours had appeared on different parts of his body; there was one of an extremely painful character on his head, and he complained of great tenderness and pain along the right clavicle. His thirst was still urgent, his restlessness excessive, the slightest motion gave him exquisite pain, and sleep had completely abandoned him. He had endeavoured to regulate his bowels by purgative medicines, and had applied leeches to the tumours and to the clavicle at various times, but without any decided benefit. There were eight or nine tumours on different parts of the body, of the character before mentioned, without any tendency to suppuration, and so exquisitely painful that he could only bear a single sheet over him. The inflammation about the clavicle, which was of a diffuse character, had extended up the neck and over the right shoulder; there was not much swelling, except about the clavicle; the colour of the affected parts was a peculiar dusky red. Immediately over the clavicle two vesicles were observable, filled with a transparent fluid. Three dozen of leeches were ordered to be applied over the clavicle and shoulder, and the patient was directed to use chicken-broth, beef-tea, and other light nutritious articles.

On the 21st, all symptoms are stated to be on the increase. His fever,

thirst, and sleeplessness, are undiminished; his tongue furred and dry; his teeth covered with sordes; his pulse small, weak, and rapid; his nausea and vomiting not so troublesome. He had received no benefit from the application of the leeches; the swelling and stiffness of his neck was increased, and he had now some difficulty of swallowing. The erysipelatous surface of the neck, clavicle, and shoulder, were lightly brushed over with lunar caustic, which gave the patient an agreeable sensation, and from which he stated that he derived much relief. This was repeated the next day at his own request, and with equal benefit; the difficulty of deglutition diminished, and for two days he went on pretty well. On the 25th, there was an evident increase of fever: the tumours over the body and limbs were increasing in size and number; and his anxiety, restlessness, and sufferings unabated. He had taken alterative doses of calomel and James's powder, and his bowels had been regulated by mild aperients and enemata. I saw him for the first time on the 28th. His pulse was then 98, small and easily compressed; his thirst excessive; his restlessness and agony such as would strongly excite the pity of persons most conversant with scenes of human suffering. He had several tumours over different parts of his body, all exquisitely painful, and in their aspect something between boil and erythema nodosum. Some of them were hard to the touch; others, which appeared more advanced, were softer and had a boggy feel. There was, however, no appearance of any thing like suppuration. He was ordered sulphate of quinine, chicken-broth, ale, and other light nourishment, and an opiate at night. On the 31st, a tumour appeared on the right side of his forehead, larger and more painful than any of the rest. Another of a similar character showed itself on the right clavicle, which had been previously affected. Shortly after their appearance, vesicles were observable on their surfaces, such as generally precede mortification in cases of anthrax and malignant carbuncle. Next day he was evidently worse; his pulse was 108; his fever, pain, and restlessness, unabated; and a miliary eruption began to make its appearance over his chest and abdomen. The vesicles now began to increase on the surface of the tumour; his fever and restlessness were aggravated; and his mind, which had been hitherto collected, began to wander. His restlessness was so excessive, that he could not remain for a moment in the same position; and being a person of much mechanical ingenuity he had a set of pulleys constructed and fastened to his bedstead, so that he could move himself in various directions. His medicines and diet, with the addition of claret, and opiates at night, were continued as before.

On the 6th of August he was still worse; the tumour on the head continued to enlarge, and decided sloughing had taken place. The tumour on the clavicle presented the same aggravation in appearance and character, and a fresh tumour had appeared on the back of his head. A pustular eruption now began to make its appearance over his body, chiefly over the abdomen and limbs; his symptoms became aggravated in every respect; the delirium and watchfulness increased; and he died on the 10th of August, about thirty-three days from the commencement of the disease. He attributed his illness to attending horses, four of which had died of button-farcy; and what is also curious, his nephew, who had also been engaged about the diseased animals, had fever of a typhoid character, with maculæ of a larger sort than usual, but ultimately recovered.

The symptoms of glanders in the human subject have been so fully detailed by Dr. Elliotson, Dr. Hutton,* and others, that it only remains for me to make a few observations connected with this subject. In the first place, it may be observed that most diseases produced by the deleterious effect of animal poisons on the economy, show a tendency to cause not only fever, often of a malignant character, but also various forms of external disease, chiefly limited to the superficial glands, subcutaneous cellular tissue, and skin. In urticaria, small-pox, and measles, the external disease is chiefly limited to the skin; in scarlatina, we have often swelling of the parotid gland, with infiltration of the adjacent cellular tissue in addition to the cutaneous eruption; in syphilis, and cases of dissecting wounds, we have disease of the skin frequently combined with an affection of the superficial lymphatic glands. The same observation applies to typhus, many cases of which are characterized by an eruption of spots over different parts of the body, or by the occurrence of what are termed petechiæ. On these matters I need not enlarge, as you are all acquainted with them; but that vesicles and pustules very similar to those observed in dissecting wounds, and other diseases produced by the direct introduction of animal poison into the system, may arise from the action of morbid changes spontaneously occurring in the body, is a fact which admits of being proved, and opens to us a new and interesting field of inquiry. Thus, in cases of typhus, where the effect of a pressure or some other accident has occasioned bed-sores of a bad character, and even where there are no bed-sores present, I have on several occasions seen low secondary fever produced, and have observed vesicles or pustules appear on the skin, similar to those described by Mr. Colles as accompanying the fever of dissecting wounds. An example of this occurred some time ago at this hospital, and you have recently witnessed another in the case of a young man recovering from typhus. It might be argued that the secondary fever and eruption in such cases arise from the absorption of morbid matter into the system, and I am willing to admit that there is some colour of argument for this statement, where the patient labours under bed-sores of a bad and gangrenous character; but that this explanation is not the true one appears from the case of the young man to which I have alluded. He had no bed-sores to account for the secondary fever and eruption; and we can only explain the circumstance by supposing that it is the result of a poison generated in the system during the course of fever. This is particularly deserving of notice, as I am not aware that any author on typhus has noticed this symptom, or pointed out the circumstances under which it occurs.† The same phenomenon is oc-

* See Reports of the Dublin Pathological Society.

† While these pages were passing through the press, I have been informed by my friend SURGEON MACDONNELL, Clinical Clerk to Dr. Stokes and me, at the Meath Hospital, of a case at this moment under the care of my talented colleague; and as it strongly corroborates the views above mentioned, I shall take the liberty of introducing it here:—

A man, aged 40, was admitted into the Meath Hospital, Oct. 29, 1842, labouring under typhus fever, with delirium tremens and pneumonia of the right lung. He slowly but gradually recovered till the 10th of November, when two of the characteristic vesicles of Colles were observed on the palmar aspect of the right thumb. It was remarked by my colleague to the pupils, that these pustules indicated an extremely bad state of the constitution, and that they were, in all probability, but the precursors of more serious symptoms. From this period till the 17th, his pulse remained quick (140), weak, and faltering; the pneumonia remained stationary; and in addition, he was attacked with pleuritis of the lower and front part of the right side and pericarditis. These latter complications yielded quickly to treatment, but the pneu-

asionally observed, where, in consequence of external injury, diffuse cellular inflammation has taken place. Thus, several years ago, a woman was admitted into the Meath Hospital, who had diffuse cellular inflammation in consequence of receiving a kick on the chest. After a few days, Colles's pustules appeared on different parts of the body, and she died with symptoms of croup. On dissection, the croupy symptoms were found to depend on an eruption of vesicles filled with opaque serum, over the lining membrane of the larynx and trachea. Something analogous to this was observed in the case of Wallace; and the coincidence is further strengthened by the frequent occurrence of disease of the lining membrane of the larynx and trachea in many other febrile affections, accompanied by cutaneous eruption—as small-pox, measles, syphilis, and scarlatina.

Another point which is deserving attention with reference to the phenomena of external disease, in cases where animal poisons have been generated in the system or arisen from infection, is the occurrence of tumours in different parts of the body, partaking of the characters of furuncular inflammation or carbuncle, and running through a somewhat similar course. These tumours formed a very prominent feature in the case of Wallace; and, in the gentleman who laboured under button-farcy, they constituted one of the most important symptoms of the disease. We also observe something similar to this in that form of venereal which Mr. Carmichael terms tubercular, and which is characterized by the appearance of small, hard, dark red tumours, on various parts of the body, which exhibit a very imperfect tendency to suppuration, and frequently give rise to sores of a bad and unfavourable character. Another circumstance observed in Dr. M'Donnell's case deserves some share of attention; I allude to the white elevated margins, like wheals, around the redness which more immediately encircled each cluster of aches, and which we are to look upon as in a less advanced stage of its progress, being as it were, only the first stage of the latter. It is a curious fact, that on many occasions a preternatural degree of whiteness precedes the redness and congestive purple hue which ushers in mortification. This is generally known in the case of the nose when frost-bitten, and which always appears preternaturally white in the commencement. Something analogous to this was observed in some cases of bad typhus treated here in 1826 and 1827. The nose sometimes assumed a peculiar white colour, and not unfrequently exhibited a tendency to mortification. When first seen it had a preternatural whiteness, and looked very like a nose made of white wax; in the course of a few hours it changed to a purplish red, and exhibited symptoms of approaching gangrene. Again, in urticaria, we often see some portions of the inflamed skin assume a white colour, and the same occur-

monia continued in the same state as before. On the 19th, the report states, that he slept very little, was kept awake by pain extending down the inside of left leg, and had frequent short rigors. On examining the limb, it was found to present the usual appearance of *phlegmasia dolens*; it was white, its symmetry perfect, but by measurement in different situations, was found to be three inches thicker than the opposite one. There was very little effusion into the knee-joint; the power of motion was almost lost, and he complained of excessive pain in the groin and along the course of the saphena vein, greatly increased by pressure; the pustules had burst and formed scabs, which, when they dropped off, left the skin underneath whole and healthy. As the man is still in hospital, I am unable to give the termination of the case, but which, as far as it goes, is, I think, strongly confirmative of my views. It is worthy of note, that in this case the poison, whatever it was, that gave rise to the pustules and subsequently to the phlegmasia dolens, was generated in the system itself during the course of a typhus-fever: here there was no bed-sore, wound, or other local affection, which could be supposed capable of originating the poison.

rence may be noticed likewise in the wheals caused by nettles or the stings of bees. In general, we connect the idea of integumental inflammation with the appearance of redness; and this phenomenon is explained on the hypothesis that a preternatural quantity of blood is circulating in the inflamed parts. How, then, are we to account for the facts I have mentioned? To what cause are we to attribute the co-existence of increased vascularity, and a remarkable whiteness or pallor of the parts?—a state displayed in a very remarkable manner in *phlegmasia dolens*. I think the explanation is not very difficult when we recollect that the capillary vessels of the white tissues of the body contain no red blood in their healthy state. It is easy to conceive that in certain stages of inflammation the quantity of serous or white blood circulating in any of these tissues may be suddenly much increased, and that this increase may be accompanied by all the phenomena of inflammation except redness. In certain cases, as *phlegmasia dolens*, the colour is permanently white; in other cases the white is exchanged for redness, when the inflammation has increased in intensity; but perhaps we should not use this expression, for the phenomena of *phlegmasia dolens* prove that a *white inflammation* may be quite as intense as *red inflammation*,—a fact which we saw exhibited in a remarkable manner in the case of a woman in this hospital, labouring under *phlegmasia dolens*, and in whom the disease suddenly attacked the eye, and destroyed it in a short space of time—disorganising it rapidly without the supervention of any redness during this destructive process.

I never had any hopes of this woman's recovery, because, in addition to the *phlegmasia dolens*, she had fever and inflammation of the mucous membrane of the intestinal canal and lungs. She laboured under fever, vomiting, and irritability of the stomach; she had a severe diarrhœa, tympanitis, and a swollen state of the abdomen, with turgescence of the veins on its surface, so as to bear some resemblance to dropsy. She had a constant harassing bronchitic cough; in fact, a combination of unfavourable symptoms, which rendered her case hopeless; and in spite of all the usual remedies, stupes, leeching, blisters, &c., she grew progressively worse, and sank under her complicated load of disease. I shall not detain you by a detail of her case, and a recapitulation of the therapeutic agents employed in endeavouring to arrest her complaint, but shall proceed to make some observations with respect to the phenomena observed by Mr. Hudson on dissection. "On opening the thorax, there was no serum discovered in the pleural cavities, but there was a considerable quantity in the pericardium. The left pleura was adherent at all points. The lungs were healthy, with the exception of some edema posteriorly; the bronchi contained a quantity of sanguinolent frothy fluid, but in other respects presented a natural appearance. The right side of the heart contained fibrin, the left some coagulated blood; the valves were healthy. The stomach and intestines presented no sanguineous engorgement, and were apparently free from disease; the liver was large and much congested; the spleen large, soft, and almost pulpy; the kidneys pale, with patches of white degeneration. The uterus exhibited nothing remarkable, except the loaded state of the spermatic veins, which were very large and tortuous; the veins of the mesentery were also congested. The vena cava inferior was healthy down as far as its juncture with the renal vein, below which it was thickened, and filled with a fibrinous substance, varying in its consistence, and adhering to the inner coat of the vessel. On

laying bare the femoral vein, the subcutaneous cellular tissue was found to be infiltrated with serum, the granules of fat much firmer and more distinct than natural, and the intervening cellular membrane thickened and opaque. The superficial fascia was dense, white, and of a flaky appearance, the lymphatic glands in the groin were large, full of serum, and closely matted together by condensed cellular tissue. It was extremely difficult to detach the iliac, femoral, and saphena veins, in consequence of their strong adhesions to their sheaths and the surrounding organised lymph, in which they were imbedded. These, together with the popliteal vein, were similar in condition to the inferior cava, except that the substance they contained was thinner, of a brown colour, and somewhat purulent appearance. In the remainder of the saphena, and in the veins near the foot, there was a plug of coagulum, they were otherwise healthy. The iliac and femoral arteries contained a small quantity of blood; the other arteries were empty." You perceive, gentlemen, that all these last-mentioned parts, so accurately detailed by Mr. Hudson, presented, each in succession, marks of inflammation. The subcutaneous cellular membrane is infiltrated, the granules of fat altered, the cells in which they are deposited increased in size, the superficial fascia dense, white, and of a flaky appearance, all indicative of the existence of inflammation. It is found extremely difficult to detach the femoral and saphena veins from their sheath, or from the firm organised lymph in which they lay. As the result of long-continued inflammation, a large quantity of lymph is poured out along the track of the vessels, and this mats them together in such a manner as to present considerable obstruction to their detachment. The veins and lymphatic glands also exhibit distinct proofs of inflammatory action. Why do I make this recapitulation? Because I think it is necessary to impress upon your minds the fact that all those tissues, and not merely the veins or lymphatics, are engaged in phlegmasia dolens. Was there any part spared? Did the cellular tissue, or the fat, or the external surface of the veins escape? No—all were enveloped in the same inflammatory mischief.* I think you cannot have a better proof than this, that the phenomena of phlegmasia dolens do not depend on inflammation of either veins or lymphatics solely. In confirmation of this opinion, I may observe, that I lately saw a case, in which both saphenas became inflamed and obliterated, in consequence of a cutaneous eruption, and yet the gentleman had no accompanying phlegmasia dolens.

Let us pass over this subject and come to the eye. What is the state of the eye in this woman? She awoke on the morning of the 24th of January with intense pain in the eyeball, and complete blindness of the affected eye, being unable to distinguish light from darkness. On examination, there was immense serous chemosis discovered, so great, in fact, as almost to conceal the cornea, which appeared, as it were, sunk and buried in it. This chemosis was so exquisitely tender, that she could not bear the eyelids to be touched. Nevertheless, it presented a character totally distinct from any other species of acute chemosis we are acquainted with, its colour being almost *white*. The exceedingly small portion of cornea which was visible appeared to be opaque.

Her symptoms continued with undiminished intensity up to the period of her decease. On examining the eye after death, the cornea was found to be perfectly transparent, and the chemosis to have nearly disappeared.

* These views were advanced by Hull, in 1800, and subsequently advocated by Lee.

The iris had lost its natural grey colour, and become nearly white, and its surface was covered with long flakes of lymph, both anteriorly and posteriorly. The aqueous humour was turbid, and had portions of curdy lymph floating in it. The crystalline lens was opaque and of a light brownish tint. The vitreous humour was of a dull yellowish colour, and had its consistence altered, for, on opening it, the fluid which dropped out was thick and ropy. On this case Mr. Hamilton, who was then one of my clinical clerks, has made the following remarks:—"The only disease in which the sight is instantly destroyed is amaurosis, of which some instances are on record; but it would be impossible to look on this as a case of amaurosis, where the eye exhibited so many simultaneous organic lesions. The chemosis in this case differs very much from that which accompanies any of the varieties of ophthalmia, or conjunctivitis; in the former it was white, in all the latter it is red, of various degrees of intensity. There is a great difference in the manner in which sight is destroyed by any of the forms of ophthalmia, and that which has characterized this affection; in the common forms we have destruction slowly accomplished by ulceration and sloughing of the cornea, hypopium, adhesions, and prolapsus of the iris, &c. Neither does it resemble rheumatic or gouty inflammation of the iris; for in these instances sight is not annihilated at once, and there is a degree of redness, arising from a particular arrangement of the sclerotic vessels. The colour which the iris presented is also peculiar to this disease. In common iritis the colour never becomes so white, nor is it ever covered by the same kind of flaky lymph; the lymph that is effused being a more homogeneous fluid, which either forms a thin layer in front of the lens, giving it a hazy appearance, or contracting adhesions so as to change the form of the pupil, or existing in the shape of globules on the surface of the iris, or gravitating towards the bottom to constitute hypopium. None of the writers on diseases of the eye whom I have consulted describe any such appearance; nor have I witnessed any thing similar among the numerous cases of syphilitic and idiopathic iritis which are treated at this hospital. I think there can be little doubt of its being a disease *sui generis*, differing from other diseases of the eye, not only in its leading features but in all its particular symptoms."

Such is the interesting detail of this remarkable case given by Mr. Hamilton. The woman awakes suddenly from sleep one morning during the progress of her complaint, feels an intense pain in the eyeball, and finds her sight completely gone. This is a very remarkable circumstance. Again, you have the cellular tissue of the conjunctiva attacked by a rapid inflammation of precisely the same character as that which we noticed to prevail so extensively in a similar tissue in the lower extremity. The principal part of the exhalation which results from the inflammation is deposited in the subconjunctival cellular membrane, forming an enormous protuberance which nearly shuts out the cornea from view, exquisitely tender to the touch, but white and exsanguineous in its colour. I do not hesitate to affirm that in this new species of affection we have witnessed a case of *phlegmasia dolens* affecting the eye, perfectly identical in all its characters, and differing in no single material point from the inflammation which attacked the lower extremity. In the leg we have various tissues engaged in the inflammatory process, the skin, cellular tissue, adipose substance, fascia, arteries, veins, and lymphatics; in the eye we have the conjunc-

tiva, iris, aqueous and vitreous humours and crystalline lens involved in one common mischief. Their identity is farther corroborated by the nature of the pain common to both, the sudden appearance of the disease, the exquisite tenderness of the eye, and from the fact that there is no other species of disease on record with which we could class this novel disease. It is a form of disease hitherto unknown, and I believe we may claim the honour of having first described it. It was not iritis, nor ophthalmia, nor amaurosis. In iritis there is pain in the forehead, sight is not instantaneously destroyed, the conjunctiva is red and very seldom exhibits much turgescence; but here, vision is annihilated as if by a flash of lightning; there is a wall formed round the cornea which hides it from our view, but its hue is pale and bloodless. There is not a single feature in it by which the most anxious and critical inquirer could trace any resemblance between it and amaurosis, except the single and unsupported circumstance of sudden bereavement of vision. It is unnecessary for me to contrast it with any kind of ophthalmia, as their phenomena, progress, and termination, are so essentially dissimilar. All that we have seen of it authorizes us to conclude that *we have witnessed a disease hitherto unknown and undescribed, phlegmasia dolens of the eye.*

POSTSCRIPT.—ON PURULENT VESICLES.—A woman named Green was admitted into the Meath Hospital, with erysipelas of the head and neck, accompanied by high cerebral symptoms, the consequences of a contused wound of the scalp. On the second day of her admission, we observed a vesicle of a peculiar character on the right hand. It was about the size of a small pea, full of pus and surrounded by a base of a deep red hue about the size of a shilling. Between the shoulders, two more vesicles, exactly like the first, were discovered. The erysipelas and head symptoms gradually disappeared under the action of mercury, and the vesicles burst, and left an encrustation which soon fell off, leaving a newly-formed and healthy cuticle underneath.

A day or two after the appearance of the vesicles on Green, a girl who had been in the hospital about six weeks, labouring under general debility, palpitations, and excessive action of the heart, extreme irritability of the stomach, depending on amenorrhœa of seven months' duration, presented on the forefinger of her left hand a well-marked vesicle, of the same size and character as those noticed in Green's case. Though she had a good number of boils in other parts, she had only the one vesicle, which also burst, scabbed, and the crust fell off, leaving the cuticle underneath quite healthy.

In the same ward with Green was another girl named Scully, affected with symptoms, the consequence of suppressed catamenia, who was also attacked after Green with an eruption of the same kind of vesicles, on both hands. At first the parts became red and itchy, then small vesicles filled with serum appeared, which, when they had attained the size of a small pea, became filled with pus. Each vesicle was surrounded by a deep red base. Some of them were as large as those of pomphylis. One very large vesicle was observed to have one half distended with pus, and the other with serum. They were extremely itchy, and the red base was very painful. These vesicles extended over both arms up to the elbows, continued longer than in the two preceding cases, and then terminated in the same manner. But in this instance their disappearance was immediately fol-

lowed by inflammation and abscesses of the left mamma, producing great suffering, and attended by painful periostitis of both shins. Under appropriate treatment she eventually recovered.

Two cases of dropsy, in the chronic ward, next claim our attention. Both have occurred in persons who have previously enjoyed tolerably good health, and in both the disease seemed to be unaccompanied by organic lesion of any important viscus. One of the patients, J. Austin, states that he has been ill two months before he came into hospital, and acknowledges that his illness was the result of long-continued habits of inebriety. Careless and intemperate in his mode of life, and frequently exposed to cold and wet, he got an attack of bronchitis, accompanied by a sense of constriction about the chest, and difficulty in breathing. He was bled for this, and states that the bleeding relieved his dyspnœa; but about this period he remarked that an anasarcaous swelling appeared in his face, neck, and chest.

In this case we have a specimen of the ordinary history of dropsy in this country:—first, intemperate habits, next, exposure to cold, followed by bronchitis or pneumonia, and then dropsy, commencing in the face, chest, and upper extremities. I have on a former occasion pointed out to the class the importance of observing in what part of the body the dropsical swelling first appears, because, by doing so, we obtain a more accurate idea of its nature, and are furnished with a clue towards discovering its source. Dropsy is generally the consequence of organic disease of some deep-seated viscus. When it is produced by thoracic disease, as bronchitis, pneumonia, or affections of the heart, it is said that the swelling always begins in the face, neck, trunk, and upper extremities; when it depends upon chronic hepatitis, disease of the spleen, obstruction of the system of the vena porta, or disease of the mesenteric glands, the swelling commences in the abdomen, and then proceeds to the lower extremities; but when it arises from mere debility, the consequence of hectic fever, long-continued diarrhœa, or a cachectic state of the system, the effusion is first observed in the lower extremities, coming on in the evening, and again disappearing towards morning. The history of dropsical swellings, therefore, by informing us in what part they first appeared, is often sufficient to indicate the general nature of the producing cause.

When this man came into the hospital, his cough had disappeared, and there were not any unequivocal symptoms of disease of the heart, but he had considerable dropsical swelling of the face, chest, and superficial parts of the abdomen; his appetite was bad, and on examining his urine, we found it loaded with albumen, and of the specific gravity of 1029. Though he had no fever or dyspnœa at the time, we commenced the treatment by general bleeding, because he was a person of rather robust constitution, and on account of his dropsy having originated in cold. In persons who are able to bear bleeding, and where the disease has commenced in an acute form, you may often commence the treatment of dropsy by a single bleeding with great advantage, even though there be no fever or local inflammation present. We next prescribed an aperient injection, to be followed by a vapour-bath. I then, by way of trial, gave him an electuary containing some diaphoretic medicines, and found that it acted well on the skin, and that sweating could be easily induced. This furnished me with a key to the after-treatment. Whenever you find that sweating

can be easily brought on in dropsical cases, you should obey the hint given by nature. You should not, under such circumstances, have recourse to mercury, or hydragogue purgatives, or diuretics; you are to open the passage which nature has pointed out, you are to encourage diaphoresis, and you may rely upon it that you will in this way effect an easier, safer, and more permanent cure than you could by any of the various modes employed for similar purposes. We therefore gave this man a powder containing four grains of Dover's powder and five of nitrate of potash, three times a-day. The Dover's powder is tempered by combining it with nitrate of potash, which is an antiphlogistic, and prevents the former from exercising a heating effect on the system. Having continued these powders for seven or eight days, we commenced the exhibition of opium, in doses of half a grain, four times a-day, to be increased after a few days to half a grain every fourth hour. Under the use of vapour-baths used daily, and opium to the amount of three grains in the twenty-four hours, the man has improved wonderfully, and the dropsical swelling is fast subsiding. Opium has here, you may have remarked, produced no bad effects. The tongue is neither dry nor furred, and it has not any of that appearance which is observed in persons who are in the habit of taking opium; his appetite is unimpaired, his bowels regular, and his strength undiminished.

Now, why did I give opium in this case? The more advanced students will perceive, that I have treated it nearly in the same way as I treat cases of diabetes. There seems to be an analogy between chronic dropsy and diabetes, and experience has proved to me that this mode of treatment is most likely to be attended with success. I shall not dwell on this point at present, but shall content myself by referring to a paper in the second part of this work, observing here, that opium and other diaphoretics increase strength, remove the dropsical swelling, diminish the quantity of albumen in the urine, and bring on convalescence without producing any bad effects on the head or digestive system. I am anxious that you should attend to this case and watch the result; for the treatment is quite different from that employed by others. I say this without meaning to claim any originality; but I may be permitted to say, that it is a mode differing very much from those generally pursued. It cannot be used in cases where fever or local inflammation is present; but when the local and general excitement has been subdued, or when the case is chronic and unaccompanied by quick pulse, or any symptoms of visceral inflammation, it may be employed with safety and advantage.

The second case is that of the patient Matthew Gray, a man of middle age, and rather robust constitution. On admission, he stated that he had been dropsical for about twelve days, and complained of cough, dyspnoea, constriction of chest, and feverish symptoms. His cough was hard, short, and incessant, preventing sleep, and increased by every attempt at full inspiration. He had general wheezing, much oppression about the chest, and scanty expectoration of frothy mucus. His pulse was 84, soft and rather weak: he complained of nausea and loss of appetite, and had edema of the lower extremities. On examining the chest, I found it sound clear on percussion, and that the physical signs present were those of bronchitis passing into the stage of super-secretion. In addition to this, there were symptoms of engorgement in the lower and posterior parts of the lung.

Here, then, we had a case of dropsy supervening on acute bronchitis. I therefore ordered him to be bled immediately, and afterwards to have cupping-glasses applied over the congested part of the lung. The local abstraction of blood was followed by remarkably good effects; it relieved the cough and constriction of chest, and diminished materially the pulmonary congestion. I next prescribed the following mixture, of which he was directed to take one tablespoonful every hour:—

R. *Misturæ amygdalarum*, ℥ij.
Antimonii tartarizati granum,
Nitratis potassæ, ℥ij.
Tincturæ hyoscyami, ℥iiss.
Tincturæ digitalis, ℥ss.

A mixture like this is well adapted for such a case; it removes the febrile condition of the system, and, by its demulcent and sedative properties, allays the cough and bronchitic irritation at the same time that it determines to the kidneys. Those medicines which are termed demulcent, are frequently of great value in the treatment of bronchitis; you will often derive more benefit from gum arabic, spermaceti, almond emulsion, and the like, than from any other class of remedies. In the present case, we combined them with sedatives and narcotics; and as the remedies prescribed under such circumstances should be antiphlogistic, we added a grain of tartar emetic and two drachms of nitrate of potash. I have already spoken of the powerful antiphlogistic properties of a combination of tartar emetic and nitre, and dwelt on the benefits derived from it in many forms of inflammatory disease; so that it is unnecessary for me to say any thing at present on the subject. It is obvious to all, that the tinctures were added on account of their sedative and narcotic properties, tending to remove irritation and induce sleep, of the want of which the patient complained. But you may ask me, why I did not order opium: simply because the disease was in its acute stage, and at a period when opium is apt to produce excitement of the system, and aggravation of the local symptoms. Instead of opium, I gave hyoscyamus, which neither increases heat, produces headache, nor checks expectoration; and to this was added digitalis, a narcotic possessed of considerable antiphlogistic properties. Of all the narcotics, digitalis may be given with the greatest safety in cases where antiphlogistic treatment is required.

It is unnecessary for me to follow up this case through all its details. It will be sufficient to state, that by gradually changing the nature of the treatment as inflammation declined, and particularly by the proper employment of powerful purgatives, I have succeeded in producing a rapid amendment in his symptoms. It may be, however, necessary to explain why I used purgatives, and in what way they were exhibited. In cases where extensive bronchitis has given rise to pulmonary engorgement and dropsy, when you have relieved the acute symptoms by bleeding, leeches, or cupping, and other antiphlogistic means, and when there only remain some wheezing, oppression of the chest, and rather copious expectoration, you will often effect a vast deal of good by the judicious employment of powerful purgatives. You will clear the chest, relieve the breathing, and diminish the dropsical effusion. In the present instance, the patient took the following bolus:—

R. Pulv. jalapæ—rhei—scammonæ, ãã gr. v.
 Elaterii, gr. ss.
 Bitartratis potassæ—sulphatis potassæ, ãã ʒss.
 Syrupi zingiberis, q. s., ut fiat bolus.

This acted powerfully, and its operation was followed by marked diminution of the pulmonary engorgement and dropsical swelling. I have frequently endeavoured to impress upon the class the truth of an observation made by Dr. Paris, that in the exhibition of remedies, much better effects are obtained by combining several analogous remedies in small quantities, than by giving a single one in a large dose. By combining substances which are of the same nature, that is to say, which are individually capable of exerting the same effect on the system, we are capable of producing more decided effects, even though these substances be given in diminished quantity, than if we prescribed any one ingredient of the combination in a full dose. I refer to this general principle, in order to explain why I had recourse to so many different medicines, instead of employing a single powerful ingredient in considerable quantity. It explains why, instead of giving at once fifteen grains of the powder of jalap, I gave five grains of jalap, five of rhubarb, and five of scammony, and added to these half a grain of elaterium, and a small quantity of cream of tartar and sulphate of potass. With respect to elaterium, I may observe, that it has been strongly recommended in those cases of dropsy where there is no irritation of the digestive system present. Its action on the intestinal tube is very energetic, and from the quantity of watery secretion which it generally brings away, it is of great utility in removing anasarcaous swellings.

These are the principal observations which I have to offer with respect to this case. I may mention, that as the patient complained much of restlessness, we prescribed half a grain of morphia, to be taken at bedtime. This succeeded in producing sleep, a most important point in the treatment of all acute affections. We have now omitted the use of the more powerful remedies, and have prescribed to-day a decoction of Iceland moss, with tincture of opium, to act as a pectoral demulcent, and he has been allowed chicken-broth and jelly. He is going on at present in a very satisfactory way, but it will be necessary to watch him carefully during his convalescence, and obviate the occurrence of a relapse. If discharged at present, and before convalescence is perfectly established, he would in all probability relapse, and soon become much worse than ever. Hence I intend to keep him here for a month or six weeks. As long as I have been attached to public hospitals, I have made it a fixed rule, in all cases where a cure was possible, to keep the patient until it was confirmed. Whenever I was obliged, under the pressure of urgent necessity, to dismiss a case before healthy action was completely re-established; or whenever patients left the hospital prematurely of their own accord, I have observed that such persons, particularly if placed in the lower ranks of life, and subject to the numberless accidents and exposures of poverty, almost invariably returned in a far worse condition than before. It is much better, though perhaps it does not make so striking an appearance in hospital returns, that a certain number of patients should receive all the benefits derivable from such institutions, than that a greater number should pass through them in the year, and be hurried out of them in a state of imperfect convalescence. This observation particularly applies

to fever hospitals, and is, I fear, too little attended to in this city. Certain I am, that a vast number of the cases of incurable pulmonary and intestinal disease which are admitted annually into the Meath Hospital, have had their origin during the state of debility in which the patients were then dismissed from a fever hospital. Improper diet, imperfect clothing, bad lodging, damp rooms, are borne by the constitutions of the poor with comparative impunity as long as they are in a state of health; but not so when they are debilitated by a recent attack of fever, treated or maltreated by active remedies, and dismissed from hospital in a week or ten days after the crisis has taken place. How injurious to persons so debilitated the change from the warmth and comfort of a hospital to the cold and desolation of a damp garret or cellar! Add to this, that many of them, at the time of their discharge, still evidently bear the marks of mercurial action in their system, and many have their hair very short, in consequence of the head having been shaved during their illness. Hence many catch colds that affect the ears or eyes; many become deaf, and not a few get sore eyes; while the number of those in whom the sequelæ of the fever rapidly induce incurable chronic diseases is so great, that, were the balance of the account to be fairly struck out, it would be found fever hospitals do less good to the public health than is generally imagined.

A patient who is at present in the chronic ward presents some circumstances worthy of observation, as connected with peculiar varieties in the alvine discharge. She has been labouring for some time under melæna, and, as you have observed, passes daily a large quantity of dejections from her bowels, as black as ink. The colour of matters discharged from the bowels is subject to very great variety. In some cases they are clay-coloured or whitish, somewhat like barm; and I have seen them still whiter, and approaching the hue of milk. It is in cases of the latter kind, where the discharges are of a milky appearance, that persons have been said to pass chyle, and their emaciation has been attributed to a deficiency of nutriment depending on this cause. This, however, is not the fact: in some cases of chronic dysentery and diarrhœa, a fluid whitish discharge takes place from the rectum, but this is not chyle, it is only the changed mucous secretion of the irritated portion of the bowel. It is very curious to observe what different products the same set of secreting vessels will give rise to, according to the mode in which their vital action is affected.

In other cases the discharges from the bowels consist of fatty matter, which bears a strong resemblance to wax, or adipocire. Again, we may have them of a very dark, or even black colour. I have seen the stools quite black in particular forms of dyspepsia. Some time ago I attended a gentleman at Drumcondra, who exhibited this change in the colour of the intestinal secretions to a very remarkable degree. He was a very large man, accustomed to eat and drink very heartily, having, no doubt, a very capacious stomach and bowels, and a great quantity of fluids and solids. I mention this in order to give some explanation of the enormous quantities of this black fluid which he passed by stool and vomiting. After complaining for a considerable time of dyspeptic symptoms, he got an attack of vomiting; and as he drank freely of diluents during the act of emesis, the quantity of this black fluid which he threw up was amazing; indeed, I might say, without exaggeration, that he vomited by the gallon. With this he had eructations of sulphureted hydrogen to such an extent, that it was almost impossible to remain in the same room with him. His

tongue was as black as ink, and though frequently cleansed, resumed in a short time its former hue. He also passed an enormous quantity of the same stuff by stool. This matter I ascertained, by numerous observations and experiments, to be a secretion from the mucous membrane of the bowels, and not depraved bile, or blood changed by the acid secretions of the bowels. Black stools may also depend upon the presence of other matters, as in cases of melæna. Melæna consists of a discharge of grumous blood from the intestines, either with or without black matter. The following is the way in which it occurs: Blood is secreted slowly into the intestinal tube; while it remains there it is acted on by the acid secretions of the intestines, the effect of which is to change the colouring matter into a black, and in this state it is passed by stool.* Again, there are other cases in which the discharges from the bowels are found of a tarry and viscid consistence, and having a greenish-black appearance: this would appear to be connected with a vitiated state of the biliary secretion.

I have spoken here of three species of black discharge, each of a different kind, and requiring to have a distinction made between them for practical purposes. Now it is said, if blood be present you can easily recognise it by putting a portion of the discharge inclosed in a small linen bag, into warm water, when, after remaining some time, the linen will be stained of a reddish colour. If you take a portion of the tarry discharge, and drop a little of it into water, it will communicate to it a yellowish stain. On the other hand, the black fluid, which consists of vitiated mucous secretion, will not impart either a red or yellow tinge.

I may further observe, that various substances used medicinally communicate a particular tinge to the alvine discharges. Thus acetate of lead, when it meets with sulphureted hydrogen in the intestines, changes the stools to a black colour. Again, many of the salts of iron have the same property. Other substances, such as logwood, bilberries, &c., impart to them a red tinge, while the continued use of chalk-mixture is apt to render them whitish or of the colour of pipe-clay. This is apt to give rise to suspicions of the existence of obstruction of the liver; and in one instance I was deceived for some time by it myself. With respect to the greenish-coloured discharges, they are those which are most frequently met with, particularly in children, and are therefore entitled to a greater degree of consideration. There is nothing more common than to meet with cases of this green discharge during the period of infancy; and I regret to state that a great deal of error has prevailed on the subject. Greenish stools are generally looked upon as a sign that the child's liver is out of order, and as an indication for giving calomel. This, however, is by no means true; they not unfrequently depend upon irritation of the intestinal mucous membrane approaching to inflammation. The proper mode of treatment here consists in adopting measures calculated to remove irritability. In such cases, warm baths, the application of rubefacient liniments to the abdomen, the use of antacids, such as chalk-mixture, the carbonates of soda and ammonia, small doses of laudanum, and hydrarg.

* The blood effused in melæna, coagulates in the bowels, and being exposed to heat and air, turns black, and often becomes fetid. When retained very long, the colouring matter may be washed away, and the coagulated fibrin left. In a dissection of a woman who died of melæna, at Berlin, I found in the large intestines many hard balls, the size of apples, and consisting of fibrin, deposited in concentric layers, evidently the result of successive separations from the blood, effused during several different attacks.

c. cretâ with Dover's powder, form the best remedies ; and their operation will be very much assisted by a careful attention to diet. You will sometimes, it is true, meet with greenish discharges in adults, but then they are not so fluid as those of children, nor are they attended with the same irritability of the gastro-intestinal mucous membrane. Here the best plan of treatment is the Abernethian : blue pill at night, and a mild aperient in the morning, will be sufficient to correct the intestinal derangement, particularly if assisted by a well-regulated diet, and exercise in the open air. But in children the greenish discharge is often of a much more acute character, and more closely allied to inflammation, or rather irritation ; although in some cases it may go on for a considerable time without producing any acute disorganization. It is on account of the property which calomel and other mercurials, exhibited internally, possess of causing irritation in the first instance, and if pushed farther, inflammation of the mucous membrane of the intestines, that they are also apt to produce discharges from the bowels, copious, fluid, and mixed with green mucous flocculi, resembling closely chopped *spinach*. Sometimes the dejections consist of this green mucus nearly unmixed with any thing else, and then they appear like semi-fluid boiled spinach. Now most practitioners think that this green colour is derived from bile which the mercurial has brought down in unusually great quantities from the liver, excited to a more energetic act of secretion. It has nothing to do with the bile in many cases, but is entirely derived from the irritated membrane of the intestines. Long ago I pointed out, and was the first to point out, this fact, in the Dublin Hospital Reports. It has very important practical bearings.

CLINICAL LECTURES,

BY W. W. GERHARD, M.D.

CLINICAL LECTURES.

LECTURE I.

Acute articular rheumatism—Connection with inflammation of the cardiac membranes—
Treatment, bleeding, opiates, &c.

I SHALL to-day, gentlemen, take up the subject of acute articular rheumatism, as it is especially prevalent at this season of the year, when the number of other acute diseases is very limited. In summer we have acute abdominal inflammations, and in winter affections of the pulmonary organs, while, during the spring and early summer months, serous inflammations, both of the internal and external membranes, are most common. Acute rheumatism bears some striking relations with the inflammations of internal serous membranes, from the similarity of the mode of treatment which often becomes necessary in both affections, and from the frequent complication of the latter with the former disease. In almost every severe case of rheumatism under notice, there co-exists inflammation of the covering of the heart, or of the serous membrane lining its cavities. Since this connection between the pathology of articular rheumatism and that of diseases of the heart and its membranes, has been clearly traced, the disease has attracted much interest. I say clearly traced, for the general fact had been long since pointed out, although the subject was not precisely understood. That is, it was in the same situation as many other parts of pathology; affording an indistinct view of the truth, but without that well-defined character which is now required, according to the rules of rigid logic which we endeavour to apply to the study of pathology. The line of connection has only been drawn in a definite manner, for a few years past, between acute articular rheumatism, and endocarditis, or inflammation of the lining membrane of the cavities of the heart, and pericarditis, or inflammation of the membrane surrounding it. Dr. Bouillaud, of Paris, has paid particular attention to this subject; he tells us that at least one-half the acute articular rheumatic affections are complicated with pericarditis. In this estimate he is probably wrong, unless with pericarditis we are permitted to include endocarditis. A large number of mild cases doubtless run their course, without any complication of the kind, but it is usually otherwise when the disease appears under a severe type, and we might say that many more than half the severe cases, probably two-thirds, are complicated with some inflammation of the heart. Of the other third, a large portion present signs of some functional disturbance, though not of positive inflammation. Mild cases are slow in their action upon the heart, but, in the severer forms, the advance is rapid, and disease of the heart succeeds almost immediately after the first appearance of the articular symptoms. In chronic cases, the progress of the cardiac

affections is slow, and an individual not well acquainted with the disease might be deceived as to their existence.

We have thus traced two forms of the disease, and I propose bringing under your notice two cases now under treatment in the Philadelphia Hospital, to exemplify them.

The first is that of John Robb, who was admitted into the ward No. 2, on the 11th of April. Previous to his admission, he had been ill but a short time; being an inmate of the Alms-House, he was able to resort to medical assistance quite as soon as is usual in private practice. He had been working on the farm of the establishment for eight months previous to his attack, and had enjoyed good health. On the morning of the sixth, he complained of slight pains in his shoulder, but continued at work; at eleven, P.M., he was taken with severe pain in the hip, which lasted four or five hours, and then, diminishing in the hip, went to the knee. On the seventh it ceased in the right knee and attacked the left.

Now, from the character of the affection, thus shown, we can, without going farther, make our diagnosis. I allude to its metastatic character, as exhibited in its leaving one joint and settling in another. This is almost distinctive of rheumatism.

There was no pain in the ankles, but there was slight pain near the toe. You here mark the course of the disease onwards; it has reached the toe, and shows a disposition to attack the whole foot. There had been pain in the right wrist, from an hour before the man's entrance into the hospital. On the ninth and tenth, he had pain in the breast, which he referred to a spot below the præcordia, in the region of the diaphragm, and which lasted twenty-four hours, and was increased by coughing. Such pain is usually owing to disease of the heart, which may be merely muscular, but it is more frequently caused by inflammation of the serous membranes lining or covering the heart.

This man had been exposed to no causes of disease other than those which he was in the habit of encountering. He had, it is true, been wet while working on the farm, but this was not uncommon with him: he had been long accustomed to working in the rain. This shows how cautious we should be in admitting causes of disease; some physicians might be disposed to attribute the attack of rheumatism to the last wetting, which could manifestly exercise no greater influence upon the man than a series of previous exposures to the same cause, of no recent occurrence. I look upon the particular season of the year as the principal excitant of the disease, and it is for this reason that I have thought it a fitting subject to bring before you at the opening of my course. If you take the trouble to inquire, you will find that at this time the prevalence of rheumatism and rheumatic pains is remarkable. But an accidental exposure will often develop what might otherwise have remained dormant, and thus the disease, like many others, must be referred to two different causes, a general and an accidental one. The influence of the former is in this case much greater than that of the latter.

The case before you being of an acute character, its previous history is not nearly so important as the present state of the individual. It is otherwise in chronic affections, in which the whole anterior history is all-important.

The condition of the patient at the time of his admission on the eleventh, was as follows. The face was slightly flushed, and presented an expres-

sion of pain. This pain in acute rheumatism, is remarkable ; it usually prevents all exercise, and confines the patient to bed.

There was slight soreness in the shoulder, but without swelling or heat ; no pain or swelling in the left arm, slight soreness in the right elbow, and severe pain, swelling, and heat in the wrist. The same pain, swelling, and heat extended to all the joints of the hand and fingers, excepting the thumb. There was some pain in both knees, especially in the left ; none in the ankles ; a little in the right hip, no tenderness of the spine, no cephalalgia ; tenderness on pressure along the region of the ribs ; this was probably the remains of the diaphragmatic pleurisy. The impulse of the heart was feeble, the second sound nearly lost, the first much roughened, dulness on percussion nearly natural. Treatment, one grain of opium every four hours. The digestive organs were healthy.

Now, let us analyze this case. The first fact worth recollecting is the absence of tenderness of the spine. This establishes the diagnosis between simple rheumatism and that which is allied to neuralgia. Hence, the mode of treatment which proves so excellent in the latter affection may here fail. The state of the heart indicated merely slight valvular disease, and some muscular impediment ; there was no effusion, the dulness on percussion being natural, and no creaking sound being heard.

The treatment in this case was after a plan of practice in New England, from which quarter it has been lately strongly recommended ; the internal administration of opiates, pushed till felt by the patient.

During the twelfth, six pills of opium containing each a grain, were exhibited, but there was no diminution of pain. Neither sleep nor cephalalgia had been induced by the opium. This is an important therapeutic point, demonstrating the antagonising action which pain exerts in regard to the effects of opium. The first sound of the heart was still rough, but the impulse rather less ; no increase of flatness. The state of the heart was, therefore, slightly improved. Pulse eighty-four, of moderate size and regular ; a grain of opium was ordered every two hours, and a laxative enema administered.

On the evening of this day there was some cephalalgia, although no deviation of the pupils from the natural state. The dose of opium was diminished to a grain every three hours. Sleep was interrupted by twinges of pain ; sweating at night. Eruption of sudamina ; pulse seventy-two ; pain in right arm increased and extending to the shoulder. Less pain and swelling in the knees, but increase of both in the feet. The action of the heart was more regular and feeble, and the sound less rough. The disease, you perceive, was not in any manner arrested, although you note a decided improvement in the condition of the heart. There was costiveness from the opium, but this, you will soon see, disappeared. Same prescription of opium continued during the thirteenth ; hop poultices to most of the painful joints ; laxative enema.

On the fourteenth, the pain having diminished throughout the right arm, began in the left hand and wrist. Here is another point of interest ; the translation of the pain from the right to the left limb by metastasis. This is a common thing in articular rheumatism, and, as in this case, the pain does not usually quite cease in one joint before it begins in the other.

There was slight pain between the shoulders, and diminution of the pain in the knees and feet ; pulse seventy-six, fuller and regular ; this is

somewhat an exception to its usual condition in the disease, it being generally frequent, small, and tense. Skin warm and dry; sleep very irregular; tongue moist, with a yellowish coat; appetite bad; thirst; three or four stools since the enema; the opium had, therefore, induced no costiveness. No cephalgia or dizziness; slight flush; eyes natural. Opium continued, hop poultice and laudanum to the left wrist.

On the fifteenth, the left hand was worse, and there was pain in the sole of the right foot. The other pains were better, moisture rather than sweating. Opium continued.

The sixteenth, less expression of pain, and less flush; soreness in both shoulders, with slight swelling, but not much constant pain. Slight soreness of the left elbow; much swelling, pain, and heat of the left hand; right hand nearly free from swelling, still slightly painful, but motion returned; pains much diminished in the legs; pain at the ensiform cartilage; palpitations frequent after slight exertions; pulse seventy-two, and soft; decided roughness, almost rasping, in the first sound of the heart, which was not very loud, and heard most distinctly to the left of the nipple, second sound nearly lost. Under the sternum, both sounds of the right side distinctly heard and clear, the first only a little roughened. The præcordial dulness commenced only at the left margin of the sternum, and extended to the nipple. The morbid alteration was, therefore, confined to the left side of the heart, implicating the valves; there was besides effusion into the pericardium. The opium pills were continued during yesterday and last night every three hours. Hop poultices.

Last night the pupils were somewhat contracted, and little sensible to the light. To-day the face was flushed, and presented an expression of stupor. Disposition to sleep; pupils rather large; no cephalgia; sleep interrupted by pain, shooting from the swollen joints. Pulse eighty-eight—softer. Swelling less marked in the left hand. Slight swelling and pain in both knees. No pain in the breast. Impulse of the heart almost lost; both sounds very feeble, without roughness. The disease of the valves is therefore diminished. Percussion slightly dull at the upper portion of the left side; flat, down from the third rib to the same extent as yesterday. Prominence obviously increased. These latter signs are explained by the increased effusion into the pericardium. Still slight diarrhœa; three or four stools in the twenty-four hours. Skin moist, without sweating. A grain of opium every four hours.

This case, gentlemen, of acute disease of the heart, occurring in the course and as a direct consequence of acute articular rheumatism, may serve as a type of the affection, which I shall now make the subject of some general remarks, and have occasion to refer to hereafter. There are several peculiarities to be alluded to. In the first place, the changeable character of the affection, shifting, as you have seen it, from joint to joint, denotes the nature of the disease. This is well understood, and universally admitted. But I would have you remark that there was no *metastasis* to the heart. The disease of the heart appeared, during the most acute stage of the rheumatic fever, which afterwards continued with unabated severity. This is almost always the case: cases of metastasis are quite exceptional, and the cardiac inflammation is not only most frequent, but is also most severe during the height of the articular inflammation. By physical examination, we ascertained that the pain in the præcordial region proceeded first, from disease of the valves, indicated

by the roughness of the sound; secondly, from effusion, shown by the unnatural dulness on percussion, imperfect action of the heart, &c.

Another symptom to be noticed is the sweating, which was very slight from the first or second day, although it is generally very profuse in acute rheumatism. It is this sweating in rheumatism which has suggested the employment of Dover's powder, and other sudorifics, in its treatment. In this case opium was alone resorted to, to afford a better test of the powers of the remedy.

The diarrhœa is another feature worth remarking, co-existing, as it did, with the large doses of opium. It was a purely accidental complication, but its occurrence demonstrates that opium, in very large doses, continued for some time, and given much in the same way as the large doses of tartar emetic are by the contra-stimulants, does not produce the same effects as in ordinary doses, thus illustrating a therapeutic law, that remedies, in over-doses, do not act upon the system in the same manner as when administered in the usual quantities. Were it not for this law, patients would die from the action of certain remedies now frequently prescribed. How could tartar emetic be given in the high doses required by the contra-stimulant practice in pneumonia, or calomel, as it is prescribed in the diseases of certain sections of our country?

The pathology of the disease under consideration is still very obscure, although its symptoms are well understood. How much of the disease is allied to neuralgia, or connected with an affection of the nervous system, and how much belongs to local inflammation, are points that are still unsettled. It is, in this respect, analogous to whooping-cough, and some other diseases. We are also embarrassed as to effectual curative means for arresting the progress of the affection, though we have any number of palliatives. For the present I refrain from entering largely into the pathology of rheumatism, but shall consider it partly as nervous and partly as inflammatory in its character. Certain inflammations of internal organs which occur in rheumatism, such as pericarditis, lose this mixed character, and become decided phlegmasiæ; they are accordingly treated without reference to disease of the joints. When the complication of pericarditis proves fatal, and the opportunity, otherwise rare, of examining persons who die with rheumatism, is obtained, there is often almost a total absence of lesion in the joints; but the pericarditis offers the same anatomical lesions, as if it had been induced by exposure to cold, or injury, or some other ordinary cause. The affection of the joints depends so much on a nervous cause, that it presents very slight traces of inflammation. It seldom or never terminates in suppuration, or the other usual terminations of inflammation. Dr. Chomel states, that pus is not found in rheumatic joints; the very rare cases in which it is met with, he considers to be mere accidental complications. This opinion, if somewhat modified, is probably the correct one; that is, rheumatic differs from ordinary inflammation in the absence of pus, and its want of fixedness of position; but ordinary local inflammation may ensue and constitute a complication. Not so with the accompanying internal inflammations; they result in the secretion of pus, and effusion of lymph, and are fixed in their location.

If the pathology of the disease is obscure, equally so is the therapeutics, it being more than doubtful whether we possess any settled or absolute method of treatment. This subject is very clear, no doubt, to some authors; but, unfortunately, practitioners generally are in the dark. Thus

Bouillaud, who regards the affection as merely inflammatory, depletes to the utmost possible extent; and for this exaggerated depletory practice claims great success. His success may have been great, but others who have followed the practice, perhaps without the same enthusiastic confidence, have not been so fortunate. I have given the practice a very fair trial, with every disposition to see it succeed, and, although I have afforded relief by one or two moderate bleedings, if persisted in, the result was unfavourable; if pericarditis were present, it was only partially relieved, while the rheumatic affection of the muscular substance of the heart often increased. Besides, the ulterior results of excessive blood-letting are generally mischievous. We thus merely return to the old practice of one or two bleedings at the commencement of the affection; a practice, the utility of which is sanctioned by long experience.

Another practice, originating, I believe, in New England, and recommended by Dr. Webb, of Providence, is that which has been followed in the present case—consisting in the administration of very large doses of opium. I have tried it in two cases, in both of which it failed. It succeeded in stupifying the patient, and rendered him less sensible of pain, but produced no decided impression on the disease. It did not prevent the change of place, nor did it remove the pain or swelling. These symptoms persisted, and retained their usual mutability of character. Last summer, I pushed the remedy to such an extent as to induce decided narcotism, yet I failed to cut short the disease. The remedy may occasionally obtain the success which is claimed for it, but it is clearly no specific.

Sudorifics constitute the treatment adopted by some, from a notion that artificial sweating is but an imitation of the curative process of nature. This is certainly not the case; for the sweating is often profuse, while the violence of the disease is persisting. If, however, the discharge be suppressed, from cold or any other cause, it will be proper to resort to sudorifics, to revive this natural secretion, and restore to the patient what he has been deprived of; for in such cases the suppression of sweat is certainly productive of harm, and increases the suffering of the patient.

Other remedies have been recommended, as narcotics and purgatives, particularly the colchicum, and, what is analogous to it, the veratria. The colchicum is used in this country and in England, but it is not much employed in France. It is very useful as a palliative, though far from being absolutely curative. I have seen it stop the severer symptoms of the disease, for as much as five or six successive days, without curing the disorder. I often use it at the hospital without other medicines, preferring, as I do, the administration of simple remedies, particularly in hospital practice, to insure their accuracy of administration, and to enable us to judge of their effects. By giving the wine of the roots or seeds, alone, we may avoid the severe purgation resulting from Scudamore's mixture; but purging may be of service, if the patient can readily bear the motion necessary for the evacuation of the bowels. But the disadvantage attending frequent rising is apt to more than destroy the good arising from the revulsive effects of the purging. In medicine, as well as in surgery, inflamed parts must be kept at rest.

In general, however, it is better to combine the colchicum with some opiate, as laudanum or black drop; in doses of half a drachm of the wine of the seeds, or even more if tolerated by the patient, and ten to twenty

drops of laudanum every two, three, or four hours. The preparations of colchicum are so irregular in strength that it is very difficult to state these with precision. A slight impression upon the stomach and bowels is the best guide.

These views, as to the effects of remedial agents in rheumatism, differ but little from those of Dr. Chomel, who, perhaps, has more than a due share of skepticism in relation to therapeutics. It is true, however, that when diseases, after running a certain course, get well of themselves, they are apt to deceive us as to the value of the remedies employed in treating them. This, I think, is the case with Drs. Bouillaud and Webb. For the opinions of the former of these physicians on this subject, I refer you to Bell's Select Medical Library (1837); and for Dr. Webb's, to the Boston Medical and Surgical Journal, for last year.

I am not disposed to enter into a history of all the different forms of treatment which have been recommended in rheumatism. Of external applications, cups to the spine, as a counter-irritant, is a most valuable palliative; and, if the neuralgic element of the disease predominate, cupping along the spine will sometimes produce a real arrest of rheumatism. But when the joints are the principal seat of the disease, in most cases much is not to be expected from cups or leeches to the spine; they do better near the joints. Other applications to the parts are directed for the benefit of moisture and warmth. For this purpose, anodyne poultices are useful; none is better than one of hops, steeped in hot water, or vinegar and water, sprinkled with a little laudanum. These are very convenient applications, but cannot be accommodated to all the joints. Opiate frictions may be used, such as a mixture of warm oil and laudanum. I refrain from lead-water, or spirituous, or other stimulating embrocations, as the danger of the internal affection, endocarditis, or pericarditis, is somewhat increased by driving the affection from the joint. This practice must be reserved for the sub-acute variety of the disease.

Other local applications of a soothing character may be resorted to, such as the experience of every practitioner will suggest. In the North, there are other remedies, the virtues of which are much extolled, such as the green hellebore, *actæa racemosa*, &c. These plants have been tried here, but without the success which is claimed for them. This want of success may depend on our obtaining them only in the dry state, in which their virtues are impaired. But I cannot believe that this is the sole cause of failure; for the most decided action of the remedies will sometimes be produced without curing the rheumatism.

Though not immediately dangerous, few affections are ultimately more mischievous than acute rheumatism. Diseases of the heart are so apt to originate with it, and to continue after its cessation, that we must hail any plan of treatment likely to exercise a curative influence over it. I have therefore tested the opiate practice, as the last which has been recommended, watching very carefully its effects. I certainly pushed it as far as was prudent; I was not warranted in giving more than one grain every two hours, particularly as I could not see the patient after each dose, a precaution which is always advisable when giving high doses of opium.

In other cases of the disease, I am willing to try other modes of treatment which are highly recommended, although I fear that they are all merely palliative, and as such only may do good; at last, we may find

some one more efficacious than the others. I am doubtful as to the immediate success, though strong in hope. I cannot help agreeing with Chomel, skeptical as he is generally, in believing inflammatory rheumatism an affection not to be cut short by remedies, after having seen so much protracted suffering from it; even in the case of physicians themselves, treated under the most favourable circumstances, it has been prolonged to four or five weeks and upwards.

What is the natural duration of acute rheumatism? It is not precisely fixed, but is scarcely ever less than two weeks, and may last for five or six months; at least, the immediate effects may continue so long. Like most diseases that run a determined course, it averages two or three weeks.

Although I do not believe that in most cases it can be suddenly cut short after the pain and swelling of the joints are considerable, yet an appropriate treatment is useful as a palliative, and diminishes the mischievous results. In a few words, the treatment which I would recommend consists in one or two general bleedings, opiates combined with tartarized antimony or colchicum, and if the pain be very severe, local depletion is useful for those joints which are nearly in the state of ordinary acute or chronic inflammation. Purging and other remedies are directed when specially indicated. This of course is a mere outline of treatment, which requires frequent modification.

Of the second patient whom I mentioned, my time will allow me to say little or nothing. He offers signs of disease of the heart different from those of the last, chronic dilatation and slight hypertrophy, without disease of the valves, the sounds not being at all roughened. There is effusion into the pericardium, indicated by increased dulness on percussion. Further details I reserve for another occasion.

LECTURE II.

Continuation of acute rheumatism—Rubeola, or measles, in adults and children—Symptoms—Complications—Treatment.

I WILL again call your attention to the case of the man Robb, who was under notice as subject to *acute articular rheumatism*. The opiate practice had been carried out with decided but gradual improvement. Yesterday, however, there was a return of the affection, but under a much less severe type, marking the stage following the acute form of the disease, in which the symptoms are swelling and mere soreness, rather than pain or heat. With the reappearance of the affection in this modified shape, the impulse of the heart, which had been increasing, has been for two days much diminished. There is at present an effusion of about a pint of liquid into the pericardium. The dulness on percussion is so manifest as to leave no doubt of this fact. It is not from the simple presence of unusual dulness, that we draw our conclusion, but because we have seen this dulness notably increase, from day to day, since the patient has been under inspection. A prominence of the chest over the region of the heart has also appeared, in a marked manner, during this time. Another proof

of the effusion is the absence of the impulse of the heart, which is next to nothing. You recollect the roughness of the two sounds of the heart, particularly the first; this roughness has diminished as effusion has gone on. In proportion, then, as the pericarditis advanced towards secretion, have the signs of endocarditis become less evident. This fact, which exemplifies a general rule of pathology, is worth recollecting. Of pericarditis the physical signs are, mainly, the increase of prominence and dulness, with faintness of the impulse of the heart, while endocarditis is to be recognised by increased action of the organ, and the roughened sound, sometimes amounting to that termed rasping. The physical signs of these two affections, particularly of pericarditis, are exceedingly easy of recognition, so much so, that, knowing what they are, you will hardly fail to detect them. The two diseases are not likely, I have told you, to exist together under an equally severe type. The same thing is true of pleurisy and pneumonia; they may coexist, but very severe pleurisy and pneumonia do not go together. If, for example, the pleurisy be aggravated by the compression of the lung, it impedes the development of acute inflammation. The law of pathology, founded on the two cases I have adduced, you will find generally to hold good. I shall here conclude my remarks on the case of rheumatism: the opiate practice was continued till yesterday, when it was modified by the substitution of a single dose of Dover's powder at night, in place of the opium pills.

It is my intention in this course of lectures, gentlemen, to take up the various acute diseases in succession, as they come before our notice, at the hospital, preserving, as far as possible, the natural connection amongst them. A very unusual affection in general hospital practice has lately claimed your attention, I mean *rubeola*. To see it pervading epidemically the wards of adults is a phenomenon which I have never before witnessed, and hardly expect again to observe; as it is a disease which usually appears but once during life, and is generally confined to childhood. During the last six weeks, however, there have been as many as seven or eight cases in my single service, and three or four in the other wards. My recent cases were as follows:

Morris, a man of nearly forty; Perry, a lad of eighteen, and three others of nearly the same age.

Previous to detailing the symptoms which characterize *rubeola*, I shall make a few remarks on its pathology. The pathology of measles, like that of other exanthematous affections, is to be divided into two parts, one comprising the morbid changes in the body, which are characteristic of and essential to the disease, the other being those which are merely accidental. The first are of course to be looked on as pathognomonic.

The description of the affection given by Sydenham is so good, and agrees so accurately with its appearance at the present day, that I shall read it to you at length, and adopt it, in most particulars, in preference to modern accounts. It cannot be amended materially, except by examining the symptoms with the aid of the numerical method; a task which, at present, I am not able to undertake.*

This excellent description of Sydenham's shows his powers of observation in favourable contrast with some of modern times. His general account of the disease holds good in the cases which we observed at the hospital. Thus, our symptoms of the first day, like his, were chilliness

* It was then read.

and cold shiverings. The second day we had the catarrhal symptoms, connected with coryza and the flow of tears, as described by Sydenham. This is the best sign to distinguish measles in its incipient stage from other exanthemata. In this stage, the other exanthematous affections offer no mark by which they can be diagnosticated with any certainty. They have, at this time, numerous symptoms in common, including some belonging to other febrile diseases. Thus, in scarlatina, the sore throat is by no means sufficiently characteristic, and small-pox may, at its commencement, be very readily mistaken for typhoid fever. Dr. Louis, who certainly is most accurately familiar with typhoid fever, has more than once mistaken for it the incubation of small-pox.

The symptoms that follow, as the sick stomach, loss of appetite, slight cough, heaviness of the head and eyes, occur now just as they did in the time of Sydenham. The only irregularity in Sydenham's description consists in the large red wheals, which have not, in our cases, made their appearance, nor have I often observed them. The swelling of the eyelids continues the same. The vomiting occurs particularly in children, and not in adults; we did not notice it in these cases. Looseness of the bowels is the next symptom mentioned. This is not now a constant symptom in the early stages of measles, but it is to be recollected, that the descriptive account of the disease by Sydenham has reference to an epidemic which took place in 1670. The diarrhœa I set down as an accidental symptom, and, as such, it probably complicated the epidemic of that year, just as it does in our time those of other seasons.

We next pass to his description of the eruption, which he characterizes most accurately. We have it now, as then, appearing first in the form of red spots, resembling flea-bites, which gradually coalesce into semicircular, crescentic, and circular shapes, showing themselves first on the face, and spreading thence over the rest of the body. As the eruption increases, there is a diminution of the other symptoms. The eruption is found in the mouth and throat, as well as on the skin. In the case of negroes, it is of course detected only in the eyes and throat. In the pharynx and palate, as elsewhere, the eruption is not so much elevated above the epithelium, as it is above the surface of the skin. The next part of the description is doubtful—that is, the mode of disappearance of the eruption. It does not totally disappear on the eighth or ninth day, as alleged by Sydenham, for traces of it remain for some time afterwards, in copper-coloured spots, as shown in the cases in our wards; even after the spots entirely disappear the skin remains rough and dry. I do not at this time intend to go more largely into the ordinary symptoms of measles, for I can scarcely add any thing to the graphic description which I have read to you from Sydenham. While at Paris, and at the Hôpital des Enfants Malades, I collected a mass of observations on this subject; but not yet having been able to analyze them, I must defer presenting them to you to some future time. I shall now call your attention to two of the accidental symptoms which may complicate the regular course of measles, and often become the sources of great danger.

The first is bronchitis of a severe character. A slight bronchitis may be looked upon as a necessary symptom of the disease; it is to be deemed accidental when it appears under an aggravated type, or when the inflammation runs into the parenchyma of the lungs, and takes on the form of lobular pneumonia, which is similar to the pneumonia following the bron-

chitis of young children. This accidental symptom occurred in the man Morris, whom you recollect in the first ward, about the eighth or ninth day, when the eruption was fading, and our attention was directed to the development of moist rhonchi on the right side of the chest, showing the existence of severe bronchitis, with considerable dulness on the middle and posterior part, and some on the anterior region of the left side—a common seat of lobular pneumonia in measles. Instead of getting well, the man has remained ill, exemplifying the general rule, that, when lobular pneumonia is developed, after the subsidence of the eruption, it lasts for a considerable length of time. The signs by which its appearance is to be detected, are dulness on percussion, with a sub-crepitant rhonchus, and a slightly bronchial respiration. In place of attacking the mass of the lung, and rendering it solid, the inflammation appears in the isolated lobules, leaving among them portions of the lung still permeable to the air, which prevent the development of loud bronchial respiration. The respiration, in the very early stages of the disorder, and in the portion of the lungs which is not inflamed, is not lost, but rendered louder, and roughened.

In the case of the boy Perry, the pneumonia appeared on the eleventh day of the disease, after the eruption had entirely subsided, no traces of it being left but a few copper-coloured spots. His right lung was attacked, as is commonly the case; perhaps, from its greater size, and from the circumstances of the patient's lying upon the right side. The lower, and not the middle and upper lobes, was attacked; in this respect as well as in others, it is like ordinary pneumonia, but differs from it in the loudness and looseness of the crepitus, which ceases in regular inflammatory pneumonia as soon as the entire substance of the lungs becomes solidified. In the boy's case, as in that of Morris, convalescence has been very slowly established, and is yet by no means perfect; he is still lingering in a somewhat critical condition. In the case of Morris, I entertained, for a time, some fear of the existence of tubercles, the development of which is thought to follow attacks of measles: I say, is thought, for I am by no means certain that there is any necessary connection between the two affections.

The treatment proper to meet this complication of measles is necessarily various. At the *Hôpital des Enfants Malades*, during my residence, local depletion by cups and leeches was largely employed by Dr. Guersent. But the debility, consequent on this mode of treatment, was favourable to the reproduction of the disease in other parts of the lungs, especially as the pneumonia was observed almost invariably in children of feeble constitution. The proper rule for the employment of bleeding leeches, is to confine them to cases in which there is excessive dyspnoea, and a rapid extension of the pneumonia is going on. It extends through the lung most rapidly, in stout, robust children, and in them leeching does good. In the ordinary lobular pneumonia, as well as in that which follows measles, after one or two cuppings, the best treatment consists in small doses of ipecacuanha. By persevering with this remedy, until the expectoration, or rather the secretion (for with children there is no expectoration, as they swallow the discharge), is freer, the patient is relieved, and we may then complete the cure, by the exhibition of tonics and a generous diet. Above all, attention is to be directed to position. If the child lie constantly on its back, the development of pneumonia is almost certain.

It must, therefore, be moved frequently from one side to the other, and be from time to time raised in bed or carried about. In addition to ipecacuanha in expectorant doses, the sulphate of quinine and some preparation of iron, in small quantities, may be given, combined with a generous diet, if the child should become feeble, and the quantity of red blood should diminish. You will find, that in my lectures, gentlemen, I am not at all disposed to insist on too rigid a diet. I have seen so much mischief result from the continued enforcement of a rigid diet, in accordance with the mode of practice which was prevalent in France a few years ago, that it is with great caution, and no little reluctance, that I venture upon it, except for a short period. In some of the wards of the *Enfans Malades*, the practice was to place the children on a rigid diet, and the results were certainly far from favourable.

In the cases under notice, by pursuing the practice indicated, we have, in a great measure, succeeded in getting rid of the accidental symptoms. But there is still some cough, and other traces of lingering bronchitis. What is now the proper treatment? It should be principally hygienic. The patients are to go freely into the open air, taking internally, at the same time, some of the milder tonics.

The next accidental symptom, likely to complicate the course of measles, is severe diarrhœa, near to the close or after the termination of the disease. At the *Enfans Malades*, the children died in two ways when measles proved fatal,—of lobular pneumonia, during the active period of the affection, and of diarrhœa, at the end of it. The lobular pneumonia usually showed itself about the sixth day, the bronchitis appearing much earlier; but the diarrhœa does not usually come on until the eruption is almost over and desquamation was taking place. If this diarrhœa be but slight, no danger need be apprehended from it, and we rather avoid much interference with it. Indeed, it is generally looked upon as a safeguard to the child, and is, therefore, suffered to run on. But I do not consider the diarrhœa as slight and not to be checked, if it exceed four, five, or six stools during the day, and continue until it is accompanied by emaciation of the child, with paleness and dryness of skin. This variety of consecutive diarrhœa depends commonly upon a particular state of the mucous membranes, in which they are pale and soft, seeming to be acted on by the altered fluids in the body, and instead of being themselves the seat of very active disease. I showed you the other day, at an autopsy, a similar state of the mucous membrane, but occurring in the stomach; in this case, however, it was probably produced by the action of the fluids after death. This state of the mucous membranes, as it occurs in measles, I do not regard as an effect of inflammation, nor is it to be treated as such. Depletion, of any sort, here does no good, nor do remedies specially directed to the bowels always prove of much service. You must act on the skin until its functions are restored, and for this purpose nothing is better than the sulphur bath, made by dissolving the sulphuret of potassa in water. I have seen children recover, at the *Enfans Malades*, under this treatment with astonishing rapidity. It not only relieves the particular symptom to which it is addressed, but much improves the general condition of the patient. Indeed, it was remarked by Jadelot, that the same remedy, employed for the management of itch, not only cured that affection, but besides left the patient in a general state of health and embonpoint. If the sulphur bath cannot be administered, one of warm salt

water may be substituted. In addition to this treatment, adapted to the skin, slight opiates may be resorted to, with small doses of ipecacuanha, and astringents, which are supposed by some to act chemically upon the bowels. But depletion, by leeches or cups, must be abstained from, and the diet should be nutritious, but of a nature to leave little residue for the colon.

The last variety of accidental lesion which occurs during measles is acute diarrhœa during the height of the affection. This complication I have not witnessed during the epidemic at the hospital, though it was a very frequent occurrence at the *Enfans Malades*, in 1832, which was just before the cessation of the Asiatic cholera at Paris. That epidemic of measles was probably similar in its character to one described by Sydenham. The disorder is dependent on acute inflammation of the colon, and shows itself at the most intense period of the eruption; it is attended, generally, with the usual symptoms of dysentery, considerable pain, stools small in quantity, containing slime, sometimes patches of false membrane, and blood; in fact, we have a regular attack of acute dysentery, complicating the measles. The complication is, I believe, most apt to occur in the summer months of the year. That is, measles are subject to the general rule of pathology, which determines the nature of the accidental symptoms attending self-limited diseases. Thus, in the typhus fever which was epidemic here during 1836 and part of 1837, we had, during the winter, symptoms of the acute affection most usual in winter, as those of the chest, and, in summer, it was complicated with diseases which are endemic in hot weather, as dysentery and disorders of the alimentary canal. Neither of these accidental affections was in any manner a necessary accompaniment to the typhus. The complications of measles follow the same rule, except that both the inflammations of the lungs and the bowels are more frequent than in typhus fever; we have, in other words, very generally lobular pneumonia occurring in the measles of winter and early spring, and affections of the alimentary canal when the epidemic takes place in the summer months, particularly July and August.

The post-mortem appearances, in this affection, differ from those of ordinary diarrhœa. If closely examined, the colon and rectum are found to be covered with patches of lymph, and their mucous membrane is much disorganised, and of a violet tint, as in severe dysentery. So universal were these appearances on dissection, during the epidemic at the *Enfans Malades*, to which I have just alluded, that a gentleman, who was observing it, thought that he had discovered a new law of pathology, and that there was a constant connection between rubeola and inflammation of the colon. He was, however, mistaken, and from his error we may see the importance of observing with care the phenomena of several epidemics, and of again and again repeating these observations, before we allow ourselves to make from them any general deductions.

The treatment at the *Enfans Malades* for the dysenteric symptoms was the same that is employed in ordinary dysentery. It was attended with no great success, but it must be remembered that severe dysentery is at all times a difficult affection to treat. The remedies, however, should certainly be the same when dysentery forms the complication of which we have been speaking as in the common variety where it is the primary disorder. In the early stage we must have recourse to antiphlogistics, used with some freedom, by leeches and cups to the region of the colon and

the anus. The dysentery differs essentially, as I have before said, from the diarrhœa occurring at the close of measles, and we have no fears here about the propriety of an energetic antiphlogistic treatment; it affords prompt and great relief. We may afterwards administer opiates in very small quantities, and moderate doses of ipecacuanha. Calomel is so rarely employed in France, that I never saw it prescribed in those cases, and have not been able to test its efficacy in this affection frequently enough to speak of the advantages of using it. The after-management of the dysentery of measles is also much the same as of common dysentery, except that the former will be found to be of greater obstinacy than the latter usually is.

From these details, then, we deduce the following corollary. In measles, as in other diseases of known duration, we have one constant set of symptoms, as the eruption, and febrile movement with anorexia, thirst, restlessness, &c.; and next, a series of accidental symptoms, which extend from the slight bronchitis, necessary to the affection, to severe bronchitis and lobular pneumonia, and from the slight attendant diarrhœa, to diarrhœa of the subacute form, and severe inflammatory dysentery. It is to these accidental symptoms that you are to pay particular attention; and by doing so, I am persuaded you will much diminish the mortality of measles, which depends, as in typhus fever and small-pox, mainly on the severity of the accidental complications.

There remain to be noticed some varieties of measles, not observed here in the late epidemic. The first variety occurs in the other exanthemata, and consists in an imperfect development of the eruption. This is not so frequent in measles as in scarlatina; but we have occasionally coryza, a flow of water from the eyes, and cough, with but a very slight eruption, or one that is confined to the face. This is still a genuine, although an anomalous form of measles.

The second variety consists in the severe complication of internal inflammation with the eruption, which disappears soon after the beginning of the disease, and may be looked upon as suppressed. You then have universal bronchitis, the whole mucous membrane being affected with inflammation of an intense character, instead of the usual slight blush. We have then a grave internal affection, occasioned by the want of action on the surface of the body, the disease being, as it were, concentrated in the internal organs. This variety is always attended with great danger. It is to be treated by active counter-irritation of the skin, to supply the place of the absent eruption: for this purpose, sinapisms, the warm bath, and the like remedies are to be resorted to.

The third variety is the black measles, or rubeola nigra. This is not a real variety. It occurs in feeble children, in whom the blood is in a dissolved state, as from scurvy; or it may depend on the sudden development of lobular pneumonia, preventing the proper decarbonization of the blood in the lungs, and giving it a general dark tint.

These varieties are almost the only ones that you will meet with in practice, and on which it is therefore proper to dwell. Rubeola sine catarrho I have never seen—I scarcely believe in its existence. Some change in the bronchial mucous membrane is always to be detected; there is a dry rhonchus indicating a thickening of it, or we have at least some traces of a moist secretion. Cough is not a necessary attendant upon a slight bronchitis, and it is impossible to decide with certainty upon its

non-existence without a very careful examination, and I suspect it is the absence of close observation that has given rise to the variety of *rubeola sine catarrho*.

I have presented to you to-day but few clinical illustrations, as I was desirous of giving you a somewhat detailed descriptive notice of measles, a disease of frequent occurrence, and which now prevails epidemically. I have insisted particularly upon the importance of the accidental symptoms which are most frequent, for although other organs, as the brain and the windpipe, are sometimes the seat of grave lesions, they are not usually so much affected as the thoracic and abdominal viscera. There is another complication which is not rare in some epidemics, that is, the gangrenous sore mouth of children, of which I shall treat at a future time.

Measles is perhaps a more frequent cause of after ill health than any of the other exanthemata. The bad effects of small-pox and scarlatina are usually confined to the course of the disease; they destroy life at this period or soon after. But measles, though less dangerous during the eruption, may leave behind it greater organic lesions than either of the others. The effects of lobular pneumonia and diarrhœa are not easily got rid of; and, after a supposed convalescence from measles, we but too often see our little patients wasting away from emaciation, and after a lapse of a few months, perishing from the consequence of one or other of these dangerous complications, or from tubercles in the lungs, the lymphatic glands, or the follicles of the intestines.

LECTURE III.

Inflammations of serous membranes—Pathological anatomy—General symptoms—Pleurisy—Tuberculous peritonitis, &c.

In my lectures on pathological anatomy I have already pointed out to you the distinctive characters of the inflammations of the serous membranes. As you, no doubt, remember, these characters consist in the bright arterial injection of the membrane, and the secretion into its cavity of lymph, serum and pus. The lymph is secreted very early; I once detected it in a case of pneumothorax which proved fatal in an hour after the perforation: at first it is secreted in the form of minute points scattered thickly over the inflamed surface; as these points become more numerous, they gradually run together, until the whole surface is covered by a tolerably uniform coating of lymph, which is then called a false membrane. Portions of the lymph are afterwards detected in flakes interspersed through the serum. The liquid consists chiefly of serum, which is slightly turbid from the admixture of lymph, and of a small portion of pus, which gives it a yellowish tinge. The pus is not abundant in acute inflammations, and in subjects of a feeble constitution is scarcely perceptible; but when the inflammation becomes chronic the proportion of pus gradually becomes more considerable, until it at last forms the whole of the liquid. It is then called an empyema when formed in the pleura.

The manner in which the gradual absorption of the liquid occurs, and the two surfaces of lymph become organised, and finally adhere together,

must also have become so familiar to you as to require no further description at present.

Serous inflammations may be either primary or secondary. When secondary, they are usually dependent, first, on the previous existence of inflammatory rheumatism, secondly, on disease of the organs which they invest, and thirdly, on the existence of a tuberculous diathesis. I shall not now dwell upon the rheumatic causes of serous inflammation, as I entered into this subject, at a former lecture, when speaking of a case of acute articular rheumatism in which pericarditis occurred. Its connection, too, with disease of the parenchymatous tissues covered by serous membranes, we shall discuss at length, on some future occasion, when we may see that inflammation of the lungs, liver, that, in fact, every lesion of an organ, gives rise to more or less inflammation of its serous covering. This process is an effort of nature to isolate and protect the diseased organ. The third cause of serous inflammation, that is, the existence of a tubercular diathesis, is the most complicated, and presents the most numerous points for examination: into some of these we shall enter in the present lecture. The connection between serous inflammation and tubercles is the more important, from its enabling us to recognise a number of tubercular cases, otherwise obscure, by reasoning upon the law of pathology, that tubercles are so often connected with inflammation of these membranes.

In addition to those above mentioned, there may be other causes of secondary serous inflammation; they may be mechanical, as perforations, outward violence by blows, and the like, and the influence of cold which may be felt in the membrane surrounding the joints, intestines, lungs and heart, producing a primary inflammation.

That secondary serous inflammations are not of much more frequent occurrence than they are, is to me a matter of surprise, when I reflect upon the close connection of the organs with their serous investment; at all events, they are comparatively of more importance than the primary forms, from their greater fatality.

There are certain signs common to serous and other inflammations, by which they are generally ushered in. These are chill, fever, and sweating, with a general malaise, or feeling of wretchedness, loss of appetite, thirst, and in fact the ordinary febrile symptoms. They may, however, be entirely absent, and I have seen patients die of acute peritonitis without either fever, thirst, or severe pain. The pain accompanying serous inflammation is usually sufficiently indicative of its character. It may be said to be specific, being lancinating, sharp, acute, resembling such as would be inflicted by the stab of a knife. It is ordinarily described by patients in these terms; it may, however, be so slight as not to confine the patient to bed, in fact, not severe enough to enable him to localize the disease. Patients often come into the ward, with the general febrile symptoms above mentioned, without local suffering enough to allow them to fix the particular seat of their disease. It is obvious, then, that we cannot trust to the character of pain, in determining the nature of the affection, but must resort to physical examination, the phenomena of which, resulting from the identity of the liquid secreted, will be always the same.

There is, besides, a disordered action of the organ invested by the serous membrane; in pericarditis, of the heart, in pleurisy, of the lungs, and in peritonitis, although not so distinctly marked as in other inflam-

mations, there is generally sufficient evidence of disturbance in the action of the bowels.

The state of the pulse is another sign, supposed to be especially characteristic of this disease. But you recollect that, in the case of the man Robb, the pulse was merely moderately frequent, seventy-six per minute, notwithstanding the pericardium was inflamed; and, in another patient, labouring also under intense serous inflammation, you noticed also that it was very nearly of the same frequency, that is, decidedly not febrile. The character of the pulse is, therefore, a faithless sign of the existence of serous inflammation; it may be peculiar, small, wiry, and of intense activity, in which case bleeding is demanded without delay; but these distinctive features are not always present.

In the patient noticed to-day, the pleurisy was nearly, though not entirely, latent. The woman, whose case was before you, had neither pain nor fever, although there was an effusion into the pleura of a quart and more in amount. The signs of this effusion were merely physical. This latent pleurisy is a common affection with old people, many of whom perish from it, when supposed to die simply from the decay of old age. In young persons these diseases are not so often latent, except in a very chronic form, or where the patient has been exhausted by previous illness. An example of this was furnished by the case that terminated yesterday fatally at the hospital. It occurred in a patient who had been labouring under chronic peritonitis for a year previously, and who was taken about a week since with a slight increase of his ordinary pain, accompanied by severe prostration, which carried him off in a few days. An exception to this rule, however, occurred at the Pennsylvania Hospital three years since in the case of a man who was run over upon the belly by a cart. He suffered but little pain, from the first day, and was afterwards suddenly carried off, although the only alarming symptom was extreme exhaustion. Very extensive peritonitis existed, but without pain, although the intestines were covered with lymph. You see, therefore, how difficult it is to recognise the presence of serous inflammations, from the functional signs which are presented. If we had no other means of examination, or if we omitted physical exploration, because there were no special symptoms to arrest and direct our attention, we should be constantly in error. For example, it is a very common occurrence with labouring men, suffering from chronic effusions into the pleuræ, to complain of pain, not in the region of the pleura, but lower down, in the flanks, whence they are sometimes treated merely for lumbago. In such cases, there is absolutely no rational symptom to indicate the nature of the disease and the proper mode of treatment: it is by the local signs only that the true character of the affection can be traced.

The duration of serous inflammations is by no means fixed. It may be divided into two periods, the one including the time that passes during the increase of the effusion; the other that during its stationary and declining stage. After effusion has taken place, it is not possible to cure the patient abruptly; time is absolutely required for the consolidation of the false membrane, and for the absorption of the pus and serum that have been secreted. In all acute inflammations of serous membranes, if you see the case only after effusion has taken place, you may safely predict that your patient will not be well, at least, for several days; and the rapidity of the recovery will depend upon the quantity of liquid which

has been effused, and the time it has remained in the pleura. But, if you are called to a case, say of pleurisy, at the beginning of the attack, while there is merely slight inflammation without much effusion, the patient may get well abruptly, and the morbid secretion may be limited to a little lymph, which is a necessary consequence of all serous inflammations.

I do not intend now to enter at length into the peculiarities of treatment, nor into a detail of the physical signs, belonging to the varieties of serous inflammations, except so far as they may be exemplified by the cases which I shall bring before your notice. The remarks which I have just now made were necessary in order to make clear a number of cases, the histories of which I shall presently relate to you. You must bear in mind the distinction which I made between primary and secondary serous inflammations. The first of these is rarely fatal, except in the brain or heart; by interference, you may shorten its course, but you expect it to get well under any circumstances. Inflammations of this character depend merely on atmospheric vicissitudes or other such cause, and are not preceded by a tubercular lesion, or connected with this diathesis, nor are they the result of a perforation, which is generally irremediable. When you have a secondary serous inflammation, you are to look upon it in most cases as an effort of nature for the preservation of the part; and when it is complicated with inflammation of the parenchyma of the organ which it invests, it is a curative and preservative process, and is not to be interfered with, unless it is of that severe character which endangers the life of the patient.

The first illustration, which I shall bring before you to-day, is the termination of the case of the man Robb. At the last lecture, I mentioned to you that the rheumatism was almost cured. The affection of the heart was then, and is still, persisting, although it is now chiefly limited to the internal membrane of the heart, and the symptoms are still so severe as to prevent the man's yet leaving his bed—a proof of the difficulty of suddenly arresting diseases of this nature. These cases of serous inflammation, occurring during an attack of rheumatism, generally assume a character altogether independent of the course of the latter affection: the great fire goes out, but the smaller burns slowly on. Not only, indeed, does this cardiac inflammation run its course, but it often leaves behind it organic changes in the heart, that may last for a succession of years, or for life, in the form of thickening of the valves, or adhesion of the laminæ of the pericardium. Numerous cases of extensive disease of the heart take their origin in an attack of rheumatism; they may, on the other hand, be of a slight character, and entail no greater disturbance of the economy than slight palpitations, and an inability to use the same amount of active exercise as in perfect health.*

The next case I shall notice is somewhat curious; it is pleurisy, occurring in a young Irish-woman, Isabella M'Gargee. In December, 1837, she was exposed to great fatigue, and suffered much mental anxiety dur-

* This patient was perfectly cured by rest, some local depletion, and a blister: his cure was absolute, for three years after he was engaged in very laborious work without the slightest disagreeable feeling about the heart, or any abnormal sound. In most cases I use depletion more freely, but from the general aspect of this case I was induced to resort to bleeding of any kind in a very moderate degree, and the result was extremely favourable. It should be remembered that there was little pain and no febrile excitement. These afforded the chief reasons for abstaining from much active treatment.

ing the illness of a relative; she was then taken ill with severe pain in the region of the heart, dyspnœa and palpitation; for these symptoms she was bled and blistered with relief. Her health, however, was not entirely restored; there was still palpitation, at times cough and some oppression. At the beginning of April, she worked very hard in a damp cellar, washing clothes, and was seized, in a day or two afterwards, with fever and pain in the right side, extending from the breast towards the nipple, and much increased by respiration, or by the cough, which was short and dry, not frequent. There was also pain caused by lying on the affected side, with considerable oppression. The gradual increase of these symptoms obliged the patient to enter the hospital. There was no œdema of the limbs, and but moderate palpitation; there was no important previous treatment, and the patient was not strictly confined to her bed.

We now inquire if the disease can here be recognised at the first glance, from the detail of symptoms gathered from the patient. It cannot. Let us enter into an examination of the symptoms. In the first place, can the affection be neuralgia? It has some points of resemblance with this disease, but it differs from it in many particulars which are sufficiently well marked. First, it is not common for any considerable degree of cough to exist in neuralgia, nor have we in it a steady, local pain, as in the case described. Another set of symptoms, which establishes the difference between the two affections, is that belonging to the countenance, the medical physiognomy of the case. This is characteristic, not of neuralgia, but of an intense pectoral disturbance.

Satisfying ourselves that it is not neuralgia, we make a general diagnosis of an acute disease of the chest, first, from the severity of the dyspnœa present, established by the spasmodic contraction of the chest and of the nostrils; and, secondly, by the alteration in the colour of the countenance, in the dark blue tinge of the lips and flush of the cheeks. This is not purple enough for the existence of pneumonia, and we, therefore, infer, that our case is, probably, one of bronchitis, pleurisy, or acute phthisis.

Having carried our examination thus far, let us proceed to discriminate between the affections, to which we have reduced the case. This can be done only by physical exploration, without which it is impossible to recognise with absolute certainty the distinctive features of the disease. What, then, are the physical signs which establish the character of the affection before us? First, we have an abnormal development of one side of the chest, at the lower part, and diminishing gradually in ascending. This, at once, settles satisfactorily the nature of the affection; it is a pleurisy. Had the development been confined to the anterior part of the chest, it might have been emphysema, or, had it been local, pericarditis; but only a pleuritic effusion could have made it what it was. Next, we have immobility of the ribs: in the present case this could result only from pain, from distension, or from old adhesions. The history of the case disproves the probability of the existence of old adhesions on the right side; so that from the pain, then, we again deduce the presence of acute pleurisy.

Continuing the examination, we next proceed to percussion, which yielded the following results. There was flatness in the lower posterior half of the side of the thorax, and of the lower third on the anterior part; as well as of the lower half of the axilla. Thus far, we can diagnosticate,

with certainty, the existence of pleurisy; the flatness followed the line of gravity, or, in other words, corresponded with the situation of the liquid, which, following the ordinary laws of liquids, accumulated in the bottom of the chest, just as if it had been contained in a common bag.

We continued the examination by auscultation. Had the disease been pneumonia, we should have had bronchial respiration and a dry crepitus. This was not the case, as the lung was quite permeable to the air, and not a hard, solid mass. There was no rhonchus, for there was no liquid in the bronchial tubes. The physical signs, then, have led us to a certain conclusion as to the nature of the affection. In many cases of pleurisy, when the lung is more condensed, we have, however, a bronchial respiration, but no crepitus, unless complicated with pneumonia.

The next question that presents itself is, as to the primary or consecutive character of the disease. To solve this question we entered upon an examination by auscultation of the other side of the chest; there was, here, no evidence of the existence of tubercles, in any great numbers, but, from the fact of there being some dulness on percussion, there was reason to suspect their presence, though not to determine it with any certainty. Besides, from the circumstance of the mutability of the situation of the pain, as there had been, you know, a previous attack on the other side of the chest, the existence of tubercles was rendered probable. It is a law of pathology, that, if a pleurisy appear on one side of the chest, and some time afterwards show itself on the other, it, in all likelihood, is dependent on the presence of tubercles. This law of the double pleurisy, as it is called, was discovered by Dr. Louis, and, in most cases, may be relied on with certainty. I infer, then, that, in this case, the pleurisy was probably tubercular.

Besides the suspicion of tubercles as a predisposing cause of pleurisy, the patient is labouring under an undoubted disease of the heart. It began during the acute inflammation of the early part of the winter, when the pericardium was involved at the same time with the pleura. As a consequence of that inflammation, we have hypertrophy and dilatation of the heart.

The treatment of this patient has been active; she was bled to sixteen ounces, was cupped, and has since taken tartarized antimony and digitalis. Under these remedies, with rest and restricted diet, she is rapidly improving.

The remedy here used, tartar emetic, is found to answer perfectly well in the management of pleurisy. It increases the sweating, and promotes absorption directly; the digitalis has a similar action through the medium of the kidneys. In pleurisy, when the inflammation is circumscribed, local depletion is the best treatment. This acts very promptly in serous inflammations, although it has but slight influence over the inflammations of parenchymatous structures. In the latter case relief is afforded only in proportion to the quantity of blood abstracted, while in pleurisy it is in proportion to the nearness of the point of abstraction to the seat of pain. The pain is relieved, also, by the application of warmth to the part, by poultices and fomentations. These, however, are not to be withdrawn suddenly, or without the substitution of a thick pad of carded cotton or wadding; otherwise they only do harm, by the alternation of heat and cold which takes place. The advantages of these local applications cannot be too highly estimated. I often rely more upon them than upon

more powerful remedies, which, if they relieve pain, at the same time diminish the strength.

The treatment of ordinary simple pleurisy is not a very complicated affair. And I would remark, that every case, in which there is no positive evidence of a change in the functions of nutrition, even though there may be strong ground of suspicion of a tuberculous or other chronic disease, is to be regarded in the treatment as a simple pleurisy. The treatment of Dr. Louis, which I do not, however, follow in all cases, consists in small bleedings, combined with the internal administration of tartar emetic, nitre, digitalis, and diuretics. Of sixty cases that I saw him treat, he lost not one. It may be inferred, that is an effectual plan of treatment for simple pleurisy. I may add, that, in a simple case, if effusion take place, you need not be very uneasy, if it is slow to absorb, provided the case is otherwise proceeding well.

Of the remedies, by which chronic pleurisy is to be managed (meaning, by chronic pleurisy, cases of more than a month's duration), I shall not now treat in full, giving you merely a general summary of them. Blisters, which, in the early periods of acute pleurisy, are not often necessary, and do harm twice for once that they do good, are of signal service in chronic pleurisy, scarcely ever doing mischief, and often affecting a rapid absorption of the liquid effused. They are to be applied not once, but repeatedly. Under their influence, absorption sometimes takes place, with astonishing quickness: indeed, it seems, in a few instances, as if the fluid was directly poured out from the interior of the chest to the blistered surface by a sort of endosmosis. Mercurials, in small doses, are not much used by the French, either alone, or in combination with squills and digitalis. But in cases approaching in character to hydrothorax, great advantage will be derived from a treatment with calomel, squills, and digitalis, or the simple action of the mercurials alone, either pushed to ptyalism, or nearly so, will be found very powerful, both in the advanced stages of the acute and in nearly every period of chronic pleurisy. Even an obvious but slight tuberculous complication does not always forbid the use of mercury in these cases. In addition to treatment by medicines; travelling, a sea voyage, distractions, a simple change of place, will be of much service. The importance of travelling is greatest in those cases in which we fear the complication of a tuberculous diathesis. Whether there be already formed tubercles in the lung, or merely the constitutional tendency to these affections, I am quite sure that by this means and by attention to other hygienic circumstances, patients are often preserved from a threatened consumption.

In addition to the case illustrative of one of the most simple serous inflammations, I shall say a few words respecting another case, in which pleurisy occurred, as a well-marked complication. The case was one of pneumonia, consecutive upon tubercles, the existence of which was known by unequivocal signs at the upper part of the lung. There was something, however, engrafted on the pneumonia. This was pleurisy, which was detected by a sign which often occurs in the latter stage of the affection, and is then pathognomonic, the *bruit de frottement*, a sound caused by the friction of the surfaces of the pleura, lined with false membrane, upon each other. It resembles the sound produced by the rubbing of leather or India rubber, and is the same grating sound that was heard over the heart of the man Robb, but in the present case it is pro-

duced by respiration, and is synchronous with it. It is, also, fugitive in its character, and disappears when the membranes become consolidated.

I shall conclude with one other case, which terminated fatally a few days since, demonstrative of one of the causes of serous inflammations, the details and phenomena of which will serve as a key for future investigations. It was a case of chronic tubercular peritonitis. My reasons for this diagnosis were based upon the conformation of the abdomen, which was irregularly distended with gas, upon the existence of lancinating, griping pains, or alternations of costiveness and looseness of the bowels, and upon the pain caused by motion, or the distension consequent upon eating; there was, besides, nausea and vomiting. The peritonitis occurred here without any obvious cause, and was, therefore, not primary. For there is a law of the economy that chronic peritonitis is nearly always, particularly in young persons, dependent on the presence of tubercles. In addition to this general law of pathology, the great alteration in the nutritive functions made the diagnosis of the development of tubercles much more certain. It was at first doubtful, from the large distension of the abdomen from serum; but the water here was soon absorbed, and there was no recurrence of ascites. There was evidence also of tubercles in the lungs, although not very decidedly marked. Had there been no physical signs of phthisis the case would have been still positive, but we found a sufficient number of signs for the local diagnosis of tubercles.

Most commonly, tubercles appear in the lungs of adults before they are deposited in other parts of the body; but, in this instance, the application of this general law failed. The patient, some days before his death, was seized with sudden prostration, under which he rapidly sank, and with some increase of the abdominal pain.

After death, the following appearances were discovered. There was effusion of serum and pus into the abdomen; in the upper portion there was merely serum and lymph, and, in the lower, the intestines were agglutinated by false membranes perfectly organised, not vascular, but there was red injection in the upper part from a more recent inflammation. The cause of this difference was perforation of the intestines from tuberculous ulceration of the glands of Peyer, two of which had ulcerated through all the coats of the intestine into the peritoneum. The pathology of these perforations is the following:—A tubercular follicle in the intestine enlarges and softens, and is discharged into the calibre of the gut. The ulcer left does not heal, and, passing into the chronic state, advances towards the serous covering of the intestine, which is sometimes destroyed. The peritoneal inflammation is only an attempt of nature to preserve life by preventing the discharge of fecal matter into the peritoneum. It fails, because the mischief done is too considerable to admit of reparation.

In the lungs, the only evidence of the presence of tubercles were half a dozen grey granulations, that could be felt, but scarcely seen; while, in the peritoneum as well as in the intestines, they existed to such an extent as to cause disorganization. This disease is unusually rife among negroes; indeed, it is sometimes called consumption of the negroes, in the southern parts of our country. It rarely attacks adult males, more commonly females, and is very prevalent with children, in whom it forms one of the diseases known as *tabes mesenterica*, although the mesenteric glands are not invariably affected.

To recapitulate my remarks of to-day:—Serous inflammations may ap-

pear as primary and secondary. When primary, they are not dangerous, except in the brain; but they are so when secondary, because complicated with some previous lesion, and occurring in exhausted subjects. They are to be treated, in both instances, on pretty much the same principles, by depletion, and acting on the skin with alteratives in the more chronic stages. If excessive pain exist, narcotics may be used to relieve it, with the topical applications you may see every day employed at the hospital.

For the proper study of tubercular diseases, gentlemen, a knowledge of the pathology of serous membranes is indispensable. Previous, then, to entering upon the examination of the former affections, I have introduced the subject of serous inflammations to facilitate our future investigations. The study of tubercular diseases is not, as you have also seen, to be confined to the chest, but to be extended to all the organs of the body, as you will more fully learn at a later period.

The tuberculous affection of the abdomen, which has been under consideration to-day, though not the most common form of the disease in our latitudes, is one of the most prevalent in southern climates, and is on that account the more interesting to many of you.

LECTURE IV.

Acute inflammations of the membranes of the heart—Pericarditis—Endocarditis.*

DURING the past summer I have very frequently alluded to the inflammations of the membranes of the heart. It has so happened that we have had a very unusual number of these diseases; you have seen more cases of the kind within the past six months than I have observed within the last two or three years, and it is very improbable that you will again witness so many cases of these affections, in the same short space of time. The serous inflammations have been almost endemic in our city, and, if we except a moderate proportion of bowel affections, they have constituted the prevailing diseases of this period.

It was for this reason that I commenced the course with acute rheumatism, and then passed on to the consideration of the serous inflammations so closely connected with it. Amongst these, the subject of the membranous inflammations of the heart was accidentally introduced; but I did not then point out to you the numerous interesting questions arising from the study of these inflammations, which you will find of difficult diagnosis, unless you are thoroughly acquainted with their pathology and with the means of physical exploration. Without the aid of the physical signs of the disease, the inflammations of the heart cannot be recognised, except in a very small proportion of cases. You have had a recent illustration of this fact: a patient, whose case I shall presently detail you, has been evidently labouring under pericarditis of considerable intensity; the effusion of lymph and serum occurred, as it were, under our own eyes, and you were able to trace the gradual consolidation of the lymph, when adhesions began to form between the two surfaces of the pericardium, yet the patient complained of no pain whatever in the chest, and no uneasiness

* This lecture was given some months after the preceding.

other than that caused by the rheumatic inflammation of the joints which preceded the pericarditis. In but two or three cases was the pain sufficiently considerable to induce us to suspect the occurrence of any affection of the heart; one of these cases, attended with pain and the best marked, was that of Robb, which I mentioned when speaking of inflammatory rheumatism. He suffered some pain, but it was usually inconsiderable, until his entire recovery. The other two were blacks, who were affected with inflammation of both membranes of the heart, and recovered, but died afterwards of a consecutive dropsy. These latter patients had recovered entirely of the cardiac affection, and, in all probability, would not have fallen victims to the dropsy had they not both laboured under a cancerous disease.

When you examine more fully the history of the cases, you will find the other rational signs equally obscure; I can affirm that the obscurity was not owing to a want of appreciation of these signs, for I examined the cases in your presence with the most scrupulous accuracy, and you can bear witness to the precautions taken to elicit every practicable symptom in the case. The inflammations of the heart are, therefore, to a great degree, latent, and you must commence their study, with the conviction that their diagnosis is impossible, in a large proportion of cases, without a thorough knowledge of their pathology and a sufficient acquaintance with the physical signs of disease. But if this knowledge be possessed, and some of you have already attained it, there is no part of medicine more perfectly demonstrative in its character, or which is governed by more unvarying laws, as to the progress and termination of these diseases.

I will now relate to you some of these cases, and we can compare them together to ascertain how far these remarks are confirmed or invalidated by your own observation. At all events you have been eye-witnesses of the facts which I detail to you, and the circumstances of the cases will, therefore, be more completely impressed upon your mind, and will carry with them a force of conviction and a clearness of detail, which could never result from a purely didactic lecture.

The first case I shall give you is that of a patient, now convalescing in our wards from pericarditis, nearly uncomplicated with inflammation of the internal membrane of the heart. It occurred, as is most commonly the case, during an attack of acute inflammatory rheumatism, and had just appeared when the patient came under your observation. The following symptoms were dictated in your presence:—

“David Dargan, aged thirty-eight, a lime-burner, accustomed to drink freely, entered my ward September the 2d. On the 28th of August, after drinking rather more freely than usual, he was taken with convulsions and became slightly deranged; he was bled, returned for a short time to consciousness, and again became incapable of recollection. On the 29th he was stupid and could answer no questions; the stupor was unaccompanied by distortion or active delirium. No muttering; no return of convulsions. Digestive functions good. He was cupped freely to the nucha twice; pediluvia were applied; he took nitre and the effervescing mixture, and was purged. In two days he recovered his intellect, but not entirely his memory. Consciousness not quite perfect until the 2d. On his return to consciousness, he had pains in both legs, hands, and shoulders, with swelling. From the 1st to the 2d there was increase of pain and heat, and on the 2d, there was redness. No edema or palpitations. There was

intense cephalalgia, which was relieved by cupping. For the last three or four years he had fluttering of the heart after exercise, and was short-breathed at the same time. This began after an illness of seven months' duration, the result of intermittent fever. He had rheumatism ten years ago, after being exposed to rain, and two or three times before, but merely local in the shoulders, not confining him to bed. He recollected no other illness, never had syphilis. At the beginning of the pains, on the 28th, had a severe chill, but none after.

“His condition, on the 2d, was as follows: swelling, heat, and pain in the ankles and feet; slight swelling of the knees; and redness and swelling of the hands in nearly all the joints. Some pain, but no swelling, in both shoulders, but none in the elbows. Pulse ninety, full, nearly regular. Tongue moist and natural. Appetite good; no nausea; stools regular. Skin generally warm, scarcely moist. Both sounds of the heart heard in the whole præcordial region, varying, but never perfectly natural. The first sound more or less roughened, the second heard distinctly, rather sharp: between the two, or rather at the commencement of the second, was heard a very evident bruit de frottement, which could be detected over the whole præcordial region, but was most distinct over the left margin of the sternum, more marked in the erect than in the recumbent posture. Impulse of the heart increased and irregular. Percussion dull from the right margin of the sternum to the nipple, and from the fourth rib downwards. No pain, no dyspnoea, almost no cough, no uneasiness on percussion. Spinal tenderness from the seventh dorsal vertebra to the fifth cervical, more severe on the spine than on the adjoining parts. Cups were ordered to the whole length of the spine, with a sixth of a grain of tartar emetic and opium each, every two hours, and low diet.

“On the 3d, there was great alleviation of the rheumatic symptoms. No cough or pain across the chest; no palpitation. Creaking sound in the præcordial region more distinct than on the 2d, extending over the whole region, and synchronous with the diastole, varying in intensity and tone. Impulse of the heart diminished, more diffused. Sounds much less loud, and both heard distinctly, the first less rough than on the 2d. Prominence rather greater. Percussion dull to an inch and a half beyond the nipple, thence to right margin of the sternum. Respiration posteriorly, vesicular throughout the chest, resonance of the voice doubtful; opium and tartar emetic continued, twice the quantity of the former, with cups to the præcordia.

“On the 4th the pain and swelling were rather less, but there was great weakness, which may have been owing to the tartar emetic. Other symptoms better. Eight ounces of blood had been taken from the chest, by the cups. Percussion now quite clear within the nipple, dullness extending nearly an inch and a quarter from mid-sternum. Sounds of the heart much louder, the first offering only a moderate bruit de soufflet; the second, near the point of the sternum almost replaced by a simple creaking sound, which prolonged itself also into the first, but less distinctly; heard all over the heart, less towards its left margin, very loud along its whole sternal region, at times giving a musical tone. When the patient was erect, the impulse of the heart was stronger, and the creaking more frequent, in fact converted into an incessant grating. Eight ounces of blood were again taken from the præcordia by cups, and the opium and tartar emetic continued.

“ On the 5th, the pain was less severe in the hands, more so in the shoulders and muscular parts of the arms ; soreness in the muscles of the thighs, less in the feet ; increase of swelling and puffiness in the knees, but not of pain and swelling. No spinal tenderness, cough, or oppression ; sleep disturbed by pain ; prominence greater than yesterday ; percussion clear, however, except for an inch and a half at the point of the sternum ; impulse of the heart greater, clearer, sharper ; first sound diminished, grating much less distinct, heard chiefly at the point of the sternum. On sitting up, the action of the heart was stronger, the grating much more distinct, heard under the same circumstances as before ; three stools since last evening ; when he took half a grain of ipecacuanha and five grains of Dover's powder, twice. To-day, five grains of Dover's powder, four times a-day, and cups to the spine.

“ On the 6th, no swelling in the knees, almost no soreness, less of both in the feet, none in the left hand, almost none in the right ; soreness and swelling in the shoulders not diminished ; no soreness of the back or breast. Pulse ninety-two, regular, and softer. Sweating profuse, no chilliness. First sound of the heart very short and faint. Second, loud, masked by the creaking sound. Percussion duller, to an inch within the nipple ; impulse rather stronger. Cups between the shoulders, and Dover's powder continued.

“ On the 7th, countenance gay ; shoulders better ; no swelling of the hands, almost no stiffness ; knees natural ; very slight swelling in the ankles, with a little pain in the right. No spinal tenderness. (Has been cupped four times ; twice to præcordia, eight ounces, each time ; twice to spine, six ounces ; twice cupped, before his entrance, to the nucha, seven ounces ; and had been bled from the arm.) Pulse quick, regular, ninety-five. No prominence in the præcordia. Percussion perfectly clear. Dulness very incomplete everywhere. Impulse of the heart more clear ; first sound prolonged ; creaking in the second limited to the point of the sternum, disappearing when he rises. Sweating profuse, constant. Urine rather increased. No chills. Dover's powder continued ; hop poultice to the feet.

“ On the 8th, soreness almost ceased in the feet, a little effusion in the knees, but no increase of pain ; slight soreness in the points of both shoulders. Pulse one hundred and eight, thrilling, regular. Sweating continues. Impulse of the heart much stronger, first sound nearly natural, a little prolonged ; bruit du cuir so faint at the beginning of the second that it would have seemed doubtful, if not previously heard. Treatment continued with cups between the shoulders.

“ On the 9th, has pain only in the knees and hips ; less in the shoulders since the cupping. Sweating, still continues. Pulse one hundred and two, quick, thrilling, and resisting. Appetite good ; no nausea ; three or four stools daily. Respiration now heard over the whole præcordial region ; impulse stronger, creaking quite decided in the second sound ; first still blowing, less than last evening, when the pulse rose ten to fifteen beats. Dry cups were applied to knees last evening with relief to the pain. Treatment continued.

“ On the 11th, no pain in the hands ; some cephalalgia. Pupils a little contracted. Some wrinkling of forehead. Expression anxious. Pulse one hundred, full, thrilling, softer than yesterday. Slight subsultus ; talking in sleep, says he is accustomed to it when well ; sweating

continues; five stools in the twenty-four hours; legs restored to motion, almost no swelling; stiffness of right shoulder and arm, including elbow; slight of left; feels no uneasiness in the chest; a little soreness apparently in the pectoral muscle of both sides; first sound of the heart and impulse natural; creaking scarcely heard (has taken no medicine in the last twenty-four hours); four ounces of wine in whey, and an assafœtida plaster to the epigastrium.

“12th. Last evening, about seven o'clock, had more tremour, more subsultus, countenance the same; took four ounces of the assafœtida-mixture, every two hours. Enema of twenty drops of laudanum. Slept well during the night, awoke once or twice only. Pulse ninety-six, full, soft; pains not increased. Soreness felt now only in the shoulder-joints. Bruit de soufflet harsher than yesterday; a little rasping, creaking, indistinct; second sound very clear. Percussion nearly as before, a little less clear; assafœtida-mixture continued; wine omitted; full diet.

“13th. Muttering during sleep; pain less; two stools in twenty-four hours. Impulse of the heart louder and clearer; both sounds louder, particularly second, which is still a little blowing, still subsultus; sweating. Pulse ninety-two, feeble, regular; continue assafœtida.

“17th. Still has pain in legs and arms; drowsiness constant: no subsultus; intellect quite clear. Pulse one hundred, regular, small; motion returned to every joint, but some stiffness in shoulders and knees; sweating abundant. Both sounds of heart heard; creaking not ceased; more diffuse, less loud. Dulness of percussion not increased. Chamomile tea.

“18th. Sitting up; no pain except slight in shoulders and knees; sounds of heart natural, except slight creaking in second. Convalescence confirmed.

“19th. Perfectly free from pain, except when moving; then suffers from soreness of limbs; skin cool, pleasant; appetite good; sounds of the heart clear; creaking barely perceptible.

“20th. Continues well; remains a few days longer to confirm his convalescence.”

When you examine the history and progress of this case, you will see upon what facts the diagnosis of pericarditis is based. We must then examine other cases which have terminated fatally, in order to test the correctness of the laws of diagnosis, which I shall lay down. We have, fortunately, lost no patient in the present course, during the continuance of the pericarditis; but we shall be able to obtain the necessary evidence from an examination of those cases which terminated fatally of some accidental disease after the termination of the pericarditis, and we then can compare those cases with others that have terminated unfavourably at a previous period.*

The signs of pericarditis in one patient varied according to the stage of the disease. During the period of effusion, which had already begun when the patient came under our observation, five or six days after the commencement of the rheumatism, we had the physical signs of pericarditis, which are clearly described by Dr. Louis. That is, flatness on percussion to a much greater extent and to a more considerable degree than occurs in a healthy subject, decided prominence of the præcordial region, which was distended and raised up by the liquid, and dulness of the sounds of the heart with febleness of impulse. Now, these signs

* Some cases of this kind were then mentioned.

become the more characteristic from their constant variation ; the quantity of liquid scarcely remained the same for two consecutive days, and you, therefore, found the signs of the disease to increase during the time that it augmented, while they diminished very rapidly when the pericarditis declined. Had the dulness and the prominence of the præcordial region been permanent, the case could still have been recognised, but there might have remained some room for doubt ; for chronic enlargement of the heart, particularly if complicated with effusions of serum into the pericardium, resembles a case of pericarditis in most of its physical signs. The resemblance ceases when you watch the case for several consecutive days.

There was another sign indicative of pericarditis, which also served to point out to you the variety and stage of the disease. It was the sound produced by the rubbing together of the two surfaces of the pericardium covered with lymph. This sound occurs during the systole and diastole of the heart, especially the latter ; it was, therefore, most evident during the second sound of the heart which occurs during its dilatation. This new sound was so loud as, in some measure, to conceal the natural second sound of the heart, which was, however, never entirely destroyed, but could always be detected by a practised ear, as it were, combined with the new adventitious sound. The second cardiac sound was not lost, because it depends on valvular contraction, and the valves of the heart remained nearly in the normal state ; now, had the disease been complicated with much inflammation of the internal membrane, as was the case with the man Robb, to which I have previously alluded, the motion of the valves would no longer have remained free, and we should have found either that the second sound was altogether lost, or much changed from its natural character. The cause of the grating sound is nearly the same in inflammation of the pericardium and of the pleuræ ; that is, in both cases it arises from the friction of two surfaces of serous membranes more or less coated with lymph ; it is not precisely similar in the two cases, because the quick action of the heart differs greatly from the slow gradual movement of the lungs in the act of respiration. The grating sound of pericarditis, therefore, is more sharp and quick, but less loud and prolonged than that of pleurisy. It is useless to describe this sound to you, for you have heard it for yourselves, which answers better than any description ; those who have not heard it, may readily distinguish it by its creaking, like the sound produced by rubbing together two pieces of moist leather, whence it has been sometimes called the "bruit de cuir," or leather sound ; a trivial name, which is by no means so expressive as that of rubbing or grating sound. It cannot be recognised by one not previously acquainted with the natural sounds of the heart, with which the slighter shades of this adventitious sound may be confounded. You could distinguish it readily in the present instance by a careful analysis of the sounds when you found that the sharp clear tone of the second sound was more or less obscured by this rasping sound extending over the whole anterior surface of the heart, especially at its middle portion. There is but little difficulty in distinguishing the grating sound of pericarditis from the rasping sound caused by thickening or vegetations upon the valves ; the latter is more frequent in the systole, is always heard most distinctly at the region of the valves, and is not attended with a sensation of grating, which is quite perceptible to the touch in most cases

of pericarditis. When there is but little effusion the little grating sound is more important as a sign, for there is this very dulness on percussion and no prominence.

As the lymph became consolidated, the grating sound gradually declined, but it has not yet disappeared, although the patient is now in full convalescence. Nor do you generally find that this sound will disappear quickly; for, if the lymph form prominences on the surface of the heart, it may remain for several months, at least until it is so far absorbed as no longer to present rough projections for the grating of the two surfaces together.

The sounds of the heart, properly so called, were both distinguishable throughout the whole of this case; they were somewhat feeble, had lost a little of their natural clearness and seemed distant; but neither of them was either very much changed, or had lost its due proportion. In simple pericarditis, you will find that this is usually the case. It is true, that the motion of the heart is never quite free, and its sounds do not retain their full development, but it is also true that the slight aberration from the normal sound which occurs in simple pericarditis, is very different from the rasping or very rough bellows-sound heard in cases of endocarditis; whether this latter disease be simple or merely a complication of the pericarditis. You had a beautiful illustration of this distinction when you examined the case of the patient Robb, which was described when speaking of acute articular rheumatism. In him there was both endocarditis and pericarditis, and we had the distension and dulness of sound indicative of pericarditis, with the rough and harsh sound, caused by the thickening and consequent stiffness of the valves. The chain of proof of what I have just advanced is, with me, conclusive; for I have seen cases of both endocarditis and pericarditis quite uncomplicated one with the other, and, therefore, well suited for studying the signs of these diseases in their simple state. I have again seen other cases in which the symptoms of one disease greatly predominated, without being perfectly unmixed one with the other. Some of these cases terminated fatally, and the examination after death proved the correctness of the diagnosis. The most recent cases of heart disease of the kind to which I am now alluding, were furnished by two patients affected with pneumonia; both died of the pneumonia, which was aggravated by the disease of the heart, although this latter affection was not, in itself, sufficient to cause death; and we could, therefore, test our diagnosis as applied to a membranous inflammation of the heart of moderate severity and in itself not fatal.

The first case occurred in the last winter; it began with laryngitis, attended by extreme prostration; the patient was then attacked with pneumonia, of which he died. During the course of the pneumonia, the patient was taken with pericarditis; there was a manifest dulness in the præcordial region, a slight prominence, and a distinct, though feeble creaking sound, chiefly heard during the dilatation of the heart. The sounds of the heart scarcely differed from the normal standard, although the impulse was somewhat feeble. As there was some obscurity in the case, the patient was, at my request, examined by my colleague, Dr. Pennock, who concurred with me in the diagnosis. The patient died, some days afterwards, from the pneumonia; on the autopsy we found patches of false membrane scattered over the surface of the pericardium, proving the existence of pericarditis. There was no liquid in the peri-

cardium ; this again corresponded with the accuracy of the diagnosis, for, previously to the death of the patient, the pericarditis had evidently declined, and the dulness on percussion had been gradually replaced by the natural resonance. This case, which occurred during the course of the present winter, afforded conclusive evidence of the actual relation between the signs of pericarditis and the corresponding anatomical lesions.

The second case presented itself more recently ; it was that of a man ill with pneumonia which had advanced to the period of suppuration, previously to his admission. This patient offered, during life, the signs of uncomplicated endocarditis ; there was a dull confused action of the heart, neither of the natural sounds being very distinct ; their rhythm was also somewhat changed. The impulse was diffused and labouring. There was but a very slight increase of the natural dulness on percussion, at the præcordial region, and there was no creaking sound. I considered this case as one of endocarditis, without much valvular alteration, and mentioned my reasons for this diagnosis to several of you, who were then present. The patient died of the mingled effects of the pneumonia and the endocarditis, and, as you remember, we found the internal membrane of the heart reddened, as well as that of the orifice of the aorta ; it was covered with a delicate membrane that could be detached from it in strips of considerable length. On examination of this membrane by the aid of a magnifying lens, we found that it was apparently organised and traversed by numerous blood-vessels.

LECTURE V.

Tubercular meningitis—Case—Anatomical characters—Symptoms.

I SHALL continue to-day, gentlemen, the subject of inflammations of the serous membranes, and take up the consideration of a case which came under your notice at the hospital, a day or two since, and presented an example of inflammation of the serous membrane investing the brain. We may the more properly enter upon the subject at this time, as it will facilitate our future examination of the diseases of the substance of the brain.

The patient, of whom I have spoken, died in the ward No. 3, and was not under my immediate care. He was a carpenter by trade, and had suffered severely in early life from scrofulous affections ; both his feet had been ulcerated from this cause, some time previous to his admission. He also laboured under disease of the heart, and entered the hospital for hydrothorax, the cavities of both pleuræ being filled with water, and suffering under an extreme and distressing dyspnœa. He was relieved from these symptoms by salivation, combined with the use of digitalis and squill. He got rid of his shortness of breath, and was able to work in the out-wards of the establishment, where he continued, until the breaking out of the epidemic of measles, with which disease he was taken on the second of April. He suffered considerably from the measles, but gradually became convalescent, till, on the twenty-eighth of April, he offered some symptoms of a cerebral affection ; that is, unusual dulness, stupor,

and oppression. On the first of May, the cerebral symptoms became so well marked, that they were recognised as those of meningitis by the physician in attendance. At that date he was in the following condition. For two days previously he had manifested great restlessness, with occasional incoherence and hallucinations. Skin warm; pulse full and strong, the *bis feriens* character, which attended his convalescence from measles, having ceased from the twenty-ninth of April. This *bis feriens* pulse, a frequent sign of convalescence from the measles, which was well marked in this case, ceased, you see, the moment he was taken with the new disease of the brain. The thirtieth, venesection ζ ix.; the crassamentum of the blood was tolerably firm, and it was neither cupped nor sisy, about one-half of it being serum. The man at this time answered questions slowly. The conjunctiva was slightly injected. The tongue pale, moist, slightly furred. The pupils insensible to light, although he still recognised objects. No cephalalgia. The abdomen resonant; not painful on pressure, except in the hypogastric and pubic regions, where it was also distended and flat on percussion. Percussion of the left side of the chest resonant, except in the præcordial region; respiration pure. Percussion of the right side resonant, but less so than the left. Impulse of the heart strong; the first sound prolonged, attended with strong bellows-murmur in the neighbourhood of the nipple, the same character of the first sound observed between the second and third ribs; the second sound roughened, and heard over an unusually large extent of the right side. A purgative of salts and senna was prescribed, and a blister to the nape of the neck, dressed with mercurial ointment.

On the third the countenance was rather less dull than on the first, and he answered questions better; had been delirious the night before. There was some grinding of the teeth. The skin was moderately warm and hot. Pulse ninety per minute, and much smaller. Conjunctiva much redder; a discharge of a small quantity of yellowish matter from the right eye. In the afternoon, there was some strabismus and increased stupor. An injection of oil of turpentine and castor oil was administered, and cold applied to the head.

On the fourth there was very great stupor; the eyes were closed, and the patient could not be roused to answer questions. The head was turned to the right side; the right eye inflamed as before; the pupil of the left eye smaller than yesterday. Pulse about eighty-five, irregular and moderately strong. Bowels opened three times by the injection. Abdomen supple, and not distended. Cold to the head continued; calomel, followed by senna and salts. The same day the man died.

The symptoms here, you perceive, were not those which denote active, violent inflammation, but were simply dulness of the intellect, stupor, with grinding of the teeth, &c.

The treatment was commenced by a bleeding which would have been larger, if the previous disease of the patient had not rendered him too feeble to bear it, and was followed by purging, and an attempt to mercurialize the patient, which latter failed, from the short time that elapsed between the administration of the remedies and the man's death.

The following appearances were found in the brain twenty-four hours after death.

Marked adhesion between the dura mater and the membrane beneath. The vessels of the dura mater were more congested than usual. In taking

the brain from the cranium about two ounces of fluid escaped. The large vessels of the pia mater were much congested; the capillary vessels of a bright red tint,—inosculating. In the middle part of the right side, the convolutions were flattened; on this side, the injection of the pia mater extended to that portion dipping into the convolutions, and it adhered strongly to the cerebral substance. The injection and adhesions were less marked towards the posterior portion. At the anterior extremity, the arachnoid membrane was opaque; the injection and adhesion somewhat less than at the middle. On the left side this bright injection occupied the middle half, and was confined almost exclusively to the small arterial vessels. Pia mater less adherent than on the right side. Arachnoid slightly opaque, throughout the whole extent presenting a few minute granulations, near the parietal protuberance. The cortical substance on both sides was of a rosy tint, a little brighter on the left than on the right. That portion of the arachnoid covering the fissure between the hemispheres, and at the summit of the brain, was slightly roughened. Corpus callosum softened. Fornix and septum lucidum pulpy. The right ventricle was larger than the left; the quantity of serum contained not known. The thalami and corpora striata were pale. At the base of the brain, the colour was in a great measure lost, from the commencement of decomposition; but in the whole anterior hemisphere injection of the small vessels was manifest. There were small adhesions between the anterior lobes of the brain. Fissure of Sylvius, on the left side, strongly adherent, by a solid deposit around the vessels, part of which, in the form of granulations, was still distinct. On the right side the same thickening occurred around the vessels, but the newly-formed matter was less abundant than on the left side; it still presented tuberculous granulations, less in size than a pin's head. The arachnoid was opaque and extremely thickened; the thickening of this membrane extended backwards over the chiasm of the optic nerves, which it slightly invested. Towards the cerebellum the thickening of the membranes became more marked at the upper portion, at the point of junction with the cerebrum; the double secretion was there distinct, consisting, in part, of minute granulations, beneath the membrane, and in its thickness; and, in part, of a thick, opaque, hard substance, filling up the space between them. The cerebellum was firm, like the rest of the brain.

There were no tubercles in the lungs, or the viscera of the abdomen. The state of the lymphatic glands was unfortunately not noted by the gentlemen who made the examination. From the former scrofulous disease, these glands were probably tubercular.

It is to be inferred, then, that the disease of the brain was here of an inflammatory character, from the injection and thickening of the arachnoid membrane. It was evidently of the tuberculous variety, from the granulations which were found scattered beneath the arachnoid—it was a case of tubercular meningitis. The bright injection of the arachnoid, which is limited to the smaller vessels, is a very good diagnostic sign of inflammation; had it been observed in the larger vessels merely, I should have regarded it as a simple congestion. In the present instance we have, then, only the alteration in the membranes of the brain, to account for the cerebral symptoms, as the substance of the organ is not at all affected.

This subject of tubercular meningitis, gentlemen, is one that will present itself frequently to your notice, as it is a disease very common with

children, and by no means rare in adults. It is generally slow and insidious in its progress, and requires a very careful examination to distinguish it, particularly in its early stage. I have taken for the subject of some general remarks to-day on this disease, a case in which we have had the pathological phenomena very clearly presented to us, and in which the indications, previous to death, were sufficient for a correct diagnosis of the affection. This case, I may remark, exemplifies the occasional effect of measles, in giving rise to the development of tubercles, to which I alluded at my last lecture.

This individual, we learned, had an attack of brain fever (so termed by his mother) many years ago, by which his mind was at the time considerably affected. This was probably a scrofulous inflammation of the same character as that which finally carried him off. Children may recover from these tubercular cerebral affections, and, at some subsequent periods of their lives, present the same symptoms in a more marked manner, from a new secretion or, as it were, second crop of tubercles in the membranes of the brain. So, patients may partially and temporarily recover from pulmonary phthisis, as was shown to you in a late autopsy, where co-existing with the cavities which immediately preceded the death of the patient, were distinct traces of the operation of a former cure, in the hardened cicatrices, which we found in various parts of the lung. The man whose case we are considering, had probably recovered from an attack of tubercular meningitis, early in life, and he might have remained well, had not the occurrence of measles awakened the slumbering tubercular disposition, and caused a fresh development of the affection which now proved fatal.

This subject of tubercular meningitis I investigated very fully some years ago at the Children's Hospital at Paris, and obtained some important results as to the nature and cause of the affection. The first point of inquiry, upon entering on the subject, is, have we any evidence of the existence of tubercles, elsewhere than in the brain and its membranes, in this affection? In the children who died from this form of inflammation of the brain, I found tubercles in the bronchial glands or other organs of the body, as well as in the substance and membranes of the brain, where they were found from the size of a pin's head to that of a large pea.

There was but one evident exception to this rule, out of thirty cases, that were analyzed in a paper, which I published in the American Journal, in 1834. In the exceptional case, there were tuberculous granulations in the membranes of the brain, but not in other viscera. The coincidence of tubercles in various parts besides the brain conclusively proves, that a general tuberculous diathesis existed in these subjects, for in no other class of acute disease does the same rule obtain. In a few cases, however, the tuberculous deposit may not appear except in the membranes of the brain.

Having determined the point as to the general tubercular nature of the disease; the next matter to be investigated is, the causes on which depends the development of the affection. Unquestionably, the scrofulous diathesis is the strongest predisposing cause of this affection, using the word scrofulous as significative alike of the tubercular and strumous temperament. In almost all the cases in which the cerebral affection occurs in adults, a scrofulous disease has previously existed, and perhaps been cured in some other part of the body, as the lower extremities, the glands

of the neck, the lungs, and elsewhere. As to the exciting causes of the disease, they escaped us almost entirely; in the majority of cases, at the *Enfans Malades*, we could detect no antecedent fact, which could at all account for the development of the tubercular disease of the brain.

The measles, however, in the case under notice, is to be looked upon as the accidental cause of the development of the disease; and I may make the general remark, that, whenever, in a scrofulous child, you have an acute disease accompanied with fever, you may look for the development of inflammation of the brain, and are to watch your case with exceeding care.

The prognosis, in tubercular meningitis, must, generally, be more or less unfortunate, particularly in hospital practice. This deduction I base upon the observations made by myself and my friend Dr. Ruz, at the Children's Hospital at Paris, where, for one or two that got well, forty died. Indeed, Charpentier, who observed ten years ago in the same hospital, went so far as to say that he never saw one case recover. Yet, in private practice you will find the results much more favourable. In the hospital at Paris, the children were badly fed, confined in close rooms, and the treatment prescribed was not so minutely carried into execution as in private practice. I have not seen many children with this complaint since my return to Philadelphia, but those cases which I have seen were generally but not always fatal. A striking instance occurred in the child of one of our nurses; she was a girl of four or five years of age, and recovered entirely, but a second attack came on, a year or more after the first, and proved fatal.

The adults who are taken with tuberculous meningitis, nearly all labour under phthisis pulmonalis, which complication contributes not a little to the fatal termination of the affection. These cases are, of course, not fair standards for estimating the powers of treatment. In many cases, also, of this disease, the existence of tubercles in the lungs may not be ascertained during life, although they may be found after death. This was the case with a negro, whom I examined some years ago at the Pennsylvania Hospital. (See *American Journal*, 1836.) During life he had neither cough nor expectoration, but I found, after death, numerous miliary tubercles in the lungs, as well as in the brain; in other words, the man laboured under general acute tubercular disease, which, from similarity in the size and appearance of the granulations, must have commenced nearly at the same time in the lungs and brain, but had not attained a large size in either organ. Generally, we meet with the disease in adults, under circumstances that preclude the hope of a cure; but, in children you may entertain a fair hope of success, if you see the case early; if it has advanced so far as the second stage of the disease, you have but a slight prospect of saving the child from speedy death.

The symptoms differ in children and in adults. In adults, the disease appears in patients actually labouring under phthisis, or of a decidedly strumous diathesis; while it often shows itself in children, who are in the enjoyment of tolerably good health, notwithstanding some latent tendency to scrofulous diseases. Whenever, therefore, in children, the symptoms which I shall describe as characteristic of the forming stage of the disease, present themselves, the physician should put himself upon the watch, though they are not to be looked upon as invariably indicative of the result in question. Tubercular meningitis may begin in two ways:—

First, it may come on abruptly, as ordinary acute meningitis, with vomiting, chill, and fever. The cerebral symptoms may appear, however, without even the prelude of vomiting; in adults this symptom is commonly wanting. When its approach is more gradual, the following order of phenomena is observed:—

For the first few days the child merely evinces unusual restlessness and irritability, showing signs of excitement of the brain. He avoids light and sound, from the extreme sensibility of the eyes and ears. We have also a change in the intelligence, if the child be old enough to permit such attention to be noticed. First, it is simply excited; the child is more lively and acute, and more attentive to external objects than before. Afterwards the countenance becomes changed; the cheeks are flushed, the eyes unusually bright, and a well-marked frown and wrinkle are to be noticed on the forehead. This is one of the most important signs of the early stage of the disease; and at this period, it is essential to recognise all the symptoms, and this peculiar expression you may consider characteristic. This, together with the bright red flush upon the cheek, the nurses in the Children's Hospital used to look upon as an unfailing mark of the approach of the disease. The decubitus is at this time but slightly altered. But we often meet with some secondary symptoms, which, although they are not always present, are of some moment; these are nausea or vomiting, constipation, and fever, which is at first of a mild character.

We now pass to the second stage, comprising the symptoms which were first observed in the man who had just died; those of the forming stage were lost in the decline of the measles. These symptoms are delirium, which cannot of course be very accurately observed in children, particularly if they are very young. But some signs of it may be generally detected, especially at night, in the quick answers and altered manner of the child. This delirium differs from that of ordinary acute meningitis, in which the patient is violent, noisy, and loquacious. Here there is mere dulness and stupor, somewhat similar to the delirium of typhus fever; the child is not very violent, makes no efforts to walk about or to do mischief, but remains in a state of dull muttering.

I was impressed by this peculiarity of the delirium of tubercular meningitis, in two cases which came under my observation at the Pennsylvania Hospital three years since. In one, of so moderate a character was the delirium, that the patient was admitted for simple insanity. The only other symptoms that attracted attention, upon his admission, were a peculiar hobble and limp in his gait. We found the traces of several scrofulous disorders, which had been cured, and the man had also a slight cough, of which he had complained for two years past. The patient was constipated before his entrance, and shortly afterwards vomiting ensued, and then the cerebral symptoms became more decided. The paralysis occurred very early, from the coincidence of softening and inflammation of the substance of the brain with that of the membranes.

At first, in fact, I thought it was paralysis, from mere softening of the brain. Afterwards, I began to doubt, and regarded the case as one of tuberculous meningitis: finally, the autopsy cleared up all obscurity. The paralysis was found to be dependent on softening of the brain, and the delirium arose from tubercular meningitis with effusion of lymph at the base. This complication of lesions necessarily gave rise to the intermix-

ture of the symptoms of meningeal with those of cerebral inflammation ; in practice this coincidence is by no means rare, and it is not often difficult to detect it. The seat of the disease was here the same as in the case of the man Crane ; the deposit of tubercles was along the blood-vessels, following the ordinary law which regulates the secretion of tubercular matter.

Besides the delirium of the second stage, we meet with alteration of the senses, as in the case of Crane. The pupils are generally dilated, moderately and gradually ; in some cases, they are contracted, but, as was observed by Dr. Stewardson in the present case, it is difficult to tell if they are permanently contracted, being at one time contracted, and at another dilated. These alterations of the pupils are most important signs, particularly when accompanied by the muttering delirium.

Lesions of motility next present themselves. These consist at first principally in subsultus or even spasms, as in typhus fever ; indeed I have sometimes hesitated for a little while in my diagnosis, between the two affections. Paralysis is by no means a necessary symptom in the second stage of meningitis. But we have then the beginning of another symptom, rigidity. In the case of a man now in the wards, this stiffness could be detected only by careful examination of the elbow, but it may be usually very early ascertained with proper caution. This rigidity differs from contraction, which is a more advanced degree of it, and is more rarely met with in this form of meningitis. Rigidity is not here confined to one side of the body, as in apoplexy and softening of the brain, for the tubercles are secreted, on both sides of the base of the brain, and, hence, the symptoms of disease of the membranes are rarely confined to one-half the body, while those of the cerebral substance are as rarely extended beyond it.

These are the chief cerebral symptoms of the second stage of the affection. We now pass to another set, those of the digestive organs. Vomiting is one of the most constant symptoms of tubercular meningitis in children, but it rarely continues beyond the first stage. Another peculiar and important symptom is constipation. In the second of the two patients in the Pennsylvania Hospital, to whom I have alluded, the case was at first looked upon by his physician as one of simple constipation ; and the true nature of the complaint was suspected only when it was found that the symptom did not yield to purging. This gives us a valuable therapeutic indication, in the treatment of the affection—that is, the propriety of purging. The appetite is generally lost from the beginning of the affection. The thirst is in proportion to the degree of fever present. The state of the pulse may be learned from the case of Crane. In him, the *bis feriens* pulse, of 60 and 66 per minute, existing during the convalescence of measles, rose at once to 90, and continued at this point till the third stage, when it sank again to 85. It was therefore simply febrile in the second stage, and irregular in the first and third. It is rarely slow, and slowness may be looked upon as a good symptom, except in the third stage.

The other symptoms are less significant in their character, and I would merely refer you to the memoirs which I published in the *American Journal*, in the years 1834-5.

In the third stage, or after effusion of serum, pus, or lymph has taken place, the ordinary termination of serous inflammation, to which I called

your attention in my last lecture ; we have a subsidence of the acute febrile disturbance, the pulse is often preternaturally slow, coma comes on with partial paralysis from the pressure of the effusion, which is not necessarily confined to one side of the body, and is slow and gradual in its advances.

I have given you merely a slight sketch of the pathological anatomy of this affection, as I do not, in this course, intend to dwell, at any great length, upon this subject. The treatment of tubercular meningitis, to the consideration of which we now pass, involves many important questions. It must vary, according to the severity of the actual symptoms, and the circumstance of the existence of a previous tubercular disease. If the patient is in the third stage of phthisis pulmonalis, you can of course do little or nothing. If this be not the case, however, you may, I think, do much. The case must be at first treated as one of simple meningitis. Your object should be to get rid of the acute inflammation of the brain, which increases necessarily the disposition to tubercular secretion, and may at once kill the patient. You must not, however, deplete to the same extent that would be advisable if there were no tubercular deposition. You are to steer a middle course. My plan is to resort to blood-letting, general and local, unless the development of tubercles be very far advanced. I have recourse to general blood-letting once, and once only, even in adults. It is an old remark of writers, that inflammations of the membranes of the brain generally bear excessive depletion worse than those of other organs, but always tolerate well the local abstraction of blood. Local bleeding is to be directed, so long as the patient can bear it, that is to say, until he becomes pale, and the flush is gone, whether the other symptoms abate or not. After depletion, I was formerly in the habit of placing blisters to the back of the neck. I am now in the practice of applying them behind the ears. The discharge can here be kept up longer, and will act more steadily, and the sore can be better dressed ; the patient may be mercurialized by dressing these blisters with mercurial ointment. The discharge by the blisters I keep up, until the patient is perfectly well. Another remedy is counter-irritation elsewhere than near the head. The feet are apt to be cold ; they are to be plunged into hot water from time to time, to be clothed with flannel, and rubbed occasionally with cayenne pepper. But you are to abstain from further blistering ; it only serves to create fever, and is generally mischievous. Sinapisms may be used, but the surface is not to be vesicated.

The next remedy to be employed is purging. If the patient be strong and robust, it answers a very good purpose, and in a few rare cases at once relieves him. But in children, if relief be not afforded by one or two purgative doses, it is proper to be cautious as to their employment. With children I begin with a mercurial purge, from four to eight grains of calomel, to be followed by a saline purgative, or, still better, some castor-oil. Mercurials are used by the French merely for the purpose of purging ; of course they do not salivate, and, when persisted in, do no good. As soon as the acute stage of the disease has abated, you must commence with mercurial dressings and frictions of the abdomen. These are of most service in the sub-acute variety of the disease.

I have now detailed you the ordinary practice to be observed in the management of tubercular meningitis. To one or two points your attention is to be particularly directed. You must carefully watch the moment

when it is proper to stop blood-letting, and immediately after commence the introduction of mercury into the system, and continue it until the active period is past.

After the third stage of the disease is established, and paralysis makes its appearance, treatment can do no good. The affection is then fatal, because the functions of the brain are so much interfered with that the patient must necessarily perish.

Tubercular serous inflammations are not elsewhere so fatal, as when they occur in the membranes of the brain. When secondary peritonitis and pleurisy destroy life, death usually follows from perforation of the glands of Peyer, or perforation of the lungs.

The tuberculous inflammations of these membranes, however, assume a much higher importance from their tendency to return and even to attack other portions of the body. Besides, they certainly favour the development of tubercles, in cases in which the patient had previously presented merely the signs of the diathesis which precedes this morbid deposit. For a more complete account of this connection, I must refer you to my lectures on pathological anatomy.

The symptoms and treatment of tuberculous meningitis you will find detailed in the memoirs which I published in the *American Journal*, in the years 1834-5, as well as in the paper of my friend, Dr. Rufz.

LECTURE VI.

Peritonitis from cancer of liver—Acute Meningitis—Diagnosis—Symptoms—Treatment.

It is my intention, to-day, gentlemen, to continue the discussion of inflammations of the serous membranes, with particular reference to the subject of meningitis. Previously, however, to entering upon this latter topic, I shall call your attention to a case of serous inflammation, which terminated, a day or two ago, at the hospital, and at the post-mortem examination of which most of you were present yesterday morning. We had, you recollect, acute peritonitis, pervading the whole of the abdomen, the result of a chronic disease of the liver. This disease of the liver was suspected, during the lifetime of the patient, there being sufficient evidence of the enlargement and hardening of the organ. The nature of the affection we found to be cancerous; rounded deposits having the anatomical characters of vascular sarcoma, were scattered throughout the substance of the liver, offering very fair specimens of this variety of soft cancer. I shall not now enter into an examination of the subject of cancer, but shall confine myself to the acute inflammation of the serous membrane, which was induced by the carcinomatous disease. This case of secondary peritonitis exemplifies the law I enunciated to you, at a previous lecture. Serous inflammations, with the exception of those of the membranes of the brain, are not very dangerous, unless they occur as secondary to a primary lesion of an organ, or are connected with a cachectic state. This secondary inflammation, which is very frequent in the peritoneum, may be either acute or chronic. In the present instance, it was acute, and, probably, arose from the cancerous tumours approaching the surface of the

liver. Examples of the chronic secondary inflammation of the peritoneum are most frequent in phthisis, when they are connected with a tuberculous deposit in the serous membrane itself, as was demonstrated to you in one of my last lectures on pathological anatomy.

In the present instance the peritonitis was acute; it was only within the last two or three days of the patient's life that he was seized with acute pain over the whole of the abdomen, accompanied with great tenderness on pressure. A tumour was distinctly felt, which I described to you as similar to the pointing of an abscess, and induced me to suspect the presence of suppuration. After the occurrence of the acute pain, the patient sank rapidly, without any other of the usual symptoms of peritonitis, as vomiting, &c., but his prostration was extremely great. Prostration of this character is a striking symptom of the secondary serous inflammation of the peritoneum, and is a most valuable sign in leading us to our diagnosis. You have seen it before in a case of pericarditis succeeding gangrene of the lungs, and also in the case of a black man affected with tuberculous pleurisy. Whenever you have sudden and extreme prostration, supervening upon a chronic disease, in any of the great cavities, you may suspect the existence of secondary inflammation of their serous coats; but it is much more intense in peritonitis than in pleurisy or pericarditis. This was the character of the tubercular peritonitis, depending on perforation of the intestine, noticed in a preceding lecture; and I have, at other times, pointed out to you instances in which there was the same kind of perforation into the cavity of the pleura, following ulceration of the lungs. Perforation is by no means necessary to the production of these secondary inflammations of serous membranes; in the case now before us, the exciting cause was the irritation of the cancerous masses in the liver, but just beneath the peritoneum. The same disease may occur in the ovaries, uterus, and other parts, producing similar results.

Another example of secondary peritonitis is the affection, generally designated as puerperal fever, a term which is now usually limited to peritonitis, although some physicians are still in the habit of including all febrile diseases of women in child-bed under this head. It is imperative, however, to distinguish between these affections. The true secondary peritonitis of puerperal women depends upon the inflammation of the uterus or its veins, or else upon the irritation consequent upon delivery; but it is rendered more frequent and more severe by the strong tendency to suppuration, which extends to all the membranes and organs of puerperal women, and gives rise to the various affections which are sometimes called puerperal fever.

The anatomical signs in this case were similar to those observed in the other cases of serous inflammation, which have come under your notice just now, from their great prevalence in spring and the beginning of summer. Thus, to study pathology, you see how necessary it is to pass through seasons and even cycles of disease. In these serous inflammations, you see how interlocked they are with all other diseases, occurring sometimes as idiopathic, but in the large majority of cases as secondary affections; the first class being rarely fatal, except when attacking the membranes of the brain. Continuing the subject of special serous inflammations, I shall now proceed to take up the subject of *meningitis*.

Meningitis may be easily confounded with other affections of the brain.

We had a case a few weeks ago, of a surgical patient, affected with disease of the urethra, in which it was with some difficulty that we made out, even after death, a satisfactory diagnosis, the point being settled with certainty, only by the presence of a slight quantity of pus. I was called to the case, a short time before the man's death, when the only striking symptom was delirium, which I looked upon as merely the concluding act of life. The true nature of the affection was, however, revealed by a post-mortem examination. We found, first, a bright injection of the pia mater, which is characteristic of inflammation, particularly if there be no serum present. Injection of the large vessels is not indicative of inflammation, but merely of congestion; the two not usually co-existing together—a bright arterial tint denoting the one, while the other gives a dark blue colour to the surface implicated. The injection was in this case spread over the whole surface of the membrane; this is generally the case, although it predominates at one portion, either the base or the summit of the brain. Here, the inflammation was most evident at the summit, involving the faculties of the intelligence; while, in children, it usually occupies the base and is connected with a disturbance of the senses. The distinction I make here, coincides with one of the leading points of phrenology, which allots the faculties of the intellect and of the senses to different portions of the brain. Although I look upon the details of this science as still founded only upon the imagination, yet the great fact, that the intellect is connected with the summit, and the senses with the base of the brain, is unquestionably true, and confirmed by pathological observations.

The roughness of the serous coat, the arachnoid membrane, is the next point to be noticed in this case. It might seem, that mere effusion of liquid would be enough to characterize inflammation of this membrane. This is not so, however; when it is in a healthy state, there exists a liquid, which is clear and transparent, but in the early stages of real inflammation, it becomes altered in quality and deficient in quantity. The inflammation is not so much that of the arachnoid membrane as of the subjacent pia mater, in the meshes of which the morbid products are chiefly retained. True inflammation of the arachnoid is of very rare occurrence. In the present case, we found pus mixed with lymph in the pia mater, giving a yellowish appearance to the membrane. The three great pathological features, then, of this case, from which we concluded that it was one of acute meningitis, were the injection of the small vessels of the arachnoid, the roughening of this membrane, and the deposit of lymph and pus beneath it.

The consideration of this case offers another point of much interest—the connection between affections of the urinary organs and diseases of the brain. Ten years since, my attention was first directed to this subject, upon observing a man labouring under stricture and thickening of the lining membrane of the urethra, to my great astonishment, perish suddenly from cerebral symptoms. At the Pennsylvania Hospital, two or three years ago, I noticed the death of a man from similar symptoms of disease of the brain, after a few days' illness, who had been previously suffering from inflammation of the neck of the bladder and urethra. Various writers, and particularly Lallemand, have called attention to this subject. Dr. Lallemand has dwelt, especially upon the connection between diurnal seminal emissions dependent upon chronic inflammation,

and the development of cerebral disease. The cases of this character, described by Lallemand, he usually traced to gonorrhœa, which, occasioning a thickening of the neck of the bladder, the vesiculæ seminales, and the ductus ejaculatorius, left the latter in a patulous condition, allowing a discharge of semen to take place without ejaculation, during the acts of urining or fecating. The dependence of cerebral disease upon causes of this nature, is therefore a highly important fact, which will assist you in understanding some affections otherwise not easily explicable, for the seminal weakness, of long continuance, enfeebles the understanding, and, finally, the brain is disordered to such an extent, that medical relief is sought for. I have had several cases of this character, in which the affection was supposed to be connected with a nervous temperament, and was, in short, referred to various other causes than the correct one, but, in every instance, I was able to make out the previous existence of chronic gonorrhœa, producing the condition of the urino-genital organs which I have described, and, through this means, giving rise to functional cerebro-nervous disturbance. At first this is purely nervous, but after it has lasted for a few days it may become inflammatory. When the nervous disease is replaced by the organic one, you will find that the symptoms become much more permanent, and more or less paralysis soon follows. M. Lallemand treats these affections by directing his remedies to the urinary organs.

In the case of the man at the Pennsylvania Hospital, to whose death, with cerebral symptoms, I have alluded, we found upon examination after death the vesiculæ seminales and ductus ejaculatorius destroyed; an abscess behind the verumontanum, filled with pus; and the coats of the bladder contracted and thickened. The particular history of the case was not taken, but it illustrates finely, how chronic diseases of the urethra give rise to affections of the brain: and how causes, trivial in themselves, may produce serious and fatal functional disturbances. Death, to use the words of M. Lallemand, may be the result of a series of illnesses, dating their origin from an attack of gonorrhœa; which is in itself an insignificant affection.

From this digression, I return to the subject of inflammation of the membranes of the brain. The case of the man Brown, which has been under your notice for some time past, at the hospital, will serve as a fair illustration of the subject. We have no example in the hospital of acute meningitis, but the case of Brown, which is of the sub-acute form, being more slow in its progress, and better marked in its character, will very properly serve as introductory to the study of the acute type of the disease. This man was taken ill with cephalalgia, in the region of the forehead and frontal sinuses. We inferred, as we had a right to, that it was not a case of secondary meningitis, from the absence of any previous ill health. Soon after the commencement of the headache, the senses became implicated; the sight of the left eye was impaired, and the hearing was disturbed with tinnitus, buzzing, resembling the noise produced by a saw, and as the affection declined, it was like the humming of bees. These comparisons are the patient's own expressions, and were not elicited by any leading questions; they are, therefore, the more descriptive of the symptoms. With the advance of the disease, there were dulness, sadness, and somnolency, but no delirium. There was contraction about the eyebrows and the root of the nose, forming, as I mentioned when noticing

this symptom in the lecture on tubercular meningitis, one of the best marked signs of meningeal inflammation. The contraction was, in this case, of a permanent character, and would have enabled any one, at all accustomed to the affection, at once to recognise it. There was no paralysis; no subsultus. The inflammation was confined to the anterior and inferior parts of the brain, not extending to the summit, as the faculties of the intelligence were but little impaired, nor was there much lesion of the cerebral substance, for there was neither paralysis nor rigidity.

After establishing the symptoms, the question starts itself, with what affections might this case be confounded? With very few. First, it could not be acute meningitis. The tongue was natural, and, although there was some constipation, there was no nausea or vomiting; there was no cough; nor was there any unnatural excitement of the pulse, and no dreaded delirium or intense excitement of the brain. The inflammation was then limited to a small spot of the brain, for had it been more extended, the pulse must have shown it, by becoming unduly excited. The same absence of paralysis which showed that there could be but little cerebral lesion, would indicate that the disease did not depend upon large tubercles, or other chronic tumours of the membranes, for these lesions speedily produce palsy. By way of exclusion, therefore, we succeeded in localizing the affection, and we recognised meningitis attacking the anterior portion and base of the brain. In addition to its anti-febrile character, its course, which lasted a month, a much longer duration than belongs to the acute form of the affection, and its gradual decline, satisfactorily demonstrated its sub-acute progress.

The prognosis was an important point, which came up for discussion, at the period of the man's entrance into the hospital. It was at first doubtful; was the meningitis secondary, and dependent on the presence of a tumour or tubercles, or the like? After the lapse of two or three days, it was clear that there was no chronic disease, but that the affection was a mere local phrenitis or meningitis. We made our minds up to this conclusion, from the evident absence of all symptoms of an impaired constitution. The man had not been ill before the time of his recent attack, he had never called for the aid of a physician, nor had his friends; I say his friends, because in chronic cerebral affections the patient himself is often afraid to call attention to his symptoms, and the first application for medical relief is on the part of his friends, as the evidence of some decided mental aberration or change of feeling or habits is forced upon them.

The treatment proper in acute meningitis is sufficiently well exemplified by that pursued in this case. There are certain great laws well laid down for the management of this affection, which are much more clearly understood than the subject of therapeutics in general, owing, I think, to the fact, that close observation is more easy in meningitis, from its rapid and well-defined symptoms, than in diseases of the thorax or abdomen. The following are the points to be attended to in treating acute meningitis.

Blood-letting, in patients who give evidence of tolerable strength, embonpoint, and previous good health, is always advisable; but in the acute form of the disease, depletion becomes a measure of absolute necessity, and, if it be neglected, your chance of saving your patient is but small. Should your bleeding be large or small? It is best to take a considerable quantity of blood at once from the patient, if he be a stout and healthy man; you may thus, sometimes, immediately arrest the disease. When

serving in the Pennsylvania Hospital, I had a case illustrative of the good effects of this practice, and of the great importance of a correct diagnosis in cerebral affections. A man was brought into the cells, said to be labouring under mania a potu: he was a sailor, who had just made a voyage from Boston; he had been drinking to excess, but had also been working hard, exposed to a very hot sun. Upon examination, I found the signs he exhibited to be not those of ordinary mania a potu; his head was hot, his pulse quick, in short, he was in the first stage of acute inflammation of the brain. I bled him largely, between twenty and thirty ounces, and he was, I may say, instantly cured. It is true, that the next day I directed a slight cupping, a purge, and the like, but they were merely by way of precaution. Had this patient been treated by opiates as a case of mania a potu, he must almost infallibly have died. Such cases I have seen treated in this manner in hospitals, for so common a vice is drunkenness in this country, that all diseases of the brain occurring in intemperate persons are apt to be indiscriminately regarded as the effects of excessive indulgence in ardent spirits. When I was a resident physician in the Alms-House Hospital, a woman was brought in with a fracture of the skull, upon which arachnitis supervened. She was treated as a case of mania a potu, by a gentleman who was writing a thesis on this subject; his mind was consequently absorbed by this single variety of cerebral affection, and a most unfortunate error was committed. She died; and upon examination after death, spiculæ of bone were found driven in upon the dura mater!

After you have bled once largely, it is best to limit a repetition of general bleeding to cases of individuals of a very plethoric habit. In place of general depletion, keep up cupping and leeching, which, if persisted in with regularity, will do much good. As to cupping, every thing depends upon the manner in which it is applied. In the case of Brown, all the cuppings were of service except one, when the cups were applied to the temples; here it seemed only to augment the irritation—the pressure of the cups very near the seat of disease causing an afflux of blood to the part. The cups, which were applied to the back of the neck, all did good. I do not speak of cups to the forehead, because nobody thinks of using them in that quarter. My advice, then, is to cup rarely to the temples, and generally to the back of the neck; leeches behind the ears may be employed with much advantage; in this very case, I found leeching behind the ears of service, when the cupping ceased to do good, showing the mere change in the manner of abstracting blood to be of essential importance. Leeching, then, is to be sometimes resorted to, though cups are generally to be preferred in taking blood locally, from the ease with which the quantity may be regulated, and the facility with which they may be applied; but if you find the patient very excitable, leeches are much more certain than cups, and relieve more with the loss of a less quantity of blood.

In very acute meningitis, you have within your control another powerful remedy, and one that is quite as important as any of the others—ice to the head. It is to be applied with caution, and you are to judge of its producing an effect by the supervention of faintness, languor, or paleness of the face. In hospitals, the ice may be applied in a tranquillizing chair, but in private practice, where you have no such convenience, a bandage with a bladder of pounded ice may be employed for this purpose; you

must be careful to renew the application as soon as the ice melts, otherwise the alternation of heat and cold thus produced may do harm. The use of ice I would continue for several days, until there was a decided abatement of the acute symptoms. It is a great point in the management of this disease, to have for the patient proper attendance of persons who can control him. For this purpose one, two, or three men nurses will be indispensable in private practice, where those means of restraint are wanting, which are to be met with in lunatic hospitals.

The next remedy I shall mention acts on the same principle as the last, and is intended to produce revulsion from the head; it is the application of warmth and stimulating poultices to the extremities. I was treating a patient some time ago with ice to the head, in whom, although the ice was evidently doing good, it produced pallor and languor, and the symptoms abated but little; upon examination, finding the feet cold, I directed warm stockings to be put on them, had sinapisms applied, and ordered them to be occasionally plunged into warm water, which was followed by an evident amelioration of the symptoms. Unless you attend to these precautions, you will lose much of the good that may be derived from the application of cold to the head. Upon trifles like this, success in a great measure depends in the management of this affection; indeed in therapeutics the advantage which one practitioner has over another, depends chiefly upon his attention to minute and seemingly unimportant details.

Although it may be somewhat irrelevant, I cannot here forget to caution you against falling into those habits of careless and hasty prescribing, which are sometimes produced by a negligent attention to the practice of public institutions. The advantages of hospitals are inestimable to one who uses them in a right spirit; that is, as schools of diagnosis, and of the great therapeutic indications. But you must remember that in private practice you must carefully direct or even superintend in person, a multitude of details, which are usually attended to in hospitals by well-trained nurses, aided by the system which exists in all well-conducted institutions.

Much of the reputation of Dr. Physick as a practical physician, depended on a strict attention to these minuter points of detail, and he had, therefore, often better success in the management of even medical cases, than persons who were perhaps more familiar with pathology, but not equally attentive to these particulars.

Purging is a remedy which has been almost from time immemorial adopted in the treatment of acute inflammations of the brain. The saline purgatives combined with senna, or a mercurial purge, are those generally employed. I prefer a mercurial purge, as it serves a double object, by acting on the liver, and preparing the way for ptyalism, if it should afterwards become necessary; it is besides a good preparation for the saline articles. I would begin by ten grains of calomel, followed up the next day by a dose of salts and senna; should the calomel not purge, it will salivate, which is not to be dreaded. After, at least, a single mercurial purge, you may give doses of senna and salts,—a robust patient will require half an ounce of each; these, by inducing serous discharges from the bowels, will have a derivative effect. Afterwards your object should not be to produce violent purging, but to keep up a moderate looseness of the bowels.

Should the delirium not yield to depletion and purging, these remedies

should not be continued after the strength of the patient begins to decline, but you must now have recourse to mercury in small doses, and to blisters. Mercurials, like tartarized antimony, act as antagonists to inflammation, and may with propriety be employed in the second stage, or in the subacute form of the affection. They would have been highly appropriate in the case of Brown, in whom we should have prescribed them, had the disease not yielded in the first instance to the local depletory treatment. It is best to continue the use of mercury until ptyalism is produced. By effecting this, I have succeeded in curing a large proportion of the cases which have occurred in my wards of the hospital. An interesting case happened last summer, which, perhaps, some of you may recollect. It was that of a young man who had been a clerk at Mobile, and who on his way to Philadelphia, by the Mississippi river, had been taken ill with fever and delirium at Cincinnati, from which he recovered with difficulty. He came to Philadelphia not quite well, having still some symptoms of cerebral disease. He was taken ill again and brought to the hospital. He was then in a state of high cerebral excitement, being occasionally rational, and relapsing again into delirium; throughout the night he would be in a state of great liveliness, loquacious, restless, with his senses considerably excited. From the history of the case, I concluded it to be one originally of acute meningitis, which had now become chronic, and began the treatment of it with blisters and local depletion, but the delirium did not yield, until a mild mercurial course was presented. Another case I may mention was that of a young sailor, who was taken ill under circumstances which I do not now recollect. He had pleurisy first, and afterwards meningitis, and the disease did not abate till after a mercurial course. The symptoms were not the violent delirium of the last-mentioned patient, but mere stupor, dulness of the senses, and constant disposition to throw his head strongly backwards. Neither of these cases was dependent on the presence of tubercles or other chronic lesion.

We come next to speak of blisters, which, it might seem at first sight, would be proper at an earlier period of the affection. This is not the case, however; in the first stage they seem only to irritate, and decidedly augment the extreme agitation and violent delirium; they should be delayed till the acute symptoms subside, when they may be applied over the occipital region, extending to the back of the neck. They are to be rarely applied over the whole scalp, where they give great pain. The same law that regulates the employment of leeching or cupping is applicable here; the blisters do more good at some distance from, than immediately over the inflamed portion of the brain; when the disease is more chronic, it is often useful to keep a blister discharging behind each ear, as I have already advised in the treatment of acute hydrocephalus.

Caustic issues or incisions over the fontanelles have been recommended in chronic meningitis, but as they are very inconvenient, they have not been generally used, though I see no reason why they should not be employed in certain cases, especially where there is reason to apprehend that the disease has followed an injury of the head.

The plan of treatment which I have given will succeed in curing the majority of cases of acute meningitis. If, however, the affection should not yield, and passes into the chronic state, the patient remains necessarily more or less insane, and is apt to sink into the third stage of insanity

or dementia. He becomes utterly incoherent, and the case usually terminates in a very curious but totally incurable variety of paralysis, called the paralysis of the insane.

In the beginning of this kind of insanity, when the appearances of active inflammation have in a great degree subsided, cold affusions upon the head, repeated several times daily, mild laxatives, a sparing diet, abstinence from all excitement or exposure to the sun, with gentle exercise, prove the most useful remedies. In short, the treatment must be extremely mild, but persevere while a hope remains of saving your patient from the worst species of insanity.

When acute meningitis is fatal, the patient generally dies at the end of the second, or in the third stage of the disease, or he may die from meningeal apoplexy. I have twice or thrice seen a patient in the Alms-House, labouring under meningitis, become suddenly comatose, with stertorous breathing and loss of power of the limbs. The symptoms were those of apoplexy, arising from effusion of blood, not into the substance of the brain, but on the surface of both hemispheres into the membranes, which, from its pressure, is therefore necessarily fatal.

Whether the inflammation of the membranes of the brain be acute or not, as soon as the third stage, or that of effusion of lymph or pus supervenes, the delirium becomes less violent, the disturbance of the senses is succeeded by a total abolition of them, the patient neither seeing nor feeling. There is a gradual supervention of paralysis; sudden dilatation of the pupils in place of alternate contractions; and there is usually, but not always, strabismus. This stage is necessarily fatal, there being no possibility of a recovery.

To recapitulate briefly the course of my remarks to-day—you have had your attention called to the anatomical characters of certain serous inflammations, and after tracing the connection between cerebral affections and those of the genito-urinary organs, I have entered at length into the treatment of acute meningitis, basing my remarks upon a case of the sub-acute variety which has been lately under notice at the hospital. I have not gone into more details of the symptoms of acute meningitis, waiting till they present themselves to our notice, which, from our knowledge of the course of these affections, must be the case during the summer. The sub-acute variety is the only one which I am now able to demonstrate, by reference to a case actually under your notice.

LECTURE VII.

Chronic meningitis—Apoplexy—Paralysis of the insane.

At my last lecture I continued the subject of inflammations of the brain, dwelling particularly upon that of acute meningitis, which I was able to illustrate by a case of the sub-acute form of the affection, at that time under your notice at the hospital. I merely alluded at the time to the subject of chronic meningitis, without entering into it at any length, and I, therefore, propose now to say a few words upon it, as it properly belongs to this period of my course. We have a large number of cases of

this affection in the wards of the hospital. I shall select the best marked of them, that of Urweiler, a German, to whose history and symptoms I shall briefly call your attention. This man, two or three years ago, having previously enjoyed good health, received a blow on the head, the effects of which, at the time, were not very seriously felt. He suffered slight headache, pain, &c., which, however, soon abated. But, after a lapse of time, the powers of his mind began to fail, and he became, finally, entirely deranged, and in addition to this disorder of the intellect, paralysis is gradually supervening. This latter symptom, as you may have observed in the hospital, is a very common accompaniment of insanity, chiefly of dementia; it is, however, often met with in persons in whom insanity is not yet developed, the functions of motility being attacked before the intellect is much impaired. The disease is, therefore, often to be recognised at first by the mere disorder in the powers of movement, and may ordinarily be detected as follows. Slight symptoms of mental aberration are presented, often not well marked, but, again, rapidly becoming strongly characterized, and running into the worst degree of madness—incoherence. The organs of locomotion become also affected, the first symptoms being a failure in the power of walking; but feebleness of the upper extremities does not often show itself at first; a hobble or limp is noticed, generally, at first, on one side of the body only. Other changes then take place, the upper extremities becoming involved, the face slightly distorted, the tongue is protruded with difficulty, and the speech thick; these symptoms, however, are often indistinct at first, with the exception of the failure in the power of walking, which always shows itself. The symptoms, for the most part, gradually but slowly advance, scarcely ever retrograding. If the patient is insane, when the partial paralysis appears, the affection is nearly always fatal. Dr. Calmeil, who was connected with the lunatic hospital at Charenton, near Paris, considered it always fatal; and my own prognosis accords very nearly with his opinion. It is somewhat singular that this disease is much more frequent in men than women; although very common at the Bicêtre and Charenton, it is comparatively rare at the Salpêtrière, where none but women are admitted.

In the diagnosis of this affection you must not, however, be too confident; it is necessary that the cerebral symptoms should be permanent, and not merely limited to the slight disturbance of brain which occasionally results from disordered abdominal functions. If you are not quite sure, therefore, watch the patient for a little while, and the case will become clear.

I shall not now enter at length into the pathological features of the affection, merely bringing before you two cases that came under my notice some time ago. One was of a gentleman, who died about two years since; he had been hurt by a fall, from the consequences of which he seemed to have recovered; but two or three years subsequently his walking began to fail, soon afterwards his mind, and a short time only passed after the development of these symptoms, before he died. On examination after death we found the membranes of the brain universally thickened. The other case was that of a man, who had been a master of a vessel in the merchant-service; just previous to his attack, he had been suffering from a soreness of throat, which improved but little under a treatment consisting chiefly of local applications; symptoms of disease of the brain soon appeared, and the man entered the Pennsylvania Hospital. At

this time he had incomplete paralysis of the lower extremities and of the left arm, with painful deglutition; these symptoms went on slowly, but finally destroyed the patient. After death, we detected a slight thickening of the membranes lining the ventricles, and were astonished to find how little the medullary substance of the brain was affected, and that the cortical substance was merely in the normal state.

Treatment in chronic meningitis is available only when the functions of motility are not impaired, and those of the intellect alone are affected. The mode of treatment to be resorted to, consists in a regulated diet, blisters to the nape of the neck and behind the ears, and cold affusions twice or thrice a-day. Although I cannot affirm that I have entirely cured any patients labouring under actual paralysis, I have certainly, by the plan detailed to you, restored several in whom the disease had proceeded no farther than the affection of the mind. The patient Urweiler is much better, speaks with greater ease, and has obviously more strength in the limbs.

The next disease of the brain which I shall notice, offers, at this time, several cases in the wards of the hospital, and will be often encountered by you in the course of your practice—I mean *apoplexy*. Of the cases in the hospital, one is a recent one, and two, in the black wards, occurred as far back as a year ago. The term apoplexy is often used very indefinitely. It is applied to four different pathological states: 1st, true apoplexy, or hemorrhage into the substance of the brain or its membranes; 2d, simple congestion, or preternatural fulness of the vessels of the brain; 3d, serous apoplexy, in which the brain is oppressed and its functions impeded by a large serous effusion; 4th, nervous apoplexy, in which many of the symptoms, such as loss of consciousness, &c., are developed without any appreciable organic lesion. I shall here employ it to signify an actual hemorrhage into the substance or beneath the membranes of the brain, excluding mere effusions of serum, all cases where there is no organic lesion of the brain, as well as those in which mere congestion occurs, an affection which is most frequent during the summer season, and at the close of the winter. These cases are all confounded with true apoplexy, and indiscriminately classed under the same name; sometimes, indeed, when no one function of the brain is disordered, the term apoplexy is given to sudden deaths. A man will fall down dead, perhaps, with some comatose symptoms from disease of the heart, and his death is at once referred to apoplexy; whereas, genuine apoplexy almost never causes instantaneous death. When the case terminates fatally, it is usually after a lapse of some months, from paralysis. It sometimes proves fatal in the course of a few minutes, or half an hour; but in these cases there is usually blood effused into the ventricles, and it is not common for it to terminate before the end of several hours, even when most severe. The exceptions to the rule, that sudden death does not follow apoplexy, are indeed so rare, that you may pretty safely pronounce an instantaneous death to be independent of this cause. These very sudden deaths are usually owing to diseases of the heart, although in some of them no organic lesion whatever can be found of any organ.* There was an example of this sudden death a few months since at the hospital, in a patient who was labouring under a chronic disease of the heart, who died during my visit. I found him in his ordinary condition, and had just left the ward, when I was suddenly called back and found him dead.

* Memoir of Dr. Louis.

The anatomical characters of apoplexy are easily ascertained, and may be divided into two great varieties—in the first and most common, the effusion of blood takes place into the substance of the brain, in the other it takes place into the membranes. Any spot in the brain may be the seat of the hemorrhage, but it is generally the thalamus of the optic nerves and the corpus striatum. The blood is sometimes poured out in such quantity as to break into the ventricles, and even force asunder the septum between them, so that it presses upon both hemispheres of the brain; but it is generally confined to a single spot, on one hemisphere.

The character of the clot is always the same; it consists of a mass of dark coagulated blood, surrounded by the tissue of the brain, which is, to a certain extent, echymosed and softened: this softening may be either the effects of previous disease, or the consequence of the apoplexy. Dr. Rochoux, who observed at the Bicêtre hospital, thinks that apoplexy always depends upon the previous existence of local softening in the brain, the hemorrhage afterwards taking place in the diseased portion. My own, and the general opinion is, that in the large majority of cases, softening of the brain around the clot is a consequence of the pressure from the blood thrown out, the hemorrhage itself depending upon a disorder of the circulation. The cause of the deranged circulation is sometimes hypertrophy of the heart, which increases the impetus of the blood; at other times, the cause is to be sought for in a diseased state of the arteries and capillary vessels, either of the brain itself or of the whole system. But although the opinion of Dr. Rochoux is too exclusive, it is by no means unfounded, for there is a certain if not a larger proportion of cases, in which the evidence is decidedly in favour of previous lesion of the cerebral substance. These cases are somewhat analogous to the hemorrhage which follows diseased uterus, or the advanced stages of pulmonary tubercles.

After the clot has been some time in contact with the substance of the brain, it is in a measure isolated by the formation of a cyst which completely surrounds it. It is afterwards gradually absorbed, absorption taking place in the following order: first, the serum disappears; secondly, the colouring matter; and, thirdly, the fibrin of the blood. After a lapse of some months, the cyst only remains, in one of two conditions:—it is either entirely hollow, and lined with a new serous coat, or a little cellular substance occupies the old seat of the apoplexy, and then the cyst is either imperfect or entirely obliterated. In one of these two forms, the parts are invariably found.

This succession of lesions has been perfectly well illustrated by the cases which have been just now under our notice, for there are particular symptoms, corresponding to each stage of the disorder. One was that of the old woman, in ward No. IV., in whom there was a complication also of softening of the brain. For, in addition to the paralysis which follows hemorrhage, we have strong contraction of the flexor muscles on the paralyzed side, so violent, that pain is given to the patient by an attempt to extend them. She had been well, we learned, two weeks before the attack, which determines it at once to have been of an acute character. The next point would be the manner in which it occurred,—was it sudden or gradual? This we cannot settle satisfactorily, from our inability to ascertain the previous history of the case.

The paralysis might arise either from acute softening or apoplexy, and as the distinctive characters of these two affections chiefly depend upon

the abrupt commencement of the latter, and the more gradual progress of the former, it is evident that we cannot make a positive diagnosis. The rigidity which is so striking in the paralyzed side of the body, is produced by softening, but this softening may be merely secondary to the hemorrhage. It does not take place in the beginning of apoplexy, it follows when the parts around the clot become inflamed; whereas, in inflammation of the brain, the numbness, stiffness, and rigidity follow in rapid succession, from the onset of the affection, and precede perfect paralysis. There is another fact showing the case to be apoplexy; that is, the extent of the paralysis, which is rarely so great in inflammatory or non-inflammatory softening of the brain. In acute and sub-acute meningitis, as I have before remarked, attacking the summit of the brain, you have delirium of a more or less violent character, the mind being always compromised; if it involve the base of the brain, you have alteration of the functions of motion, as subsultus, spasms, &c., and the sight is affected, but, as there is no paralysis at first, you cannot confound these diseases with apoplexy.

Another point of some importance, in making a diagnosis of apoplexy, is to distinguish it, during the first few hours of the affection, from mere congestion of the brain. This is not so easy at first, as after the lapse of a few hours; but there are some peculiarities about these affections, which, if closely attended to, will serve to draw the line of distinction. In the first place, after the first few minutes of the loss of consciousness, which usually occurs at the beginning of both, there is paralysis of one side alone, in true apoplexy. In congestion, on the other hand, there is scarcely ever complete paralysis of either, but there is generally some difficulty of motion in both. Persons attacked with apoplexy are not so commonly of the same full habit of body as those who suffer from active congestion, so that this plethora is alone sufficient to induce you to suspect the case to be congestion. A nice diagnosis, at the beginning of the two affections, is not very important; it is only after they have advanced beyond the first stage, that it becomes of consequence, as regards the treatment, to distinguish between the two. For every case, offering the symptoms of loss of consciousness, difficult breathing, turgescence of the vessels of the face, &c., but one course of treatment is to be thought of, the actively depletory. But after the subsidence of these immediate symptoms, cases which thus far offered the same character, demand a widely different plan of treatment.

I have already alluded to cases of effusion of serum on the brain, which are sometimes confounded with apoplexy from hemorrhage, and are termed serous apoplexy—a term often used to denote the presence of comatose symptoms, without hemorrhage. This serous apoplexy may occur from the effusion of serum beneath the membranes, or into the ventricles of the brain; in the latter case, it is not unfrequent in mania a potu, and also in some diseases of a chronic character. These cases, however, of comatose symptoms from serous effusion are of rare occurrence, except at the close of cerebral diseases of easy diagnosis.

Sudden coma, entirely independent of organic disease of the brain, sometimes appears, as the consequence of a previous chronic disease of various viscera, or even of anemia, under circumstances calculated not a little to puzzle the practitioner. A case of this sort occurred the winter before last, in my wards of the hospital. A seaman who had been ex-

posed to great hardships, and had contracted a disease of the liver in the East Indies, of which he bore well-marked evidence in a pale-yellow, jaundiced skin, came into the ward complaining of neuralgic pains in the feet unattended with fever. He had no symptoms whatever of disorder of the brain, or of the thorax; nor of the abdomen, except those indicative of a diseased liver. After remaining for a short time in the hospital, he was one night found with comatose symptoms, stertorous breathing, &c., having been seen, only an hour before, walking across the ward for a cup of water. I saw him only an hour before his death, in a state in which it was exceedingly difficult to arrive at a correct diagnosis; I, however, came to the conclusion that it was not apoplexy, from the fact of the symptoms not being limited to one side of the body. An examination after death revealed no alteration whatever of the brain, except a very trivial quantity of serum beneath the arachnoid. He had, therefore, coma, loss of consciousness, and stertorous breathing, during life, without any lesion of the brain.

Symptoms of the same character occur from the effects of heat upon the nervous system, during the warm season. During the intensely hot weather of the summer of 1830, I witnessed the opening of the bodies of twenty or thirty persons who died from this cause; we found no organic disease of the brain, but merely a slight congestion, such as is observed in other acute diseases, which it would be idle to set down as a cause of death. These were the appearances in those only who died suddenly of exposure to heat; for if time elapses for reaction to come on, inflammation of the brain may take place, but it is then a secondary affection.

The other two cases of apoplexy, occurring in the hospital, to which I shall direct your notice, offer varieties of the disease different from the first described. They were black men, who entered the wards in a state of complete paralysis of one side of the body, one of them scarcely able to speak. He could articulate but the monosyllable *no*, which he answered to all questions whatever that were put to him. He seemed conscious of the ridiculous nature of this invariable answer, but could not increase his vocabulary for several months, when he was gradually able to pronounce the shorter words, and now speaks very well, although there is still paralysis of one side of the body. In the other, the speech was merely thick, but his mind remained tolerably clear. They continued in this state for several weeks, and as the process of the absorption of the clot advanced, the intelligence brightened, but the paralysis remained. These were cases of hemiplegia, one side of the body being affected; that opposite to the side of the brain, in which the hemorrhage occurred. This latter conclusion we drew from a law of pathology to that effect, which is almost without an exception in its operation. There may be one, two, or three abnormal cases out of a thousand, but, in making your conclusion, you may safely leave them out of the estimate.

As the next consideration, in the study of the diagnosis, we had not only paralysis of the lower portion of the body, but also of the upper extremity, and the muscles of the face, with disturbance of the intellect and senses, establishing, of course, the seat of disease to be the brain. The stiffness of the limbs was gradual in its progress, caused by inflammation around the clot; but the paralysis was, at the time of the patient's entrance, perfect; and the mouth was drawn towards the side which was *not* paralyzed, which is the reverse of what occurs in cerebral inflamma-

tion where the paralysis is active, that is, the mouth is drawn towards the palsied side. Our diagnosis and prognosis were at once made out; there was a hemorrhage on one side of the brain, and it was incurable, because the paralysis was complete, in which cases it is for life, but when it is incomplete the patient may frequently recover.

The liability of apoplexy to return is a matter of notoriety, and a point perfectly well understood in the world; you should, therefore, in all cases where it has once occurred, be on the watch, looking for a recurrence of the hemorrhage, which nearly always takes place near the same spot, between the thalamus and corpus striatum.

The cases under notice were not fair specimens for testing the treatment proper for the paralysis of apoplexy; but some of you may recollect a case, which occurred last summer, of incomplete paralysis in a woman, which yielded entirely to treatment in a week. Dr. Foville of Rouen, explains the different success of the treatment in paralysis from hemorrhage by the occurrence in some cases of an actual rupture of the fibres of the brain, while in others these fibres are merely separated by the effused blood without being torn across. I am myself inclined to this opinion, and believe that the medullary fibres are actually broken in most cases of complete hemiplegia. The routine of treatment in apoplexy is simple and familiar to all medical men. Very free bleeding is of course indispensable, in all patients, who are at all plethoric; if of a pale, anemic complexion, it is to be practised with some reserve. Purging, foot-baths, and cupping are to be resorted to, although the latter is not of the same value here as in meningitis, where it is our sheet-anchor. I here indicate merely the general outline of treatment to be pursued in apoplexy, not entering into any details on the subject. In regard to depletion, I may remark that it is a point of some delicacy to determine how far to carry it. My rule is, to continue depleting until the circulation in the vessels of the head is lessened, which is to be ascertained as well from the appearance of the eye and countenance as from the pulse. Purging I also push to some extent; but you must be careful not to purge too violently, or that state of chronic softening of the mucous membrane of the intestinal canal, which was mentioned in a previous lecture as a frequent accompaniment of the exanthemata, may occur; it is a most unpleasant complication in paralytics, who rarely resist a diarrhœa long, however much they may have been previously benefited by purges. Blisters, setons, and issues, are all used in apoplexy, but with indifferent success, although the keeping up of a discharge by these means, is excessively useful in chronic meningitis. If, however, the apoplectic symptoms are pertinacious, these remedies may be tried once or twice, and continued according to the effect produced.

If you are called to a patient suffering from apoplexy, after the full mischief of the hemorrhage is produced, and *perfect* paralysis is established, it is your duty to announce at once to the friends of the patient the impossibility of his ultimate recovery, explaining to them the nature and amount of organic lesions existing in the brain, and the impossibility of an entire cure.

The last point in the treatment of apoplexy to which your attention must be directed, is the sores which are likely to occur about the sacrum, trochanters, &c., if the patient is obliged to keep his bed for any length of time. The bladder is also apt to become diseased in this affection, and you must watch and guard against too long a retention of the urine.

I shall conclude this lecture, by saying a very few words on the subject of acute or inflammatory softening of the brain. This affection is distinguished from apoplexy, by the presence of fever, dizziness, and vertigo from the very beginning; while you will rarely observe any febrile movement, in cerebral hemorrhage, till some time after the effusion of blood has taken place. The numbness of the limbs, which is a common symptom in softening of the brain, comes on very gradually, and, although the intellect is feeble from the first, yet the impairment of its faculties is comparatively slow in its advance, there being at first, and for some time, merely dulness, and no active delirium afterwards. In a black man, under my care, four years ago, at the Pennsylvania Hospital, the delirium assumed the character of well-marked mania. This maniacal delirium is different from the more active kind occurring during the inflammation of the membranes and cortical substance of the brain. It is an affection which rarely occurs, except in the young and middle-aged, and is not to be classed with chronic softening of the brain, which is a sort of necrosis, or gangrene of this organ, and is met with only in old persons. In this latter disease, there is no active febrile movement whatever, the patient advancing, with unfailing certainty, from bad to worse, to death. The affection is dependent, according to Dr. Carswell, on a cartilaginous condition of the blood-vessels. Dr. Rostan, of the Salpêtrière Hospital, observed the disease on a large scale, and has published a monograph upon the subject, in which he states it to be beyond the reach of treatment. In this country, I regret to say, that our experience does not materially differ from that of Dr. Rostan.

The acute softening is, then, nothing but cerebritis or inflammation of the brain, while the chronic disease is almost the reverse of inflammation. As the latter affection is incurable, and occurs exclusively, or nearly so, in very old people, it is of little importance in a therapeutic point of view: but the acute softening may be cured in many cases if treated vigorously from the first. This treatment is similar to that recommended for meningitis, except that general depletion should be much more insisted upon; local bleeding being of comparatively little value, at least in the early stages of the disease. The pain is often so slight in this disease as to lead the observer into an erroneous belief, that there is but little the matter with the patient, until either paralysis or decided mania supervenes. Hence a numbness of the side, if connected with disagreeable sensations in the head, or many signs of vascular congestion, ought to be treated with energy.

LECTURE VIII.

Apoplexy and inflammation of the brain (continued)—Functional diseases of the brain.

I SHALL, this afternoon, again call your attention to some organic and functional diseases of the brain. It was my intention to have confined myself to the subject of functional cerebral diseases, but, owing to the termination of one of the cases of apoplexy, followed by acute softening of the brain, noticed in the lecture on these subjects, at the post-mortem examination of which some of you were present this morning, I am in-

duced to recur to the topic. The impossibility of understanding the subject of organic diseases of the brain without a knowledge of their pathology, is well exemplified by the case under consideration, while, on the other hand, you have seen how exactly the phenomena after death coincided with what we were able, from the symptoms during life, to announce would be the case, and how entirely the prognosis as well as diagnosis has been confirmed by the result.

This case was that of Fisher, one of the blacks alluded to in Lecture VII. He entered the hospital a short time after having been seized with loss of consciousness, and other symptoms denoting an attack of apoplexy. The inflammation, excited by the clot of blood thrown out, induced an inflammatory softening of the structure of the brain, which seems sometimes to be a useful process, and promotes absorption of the clot; it occurs from the same cause that gives rise to inflammations wherever a foreign substance is present in any portion of the body. The train of symptoms, announcing the existence of acute softening of the brain, we treated by cupping, purging, and a regulated diet, not using general bleeding from the enfeebled condition of the patient. Under this treatment, he was slowly getting better—he could crawl about the ward, and could articulate short sentences, when yesterday he was seized with a fit of convulsions, as the nurse termed it, and was found by one of the resident physicians in the state of coma, with dilated pupils, &c., which soon terminated in death. The examination after death, this morning, explained the occurrence of these symptoms.

We found, first, the remains of the old apoplexy, which had taken place a year ago, probably a few days before the man's admission, as nearly as we could gather from his imperfect account of himself. The disease had occurred at several different points of the left hemisphere of the brain. The left corpus striatum was shrunk and shrivelled up, and unnaturally hard and indurated. On incising it, at the depth of the eighth of an inch, a well-marked cyst was found, rather more than an inch long, and half an inch broad, lined with the usual serous membrane, which was not quite complete; a part of the walls of the cyst were composed of loose cellular substance, filled with an opaque liquid. This serous membrane, lining the cavity, was not a true but an adventitious serous membrane, or rather sero-cellular, such as is thrown out in inflammation of the pleuræ and pericardium.

I have already told you, in a previous lecture, that these cysts are left after the complete absorption of the clot of blood. The evidence that they really arise from this cause is entirely complete; it might, indeed, be inferred from the facts which relate to the cases just pointed out; but if you are not able to follow every step of the reasoning, I would refer you to the work of Dr. Rochoux. The cyst in question occupied one of the usual seats of cerebral hemorrhage.

In addition to these morbid changes, there were the traces of a large apoplectic extravasation on the side of the brain, the conformation of which was obviously altered by a depression on the middle lobe of the left hemisphere, just behind the temporal muscle, quite unconnected with any alteration of the bone.

The membranes adhered very closely to the substance of the brain, and beneath them was a partial softening of the medullary substance, which was of a light yellow or cream colour to the depth of about an inch, with

complete destruction of the cortical substance in a space of two and a half or three inches square, that is, in the whole extent of the depression, necessarily rendering that portion of the brain totally unfit for use. At the posterior part of this softened portion was an imperfect cyst, more than an inch long, the walls of which were formed by a loose cellular substance, extending to the distance of from a quarter to a third of an inch. Near the centre of the same hemisphere, about an inch from the summit of the brain, was a third cyst, scarcely an inch long, of about half that breadth, and somewhat flattened. Its walls were formed by a hard and yellow medullary substance, and it was filled with a transparent liquid. One-fourth of the left hemisphere of the brain was, you thus see, destroyed; it was, besides, distorted and drawn back, to a degree that I never before witnessed; even the anterior portion of the brain was turned partially round and backward; this distortion may have interfered not a little with the exercise of the functions of the brain, and was the necessary result of cicatrization after a complete loss of cerebral substance.

From this disorganised condition of the brain, which rendered a large portion of it as useless as if it had been separated from the body, and caused the entire removal by absorption of another part, you may understand the cause of the complete paralysis of the right side of the body, and its necessary incurability, which I predicted. But in addition to the immediate consequences of the apoplexy, other changes had taken place in the brain, not necessarily the result of hemorrhage; these were connected with the recent active inflammation, from which the patient perished, as was shown by the softening around the old cyst.

A symptom worth noticing was the loss of power of articulation, under which, you remember, the man laboured for a long period; his answers were confined to the word *no*, and were afterwards brief and confused. Now there was no lesion, except that caused by the contraction, in the anterior part of the brain, which, of course, disproves Bouillaud's assertion, that the vocal powers are connected with this portion—a point which had, indeed, been previously satisfactorily settled by the observations of Andral and others. In this instance, the cortical substance of the brain was affected, although not in the anterior portion; the cortical substance, I have no doubt, presides over the functions of the intelligence and of the voice. The *corpus striatum* is supposed to preside over the faculties of motion of the upper extremity; and here, you see, the patient regained the power of walking, though not that of moving his arm. This, however, proves nothing; for it is a regular occurrence in hemiplegia following apoplexy.

The therapeutics of this case are important; the impossibility of curing it is sufficiently evident, and consequently, the necessity of confining your efforts in similar cases to such a plan of treatment as will palliate and improve the symptoms. Hence too, you may doubt as to the propriety of addressing stimulating remedies to the brain and nervous system, as *nuxvomica*, or its active principle *strychnia*, to relieve a paralysis dependent on destruction of the cerebral structure. These remedies were much in vogue at one of our institutions a few years ago, for the treatment of apoplectic hemiplegia. I witnessed most of the cases, and I never saw them produce decidedly good effects, although pushed so far, in some cases, as to produce convulsions. Many patients, afflicted with hemiplegia, in a degree recovered; but this occurred from the mere process

of absorption of the clot, and not from the effect of the remedy. Indeed, I must candidly express my opinion against the usefulness of the remedy ; and I am convinced that it often increases the activity of the circulation in the brain, surrounding the clot, from the over-stimulation of this organ. It is a valuable remedy in neuralgic paralysis, where there is functional disorder of the brain, or mere want of tone in the limb ; but when there is any considerable derangement of the cerebral structure, I am quite sure that it is often a hurtful medicine, even when given in minute doses, and suspended as soon as its effects appear. I make these remarks upon the strychnia, because its use seemed indicated in one of these cases of paralysis ; and although I anticipated but little effect from it, I consented to its administration ; but it very soon became necessary to suspend it, from the increase of the difficulty of speech, and rigidity of the limbs. I am aware that many physicians of high judgment employ and recommend the strychnia ; but my own observations, which were the more unbiassed, as they were made upon the practice of others, and not upon my own, have led me to a different conclusion. The true therapeutics in paralysis from apoplexy, consist first in subduing the inflammatory symptoms or the active congestion of the brain, by blood-letting, appropriate applications to the head, and purging ; afterwards in waiting patiently and quietly, in keeping from the patient all causes of irritation, and in regulating his diet ; and after the clot has been removed, in addressing gentle stimulation to the paralyzed part ; or what is better, in directing the patient to move it himself. Even this slight, and, as it were, natural mode of exciting the brain, may be attended with inconvenience. I lately directed a patient, in whom the paralysis was already of some months' standing, to move his arm every day by a powerful effort of will, and he went on until he succeeded in raising his hand to his head, but the brain became excited, he was stupid, and his speech thicker, and I was compelled to make him desist. Avoid, then, all causes of excitement, whether medicinal or other, in these cases of paralysis, which are either the mere effect of a considerable rupture of the fibres of the brain, or are connected with the subsequent inflammation till very late in the treatment, and let it be confined to external stimulation.

The case which we have just been noticing, illustrates extremely well the advantages of a knowledge of pathological anatomy, in the study of diagnosis. We were able to define with exactness the morbid condition of the brain, as you may see from the previous lecture, which corresponds precisely with that which a post-mortem examination has laid open. Now this verification, by means of examination after death of the lesions in a certain number of diseases, enables us to form a much more vivid and distinct picture of the state of the analogous cases. We conceive, as it were, in our mind, a well-defined picture, and by a sort of second sight, can discover most of the changes, which are, under ordinary circumstances, completely concealed. If we gain but little direct assistance in therapeutics from pathological anatomy, we obtain a sort of touchstone, by which we judge of the power of remedies, and thus acquire more accurate notions of the effect of medicinal agents ; we learn to discriminate between the natural course of a disease and the modifications impressed upon it by art. In itself, pathological anatomy is a mere instrument ; but by its aid we are enabled to know positively a multitude of facts, which we can barely conjecture from the unaided study of symptoms. Now, I would impress upon

you the necessity of not attaching an exaggerated importance to what is a mere means of investigation; you must never isolate the lesions of an organ from the symptoms which accompany them. I am the more earnest in insisting upon this matter, because you might imagine, from the careful pathological investigations which I endeavour to make, that I value this sort of knowledge for its own sake; this would be an error in which I should be loath to fall.

In concluding these lectures upon diseases of the brain, I have some few remarks to make upon certain functional affections of that organ, occurring during the course of various disorders of the body. These affections are very numerous, and often not a little puzzling in their character. For example, you no doubt supposed, when listening to the detail of symptoms denoting tubercular meningitis, that the features of the disease must be always clearly marked, and yet there are affections that sometimes simulate it to a degree that will embarrass a very experienced observer. It is no easy matter always to distinguish between diseases of the brain itself, and those which are symptomatic of other affections. Now, this can only be done by becoming so familiar with these functional changes, that you may at once hold them up, as it were, in your mind's eye, and diagnose between them and the true cerebral diseases, by a rapid process of comparison, or as it is sometimes termed, by way of exclusion. That is, you run over the list of these analogous disorders, and then rapidly leave them out of your calculations, because some essential symptoms may be wanting.

First, in fevers, intermittent and continued, particularly the latter, there occurs a train of cerebral symptoms which are placed amongst the most important symptoms of these disorders. Continued fevers, in this section of country, are almost wholly the typhus and typhoid fevers, with the exception of the occasional occurrence of such as are styled bilious and ephemeral, and are in themselves of little importance. In Paris, continued fever rarely takes any other type than the typhoid; while in Ireland and Great Britain, it is generally the typhus. In both these fevers, the brain is affected at the commencement, but in a less degree than in meningitis, the early symptoms of both being headache and dizziness, with loss of strength. In the second stage, there is stupor of great intensity in typhus and of slighter in typhoid, often running into delirium. We have, at this time also, in typhus, considerable disorder of the nervous system, indicated by spasms and subsultus, resembling those which occur in delirium tremens. The senses, also, are impaired in the second stage of both these affections, but more severely in typhus than in typhoid fever. In the last stage we have coma, complete loss of the powers of intelligence and of motion, and very nearly complete suspension of the senses. Sometimes we have violent, noisy delirium, which is to be looked upon as an irregular symptom, usually depending upon an accidental complication of meningitis with the fever; when this violent delirium occurs, it is always to be considered and treated as a secondary meningitis. The ordinary moderate cerebral symptoms are, as it were, essential to the disease, and do not demand special interference, unless they should become intense, when they may be the immediate cause of death, and must then be treated as inflammations of the brain, by local depletion with cups and leeches, and by cold to the head, and the like. If this secondary meningitis of fever occur very late in the disease, general bleeding is not often advisable.

Treatment, although useless in slight cerebral symptoms, becomes essential when they reach a high degree of activity. After coma supervenes, it is proper to abandon a depletory course and the cold affusions, and you are now to resort to counter-irritants, sinapisms to the feet, blisters to the nucha, and to the temples or over the posterior part of the head—remedies which are improper during the violent stage of the secondary meningitis. In the partial epidemic of typhus which occurred last winter, the fever was attended with more active cerebral symptoms than had previously shown themselves. I used local treatment, in nearly every case, with extreme advantage, and found that, after removing the meningitis, the fever was almost free from danger.

In the intermittent and remittent fevers, the functions of the brain undergo alteration, although there is rarely active inflammation of the organ. There is less disturbance of the powers of motion than in typhus and typhoid fevers, subsultus seldom occurring. The senses are not affected, and except in the height of the paroxysm, there is little ringing in the ears. These symptoms, however, are sometimes present in the malignant intermittents that we meet with in our hospitals, in the summer, occurring principally in sailors who have contracted the affection on the coast of North Carolina. In such cases, local depletion is not often advisable, for the cerebral symptoms are not confined to the paroxysm, nor do they resemble those of acute meningitis; they are rather loss of memory, sighing, and other signs of enfeebled nervous energy. They are best managed by large doses of quinine during the interval, and during the paroxysm by wine and volatile alkali. Upon these symptoms the danger of malignant intermittents chiefly depends. Of course this mode of treatment is not designed for those cases in which there are signs of more active vascular excitement, requiring the treatment of the acute cerebral symptoms of typhus, or to cases in which the face presents a deep red or purple flush, as is the case in the apoplectic form of congestive disease.

In pneumonia, there is usually some slight disturbance of the brain, which, indeed, accompanies, in a greater or less degree, all febrile affections. Special treatment is required, only when there is either active delirium, or much stupor. When these exist, the case may be very readily mistaken by one not well accustomed to recognise pneumonia. In the cerebral complications of pneumonia, the peculiar flush of the face, the dyspnoea, and dilatation of the nostrils, serve to distinguish the nature of the affection, while, if there be meningitis of a primary character, it will be marked by the brightness or injection of the eyes, frown of the forehead, and absence of the purple hue, and dark red flush. In the cerebral complication of pneumonia, a special treatment is occasionally demanded, consisting of purging, and antiphlogistics directed to the brain.

In inflammations of the serous membranes of the thorax or abdomen, the brain is rarely implicated, except to a slight extent, corresponding with the vascular excitement. The same may be remarked of inflammation of the mucous membranes; in that of the bowels, the functions of the brain are not usually disordered, except in the last stage. If, however, the mucous membrane of a large extent of the alimentary canal be simultaneously attacked, then the brain sympathizes, and delirium very commonly ensues. In very severe epidemics of malignant dysentery there is also extreme prostration of the nervous functions, somewhat similar to what occurs in intermittent fevers.

The connection between functional disorder of the brain and anemia, was alluded to in the last lecture, and illustrated very strikingly, by the history of a case which I then detailed. The sympathetic affection of the brain, in jaundice, is well known. We have a patient at this time, in the hospital, labouring under chronic gastritis and jaundice, in whom this cerebral alteration, depending on jaundice, is very manifest, and last year there were several marked cases of this kind. It is not, at least at first, of an inflammatory character; the symptoms being merely stupor and prostration, with subsultus, and particularly, loss of the memory. This set of symptoms indicates the connection which exists between this affection and malignant intermittent and remittent fevers, and in both it depends, in my opinion, upon the altered state of the blood which accompanies hepatic disease. Treatment is to be confined almost entirely to sinapisms and blisters, and occasionally some slight stimulants in addition to the general treatment for jaundice—cupping or other depletion should be rarely used. But if the more settled and acute symptoms of meningitis supervene, the treatment must at once be antiphlogistic. Dr. Marsh, an Irish physician of eminence, has also called the attention of the profession to the cerebral symptoms of jaundice, and recognises their great danger. Anemia, dependent on a vitiated condition of the liver, is attended with many cerebral symptoms, sometimes these belong rather to the nervous system and spinal column than to the brain; in other cases there are many signs of disturbed action of the brain itself. It is to be treated by tonics, iron, porter, and a generous diet. But in many disordered conditions of the cerebral functions, the proper remedies are to be found amongst the narcotics and antispasmodics. On the same principle is based the practice, recommended by Dr. Graves, for the sleeplessness and slight delirium in the latter stages of typhous fever, consisting in a combination of opium and tartar emetic. This is an excellent remedy; the antimonial slightly nauseates, promotes gentle perspiration, and predisposes to sleep. The virtues of Dover's powder depend on the combination of opium with an analogous medicine, ipecacuanha, and, if the alimentary canal be in an irritated condition, this combination is to be preferred.

I have entered thus minutely into the detail of these functional cerebral symptoms, and into the points which distinguish them in different affections, because the symptoms, which are laid down in books, are more or less analogous in all these affections. The order of symptoms, however, is very different, and diagnosis becomes comparatively easy if we attend to their successive development.

LECTURE IX.

Delirium tremens—Symptoms—Stages—Varieties—Complications—Treatment.

DELIRIUM tremens is an affection which has special claims upon your attention, from the lamentable frequency of its occurrence in our country. It is here, amongst the labouring classes, particularly the Irish,* one of the

* The very happy reformation which has taken place among the Catholic Irish requires this statement to be modified.

most common of diseases, although in France and other continental countries of Europe, it is comparatively rare. During my residence in Paris I did not see a single case of it: in the hospitals of that city it is a disease that is never thought of, in patients who enter with cerebral symptoms, although with us cases of delirium tremens are more numerous in our hospitals than those of all other cerebral diseases together.

I now present a case of simple delirium tremens. The patient has been a drunkard from his twelfth year, and he is now upwards of forty; the fit of intoxication which gave rise to his present disorder commenced before Christmas, and continued until his entrance into the hospital a few days since. On looking at this man, the first thing that strikes your attention is a universal restlessness; the whole body is affected with tremours; when he holds out his hand, he is unable to keep it still; his tongue, when protruded, is similarly agitated, but not to the same degree. Besides these tremours, last night, and several preceding nights, the patient was affected with hallucinations of mind; these are still present, but are much less manifest than they have been. As I have stated in a previous lecture, *fear* is an almost constant characteristic of these hallucinations of delirium tremens; but the fear is less of present, than of absent and imaginary objects. From this fact we derive an important lesson in the treatment of this disorder; that is, never to excite the fears of the patient, but to relieve them as far as possible by permitting him to have free intercourse with others; this will divert his mind from those terrifying objects which his imagination brings before him. The patient is always conscious of these hallucinations until his intelligence is entirely destroyed. They are most frequent and distressing when he is shut up in a cell; in company they are much less so, and more under the control of his mind.

In consideration of this subject, the important question occurs to us, what is mania a potu, or delirium tremens? It is not inflammation of the brain or its membranes; for the symptoms of these diseases are constant; there is a permanent disorder of intellect, and a lesion of muscular power throughout many parts of the body. In delirium tremens, on the contrary, there is no such constant and decided muscular disorder; there is no rigidity or paralysis, but only agitation and inability to keep still. Nor is there any positive defect of vision, or of the other senses, other than illusions or hallucinations; they are still perfectly retained, and entirely under the control of the patient. The condition of the intellect is likewise different; in inflammation of the brain there are rarely hallucinations, properly speaking, but a more or less complete destruction of consciousness and aberration of intellectual power; in both these respects, we observe an opposite condition in delirium tremens. This marked difference in the symptoms is explained by a reference to the pathology of the two diseases. In inflammation, there is injection of the membranes or substance of the brain, with thickening of the former, and various other organic lesions. In delirium tremens there is no organic change; the only abnormal appearance which can be detected, is an effusion of serum into the ventricles of the brain, and a preternatural moisture of the cerebral substance. This superabundance of fluid arises from the continued irritation to which the brain is subject, and the slowness with which it occurs; it is not the cause of the symptoms; they are produced by the irritation, which, after it has continued for a longer or shorter period, gives rise to the effusion. The two diseases also differ in their progress. Mania a potu, like mea-

sles, scarlatina, &c., has a definite course and a natural termination; it must disappear after a certain time, unless the attack be a very severe one. No treatment is of any further use in the mild cases than to diminish the inconveniences of the disorder; any treatment which is not directed to this simple end, proves injurious by irritating and harassing the patient.

Delirium tremens begins in two different ways. The most common is that in which from some cause, as accident, disease, or resolution of the patient, or inability to obtain intoxicating drinks, the patient suddenly gives up his accustomed stimulus. This is the most simple variety, and under ordinary circumstances, after a period of restlessness of two to three days, passes through a natural crisis, consisting in a prolonged sleep of some hours, and terminates in recovery. If no untoward circumstances occur, the sleep will follow of itself, and the disease is therefore strictly a self-limited one; treatment merely assuaging the suffering of the patient and diminishing the mortality. The second mode of invasion is that in which the delirium tremens is most apt to be complicated with inflammation or congestion of the brain or stomach, or with convulsions. The patient continues to drink freely until his attack, but the stimulant is taken irregularly, or acts irregularly, strongly exciting the brain at one moment, and then leaving the patient in a state of depression. The circulation is often much excited, and the face flushed, and the eyes injected. These cases are apt to be attended with convulsions of a mixed form, sometimes resulting in apoplexy, at others epilepsy. These convulsions sometimes, though rarely, occur immediately on a debauch, more frequently, however, they take place in patients who are in a state of vascular as well as nervous excitement from intemperance, and suddenly abandon all stimulants. The convulsions, and indeed this variety of the disease, are not so frequent in the poor as in those who, with more means of gratifying their vicious desires, are sunk into greater debauchery. The hallucinations and other disturbances of the intelligence are less marked in this variety than in the ordinary form. We may state this by saying, that the vascular and nervous symptoms are more developed, but the intellectual less so.

For the study of ordinary delirium tremens, it is convenient to divide the disease into three stages:—

(a) *First Stage.* This is well known amongst drunkards as the *horrors*: a term which expresses the aspect of the patient, which is that of extreme anxiety and agitation, and the distressing feelings of fear which the patient experiences. The anxious alarming expression is one of the most characteristic symptoms of the disease, and with the tremour, which is equally remarkable, it constitutes the only pathognomonic character. The tremour extends to the whole muscular system, but as it may be to a certain extent restrained by a voluntary effort of the will, or by supporting the weaker muscles of the limbs against the trunk, it is sometimes not very obvious unless the patient is directed to put out his tongue, or to hold up his hands, where it is at once perceived. The restlessness and tremour are the most frequent and important symptoms of the first stage of the disorder, but are by no means the only ones; the others, however, are only accessory or secondary, and vary with each patient. As a general rule, the pulse is feeble and frequent, the mind is unable to direct itself long to any single subject, and the pupils are slightly contracted. The complexion is extremely variable; it is often pale if the patient has not been long addicted to intemperance, but, in the majority of cases, it retains the usual

tint of the drunkard's countenance. The appetite fails, the bowels are often constipated, and there is generally more or less thirst. In this stage of the complaint the restlessness continues throughout the night, and of course the patient is unable to sleep: sometimes, the sleeplessness is the first symptom of the disease, but in the majority of cases it attends the restlessness, and is strictly proportioned to it. The agitation may gradually subside and the patient recover, or the disease may pass into the next stage.

(b) The *second stage* of the complaint presents the same symptoms as the first, but in an exaggerated degree, the tremours, restlessness, and insomnia are increased, and the appetite is more completely destroyed. The pupils are more contracted; if, however, the patient has not taken opium, the contraction of the pupils is never very great. The distinctive symptom of the second stage, is the illusions which at first occur only at night, when the patient is left alone, and in the dark. These hallucinations are perfectly under the control of the understanding when the courage of the patient is revived by light and society: he is then perfectly aware of their nature, and will often laugh at his own fancies. The illusions are not confined to the night, if this stage become more confirmed, but they still remain perfectly under the control of the will and of the intelligence; if the disease continue, the illusions become more and more frequent, and cease to be recognised by the patient, that is, they are completely confounded with real objects. The attention may still be directed to surrounding objects, and the patient is capable of answering ordinary questions with perfect correctness, if he is addressed in a sharp, decided tone of voice, and there is no incoherence in his answers, so long as his attention can be commanded. These illusions are nearly always of an alarming kind, and are as varied in their nature as the objects which happen to be most familiar to the patients; devils, guns, fire, serpents, and the like, are the most common objects of his fear. At other times he feels a vague dread that his life will be taken, and earnestly entreats that it may be spared. These illusions are so well characterized, that they have always been regarded as the essential character of true delirium tremens; this is nearly but not absolutely correct, for, in some cases, the tremours are not attended with illusions, but on the contrary, the mind of the patient is almost clear, and the disease may prove fatal, although no illusions present themselves, by the occurrence of convulsions or sudden insensibility. Still, in the regular simple variety, of which I am now treating, the illusions may be regarded as a constant symptom. The other symptoms of the second stage are not pathognomonic, and with the exception of the countenance, which retains the same restless expression as in the first stage, are not even characteristic. The pulse is frequent, and generally small, the frequency evidently depending rather upon the extreme agitation of the patient than any regular connection between the state of the circulation and the disease. The appetite rarely returns during this stage, although this is sometimes the case; the tongue is generally furred, but rarely dry. The skin remains moist throughout this stage, and if the efforts of the patient to escape from confinement be constant, or if his agitation be very great, the sweat is often very profuse. This sweat is of a different character from that which generally occurs during the third stage of the disorder, and seems to be strictly dependent upon the constant exercise which the agitation of the patient obliges him to take. The second

stage may gradually decline, and the patient fall asleep, and recover; or it may pass into the next stage. Sleep is nothing but the indication of the recovery; it follows rather than precedes the decline of symptoms. The insomnia arises from the extreme nervous disturbance which is the essential element of the disease, and although the fatigue of the patient may be extreme, he is still altogether unable to sleep. Let the nervous agitation be quieted by any means, and sleep will immediately follow, and will finally complete the restoration. This is the true rationale of the close connection between sleep and recovery, which has certainly been misunderstood, and has led to erroneous deductions as to the treatment of the disease. If the disease be completely removed, the patient will sleep for a long time, and will generally awake perfectly restored. In some cases, however, the recovery after prolonged sleep is not complete, but the disease recurs again, and is not completely cured until a day or two afterwards. If the prolonged sleep occur naturally, it is always productive of great relief to the patient, but if it be forced by the operation of narcotics in large doses, instead of conducing to recovery, it will sometimes end fatally, and the patient may then die without awaking. A short sleep of one, two, or three hours is refreshing, but is not usually followed by immediate recovery, although it affords an evidence of the gradual decline of the disease. If delirium tremens be well treated, or if the disease be essentially mild, but few cases pass beyond the second stage; recovery taking place without difficulty.

(c) The *third stage* is attended, like the others, with a symptom which is characteristic; that is, incoherence. The illusions either cease, or they are no longer connected,—the patient passing from one object to the other with great rapidity, and not reasoning correctly or connectedly upon the images which are presented to his mind. He becomes feeble, but is, at the same time, extremely agitated, and can only be retained in bed by the constant watchfulness of an attendant, or by straps or bandages. The sweat becomes profuse, the skin sometimes cold, at others warm, and pupils greatly contracted. The contraction sometimes ceases before death, and may be succeeded by a morbid dilatation, if there be much serous effusion upon the brain. The senses become gradually more and more obtuse, from the first appearance of incoherence; the patient generally loses his power of attention, and can with great difficulty be induced to direct his attention to surrounding objects, and as the disease advances, he becomes completely comatose, and generally lies in a state of insensibility for some time before death. The pulse gradually fails during this period, and the patient often presents symptoms of nervous disturbance, which are very analogous to those which take place in cases of typhus fever, such as subsultus, spasmodic tremours of the muscles generally, and muttering delirium.

Emetics have frequently been employed for the cure of this disorder. They act by producing relaxation and diaphoresis, and in some cases this practice succeeds very well. But in other cases (especially in that sort which is not unfrequently met with in private practice, where the disorder is brought on, not by a fit of intoxication, but by a long course of free drinking), emetics may do a great deal of harm; instead of tranquillizing the system, they sometimes produce a great deal of prostration, which, in some cases that I have seen, has undoubtedly been the cause of death. Tartar emetic is particularly liable to this objection.

Of the various other remedies employed in the treatment of delirium tremens, opiates have probably received most attention. I formerly used these remedies in almost every case, though not in as large doses as some of my brethren; but when I was a resident physician in this hospital, we were directed to give opium in very large doses,—frequently as much as four grains every two or three hours, until sleep was procured. The patients, for the most part, got well under this treatment; but in estimating the value of a particular plan of treatment, we ought to consider the proportional success of this and other plans. A comparison of this sort will prove that opium is not the most effective remedy in mania a potu.[†] In conjunction with this remedy certain hygienic regulations were also enforced at the time to which I have alluded. The patients were locked up in cells, and if very disorderly, that is in every severe case, they were confined in a strait jacket, or tied in bed, with gloves and straps.

The practice of the hospital has never been to give opium to the exclusion of other remedies; it was always the custom to use cups and cold applications to the head, purgatives and various other remedies, when they seemed necessary. From time to time a change would be made in the practice, and the affection would either be treated upon empirical grounds, in accordance with the varying symptoms, or the emetic practice would be pursued.

But the plan of treatment, by opiates and confinement, is the one that was almost universally practised in Philadelphia several years ago, with variable results. In my own practice I have gradually diminished the quantity of opium which I formerly gave, and for some time past have not used it at all. Instead of it, I have relied in bad cases upon the stimulant treatment which had been always followed in some plans: that is, the use of stimulating remedies, particularly alcoholic liquors. These articles I first employed in conjunction with opium, or prescribed them without opiates, in two different conditions: 1st, in the slighter cases, or those of incipient delirium tremens; or 2dly, in the severe cases where opium had been employed but was followed by distress of mind and stupor. But at present I use them singly. This treatment has diminished the mortality of the disease. The change which I have adopted in the hygienic rules has also contributed very decidedly to this result. Instead of confining the patients, I let them walk about and enjoy the company of others as much as they choose: merely taking care that some one should be near them to prevent accidents. I was led to this change by observing that the hallucinations which attend the disorder were more distressing when the patients were in a state of confinement than when they were allowed to walk about as much as they wished. As I have already remarked, they are capable of controlling these hallucinations, until the intellect is entirely destroyed; and they can do so the more easily when they are surrounded by objects which serve to engage their attention. Confinement always irritates them, and increases their ravings, so that the third stage, in which the intellect is entirely destroyed, is apt to be brought on very speedily. I have very often tested this by a simple experiment; a man who was confined to his bed by a strait jacket, or something of the kind, I have frequently directed to be dressed, have soothed him by conversation, and after requiring a promise that he would conduct himself with propriety, I have very seldom found reason to be dissatisfied with the result. On the contrary, the disease would almost

invariably become milder, and the necessity of confinement cease. It is true that confinement is often necessary at night, from the impossibility of always providing a sufficient number of attendants. I therefore (with the exception just stated) allow the patient to have full liberty, the only restraint being the presence of the keeper: sometimes, also, I direct them to be set at work, which serves still farther to distract their attention.*

The proportional mortality under the two plans of treatment which I have detailed, is represented in the following summary, comprising the number of cases treated amongst the men for the space of $5\frac{1}{2}$ years—that is, from the 20th of May, 1834, to the 13th of November, 1839. The whole number of cases admitted for delirium tremens, or intemperance which was expected to terminate in delirium tremens, was 1241. Of these, there were 1198 whites, and only 43 men of colour. Of the whole number, 708 were decided cases of delirium tremens, 60 were slight cases, and 430 cases of mere intemperance. Of the latter, some terminated in decided delirium tremens, and others proved fatal from diseases (such as pneumonia) contracted during the fit of drunkenness, for which they had been sent to the lunatic asylum. So that this class furnishes a considerable number of bad cases. Of the whole number 121 cases proved fatal. That is, a fraction less than one in ten.

In the first year, from May, 1834, to the same date, 1835, the number of admissions was 141; of these, 18 died: that is, rather more than one in eight. In the second year, the number of cases was 211, the deaths 24, or a little more than one in nine. The third year, in 301 cases there were 47 deaths, a much larger proportion than in preceding years, one in $6\frac{1}{4}$, but depending upon an accidental cause, that is, the coincidence of an epidemic of typhus, which attacked many of the debauched subjects of intemperance: some of them were sent to the lunatic asylum as labouring merely under the effects of intemperance, and could not be afterwards removed to the proper ward.

In the fourth year, beginning May, 1837, of 206 cases, 19 only proved fatal, that is, about one in eleven. This was a decided amelioration, and coincides precisely with the epoch at which the change of practice was introduced.

In the fifth year the mortality went on diminishing, and was less than one in twenty-six; or of 274 cases, 9 only were fatal; and amongst these cases, the mortality was certainly greatest in those which were treated chiefly according to the method formerly pursued at the hospital.

Finally, in the six months, ending November, 1839, the mortality was only one in $33\frac{3}{4}$, that is, 4 cases out of 135; and of these four, one entered moribund, and was not, therefore, treated in the hospital; another had inflicted upon himself several fractures and other injuries, by leaping from a third story window, in a fit of delirium tremens, previously to his entrance. The others, it is believed, were also complicated cases.

The preceding summary of the results of the treatment, is extracted from a lecture which I delivered at the Philadelphia Hospital, in December, 1839. The results of the treatment for the last year, up to October, 1840, have been still more satisfactory. The number of cases of the sequelæ of intoxication, and of delirium tremens in the three stages, admitted into the men's wards of the Philadelphia Hospital, from October 12, 1839, to October 12, 1840, is 223. Of these, 61 were classed under

the head of intoxication, or its immediate sequelæ, some of them passing into delirium tremens. If we exclude the whole of these 61 cases, there remain 162 cases of decided delirium tremens; of these, 87 were admitted in the first stage, 73 in the second, and 2 in the third: 160 cases recovered, and one remained convalescent, who is since well (Oct. 16). One only proved fatal: this patient was admitted in the third stage of the disease, and died in a few hours after his entrance; he had been treated with opium, and a box of pills, which he was taking, was sent to the hospital with him. Of course, this apparent exception confirms the general conclusion, that the disease terminates favourably in every instance, when treated according to the method recommended.

Up to the present date, August, 1841, from November, 1840, the mortality, including complicated and moribund cases, has been about one *per cent.* That is, in no case in which the stimulant practice was thought necessary did it fail, except in those in which, from the late admission of the patient, or some other accidental cause, it was not fairly tried; and counting all such, the ratio still remains insignificant; while the opiate practice yielded a large mortality under the same circumstances. I do not, however, think it necessary to resort to alcoholic stimulants in slight cases; and still less in the slight gastric nervous disorder which follows simple intemperance, but does not amount to delirium tremens; sometimes it is better to avoid them carefully under these circumstances.

The plan of treatment which I have found to answer best, is as follows:—

If a patient come under your care partially intoxicated, but still labouring under some of the premonitory signs of delirium tremens, give him an emetic of ipecacuanha: he will in general be disposed to sleep after its operation; when he awakes, or soon after taking the medicine, if he does not sleep, he will complain of gastric uneasiness, and often of slight nervous symptoms. Fresh air, exercise, and a strong infusion of gentian, or some other bitter, with capsicum or ginger, will then do much to allay the irritability of the stomach and diminish his discomfort. Alcoholic stimulants are not necessary in such cases; and these simple remedies constitute my usual treatment.

If the disease promise to become more protracted, a mixture of lac assafœtidæ, with tincture of valerian (ammoniated) and Hoffman's anodyne (ʒss. of each of the latter remedies with ʒij. of lac assafœtida every two hours) are of great benefit in tranquillizing the patient. As a drink, he may take a bitter infusion with an aromatic. These remedies, with exercise, and as nutritious a diet as the stomach of the patient will bear, are sufficient to remove the symptoms if they are slight.

If the disease become more decided, and pass to hallucinations, especially if these are not recognised as such by the patient, the stimulant practice may be resorted to. The severity of the disease from the first is, however, a better guide than the mere occurrence of hallucinations. Thus, if the disease be very violent, even before any hallucination can be detected, the patient may take alcoholic stimulants; but it is especially in those cases in which both tremours and hallucinations are present that the stimulant practice is applicable. The same treatment is indicated when the patient is threatened with convulsions; but if the face be flushed, and more or less livid, the cold affusion, or the simple application of ice to the head, should be conjoined with the stimulants.

Various alcoholic preparations will answer the same end. Whiskey with quassia is by no means palatable, and at the same time suits well with many drunkards, but some of them are nauseated by it and require brandy, gin, or the like. The dose is necessarily very various: on no account, and under no circumstances, is it either necessary or proper to give a sufficient quantity to render intoxication possible. Our object is the very reverse of this: it is simply to tranquilize the agitation of the nerves by small doses of a poison to which the patient has been accustomed, but not toxicological doses; and these small doses may seem large in some patients, although they are in reality small compared with their habitual allowance. For most purposes, one ounce of the above-mentioned stimulants may be given every three or four hours; in bad cases, two ounces may be given every two hours, for a few doses, and then in a less dose. In very few cases was this quantity exceeded, and then only for a very short period, when the life of the patient appeared dependent upon the prompt revival of his sinking powers. If the patient be feeble, the stimulant may be given in the form of milk-punch, or in arrow-root. The largest dose is generally required for a single day, afterwards it should be gradually lessened, and after a sound sleep, or as soon as there is a decided diminution of the tremours, all alcoholic remedies may be given up and supplied by a simple bitter infusion, or the assafœtida mixture. In some cases the cure takes place, as it were, abruptly, and the patient is at once restored to health; in others, after the cessation of violent symptoms, the patient may remain in a nervous state with some tremours, but no decided hallucinations: there is at the same time in many cases some indications of active excitement of the brain. This state of things is, however, much less frequent after the alcoholic than the opiate practice; but in either case, the best remedies are a smart purgative, exercise in the fresh air, and cold affusions on the head.

There are often complications which require some modifications of the treatment, but they are less frequent than in the opiate practice. The most common is gastritis; to a greater or less extent it may be said to be natural with drunkards, and ceases in a great degree as soon as the cause is removed; if it be not very intense, it requires no special treatment. This slight gastritis is often attended with vomiting, which ceases after an emetic, or the administration of the usual stimulants. If, however, the disease be severe, with red tongue, and great tenderness, and constant vomiting, all stimulants should for a time be suspended, or they may be given in small quantities and iced. Bladders, or cloths, containing ice, may be applied to the epigastrium, the proper diet for gastritis directed, and cups and leeches may be used if the former remedies prove insufficient. When the gastritis becomes very intense, the symptoms of delirium tremens in general subside, and seem displaced by it; and the brain symptoms become then secondary to gastritis, such as fixed but muttering delirium. These are often confounded with those proper to delirium tremens. Congestion or inflammation of the brain may complicate, replace, or succeed to delirium tremens: when they appear as mere complications they may often be relieved by the means I have indicated without suspending the treatment proper to the disease. But if the vascular disturbance of the brain constitutes the disease, and the delirium tremens is either not developed or disappears, the treatment becomes that which is adapted to the particular cerebral state, and venesection is some-

times under these circumstances of immense value ; but, as a general rule, local bleeding, revulsives, and refrigerant applications, are better means of restoring the balance of the system. These vascular affections of the brain are always produced in some individuals after a debauch, or even moderate indulgence ; in a few they may occur upon taking a single glass of wine. Of course, in the latter case they are dependent upon a peculiar idiosyncrasy, in which a very small dose of an alcoholic stimulant acts as a virulent poison. If the vascular excitement of the brain from a debauch be not attended with the symptoms of real delirium tremens, or if they be very slight, and be concealed as it were beneath those of excitement, then it is very clear that the case should not be treated as one of delirium tremens ;—an error of diagnosis in this respect would be mischievous.

In pointing out to you a mode of treatment which a long experience has shown to be safe and remarkably certain in its results, I am very far from excluding other means as injurious ; on the contrary, many of them may be used in connection with the stimulant practice, or may be substituted for it, if you have strong objections to this mode of treatment. Should you prefer opium, I would warn you against giving it in very large doses, except you can observe the condition of your patient before administering each of them. By combining opium with tartar emetic or ipecacuanha, you may succeed in producing calm or sleep in smaller doses than if given alone. Although it was the remedy formerly relied upon in the hospital, I have not administered it for two years, except in rare cases for some intercurrent disease, such as dysentery. In some instances, as of fractures of limbs, &c., it may be necessary to use opium, but these are rare : there is another case in which it may be of service, that is, when the patient is tranquil, but still sleeps little ; a moderate dose of opium is then at times of service.

In recommending to you a practice of this kind, I do so simply because I believe it to be a duty to inform you of the results of my experience in the treatment of this disorder. The great success of the treatment is a matter of demonstration ; while there can be no possible objection to the practice, except the fear of giving something like a sanction to the assertions occasionally made by drunkards, that they cannot do without their stimulants. This, however, is clearly an error : the continued use of alcoholic liquors even as a remedy is always injurious and reprehensible ; but this is very different from their employment during the two or three days of an attack of delirium tremens.

The examination of the records of the hospital do not show that the admissions for delirium tremens of the same individuals are at all influenced by the treatment in previous attacks, whatever that may have been ; on the contrary, there is strong reason for believing that such is not the case. The thirst for alcoholic drinks, once acquired, can only be overcome by a moral action and a strong will on the part of the patient ; hence, it is extremely rare to find a drunkard reformed from fear of illness or suffering. The will to abstain, for it requires an act of strong volition, must come from other reasons ; and the influence of the societies which are now labouring in the reformation of the intemperate, is certainly enhanced by the support which they receive from mutual encouragement giving strength to the feeble will of the intemperate.

After a treatment, or after an attack without treatment, of delirium tre-

mens, the patient should break up his old habits of association of time and place, take a journey, engage in some new and active employment. Shower-baths, or simple cold baths, with some light purgatives, are useful in dissipating the remains of the disease, and in favouring sleep when the disease is no longer in its most active stage, but is not entirely removed.*

LECTURE X.

Dysentery—Varieties—Diagnosis—Anatomical lesions—Treatment.

DYSENTERY is a disease of unfrequent occurrence in the cold seasons of the year. It is most commonly met with in summer and fall, the liability of inflammation being transferred with the approach to winter, from the bowels to the lungs. I, however, present two cases of dysentery, one of the acute, the other of the subacute form.

The latter is that of a man aged sixty-five years; he has generally enjoyed good health: on his first admission into the hospital, he had intermittent fever, from which he recovered, and went about his usual employment. About a fortnight after this (on the 1st of October), he was again admitted, having been seized with dysentery two days before. It came on with frequent discharges from the bowels, which were watery, and passed with little pain. In a few days the character of the stools changed; they became yellowish, and were composed of thin fecal matter, mixed with mucus; but there was no blood. The patient has also suffered pains, but of no great severity, along the course of the colon, from the cæcum to the sigmoid flexure. He has not experienced nausea; his appetite has been tolerable; he has suffered little from thirst. The skin has been harsh and dry, with considerable emaciation, and a countenance indicative of griping pain in the bowels; the features which give to it this expression, are the frown on the brow and compression of the lips. The degree of emaciation has varied frequently with the intensity of the case; being on one day extreme,—the next much diminished. The pulse has been sometimes quick, sometimes slow; it now beats 96 in the minute. The skin is cool; there is, therefore, very little fever, nor has there been much at any time in the course of the disease. The tongue has been, throughout, dry, cracked, and red, as it almost always is in severe cases of *chronic* dysentery. This appearance of the tongue is not so frequent in *acute* dysentery, because the inflammation requires some

* Since the time at which this lecture was delivered, I have seen no reason for making an important change in the opinions I had at that time formed from a very extended observation of delirium tremens. I still rely mainly on the alcoholic remedies in cases of the disease, and believe that they, either alone or given in conjunction with some other stimulant, constitute the surest means of bringing the disease to an early resolution. I do not, however, object so strongly to the use of opium in private practice as in hospitals. It there seems to be oftener a matter of necessity to give opiates than it is in the wards or cells of a hospital, where provision is made for the convenient treatment of patients labouring under delirium tremens. In hospitals even, the use of opium ought not to be neglected; it is often a valuable adjunct to the other remedies for the disease, and may be given with safety, provided it be not administered uselessly or without inquiring carefully into the condition of the patient. But it is certainly not on the whole the best or safest remedy for the treatment of cases of delirium tremens. It ought to be used as a useful assistant to the other means of treatment, and not to be regarded as the only agent capable of quieting the nervous disturbance, which constitutes the main feature of the disease. *June, 1848.*

time to extend itself up the alimentary canal. In chronic cases we often find this condition of the tongue attended with a disagreeable taste, and even ulcers in the mouth. The patient's tongue is now become natural; abdomen slightly tender, and not retracted.

The *acute* case is that of a woman, forty years of age. She was admitted on the 12th of November. During the summer, she had an attack of dysentery, and has since been confined in the wards with rheumatism, but had recovered. Her present illness commenced on the 10th inst. The discharges were frequent and watery; on the 12th they contained mucus with some blood. She has had fever, but no chills; nausea, but no vomiting.

15th. The countenance is anxious; abdomen extremely tender and painful; stools passed every hour; they contain mucus, but no blood.

To-day (16th) the blood has reappeared in the stools. This disappearance and reappearance of blood in the stools are of frequent occurrence in acute dysentery. The history of the case shows that the stomach has remained nearly intact, the disease being confined to the large intestine.

Present condition of the patient.—The countenance is very slightly flushed, especially the lips; there is no compression of the lips, as in the former case; the countenance expresses nausea and disgust, rather than griping pain. The skin is moist and pleasant, but has been warm and more dry. The tongue is covered with a brownish fur, but moist; there is some pain on pressure all over the abdomen, but it is especially severe in the transverse colon and sigmoid flexure; pulse moderately strong, but compressible, and beats 110. The intellect is confused and weak, but this condition is habitual to this woman, and is not connected with the disease.

I now present a case of tubercular diarrhœa; a disease having a close analogy to dysentery. The disease has continued for two months, the patient having for some time *previous* been labouring under phthisis pulmonalis. Since the commencement of the diarrhœa the pain in the chest has continued, but the cough has declined, as almost always occurs in such cases. The diarrhœa seems to act uniformly as a revulsive, and stills the cough, or sometimes removes it for a time. The patient passes five or six stools daily; they consist of ordinary fecal matter, mixed with serum, but no mucus or blood.

The *diagnosis* of dysentery is, in general, easy in acute cases. The tormina and tenesmus, and peculiar stools are sufficient to distinguish it. But in the chronic form of the disease the diagnosis is more difficult, as it is apt to be confounded with that form of diarrhœa which is produced by a tubercular condition of the follicles of the small and large intestine, and is usually preceded by a similar condition of the lungs. We are to distinguish them by the history of the case. Tubercular diarrhœa is, in most cases, preceded by phthisis pulmonalis, that is, the disease generally begins in the lungs before it attacks the bowels. The discharges are generally irregular as to amount and frequency, and they differ in nature also from those of dysentery, as is proved by reference to the above cases.

Anatomical lesions.—Dysentery is an inflammation of the *large intestine*, as is sufficiently indicated by the position of the pain. This inflammation and its consequences in some cases extend a short distance into the small intestine, and even to the stomach; but it always commences in the large intestine, and is generally confined to it. It mostly begins towards the lower end of the colon, and is sometimes restricted altogether to within a short

distance from the anus. The inflammation produces ulceration in various degrees; thickening of the mucus, and other coats; contraction of the calibre of the intestine, from the spasm of the muscular fibres; and also sloughing of the mucous membrane, which may thus be extensively detached. The mucous follicles suffer much from the disease, and the ulceration generally begins in them, and then assumes a regularly rounded form; then smaller ulcers run together, and finally give rise to the extensive destruction of the mucous coat which occurs in most bad cases of dysentery. The anatomical lesions of this disease are of importance for the prognosis; for when you have become familiar with them you may readily understand how slow the intestine is to recover its normal condition; indeed, it is apt to remain for a long time more or less diseased, notwithstanding the diminution of the symptoms. The contraction of the gut is one of the greatest obstacles to perfect cure when the ulceration has been extensive, for it can no longer bear the distension caused by the passage of fecal matter, and every new process of defecation is a new irritant to the denuded surface. It is, however, surprising to find that the intestine will sometimes, though rarely, regain a healthy state after the most extensive sloughing and ulceration. That is, it will regain very nearly a normal condition, but, perhaps, remain a little more irritable than usual. These remarks are applicable to the protracted cases of the disease, where the ulceration is deeply seated, and the powers of restoration have declined. When the disease is acute, the most extended ulcers will cicatrize kindly, and leave behind a smooth cicatrix, with puckered edges. These I have often seen months and years after an attack of acute dysentery, in patients who have died of diseases in no way connected with it. The depth of the ulcers is, therefore, more important than their extent.

But the inflammation of the colon is not all; there is something more; and you will rarely find that patients can be said to labour under a local disease if the dysentery be severe. But although in the simple state it is certainly little else than a mere colitis, the complications render it dangerous, chiefly because the blood and the cerebral system are involved. Still, the inflammation of the colon is, in all cases, the fixed anatomical character of the disease.

Treatment of dysentery.—In the acute form of the disease, the treatment is sufficiently simple. The usual antiphlogistic means are required, with local applications to the inflamed mucous membrane, calculated to allay its irritability and remove its morbid secretions; these local remedies are narcotics and laxatives. In the practice of this hospital, especially during the present year, we rarely find it necessary to bleed. We give first a dose of castor-oil, and then make use of the oily mixture. Calomel, either alone, or combined with opium or ipecacuanha, is by far the best remedy in severe cases; we sometimes also use ipecacuanha alone, or Dover's powder. In most cases mercurials are sufficient to effect a cure as soon as they produce ptyalism, or just before, when the symptoms of acute dysentery often cease at once. Half, or a quarter of a grain of calomel, every two hours, will salivate in three or four days. It is usually combined with opium, to allay the griping, and prevent purging; or the pulv. ipecac. et opii may be employed in place of the opium, to effect the same objects. I also frequently use ipecacuanha, either alone, or combined with opium or calomel. In the case of subacute dysentery before us, I have employed these remedies, at times resorting to the acetate of lead, and various astrin-

gents, without much advantage; Dover's powder has produced the most benefit. In the acute case you saw to-day, I gave half a grain of calomel, with three grains of Dover's powder, every two hours.

I rarely employ calomel as a *purgative* in this disease. I use it for a few days only, to produce its specific antiphlogistic effect,—that is, until slight ptyalism is induced. If it is not then attended with good effects, it should be given up: a continuance of its use will do much injury, and tend to increase the ulceration of the bowels.

This is a peculiarity in the action of mercurials; in many acute inflammatory diseases, the advantages to be gained are when the point of very slight ptyalism is reached, which is a test of the operation of the remedy, and the system may then be regarded as saturated. I am quite convinced that if, from any peculiarity of the system, or from the disease assuming an unusual tendency to the spreading of the ulcerations, mercury should be administered after ptyalism has been produced without benefit, the patient is decidedly injured. The remedy is best adapted to the inflammatory forms of the disorder, and, as we shall presently see, is least fitted for the sloughing or malignant variety.

Of the particular remedies in dysentery, purgatives have been extensively employed. We use many articles of this class in the hospital: the best is admitted to be castor oil, which purges sufficiently to carry off the vitiated secretions, without producing much irritation. To prevent the oil from acting too harshly, and to lessen the irritability of the bowels, laudanum may be advantageously combined with it. The oleaginous mixture is a good formula for their combination; of this we give half an ounce every two hours, till it begins to act on the bowels.* Rhubarb will also answer well as a purgative, and when the active symptoms have declined, the spiced syrup answers better than any other remedy. Venesection is sometimes required in acute dysentery, when the pulse is strong and corded; but we have not found it necessary in any case which has occurred in this hospital during the present year. The epidemic character of the disease has not been of the violent inflammatory character, which is a cardinal point in the diseases of the mucous surface, and seems necessary to the perfect cessation of the disease. I would not have you to misunderstand me—the term restoration of the secretions has been much abused and used vaguely. It means simply, in this case, to bring about the natural secretions of mucus, &c., in place of the diseased ones of blood and lymph. A certain set of remedies tend directly to produce this effect, and by restoring the natural secretions, they not only prove that the disease is ceasing, but they contribute to its cessation by producing depletion in the most effectual way, that is, through the natural emunctories of the part. Cups and leeches to the abdomen, along the course of the colon, are also frequently advisable; the latter may also be applied around the anus, for the purpose of drawing blood from the hemorrhoidal vessels,

* In giving the oil mixture, it is important to select such a formula as will render it agreeable, or at least not disgusting to the stomach. The following is a good one:—R. Ol ricini, ℥i.; Tinct. card. comp. ℥i.; Aq. cinam., ℥iiss.; Gum. acac. q. s. ad faciend. mist. To the mixture we may add half a drachm, or forty minims, of laudanum—in a few cases even a larger quantity. The dose is a tablespoonful every two hours, or less frequently if the disease be declining. At the beginning of dysentery, when the stomach is quite healthy, it is better to give oil as a purgative, in doses of half an ounce, repeated once or twice, with ten to twenty drops of laudanum. At the end of the disease the bowels sometimes act irregularly, and the oil is then useful in very small doses, that is, a teaspoonful.

and relieving the tenesmus. Warm fomentations are very often beneficially employed. But these measures, however important, cannot alone be relied on for the cure of the disease; we must restore the secretions to their healthy condition. This is a principal, though not the only object for which we employ calomel, with opiates, &c. The action of opium in dysentery is peculiar: in the first place, it allays the local pain and general irritability; and secondly, it quiets the spasmodic movements of the intestine, and thereby facilitates the process of cicatrization. But it may likewise produce bad effects; it tends to lock up the bowels, and prevent the discharge of the morbid secretions. To obviate this disadvantage we seldom use it alone, but combine it with castor oil, calomel, or ipecac. It may sometimes, however, be employed singly, either at the commencement or towards the close of the disease; but never during the height of the inflammation. Opium is also used by *injection*. In this city, opiate injections in dysentery have not been much employed till within the last few years; and in the country their use is still very limited, but in this hospital we are in the habit of using them very largely. From twenty to forty drops of laudanum may be administered in this way, but not more, for dangerous consequences from time to time result from the frequent employment of large quantities of so powerful a narcotic, particularly when given by the rectum, in which mode of administration its action upon the brain is more irregular than when given in any other way. We usually inject twenty drops of laudanum mixed with a small portion of mucilage, every two, three, or four hours, according to the severity of the tenesmus and the effects of the remedy; thus, if the stools cease, or if the mind becomes confused, dull, or the patient sleepy, its use should be suspended. There is still another way in which opium may be employed in dysentery; that is, by means of poultices sprinkled with laudanum, and applied to the abdomen, or to the anus.*

Of the other remedies employed in dysentery, ipecacuanha, as we have already mentioned, is among the most useful. It is used either singly or combined with calomel or opium. A very effectual method of administering it, is in combination with extract of gentian and blue mass. This combination originated with Mr. Twining, and has been extensively and beneficially employed in India. It generally produces vomiting at first, but in a short time this effect ceases. I tried it largely in one epidemic; its administration was followed by nausea and diaphoresis, and a considerable alleviation of the symptoms. It sometimes failed, but was generally successful. The proportions are, six grains of ipecacuanha, four of blue mass, and five of the extract of gentian.

Various other remedies have been employed in acute dysentery. They are principally antiphlogistics, such as saline purgatives, calomel in large doses, &c. These will doubtless answer in many of the ordinary cases of the disease.

Malignant dysentery is a form of the disease requiring considerable modification in the treatment. It occurs for the most part, in hospitals, ships, camps, &c. We had an epidemic of it in Philadelphia in 1837, and some cases in 1838; it was so violent and so rapid in its progress as sometimes to produce gangrene of the intestines in two days. It is attended with great prostration of the vital powers; subsultus tendinum, and various

* This is very useful when the anus and rectum are too irritable to bear the mechanical action of an injection.

other signs of debility and nervous disorder. All modes of treatment will frequently fail in this form of the disease. In the epidemic of 1837, we found it necessary to resort to stimuli, tonics and astringents; as wine or brandy, cinchona or cascarilla, with the early use of kino, catechu, or chalk. Opium was also employed as a stimulus.

Another variety is the *subacute*, of which we have an example in the first case above detailed. It occurs mostly in persons above the age of forty; and often appears to be the effect of irregular habits, or of the gradual decline of the powers of life. In these cases, besides a regulated diet, we find Dover's powder to be the most effectual remedy; it succeeds better than mercurials alone, but it may be combined with them, especially the hydrargyrum cum cretâ, which is one of the mildest and best. I generally give it in three-grain doses every four or six hours. Cases of subacute dysentery are unfrequent in summer, being most commonly met with in the fall. We have had many cases of it in this hospital; they have been principally confined to the lunatic wards—a circumstance which is explained by the debilitating effect which a disordered mind has upon the system.

Besides the remedies already spoken of, the *acids* have been largely used in the treatment of dysentery. This practice originated in tropical climates, where lime-juice, vinegar and other vegetables were employed. The use of the mineral acids was mainly introduced by Dr. Hope, whose mixture of nitrous acid, camphor and laudanum, has been of late years so extensively used in bowel diseases. It often produces the best effects, but will not answer in the sloughing form of the diseases. It proves most effectual in the subacute variety, and sometimes in the acute, after the severity of the case has declined; but in the ordinary cases of acute dysentery, the benefit produced by this mixture is very problematical. The dose is about half an ounce every two or three hours.

The acid practice is founded on a peculiar change in the symptoms of the disease which occurs in dysentery. The stool and saliva become extremely alkaline, and even the urine and perspiration lose to a certain extent or altogether their excess of acid. In giving the mixture I have usually continued its administration until the excessive alkalinity of the secretions diminished or altogether ceased.

Chronic dysentery is another form which we frequently meet with. We have a case of it at present in a woman who has been suffering with it for six or seven weeks. There was griping in the region of the transverse colon, but during the last week it has been slight; there have been three discharges in the last ten or twelve hours; the skin is dry and harsh; the patient is much emaciated; this form of the affection, indeed, produces more emaciation than any other disease except cancer. Chronic dysentery may last for years, and produce extensive ulceration or sloughing; and when even checked, is very liable to return.

Treatment of Chronic Dysentery.—We must rely principally upon a regulated diet, of such a nature as will best agree with the patient; for most persons farinaceous articles answer best, while others require animal food. Of the remedies to be employed, the best are opium and ipecacuanha with calomel, in minute doses. The nitrate of silver is often useful. In many cases, travelling by land or sea, particularly the latter, has operated very beneficially, by producing a general alteration and improvement in the system. This has been found to be particularly the case in

the dysentery of the East Indies. Sea-bathing or sulphur-baths are also of great benefit.

From the preceding remarks you will understand that our treatment of dysentery must vary exceedingly in the different forms of the disease. The success of the treatment will, therefore, be various in different epidemics. In the malignant, sloughing dysentery which occurs in camps, &c., the mortality is generally great, while, in some epidemics, it is comparatively trifling; we should not form a general opinion of the character of the disease from observation of a single epidemic, and still less, can we estimate the success of our treatment, unless it has been tested in various epidemics and in different years. A multitude of remedies are often prescribed and used with great benefit in the treatment of the disease; the limits of this lecture will prevent me from even mentioning the greater part of them, but they will be in general suggested by the peculiar symptoms of each case, and you will often succeed, in the most obstinate cases, by attending to some apparently unimportant particulars, such as the condition of the skin, or some slight change in the diet or mode of life of the patient.

In laying so much stress upon mercurials, I do not wish you to understand that I am in the habit of administering these remedies carelessly, or with unnecessary frequency. On the contrary, I would not use them in dysentery when mild purgatives will cure the disease readily; it is only in severe cases that I prefer the mercurial treatment, which is unquestionably the most effectual and most rapid means of getting rid of the disorder. There is no necessity for producing decided ptyalism; a slight action upon the gums is sufficient to test the effects of the remedy.

I have explained to you the anatomical lesions at length, because your prognosis is, in severe cases, to a great degree, founded upon their extent, and you will perceive that a complete cure can only take place when the ulcerations of the intestine are healed.

LECTURE XI.

Subacute dysentery (continued)—Pathology and treatment—Phthisis pulmonalis.

I SHALL bring forward to-day a case of the subacute form of dysentery, and afterwards several cases of phthisis, for the purpose of illustrating some of the various modes in which this disease commences.

The case of dysentery is one of a class not unfrequently met with during the winter months, in which not only the bowels, but the mucous membranes generally, are affected. The patient is a man of nearly fifty years of age, and an habitual drunkard. A fortnight since he had an attack of *delirium tremens*, the symptoms of which continued during several days after his admission into the hospital. After an exposure to cold recently, he was seized with bronchitis, and the affection of the bowels for which he is at present under treatment. The alvine discharges have been very frequent, sometimes several in the course of an hour; the pain was constant, but much more moderate than it usually is in the more acute variety of the disease. The character of the stools equally shows

that it is not a case of acute dysentery; they consist of ordinary thin, fecal matter, mixed with mucus, but at no time has either *lymph* or *blood* been present. This case is a very good exemplification of the nature of the discharges in subacute dysentery, and the changes which occur in them at different periods of the disease. At first they are either seromucous, or thin and feculent: subsequently their consistence and appearance become altered, and they present the characters observed at the present stage of the case before us. Blood and lymph are very seldom to be found; but in place of them, there is sometimes a grumous, fetid matter, resembling the scrapings of a disorganised intestine, which evidently results from partial sloughing of the bowel.

Although the stools differ so strikingly from those of the acute form of the disease, subacute dysentery is still an inflammatory affection; but the degree of action is moderate, on account either of the debilitated condition of patients labouring under it, from old age, or irregular habits, or of the epidemic constitution of the season. A constitution of this sort, indeed, appears to prevail at present, imparting to epidemic diseases a tendency to assume more or less of the characters of the case which we are considering.

The principal features of the case are as follows: (Complete notes were not preserved.)

J. G., admitted November 25th. The bowels are loose; there is cough, with whitish expectoration; patient much debilitated. The oleaginous mixture was administered, and a small quantity of milk-punch was allowed.

26th. The punch discontinued.

28th. Dysenteric symptoms more severe; twelve discharges from the bowels in the course of five hours; stools thin and watery, with very little feculent matter, but very fetid; slight pain on pressure over the abdomen; cough continues; mind confused and agitated. Six ounces of blood taken by cups placed over the colon, and the following combination prescribed:

R. Pulv. Ipecac. et Opii, gr. vj.
Hydrarg. Submuriat. gr. j.
Ext. Krameriæ, gr. v. M.

To be repeated every three hours. Blisters also applied to the abdomen.

29th. The Dover's powder and rhatany in the above prescription were diminished to three grains each, and the calomel to one-eighth of a grain. It was found necessary to reduce the Dover's powder, because it produced some symptoms of narcotism; that is, contraction of the pupil, and confusion of mind, without diminishing the frequency of the stools. When such a state of things occurs, you must either discontinue opiates, or reduce the quantity administered; else the narcotic may accumulate in the system, and cause the patient to sink suddenly and almost imperceptibly. In the earlier stages of acute dysentery, opium may often be given very largely without producing its characteristic effect. A case of this variety occurred a few years since in one of the resident physicians of this hospital. He was attended by Dr. Horner and myself, and the quantity of opium was gradually increased to thirty grains a-day before the least effect was produced. But in the subacute form we cannot employ such large quantities with safety, and the remedy should be withheld, or its dose diminished, as soon as it produces its specific

effects. You must recollect, too, that even in the acute form of the disease, you must give it very cautiously ; for mischief may in any case result from it, if administered in a careless or rash manner. The rule is, to increase it gradually, and watch carefully its effects ; suspend it altogether, or diminish it greatly, the moment you find any signs of narcotism.

The Dover's powder and calomel have been the active remedies used in the treatment of this case ; the extract of rhatany has been productive of no very decided benefit. The good effects of mercury in this disease (as remarked in a previous lecture) coincide with the occurrence of slight ptyalism,—which I find, upon examination, to have taken place in the patient before us. If it procures no amelioration of the symptoms at this characteristic period of its operation, mercury should be discontinued ; and in all cases where there is sloughing of the mucous membrane, and a gangrenous fetor of the discharges, its use should be avoided, as it then undoubtedly tends to aggravate the severity of the disease.

You must have remarked that stimuli were employed in the early treatment of this case. The patient came in much debilitated from the effects of delirium tremens and previous dissipation, and a small quantity of milk-punch was therefore allowed. In all cases of this disease, indeed, in which there is an enfeebled condition of the vital energies, it is necessary to use stimuli. This is particularly true of the malignant or sloughing variety of dysentery, between which and the subacute there is an intimate connection. The latter has a constant tendency to pass into the former ; and from what has so frequently occurred in camps and hospitals, I have no doubt that the present case would assume the malignant form, if there were many of a similar character in the wards at the same time. If such a change should supervene, it would be necessary, as I have already remarked, to discontinue the use of mercurials, and to rely principally upon Dover's powder and stimuli.

The cupping in this case produced only moderate benefit, whereas the blister operated very advantageously. It is one of those instances of moderate, but obstinate inflammatory action, to which blisters are so peculiarly adapted. Cupping or leeching would be better in the more violent and acute cases of dysentery.

The woman who was brought before you two weeks since as a case of acute dysentery, and was treated with mercurials, is now quite well. The man who was labouring under the subacute form of the disease, at first improved considerably, by the use of Dover's powder and astringents, but afterwards sank again, and died on the 28th inst. The results of the post-mortem examinations are as follows, and show the cause of death.

The following lesions are met with in the intestinal canal.

The mucous coat of the rectum is of a bluish colour, and softened. As we pass up the colon, we find extensive ulcerations, some of which are cicatrized. There is a large cicatrix near the sigmoid flexure ; the newly-formed membrane is thin and bluish ; the old membrane, on the contrary, is much thickened, and to a still greater degree are the cellular and muscular coats. Farther up the ulcers are scattered about, of small size ; the mucous membrane softened. Near the cæcum the morbid changes are of more recent date ; the mucous membrane is highly injected, and patches of lymph are here and there observed. The ulcers are in the acute stage of their progress ; they are of a rounded form, and are seen to have commenced in the follicles of the intestine. We have here exemplified the

different appearances in the acute and chronic forms of dysentery; in the upper part of the colon, where the former condition prevailed, the mucous membrane is of a bright red colour, as in acute inflammation of this tissue generally; but in the lower part, where the disease had become chronic, the colon is bluish. This examination also illustrates a remark which I made in a former lecture, that dysentery usually commences in the lower portion of the colon, and proceeds upwards in its course.

The disease has also passed into the ileum, which is in a state of acute inflammation. There are bright red spots and patches of lymph, scattered over the mucous membrane, for some distance from the ileo-cæcal valve. The glands of Peyer are altogether or nearly intact; in which circumstance you perceive a striking difference from the inflammation of the ileum which occurs in typhoid fever. This acute inflammation of the small intestine, supervening in the course of the dysentery, was the immediate cause of death. The mucous membrane becomes gradually more healthy as we ascend, but is more or less softened.

The stomach also presents marks of inflammation. At the splenic extremity the coats are very thin, and much softened: this condition was in a great measure produced by the action of the gastric juice, which had become altered in constitution, and excessively acid; the membranes at this point have an acid smell, and produce an unusually powerful reaction upon test paper. Throughout the remaining portions of this viscus the coats are white and opaque, from an alteration both in the fluids and the structure. There are dark red patches in several places. Near the pylorus there is a puckering of the mucous membrane, produced by a cicatrix. This membrane is generally softened, but the colour is not particularly reddened. The coats of the pylorus are thickened and indurated, and there is a scirrhus formation in the cellular tissue; its fibrous character is, however, not yet distinctly marked. The symptoms produced by scirrhus of the pylorus, are difficulty of digestion, and vomiting from time to time, which may be so severe and repeated as to produce death. It may be remarked that these scirrhus affections are frequently developed in constitutions where the diathesis has been latent, by depression of mind, particularly in old persons. This is illustrated by the instance of Napoleon; and I recollect an equally striking case occurring in a Swiss emigrant.

The liver is also affected in the present case, but lesions of this organ accompany dysentery far more frequently in hot than in cold and temperate climates. Its colour is a pale yellow, and it appears to be in the first stage of that alteration called the *fatty degeneracy*. The tests of this condition are the greasy appearance of the scalpel when drawn through the substance of the liver, and the bright flame produced by burning a piece of paper which has been moistened with the fatty fluid. The acini are also observed to be very distinct, and surrounded by vessels, producing an appearance of great vascularity and incipient inflammation of the liver. The fatty degeneracy in this case was probably produced by the habitual intemperance of the patient, and subsequently increased by the dysentery.

The spleen, which is so often found greatly enlarged and softened in various diseases, is here nearly of the natural size, but the texture is softened. The cause of this change in the spleen is not well understood, but it appears to be in some way connected with an alteration of the blood. The spleen probably performs an important part in the formation of this fluid; but what the precise office is, cannot be yet ascertained.

From this examination you will perceive how readily the most extensive ulcerations of the mucous membrane of the intestine will cicatrize, provided the muscular coat is not exposed by them.

PHTHISIS PULMONALIS.

I next proceed to bring to your notice several cases of phthisis pulmonalis, with the view of exemplifying some of its modes of origin ;—this is the more appropriate, as the present season (November) gives rise to few acute diseases.

Case 1st.—You may recollect that this man came before you on the 23d inst., with many symptoms resembling those of intermittent fever. Since that time the skin has continued hot, with occasional sweats ; the pulse has usually beaten one hundred and sixteen in the minute ; yesterday, ninety-six ; it is also quick and irritable, jerking, and easily felt, but small and not corded. This character of the pulse is often important as a diagnostic sign ; it occurs in chronic diseases, or in acute diseases gradually passing into a chronic state, accompanied by a general disorder of the system. It is most frequently observed in incipient phthisis, particularly when this disease is attended by pleurisy. The respiration is, also, much more hurried than natural, being performed from thirty to thirty-six times a minute. Cough frequent ; expectoration thin, white, and small in quantity ; tongue at present somewhat pale, and gradually cleaning. The respiration is resuming its natural character in the lower part of the right lung, owing to the decline of the pleurisy ; but it remains rude in the upper lobe of the lung ; a sign corresponding to the tuberculous condition of the part. The action of the heart continues exaggerated, and the second sound is still absent. The difficulty of walking also continues, but in a somewhat less degree ; it is dependent on an acute affection of the spine.

The treatment of this case has consisted in the application of a blister to the cardiac region, and the administration of digitalis and Dover's powder, in the proportion of one-third of a grain of the former to three grains of the latter, the dose being repeated four times a-day. Considerable advantage has resulted from these measures ; the inflammation which had existed being in a great measure overcome, and the inordinate action of the heart diminished. The digitalis and Dover's powder were given particularly with a view to the latter effect, and to allay the irritability of the pulse. This combination sometimes produces a dryness of the mouth, and of the alimentary canal generally, which is unfavourable to the due performance of the digestive functions : but it is by far the best mode of administering these remedies.

I have introduced this case as an example of tubercular disease commencing with pleurisy. The tubercular deposition seems to be a result of the inflammation, as truly as are its ordinary consequences, effusion, adhesion, &c. In most patients the latter conditions would be the only effects of the inflammation ; but in the present case there existed a cachectic condition of the system, predisposing it to the development of phthisis ; hence this disease followed as a consequence of the inflammation. The inflammation which thus produces phthisis, may be seated in any of the tissues of the lungs : thus, it may be a bronchitis or a pneumonia, as well as a pleurisy. But it usually affects a *serous* membrane ; therefore, pleu-

risy is more frequent than the other pulmonary inflammations preceding phthisis, just as peritonitis also is often the primary lesion in tuberculous deposits in the peritoneum. But these cases of inflammatory phthisis are by no means so frequent as those which commence gradually and slowly. Of this more common form we have an example in the next case.

Case 2d.—The patient, who is a printer, has for a long time had a slight cough, and other symptoms of incipient phthisis. During the last summer, there was a great aggravation of all the symptoms, accompanied by a slight inflammation of the bronchial tubes; and the patient is now scarcely able to leave his bed. In this case, it is evident that the inflammation was the consequence, not the cause of the phthisis, as in the preceding case. With regard to those cases of phthisis which I suppose to be caused by inflammation; it may be argued by those opposed to this view of the origin of the disease, that the phthisis *existed*, but in a *latent* form, previously to the commencement of the inflammation. But those cases are exceedingly rare, in which the disease does not declare itself, either by some symptoms, or by physical signs. Hence, I feel compelled to believe, in contradiction to my former opinion, that phthisis may arise from inflammation, occurring in constitutions predisposed to the formation of tubercles.

Case 3d.—This woman has had a slight cough for four years; about three months since, after exposure to wet and cold, the cough and other symptoms were greatly aggravated. These circumstances are sufficient to show that, in this case also, the inflammatory symptoms supervened in the course of the phthisis, instead of preceding it.

Case 4th.—This woman also has had a cough of four years' standing, which became very bad during the summer; after working in an exposed situation. During the last week there have been flying pains under the ribs of the right side. These pains arise from the slight and shifting pleurisy so often met with in cases of tubercular disease. These pleurisies are generally dry; that is, unattended by effusion of serum. The expectoration is copious; the sputa are in round masses, and of the kind called, from this circumstance, nummular; they usually sink in water, but sometimes float from their containing particles of air; they consist of pus, mixed with mucus, and sometimes a portion of broken-down tubercular matter.

In both these women, the skin has assumed a dusky, earthy colour, entirely distinct from the paleness which accompanies it; this hue is almost peculiar to phthisis. The sclerotica has that light blue tinge which is so frequently met with in constitutional cases of phthisis. The appetite has remained good; indeed a good appetite, persisting for a long time in a patient affected with cough, and gradually becoming thin and pale, is one of the most constant indications of commencing phthisis pulmonalis; in many cases the appetite is morbidly great. One of the patients is *jaundiced*. This probably arises from a fatty degeneracy of the liver, accompanied by enlargement; a condition very frequently occurring in this disease; more particularly in female patients. The jaundice arising from this cause must be carefully distinguished by the practitioner from that which depends upon primary affections of the liver, and is totally unconnected with any disease of the lungs. I have seen many cases of phthisis in which the liver was supposed to be the sole cause of the mischief. It is true, that in a large proportion of these patients the liver was fatty, but

this condition arises from the phthisis, and is neither a primary lesion, nor one in itself of much importance.

Case 5th.—This man has been very recently admitted into the hospital. He is much emaciated, and has had a cough for four weeks; the disease is therefore probably phthisis. This probability is rendered almost certain by the respiration being very deficient under one clavicle, and feeble under the other also. But there are as yet no signs of the existence of a cavity. The patient's account of the manner in which the disease commenced, is this: After having been engaged at hard labour, out of doors, during the day, he was awakened from sleep in the night by a sudden fit of coughing and hæmoptysis; in a short time he discharged in this way a pint of blood. The hæmoptysis lasted several days; but for the last three weeks the sputa have contained no blood, but only a frothy matter. This is an example of the *hemorrhagic* variety of phthisis. The hemorrhage with which the disease commenced arose from the mucous membrane of the bronchial tubes. In such cases the hardening of the pulmonary tissue, from the deposition of tubercular matter, does not generally commence early in the progress of the disease; or rather, it does not soon proceed to a high degree of induration in any particular portion of the lung.

The patient is a shoemaker: and we may remark that shoemakers are particularly subject to phthisis, from the confined and sedentary nature of their occupations. His constitution has always been delicate; but he has never before had cough or pain in the chest, except after occasional exposure to cold. Immediately previous to the present attack, he was in the enjoyment of his usual degree of health.

Case 6th.—The patient is, like the last, a shoemaker by trade, aged 42. He has had cough for nearly two years, but it has been generally unattended by pain; there has been merely a sense of oppression at the lower end of the sternum. In February, 1838, he had an attack of pleurisy, which left behind it the usual signs of contraction of the chest. He had no cough previously to the attack of pleurisy, except for a short time, about six months before, and occasionally during spells of intermittent fever. The case, therefore, appears to be one of the inflammatory variety of phthisis, having been preceded, as in the first of these cases, by inflammation of the pleura.

Case 7th.—This is another example of phthisis commencing suddenly, with an attack of inflammation. The patient, a man 41 years of age, has had cough for eighteen months; it began after he had been working at the engines at a fire; had previously been a stout, healthy man, and had never had a cough of any duration. The attack was one of considerable severity, but the patient was not confined to bed by it; he did light work for a year afterwards, but for the last six months, has been unable to perform any kind of labour. He is much emaciated, and presents all the signs of confirmed phthisis.

The cases of phthisis arising from inflammation are much more frequently found in men accustomed to hard labour than in others, and especially in those past the age of five-and-thirty. In younger persons, especially females, the disease is more frequent, and more commonly begins in a slow and insidious manner; inflammation may, and often does occur in those cases, but then it is strictly secondary, and depends either upon the irritation of tubercles in the lungs, or the accompanying fever.

There are cases in which phthisis becomes a local disease only at a very late period, remaining for a long time constitutional, and apparently dependent, partly on the nervous, but, in a greater degree, on the vascular capillary system.

Case 8th.—There are three modes in which phthisis commonly commences: first, slowly and gradually, indeed almost imperceptibly; secondly, preceded by inflammation; thirdly, commencing with a sudden attack of hæmoptysis. This case is an instance of the third variety of the disease—the *hemorrhagic*. The patient entered last Saturday; he is a weaver by trade. This employment is a frequent predisposing cause of phthisis, from the circumstances in which weavers are placed. They work in close rooms, much the same way as shoemakers and printers, and fatigue excessively the thorax. There are other circumstances which aid in producing this predisposition in weavers; such as long confinement in one position, the dampness of the cellars in which they generally work, and the breathing of an atmosphere loaded with irritating effluvia, which arise from the woollen and cotton goods. The patient had been in good health previously to the present attack; had never had a severe cough for any length of time, and had been temperate in his habits. His parents are still alive and healthy, so that the predisposition is probably not an hereditary one; though instances are occasionally met with in which consumption passes by one generation, and is transmitted from grandfather to grandson, without any indications of its presence at the intermediate point. The account given by the patient of the manner in which he was attacked, is this:—In February last, while engaged at work, he was suddenly seized with spitting of blood; in the course of a fortnight he discharged in this way a very large quantity of blood; he thinks it amounted to six quarts,—but this estimate is, no doubt, much exaggerated. At last he coughed up a large coagulum of blood, by which he was nearly suffocated. From this time the hæmoptysis ceased, but the cough continued without intermission; the sputa are whitish and muco-purulent. About five months since, he began to be weak and emaciated, and has become more and more so ever since. Chills also commenced with the cough, and have constantly accompanied it up to the present time. This is, therefore, another of those cases of phthisis which simulate intermittent or remittent fever at their commencement, and of which I have already spoken in the two preceding lectures. The *tubercular fever*, causing this resemblance, occurs in the earlier stages of phthisis, and is truly an irritative disease. Sometimes it assumes the remittent type. I have known two cases of this sort amongst my own acquaintances, which were mistaken for remittent fever, and treated as such; but, after some time, the true nature of the affection was explained, by the clear development of the local signs of phthisis. In the present case there would have been little difficulty in the diagnosis, for the hemorrhage would have made the character of the fever clear. But, in the majority of cases where hæmoptysis does not precede the tuberculous disease, you will be often aided greatly in your diagnosis by the characters of the fever.

The patient has also suffered from profuse night-sweats, and here we have a circumstance which distinguishes this fever from hectic. In the latter, the sweating is not so profuse as in the former; but the chills, on the contrary, are more severe. The patient's appetite has been bad for four or five months; he has had several attacks of diarrhœa, continuing

two or three days at a time. Diarrhœa is a common attendant of phthisis pulmonalis, and generally arises from the deposit of tuberculous matter in the small intestines simultaneously with the same process in the lungs; but the frequency and duration of its attacks vary greatly in different cases. You have remarked that the patient was seized with hæmoptysis while at work; it is in this way that it often begins,—suddenly, and while the chest is exposed to some strain.

Hæmorrhage from the lungs, occurring in this sudden manner, is, in most cases, a sure sign of phthisis pulmonalis. It may sometimes arise from other causes, as disease of the heart, congestion of the lungs, or a mechanical cause, such as a strain; but in five cases out of six, in men at least, it is followed by the local signs of tubercular disease. In women, however, it is not so valuable as a diagnostic sign; for in them it may follow suppression of the menses, and may, in fact, become a vicarious discharge. Though hæmoptysis may arise, as I have said, from a sudden muscular effort, when there are no tubercles in the lungs,—yet, in the majority of such instances, they either exist already, or there is a tendency to their formation; for whenever such a tendency exists, the bronchial mucous membrane will bleed from very slight causes. I recollect an instance in which the hæmoptysis was caused by jumping over a wall about five feet in height, and was followed by all the signs of phthisis; and another in which it occurred from lifting a gate which had fallen. The tubercular diathesis, therefore, predisposes to hæmorrhage from the lungs. It is true, that not a few cases of hæmoptysis abort, as it were, before the tubercles are secreted to any amount; but when we find that the majority of patients in whom this symptom occurs, are afterwards affected with confirmed phthisis, it is perfectly consistent with the facts to believe that the hæmorrhage coincides with a condition of lungs which favours the tuberculous secretion, and which had in many cases given rise to a limited deposit of tubercles before the discharge of blood took place.

Of the tubercular fever, which is an attendant of the disease in the present case, I have spoken more fully in the preceding lectures. The other general symptoms present nothing peculiar. The emaciation, you perceive, is considerable, and is accompanied by that dirty, earthy hue of the skin (more especially of the face), which you have seen in several other patients.

The local signs are—1, cough; 2, expectoration: this at first consisted of mucus, afterwards becoming muco-purulent, with portions of broken-down tubercles; 3, dulness on percussion under one of the clavicles, with mucous rhonchi, and a commencing cavernous respiration. These last signs indicate the stage of the disease; they show that there is already some softening of the tubercular matter. This fact is also proved by the character of the sputa.

Case 9th.—This patient has been a labourer on the canal. Before the present illness he never had a cough, or any other sign of pulmonary disease. He has been sick for two years: the attack was gradual, and was produced by taking cold. Since that time there has been constant cough and expectoration; the matter of the sputa is at this time muco-purulent, and somewhat nummular, and begins to be characteristic of this disease. Emaciation has been apparent for eight months: before this attack, the patient was a stout man. The skin is dry, pale, and dusky. There has been one attack of diarrhœa. There was fever, with profuse night-sweats,

but no chills: it is therefore a modified form of hectic. At present there is not much fever—pulse 94. The expectoration consists of round masses floating in a thinner liquid, with small pieces of tubercular matter: at first it was mucous, then muco-purulent. The sputa takes its shape from the cavities in which it is found. We shall presently see that when these cavities are very large, the *nummular* character is no longer present. There has been no hæmoptysis until two nights since, when about a spoonful of blood was discharged. Such small quantities are not important; they may arise from irritation of the bronchial membrane, and it is only when hæmoptysis is considerable, that it becomes a sign of importance, and also pathognomonic of phthisis.

Case 10th.—This patient was brought before you at the last lecture, as an example of tuberculous disease, coinciding with inflammation of the serous membranes. Since that time, the breathing has continued much oppressed; tongue dry and red; pulse, 95 to 104; bowels constipated. The vesicular murmur has become more distinct on both sides of the chest. There has been an increasing pain in the præcordial regions, with a *bruit de soufflet* of the heart; respiration frequent and high. Yesterday, for the first time, I discovered a grating or creaking sound of the heart, indicative of pericarditis; the *creaking* being produced by lymph into the pericardium. The two surfaces of this membrane rub against each other, chiefly at the beginning of the diastole of the heart, and a grating sound is produced by the spiral movement of the heart on its axis, during the dilatation of the ventricles. The patient, you will recollect, was first attacked by pleurisy; since then, pericarditis has supervened, with more or less endocarditis. This case is, therefore, a good illustration of a circumstance to which I called your attention when I first brought it before you; the connection between phthisis and inflammation of serous membranes. This patient has inflammation of all the serous membranes of the chest, occurring in succession. The pleurisy has declined as the pericarditis supervened. Besides the signs already mentioned, the existence of pericarditis, attended with effusion, is indicated by feebleness of the impulse of the heart, flatness on percussion (extending over a larger space than that occupied by the natural dulness of the heart), and pain on pressure or percussion. The latter symptom, however, is not always present in pericarditis; in any of the serous membranes, in fact, inflammation may occur without the ordinary signs. But in this patient the flatness extends to at least double the usual spaces, and there is very decided pain at the region of the heart, which is increased by slight pressure, but is always more or less felt. The dyspnœa in this case is dependent partly on the pleurisy, partly on the pericarditis. The pulse is not invariably altered in inflammation of the heart or its membranes; it is principally affected in endocarditis, which gives rise to more or less obstruction of the valves. In the present case, there is excitement of the pulse and slight irregularity.

I shall now show you some cases of gangrene of the lungs, and bronchitis, the symptoms of which more or less resemble those of phthisis, and the diagnosis becomes, therefore, frequently difficult.

Gangrene of the lungs is by no means a frequent disease, it is oftener met with in hospitals than in private practice. It resembles phthisis, inasmuch as it produces softening of the pulmonary tissue, and, consequently, the formation of cavities. It differs from it in the fetor of the

breath, and expectoration. The local signs, at the commencement of the disease, are imperfect.

The causes of gangrene of the lungs are cold, an epidemic tendency of the atmosphere, intemperance, and depressing circumstances generally. In most cases, it arises from direct exposure, but sometimes it comes on gradually, and appears to be part of a general disease; that is, it depends on a vitiation of the fluids, in the same way with dry gangrene, of which I have shown you an example.

Case.—The patient is a boatman, forty years of age. He had enjoyed good health till about two months before his entrance into the hospital. At that time, being engaged at his occupation on the Schuylkill, he fell into the river, and was with difficulty saved from drowning. He felt extremely cold, and could not speak for twenty minutes, but no sign of active disease followed for two weeks, other than feebleness and chilliness. Then a cough began, accompanied by pain in the lower part of the right axillary region; the sputa have never contained blood, and have been fetid from the beginning; appetite has been bad throughout; the patient continued to work regularly until November 30th; but since that time he has been unable to perform any kind of labour. The treatment, previously to his entrance into the hospital, consisted of venesection, and the application of a blister to the right side of the chest.

The patient was admitted December 6th. At that time the symptoms were as follows: slight emaciation; a dusky hue of the skin; slight flushing of the face; dilatation of the nostrils; skin warm; pulse 104, thrilling, moderately resisting; respiration 22, high and laboured; expectoration thick and homogeneous, of a dirty, greyish colour, and very fetid. On the right side, anteriorly, respiration vesicular throughout, with traces of the mucous râle, hurried and harsh at the summit of the lung. On the left side, vesicular, with traces of both mucous and sonorous rhonchi. *Posteriorly*, on the right side, vesicular in upper lobe, hurried, and very feeble; in lower lobe, scarcely any vesicular sound; at the upper part, deep-seated, cavernous respiration, and imperfect pectoriloquy. Percussion gives a flat sound in the lower two-thirds of right side posteriorly; clear anteriorly. The signs, therefore, indicated a cavity in the lower lobe of the right lung, with an engorged condition of the surrounding tissue, accompanied by pleurisy. The treatment consisted in the use of chloride of soda, given in doses of twenty drops four times a-day, with nourishing diet. Quinine, porter, and brandy are often necessary; the indications being to correct the fetor of the breath and expectoration, and support the system, while nature effects the elimination of the gangrenous tissue. A number of palliatives, such as opiates at night, will doubtless occur to you; but you should be sparing of depletory measures; they are rarely necessary, except when there is severe pleuritis near the gangrene; and these should be limited to local bleeding, or, still better, to blisters.

Gangrene of the lungs is to be distinguished from phthisis by these circumstances: it usually begins suddenly, and runs its course rapidly; the skin presents a more decidedly dusky hue in gangrene than in phthisis; and the breath and expectoration are always fetid from the commencement of gangrene. The prognosis of the two diseases is also very different. In gangrene, it is not necessarily unfavourable; from one-third to one-half of the cases recover; in phthisis, on the contrary, our prognosis is almost always unfavourable after a cavity is formed. When gan-

grene tends to a favourable termination, recovery generally takes place in a few weeks. Any improvement in the symptoms of phthisis, on the contrary, is very gradually and slowly effected.

There are two kinds of expectoration met with in gangrene of the lung. The most common is blackish, and resembles an inky sediment. The other kind, of which we have an example in the present case, is a greyish, frothy fluid, having some resemblance to yeast, with a fetid odour, which you may perceive is like that of putrid oysters. This, though the least common, is the most favourable variety of sputa. It is generally discharged in very large quantities—amounting, sometimes, to a pint or a quart daily.

I have frequently described, in my lectures, the progress of cure in gangrene. When the sphacelated portion is thrown off, a cavity is formed, lined with the usual pus secreting false membrane, which gradually assumes the character of a mucous membrane. We shall watch the progress of this case, and keep you informed of the result.

The next case is one of bronchitis. The patient is a labourer, aged 35 years. He entered the hospital on the 2d instant, having been ill for two weeks. He was seized with cough, and pain along the sternum; in the course of a week, he began to expectorate a muco-purulent matter, containing no blood; during the most of the time he has been confined to bed. These signs indicate an acute disease, which might be mistaken for the acute form of phthisis. It is distinguished from it, by the absence of the irritable, jerking pulse of phthisis, described in our last lecture, and also, by the absence of the local signs of tubercular deposition. Thus there is no flatness on percussion under the clavicles; and the mucous rhonchus is heard in the sound of respiration throughout the lower lobes of both lungs. But though bronchitis is thus distinguished from phthisis in the commencement, both by the general and local signs, yet it is very apt to terminate in the latter disease, and we ought always to anticipate such a result when it is prolonged, and occurs in young persons.

The next case is a complication of phthisis and bronchitis. The patient is a boatman, 38 years of age, of intemperate habits. He had been sick for three months, and unable to work during the whole of his time: his illness was caused by falling into the canal: the next day he was seized with shivering and cough, unaccompanied by pain: the expectoration consisted of mucus mixed with pus, but no blood. On the 4th inst. he entered the hospital, and the symptoms were as follows:—There was abundant mucous rhonchus throughout both lungs, passing in certain portions into the sub-crepitant, while at the summit of the left lung, the percussion is dull and the respiration extremely bronchial. There is a quick, irritated pulse, some emaciation, and a dry, dusky skin. The sputa, although not nummular, are more purulent than is usual in most cases of bronchitis. The dyspnœa is much greater than in most cases of phthisis or uncomplicated bronchitis.

This case began in the form of bronchitis: phthisis was developed subsequently, and the two diseases are now co-existent. This state of things is of frequent occurrence, particularly at advanced periods of life. At an earlier stage, when phthisis is developed in the course of a bronchitis, it is apt to commence more suddenly, and run its course more rapidly than in the present instance. The patient, you perceive, is but slightly emaciated, and will probably get comparatively well: that is, the disease may con-

tinue for years, with slight cough, &c., but may not shorten the patient's life; the cavity in the lung remaining, but lined with a healthy membrane. I have known several cases of such comparative recovery from this form of disease; and the chances of long life are not afterwards apparently affected by it.

I repeat that phthisis pulmonalis may commence in several different forms:

1. It may commence *slowly and gradually*. This is the most common mode of origin, and is generally met with in cases where the tubercular diathesis is hereditary. The first symptoms of the disease are slight cough and expectoration; the local physical signs are not present until a more advanced stage.

It is very clear that in most of these cases the phthisis is nothing but a mode in which the general tuberculous disorder manifests itself, and that the disease can scarcely be considered local, although the largest deposit of tubercles is in the lungs, or perhaps the only deposit. In many of them no antecedent cause can be detected, in others something has produced a debilitating effect upon the constitution, such as grief, indifferent diet, confinement, &c., and the natural tendency to phthisis is called into action, or a new disposition to it is developed.

2. Phthisis may arise from *inflammation*. This variety is most common in robust persons, and is likewise, in most instances, dependent upon hereditary predisposition, which imparts to inflammation a tendency to terminate in the formation of tubercles. The most common seat of the inflammation preceding phthisis, is some one or other of the serous membranes; and the tubercles may at first be deposited either in the serous membranes alone, in the lungs, or in both. The mucous membrane of the bronchial tubes may likewise be the seat of the inflammation; but phthisis beginning in the latter way, is more commonly met with in old persons, than that which begins by the serous membranes.

Inflammation performs two distinct parts; in the first it is properly the cause of the tubercular deposition, which may occur some time after the inflammation, or take place during its progress. In the second, the secretion of tubercle is attended or followed by an acute inflammatory action in the organs, but the cause of the tubercles cannot be said to be the inflammation which attends their secretion.

These inflammations often present some peculiar features, even when there is no actual deposit of tubercles. Thus, a slow inflammation, with an abundant secretion of mucus, will often attack the mucous membrane of the nasal fossæ, or the upper portion of the bronchial tubes, and then pass into phthisis. These slow, obstinate inflammations, are strictly scrofulous, as much so as those of the large joints—coxalgia and white swelling; and yet they exercise only an indirect influence upon phthisis.

3. The *hemorrhagic* variety. In this, hæmoptysis, whether preceded by a violent effort or not, constitutes the first symptom.

4. There is a fourth form, which is by no means uncommon in certain climates, and is met with occasionally wherever the disease shows itself. The patient suffers, at first, not from a disease of the lungs, or from any tuberculous disorder, but from dyspepsia, chronic disease of the liver, or some other affection of the abdominal viscera, either of an acute or chronic nature. During the course, or at the termination of these diseases, the tuberculous attack commences and develops itself in the lungs, because

these organs are especially subject to tubercles from a peculiar law of the economy. In climates where the diseases of the abdominal viscera are very frequent, phthisis is thus obscure at first, because its symptoms are blended with those of the original disease. The same thing is true of dyspepsia, which often masks the early stages of phthisis, especially in those cases in which the patient does not labour under simple dyspepsia, but under that variety which is connected with a scrofulous constitution.

But these different forms of phthisis, though differing so much in their origin, after a certain period present the same character; they are all attended by emaciation, cough, expectoration consisting of pus and softened tubercular matter, hectic fever, and all the other signs which mark the more advanced stage of the disease. The progress of phthisis is most rapid when produced by inflammation of the serous membranes, especially in young subjects; it is less so when preceded by bronchial inflammation. The hemorrhagic variety is likewise rapid in its course; the slowest of all is that which is constitutional and hereditary. All of these forms are liable to be confounded with other diseases: thus, the first may be mistaken for simple serous inflammation; the second for bronchitis; the third for hemorrhage arising from other causes.

We might multiply the varieties of phthisis almost to an indefinite number, but the preceding are the most important, and may be considered as the landmarks in the study of the disease; under one or other of these classes, all other forms may be included. There are likewise other tubercular affections, not commencing in the lungs, and only implicating them secondarily; but phthisis pulmonalis is by far the most frequent form in which the tubercular diathesis develops itself in adults.

I will conclude the lecture by showing you some very interesting pathological specimens, which illustrate this subject. They are the lungs and intestines of a subject who lately died of phthisis in its most aggravated form. I could only refer to the case at the last lecture; the patient, a young man, being then so feeble as to render it improper to bring him before you. The physical signs, during life, indicated the existence of a large cavity in the left lung: many of you have heard the cavernous, amphoric, and gurgling sounds of respiration, which were extremely distinct. In the course of his illness, the patient also had tubercular diarrhœa.

You will at once recognise the existence of a cavity in the upper lobe of the left lung, by the falling in of its parietes as I hold it up. This whole lobe, indeed, is converted into a mere sac, nothing of the normal structure remaining, except the pleura, and a thin layer of the tissue of the lungs on its inner face. The large size of this cavity accounts for the great distinctness of the amphoric respiration in the last stages of the disease. The cavity is lined by a false membrane, and contains a considerable quantity of muco-purulent fluid mixed with particles of tubercular matter. The muco-purulent matter is a secretion from the false membrane; and the contents of the cavity differ from the expectoration only, in not containing saliva, which is mixed with them afterwards. The sputa in this case were not of the nummular form, of which I showed you a specimen just now, for some days before the death of the patient, because the cavity was too large for their formation. You will notice several bands or bridles passing from one side of the cavity to the other: these consist of blood-vessels which have resisted the ulceration longer than the surrounding tissue: sometimes, however, they are opened by this process, and hemorrhage is

the result, which is often instantly fatal. The rest of the left lung is infiltrated with greyish tubercular matter to such an extent, that scarcely a trace of the healthy tissues can be found. The tubercles are partly softened, and small cavities are seen here and there: these gave rise to the gurgling sound of respiration.

In the right lung, the lower lobe is in a comparatively healthy condition. The tissue of the upper lobe is engorged with blood; tubercular masses are scattered through every part of it; they are of a yellowish-white colour, and no signs of softening are yet perceptible.

In order that you may see the connection between the lesions and their physical signs, I will read some extracts from the notes of the case.—Nov. 4th. Respiration throughout right side expansive and full, but a little harsh. Left side, cavernous respiration with distinct pectoriloquy, most evident near the sternum, about the second rib.—Nov. 24th. Anteriorly, very loose gurgling, with cavernous respiration throughout the whole of the left side. Puerile respiration in the right side. Posteriorly, on the left side, very loose mucous rhonchus, with gurgling throughout; but there is a little vesicular murmur near the scapula. Respiration rude in upper third of right lung.—27th. Left side, anteriorly, respiration amphoric above; loose gurgling in the lower third. Posteriorly (same side), gurgling and cavernous respiration in the lower half, and at the summit; in the intermediate space, respiration distinctly cavernous, but mixed with a vesicular murmur.

I will now examine the intestinal canal. The mesenteric glands are enlarged, of an irregularly rounded shape, and are entirely converted into tubercular matter. This condition of things, when the tuberculous deposit is confined to the mesenteric glands and adjacent parts, constitutes the disease called *tubes mesenterica*. In most cases of this sort, there are likewise tubercles, either in the peritoneum, or the follicles of the intestine: here they are found in both situations.

Large intestine.—In the colon there are some ulcers in the follicles, with slight inflammation of the mucous coat. Near the rectum are innumerable ulcers of small size, which appear like so many distinct points, because they have commenced in the separate follicles.

Small intestine.—Near the ileo-cæcal valve are numerous ulcers, evidently commencing in the glands of Peyer. Some of these glands still remain, but much enlarged, and containing yellowish tubercular matter, which is still of a firm consistence. Here you may distinctly trace the changes which take place in the follicles, from the first deposition of the tubercular matter to its complete softening, and final discharge by ulceration. The other viscera were not examined, on account of the short time which remained for us to make the examination previously to the lecture. There is no doubt, however, that tubercles existed in several other organs, particularly the bronchial glands and the spleen, which are amongst the most frequent seats of these deposits.

LECTURE XII.

Phthisis pulmonalis—Pathological characters of gangrene of the lungs.

WE have another case of phthisis pulmonalis; some remarks may serve to give you some further knowledge of its history and diagnosis. The case before us is another example of the ordinary variety of phthisis, which commences gradually, and without any assignable cause. The patient is a printer, forty-seven years of age, formerly of intemperate habits, but since the commencement of the disease he has been perfectly temperate. Last winter a cough commenced, but so gradually that the patient is unable to fix the time of its first occurrence; during the last four months it has been much more severe and constant, and accompanied by hoarseness. There has been at no time spitting of blood; the expectoration was at first mucous, afterwards muco-purulent and somewhat nummular: this change in the character of the expectoration took place about the time that the hoarseness commenced. The left side of the chest is somewhat contracted; the respiration is cavernous, with distinct pectoriloquy. These signs show the existence of a cavity, but it seems to be rather of an indolent nature. The hoarseness in this case is owing to inflammation attacking the larynx, and causing thickening of its lining membrane, and of the vocal cords; this inflammation often passes into ulceration; it is sometimes painful, but often there is scarcely a slight tickling felt at the part. I find on making pressure upon the larynx, that the patient complains of no pain, except just below the thyroid cartilage. This inflammation is the result of the irritation of the tubercular matter and other discharges which pass over the bronchial membrane, and it may take place at several different points of the respiratory passages—the larynx, the trachea, or the bronchi. This variety of inflammation is strictly secondary, and very different from that which occurs in the early stages of phthisis, in which the tracheal irritation is the cause developing tubercles, and not the result of their softening. There is generally considerable soreness attending the inflammation when the phthisis is acute; in more chronic cases it is slight, or altogether absent. This inflammation of the air-passages, in the cases of which I speak, is secondary; in others, as I have already repeatedly remarked, it may precede the development of phthisis. The other symptoms in the present case are of the usual kind: the skin is dry and harsh; there is general emaciation, with roundness and prominence of the ends of the fingers; the pulse is quick, tense, and irritated; there are chills about the middle of the day, followed by fever in the afternoon, and cold sweats at night. The fever, therefore, has the regular paroxysmal character of hectic.

You have now seen cases of several varieties of phthisis, differing in their origin and progress; it is time to say something of the diagnosis of this affection. The diseases with which it is most liable to be confounded, are bronchitis, pneumonia, and pleurisy, whether of the acute or of the chronic form; since phthisis, also, may be either acute or chronic. It may likewise be accompanied by any of these inflammations, and it becomes important to distinguish such cases from those of simple inflamma-

tion. The diagnosis of tubercular disease depends both on the general and the local signs. The first circumstance to be attended to, is the *general appearance* of the patient. The frame is emaciated; the skin is of a pale and earthy aspect; there is a restless expression of countenance, indicating the working of a slow disease, and entirely different from the alteration of the features which attends acute disorders. The emaciation shows itself very early in the hands and fingers,—the ends of the latter retaining their fulness for some time, and appearing rounded and prominent; the nails are likewise turned inwards. Emaciation is a sign of great importance in the diagnosis of phthisis and other tuberculous diseases; particularly if you find that the patient is losing flesh, although he eats nearly as much as in good health. When this sign is conjoined with others indicative of phthisis, the diagnosis becomes almost certain. The earthy hue of the skin is attended by a bluish tinge of the sclerotica, which very often occurs in phthisis.

We likewise observe a change in the *circulation*. There is a peculiar fever attending tubercular disease, and characterized by a quick, jerking pulse, the result of excessive irritation. This fever is accompanied by chills and sweating,—the former being at first very slight, while the latter is much more copious than in most other acute diseases. This peculiar condition of the pulse and sharp febrile excitement, are most important in the diagnosis of general tuberculous disease of an acute kind. It is, however, quite as well marked when the tubercles are rapidly developed in the lungs, as when they are deposited at the same time in several of the organs. The observation of these general signs should cause us to suspect the existence of phthisis, and lead us to the examination of the local signs. If, upon an inquiry into the latter, we are unable to ascertain the existence of any other disease, we are led, by a process of exclusion, to a confirmation of our original suspicions.

We also derive some important points of information from a consideration of the *predisposing causes* of the disease. Thus, the *sex* exercises some influence; phthisis is rather more frequent in females. *Age* is a more important circumstance: phthisis is more frequent in young persons, and is rarely met with after the age of thirty-five. When it does occur after this period, it generally depends upon some accidental cause, as inflammation, &c. The *course of the disease* is another thing to be considered; phthisis is in most cases slow in its progress: the diseases with which it is liable to be confounded are more generally acute.

The last and most important circumstance in the diagnosis of this disease, is an attention to the *local signs*. The first of these is usually an uneasy sensation in the chest, very different from the pain of inflammation. It varies greatly as to its position, sometimes shifting from one side to the other, or felt under the sternum. Pain, however, may be present in the commencement of phthisis, when it is complicated with intercurrent pleurisy. The cough is constant, but rather more severe at night, or early in the morning, than throughout the day; it is at first short, and so insignificant as hardly to attract notice, and attended by mucous expectoration; in the progress of the disease it becomes loose, and the expectoration is muco-purulent and nummular; in a still more advanced stage, the cough is very loose,—the expectoration consists of pus mixed with softened tubercular matter, and loses its nummular character.

The *physical signs* are not obvious at the commencement. The first

thing observed is generally a feebleness of respiration at the upper part of the lungs, which afterwards changes into rudeness; this arises from the obstruction of the lung by the tuberculous deposit. We next perceive a crackling sound under the clavicle, indicative of the commencement of softening. There is likewise a dulness on percussion at the summit of the lung. In the advanced stages there is gurgling, with cavernous and amphoric respiration, and more or less perfect pectoriloquy.

There are certain *secondary symptoms* regularly occurring in phthisis. One of these is hectic fever; at first the fever attending tuberculous disease is not hectic; I have pointed out the difference in a previous lecture. When hectic is developed, it is recognised by the chills and sweating which accompany it; the flush on the cheeks, &c.; it is always paroxysmal. The loss of appetite, and decline of digestive power, do not depend upon the deposit of tubercles, but upon the fever which attends it; they differ in no way from the same symptoms which ordinarily accompany febrile diseases. The diarrhœa of phthisis, however, often depends upon the formation of tubercles. It is intermittent, very irregular in its character, occurring sometimes frequently in the course of the disease, sometimes only once or twice. Its immediate cause, in most cases, is the development of tubercles in the glands of Peyer, which, consequently, become inflamed and ulcerated; but diarrhœa in phthisis may arise from the same causes as in other diseases; in the latter case, its symptoms and progress are entirely similar. Hemorrhage is another of the accidental or secondary symptoms of phthisis; the blood is either discharged directly from the lungs by a slight cough, or it is swallowed, and afterwards ejected from the stomach. If the hemorrhage be profuse, that is, not less than two or three ounces in a day, it is considered almost pathognomonic of phthisis, especially in males; in females, it is not so certain as a diagnostic sign, for hemorrhages from different parts of the body often arise from suppression of the menses, &c., and are, in fact, vicarious discharges; but in men, as I observed in the last lecture, in at least five cases out of six, abundant hæmoptysis arises from tubercular disease of the lungs. The fact that hæmoptysis is a very important sign of phthisis has been long known, but Dr. Louis has rendered the profession a decided service, by proving that the value of the sign was even greater than had hitherto been believed. Many cases of this hemorrhagic variety of phthisis terminate in recovery; it is, in fact, the least unfavourable form of the disease, and therefore the value of the symptom is sometimes underrated, because in the minds of many physicians, the word phthisis and death are considered as almost inseparable. This form of the disease is probably less fatal than others, simply because the flow of blood relieves, to some extent, the vessels of the lungs, and appears to be a natural safety-valve, which diminishes the tendency to the tuberculous secretion.

The case of gangrene of the lungs which I showed you last week has since terminated fatally, and I will now present to you the results of the post-mortem examination. You will recollect that I then stated that the disease affected the lower lobe of the right lung: it rapidly extended itself, and the patient sank in proportion. There is, in fact, no specific treatment by which the disease can be arrested; all that we can do is to support the system until nature accomplishes the cure, if such is her design. The pathological appearances of gangrene of the lungs are closely connected with

and explain, the symptoms during life, viz., fetor of the breath and expectoration, lividity of the countenance, and the physical signs of a cavity in the chest. This case occurred in consequence of the patient falling into the river: the gangrene probably commenced about two weeks afterwards, and has continued for several weeks previously to his entrance into the hospital: since that time it has been constantly advancing. If the progress of the disorganization could have been checked, it is probable that the case would have terminated favourably, for the mischief already done was not necessarily fatal. You will at once perceive the excessive fetor of the lung, and its dark green colour over the lower lobe. As I lift it up, the surface of the lung sinks towards the cavity, which occupies the greater part of the lower lobe of the left lung. The cavity rapidly increased in size during the last days of life, as was proved by the enormous quantity of matter expectorated, amounting to at least a pint in the course of the twenty-four hours. The immediate cause of death, however, was dyspnœa, arising from inflammation attacking the heart.

Pleurisy, in a greater or less degree, always attends gangrene of the lungs; here we have the proof of its existence, in the false membrane which covers the surface of the pleura. This inflammation of the pleura, producing false membranes, and adhesions of the lung to the ribs, tends to prevent the perforation of the pleura, and the discharge of the gangrenous matter into the cavity of the chest. From the existence of amphoric respiration, perforation might have been suspected in the present instance, had we seen the patient only on the last day or two of life: but you now see that no such thing has occurred, and that the amphoric respiration was owing to the great size of the cavity. The lung is much softened around the cavity, and yields readily to the knife. The cavity is large enough to hold the fist: it is seated entirely in the lower lobe, having been first formed at its upper part: the disease very rarely attacks the upper lobe. By an examination of the walls of the cavity, we will be able to determine whether any process had commenced for the cure of the disease; when this does take place, it is by means of a false membrane which is formed around the cavity, and secretes pus and mucus, as is shown by the character of the sputa. But here we see no appearance of a false membrane nor of pus or mucus: the cavity contains a gangrenous slough, and a quantity of the offensive matter which was so copiously expectorated during life. The walls are blackish, and gradually pass into the healthy lung. The existence of cavities formed in this way, is known by nearly the same physical signs as those which are observed in phthisis; but the fetor of the breath and expectoration is sufficient to distinguish the two diseases, independently of various other circumstances. The mucous membrane of the bronchi is inflamed in consequence of the passage of the gangrenous sputa over it: in some cases this matter is swallowed, and produces severe diarrhœa. The upper lobe of the left lung is healthy, with the exception of a few miliary tubercles scattered through its summit.

The right lung became inflamed in the progress of the case. The pleura is covered by a false membrane of the consistence of cellular tissue, which is very brightly injected. This inflammation was one of the causes of death. The substance of the lung is healthy, with the exception of a slight engorgement and induration in the centre, which probably constitute the first stage of gangrene, and a few tubercles in the upper lobe.

Upon examining the heart, we find traces of former pericarditis, in the

patches of lymph on the surface of the pericardium, and the serous effusion into its cavity. The heart is of the natural size: its muscular structure is in the normal condition, and its lining membrane is also nearly natural, but not entirely so; there is a slight thickening in the left ventricle, and also of the semilunar valve of the aorta. The right side of the heart is frequently found perfectly healthy, though the left be greatly diseased: in this case we perceive merely a slight opacity of the internal membrane of the right ventricle. The valves of the pulmonary artery are quite healthy.

The spleen is enlarged and softened; this appears to depend upon the vitiation of the blood produced by gangrene, in the same way with the livid hue of the skin. The liver is fatty, and of a lighter colour than natural. This fatty degeneration in males is frequently the consequence of intemperate habits: it is also very common in phthisis, more particularly that of females. In the progress of this alteration, the cellular tissue uniting the acini becomes more developed than natural, while the acini seem to disappear, their places being occupied by fat.

LECTURE XIII.

Phthisis pulmonalis (concluded)—Cases—Treatment.

I WILL to-day conclude the subject of phthisis for the present course, by showing you one or two cases of the disease, and saying a few words in relation to its treatment. I shall occupy the remainder of the hour with some cases of cerebral and cardiac disease, and the results of a post-mortem examination of an individual who recently died of phthisis complicated with serous inflammations of the heart and lungs.

I will first present to you a case of phthisis, commencing in a different mode from any of which I have yet spoken. The patient was attacked about two years since with *coxalgia*, from which he has never entirely recovered. The treatment consisted in the use of blisters and a seton; the discharge from the latter, after having continued for some time, was allowed to cease. About eight weeks after, he was seized with cough, which still continues, with other signs of phthisis; for a few days of the period which has elapsed since the commencement of the cough, there has also been hæmoptysis. The phthisis in this case evidently commenced with a scrofulous disease of the hip-joint; for in two months after the discharge established for the cure of the coxalgia had ceased, the symptoms of phthisis began, and have since progressed in the regular order. The scrofulous diathesis, therefore, before affecting the lungs, developed itself *externally*. Cases of this sort are by no means rare; the external scrofulous disease may be seated in other parts than the hip; sometimes, for example, it occurs in the form of *fistula in ano*. An important practical question occurs in relation to such cases: Ought we to endeavour to cure the external disease? If we do, there is great danger that the irritation may be transferred to the lungs, and lead to the development of tubercles: on the contrary, if we suffer the disease to proceed unmolested, the constitutional irritation arising from it may destroy the patient, or give rise indirectly to the formation of tubercles in the lungs,

by producing a condition of the system favourable to this result. The proper course would seem to be, not to check the external disease too suddenly, but, if possible, to subdue it by degrees. Some time ago we had a case here, which illustrated the effects of an opposite plan of treatment. The patient was first attacked with tubercular meningitis; after recovering from that, he had fistula in ano; this was cured, phthisis consequently supervened, and the man died. These cases are extremely common, and you will see many such in your practice. The case now before us is also one in point. The arrest of these external discharges may likewise give rise to other diseases, among which are diseases of the heart, and inflammation of the lungs; the latter in such cases being often of a more chronic character than in ordinary pneumonia.

Case 2. We have here an example of phthisis occurring in old age; the patient is sixty-two years old. He has been employed in one of the oyster-cellars of this city,—a situation, from its dampness, and also its darkness, extremely favourable to the development of phthisis. He has had cough for seven years, but it has never been severe till the commencement of the past summer. There is now well-marked cavernous respiration, with pectoriloquy, and other signs of cavity in the upper lobes of both lungs. Phthisis occurring at such an advanced age is extremely rare. But experience shows us that no age is exempt from this disease. Tubercles are found even in the fœtus, and at every period of life. They are most frequently met with, however, about the fifth year, and afterwards from the fifteenth to the twenty-fifth. Cases of phthisis, or other tuberculous diseases, occurring in old persons, are much more frequently observed in hospitals than in private practice.

I next introduce these men, formerly patients, but now employed in the house, in whom cavities in the lungs have been more or less perfectly healed. The first is a case of phthisis, in which a cavity became cicatrized after it had continued to a very advanced stage, but was reproduced upon a second attack of the disease. The patient entered the hospital about three years since, with all the signs of a cavity in the right lung; dulness on percussion, cavernous respiration, &c., were very well marked. He remained in the wards for several months, during which time his condition was constantly improving: he was then discharged, and was, to all appearances, nearly well,—a small cavity, however, still remained, with slight cough and expectoration. After he had been out of the hospital about five months, he had an attack of intermittent fever, which continued for some weeks. After he recovered from the fever, he had a second attack of phthisis, or, as it were, a new crop of tubercles, for which he was under treatment in our wards. He is again much improved, though still feeble. The local signs indicate a partial consolidation of the lung by the process of cicatrization; thus, there is dulness on percussion, and a diminution of the natural vesicular respiration. These indications of a cicatrix exist where formerly were heard a strong cavernous respiration, and all the other signs of a cavity of considerable size. The cure in this case, then, is only partial.

But in the case which I now present to you, there has been a complete restoration. The patient, in the year 1835, had an attack of gangrene of the lungs, which continued for several months, with very fetid expectoration, and all the other symptoms of this affection. The local signs indicated a cavity large enough to contain the fist. After a time the expect-

toration became muco-purulent,—a change which indicated an arrest of the gangrene, and the formation of a false membrane on the surface of the cavity. The man, as you see, is now stout, free from dyspnœa, and in every respect perfectly healthy. There was no scrofulous vice in the constitution, tending to reproduce the cavity, as happened in the preceding case. The disease was caused by cold and intemperance. As the man has now been well for nearly six years, the cure may be considered complete.*

You see, therefore, that it is possible to cure a cavity in the lungs, however infrequent may be the occurrence of such a result, especially in phthisis, where new crops of tubercles are so liable to form. The treatment, in all such cases, is entirely negative; there is, in fact, *no remedy* for the lesion. All that we can do is to palliate the symptoms, and support the constitution of the patient till nature, if she be so disposed, accomplishes the cure. Generally, the prognosis, after a cavity has been once formed, is altogether unfavourable; we always look for the death of the patient, whether the cavity be the result of a tubercular deposition, or of any other lesion. But before the cavity is formed, our chances of success are much greater. In hospitals, however, our prospects, in either case, are far less encouraging than in private practice. We are entirely unable to adopt those measures which are most essential to a successful issue; we can only employ medicinal remedies; in relation to food, clothing, air, exercise, &c., the means at our command are necessarily very limited and imperfect. In private practice, on the contrary, we are enabled more successfully to combat the general disease, by changing, as far as possible, the whole constitution of our patients; for this purpose, we direct a change of scenes and of climate by travelling, which is our principal reliance in such cases.

In the treatment of phthisis, you will find that there is great practical importance in the classification of the disease into several varieties, which I have called your attention to in preceding lectures. The inflammatory variety may frequently be arrested in the earlier stages by the ordinary antiphlogistic means which we employ in cases of simple inflammation. In that variety which commences slowly and gradually, on the contrary, we derive little or no aid from this plan of treatment. The treatment of phthisis, therefore, must be as various as the different forms of the disease. In the ordinary slow cases, we must attempt to change, as it were, the whole being and nature of our patient, in the same manner as we do with regard to the mental constitution in the treatment of insanity. By thus producing a change in the constitution, we endeavour to cause the expulsion of the tubercular vice. For the details, I must refer you to the different treatises which have been written on the disease.

It is unfortunate that the treatment of phthisis proper should be so limited, that is, as to the strictly curative treatment. If it be inflammatory, it is more immediately within the power of medicine, and a removal of the local inflammation, which is acting as a continual irritant upon the constitution, bringing about at last decided phthisis, is our first object, and then the patient will often pass little by little into perfect health, or he will remain in a feeble condition, which requires a change of air, a long voyage, or some other constitutional renovation, to remove the remains of the disorder. But if these patients be improperly treated, and suffered to

* This patient is still perfectly well, 1848.

remain suffering from chronic inflammation, or if they are exhausted by what is termed very vigorous treatment, they may readily pass into phthisis. This is especially the case as regards chronic pleurisy: a suitable antiphlogistic treatment is necessary, but an eye must always be kept to the state of the patient's general health, and the strongest efforts should be made to keep up the strength and aid the constitution in throwing off the disease, if already developing itself, or in acquiring that vigour which is opposed to tuberculous disease. In such cases a mercurial treatment is admissible, and I believe that the safest mode in many cases would be to mercurialize rapidly, as recommended by Drs. Graves and O'Bierne, were it not for the different susceptibility of patients to the action of mercury, which must render this mode of treatment at times injurious. It is better, therefore, on the whole, to give mercury in more minute doses, and to discontinue it as soon as a constitutional impression is made. It is impossible, however, to exercise too much caution as to the use of mercury in individuals attacked or threatened with phthisis, and from my experience in its use I would limit it to the very beginning of the disease, when associated with chronic pleurisy, or perhaps pneumonia: for there is a tuberculous inflammation of the lung which is slow to resolve itself.

As to the treatment of the disease, properly speaking, it is so well laid down in different treatises upon the subject, that I must restrict my remarks upon it to my lectures on the diseases of the chest, where the subject is necessarily enlarged upon.

LECTURE XIV.

Pneumonia — Jaundice — Tubercular meningitis — Pathology of laryngitis and laryngeal phthisis.

WE have lately had several patients convalescent from acute diseases, especially inflammatory affections of the lungs. I shall conclude the lecture with a few remarks on the tubercular affection of the membranes of the brain, so common among children, and with the demonstration of some pathological specimens illustrating the history of laryngitis.

Case 1.—In the two preceding lectures I spoke to you of a man labouring under an acute disease of the lungs, the severity of which rendered it improper to remove him from the ward. He is now before you in a state of convalescence. This man entered the hospital about a month since, at which time he presented the signs of pneumonia, complicated with an incipient tubercular affection—the latter impressing certain modifications upon the character of the former. Under the treatment which was adopted, the patient at first did very well; but suddenly grew much worse, in consequence of the supervention of pleurisy, followed by copious effusion. The distress produced by this complication added to that immediately consequent upon the proper affection of the lungs, and brought the patient to the brink of the grave. The dyspnœa and prostration of the system were extreme. In this condition of things, a mild, depletive plan was pursued; the great depression of the recuperative powers of the patient put all active measures of the kind out of the question. A single cup was, therefore, applied, and repeated according to the necessity

of the case; at the same time the patient was put upon the use of mercury.

This treatment was soon followed by an improvement in the aspect of the case, which, however, was not very decided, until the action of the mercury was made manifest by the occurrence of slight ptyalism. From that time (seven or eight days since), the patient has been steadily improving. But convalescence, in a case like the present, is never so rapid as it is in simple pneumonia. This is owing partly to the tubercular diathesis of the patient; in part, also, to the abundance of the pleuritic effusion, which always requires a certain time for its removal by absorption, more particularly when it co-exists with pneumonia or tubercles. The case is one of considerable interest, as illustrating the advantages of very moderate depletion, and of the judicious employment of mercury in certain forms of acute pulmonary disease. In relation to the latter remedy, I have repeatedly urged upon your attention, that we employ it in acute affections, not for the purpose of salivating our patients, but of producing its specific constitutional influence. Its effect upon the mouth is the mark of this influence, or of the saturation of the system with mercury; after the slightest possible redness of the gums is produced, the influence of the remedy cannot be rendered more complete and decided, no matter how copiously it be given.

Case 2.—This is an instance of pneumonia so mild as hardly to require any treatment. The patient is a man aged forty-nine; he is of robust frame, and has led an active life, having been for some years a soldier in the Peninsula; he has generally enjoyed good health. He has lately been employed in cutting ice. On the 19th he was taken ill; the first sign of the disorder was a chill. This was followed by cough, but no pain in the chest; the expectoration has been viscid from the first, but has never been coloured with blood; at no time has the patient been confined to bed. On the 25th he entered the hospital,—and, on examining his chest, the physical signs of pneumonia were detected. The following pectoral mixture was ordered:—

R. Ext. Hyoscyami, gr. viij.
Syrup Polyg. Senegæ, ℥j.
Mucilag. Acaciæ, ℥v.
Ft. Mist.

27th. The hot infusion of eupatorium was ordered. Under the action of this remedy, the disease passed off by a copious diaphoresis: the patient is still sweating. He may now be considered as convalescent. It would appear, therefore, that only eight days elapsed from the commencement to the crisis of the disease. This seems to be in contradiction to a rule which I laid down in a preceding lecture, viz., that the usual duration of pneumonia is from fourteen to twenty-one days. But it is to be remarked that although the general signs indicate the declension of the disease, the local signs still exist; there are yet manifest some dulness on percussion, and crepitant rhonchus. By the time that these have disappeared, the case will probably be brought nearly within the minimum which I have stated. This is the usual course of mild cases of pneumonia.

In cases like the present, no active treatment, and little, indeed, of any kind is requisite. Hot diaphoretic and nauseating drinks, are the best possible remedies. Such instances of mild attacks are less frequent in

pneumonia than in most other diseases, and the expectant and palliative treatment just mentioned, is rarely worthy of confidence. But when such cases do occur, a more active treatment only puts the patient to inconvenience, without resulting in adequate benefit. I wish particularly to inculcate this principle, that, when a disease is tending to a favourable termination, all measures of an active kind should be dispensed with; it should be a matter of conscience with the physician not to harass the patient with unnecessary applications. An opposite course of practice tends, in no small degree, to throw discredit on the profession. This hurtful officiousness arises not from any defect or error in the plan of instruction in our schools, but from an idea which is so apt to be entertained by every student from the commencement of his studies, viz., that every disease is recognised by certain signs, and requires for its cure a certain set of remedies. So that whenever the symptoms indicate the existence of inflammation, bleeding, purgation, and revulsion at once suggest themselves to his mind. It requires experience to teach him that there are, in fact, many cases of inflammation, and still more of continued fevers, which require no such violent measures.

Case 3.—In this case we have pursued a plan of treatment precisely the reverse of that adopted in the preceding one. Very free bleeding and other depletory measures have been resorted to, but not with a corresponding amelioration of the symptoms, because they were not practised until the disease had made considerable progress. The patient, Shepherd, was seized with pneumonia on the 8th inst.; he was admitted into the hospital on the 18th; so that ten days had elapsed before any attack upon the disease was made. The treatment was commenced by the abstraction of twenty ounces of blood from the arm; this was followed by cups to the side, which were repeated three times; the patient was also placed upon the use of the *infus. eupatorii*. Notwithstanding these active measures, the disease continued to advance, with very slight modification of the symptoms. The combination of opium, digitalis, and calomel, of which I have already so often spoken, was then ordered, mainly with the view of obtaining the antiphlogistic action of the mercury. Two days after his entrance, the patient was taken with singultus, which came on at particular periods in the days, and continued for an hour or two at each attack. Hiccough is a symptom of grave import in inflammatory affections, and is injurious in itself, inasmuch as it serves to exhaust the strength of the patient. It seems not to depend directly on the inflammation, but on a sympathetic irritation of the nerves of the diaphragm. It is a symptom which is more frequently met with in some seasons than in others; during the past year we have not had many instances of it. As it was not quieted by the treatment already adopted, *assafœtida* was ordered with this view; this failing, the oil of amber was ordered, in doses of six drops, repeated according to circumstances. Under this treatment, the singultus gradually subsided, and the disease took a favourable turn.

At the last lecture I remarked to you that the duration of this case would probably not be shortened by the active practice which had been pursued, and the result has verified the remark. Bleeding, however copious, will not cut short an inflammatory disease, unless practised soon after its invasion; a few hours may carry the affection beyond the point at which depletion may cause it to abort. After it has passed this point, bleeding, though it does not arrest the course of the disease, is still of use, by pal-

liating its inconveniences, and diminishing its tendency to run into fatal disorganizations.

Little change was perceptible in the condition of the patient until the 25th, when he was somewhat better. On the 26th he appeared to be in a state of convalescence. On the 27th this favourable change was still more evident. The face was pale and sunken; I have already stated that this subsidence of the features after the fulness and flushing produced by inflammatory excitement, is one of the best signs of convalescence. The pulse had fallen from ninety-six to eighty; it was soft and tremulous. The respiration had also fallen from thirty to twenty in the minute. No doubt therefore could exist as to the fact of the patient's convalescence; the simultaneous subsidence of the respiration and the pulse rendered it perfectly certain. On the contrary, if the pulse had become slower, while the respiration retained its frequency, we should have concluded that the patient was in a much worse condition.

The duration of this attack of pneumonia was nineteen days, which is within the average which I stated in my remarks upon Case 1. Pneumonia, in fact, has a natural duration, and one principal object to be aimed at in its treatment, after the disease is established, is to prevent accidental circumstances from interfering with the natural tendency of the disease to terminate at a certain period.

Jaundice.—The patient, aged 45, entered the hospital on the 23d inst. He had always enjoyed good health until last summer, when he had an attack of dysentery. On the 22d, after exposure to wet and cold, he was seized with cough, and the same evening he had a chill, attended with pain at the xiphoid cartilage. On the 23d he was jaundiced; the skin, conjunctiva, and urine, were of a deep yellow, and every object appeared to his sight to be of the same colour; the skin was moderately warm; there was no headache, but pain and tenderness in the right hypochondrium, which obliged the patient to lie on the left side; expectoration was slight; pulse moderately full. Venesection, cupping over the region of the liver, and a diaphoretic infusion, were ordered.

24th. Patient more jaundiced; pain had extended to epigastrium; slight signs of bronchitis observed. Cups repeated, and an infusion of senna, with sulphate of magnesia, ordered.

26th. Patient now complained of headache, and vertigo, depression of mind, &c. Bleeding repeated.

¶ From this time the symptoms rapidly abated, and few remains of the disorder are now perceptible. The skin is only slightly coloured on the breast; the vision has become natural; the skin is moist: it has never been hot, however, at any time in the progress of the case.

The most prominent symptom of this case, besides the alteration in the colour of the skin, was the tenderness in the right hypochondriac and epigastric regions, accompanied by dulness on percussion. It was inferred from these signs that the liver was congested, and slightly inflamed. Inflammation of the liver is by no means a common occurrence in the winter season. The prevailing inflammatory diseases are those of the lungs, heart, and fibrous tissues of the extremities; the abdominal viscera are more rarely affected. But this man's previous history affords a very sufficient reason for the occurrence of hepatitis in his case. Last summer he had an attack of dysentery; now, a severe dysentery hardly ever passes through its course without involving the liver in a greater or less degree. There

is, therefore, a strong presumption, that this man's liver was at that time affected; it was naturally left in a condition favourable to the return of disease, upon the occurrence of the usual causes. This circumstance determined the deleterious impression of cold to the liver rather than to the lungs.

Jaundice depends on a great variety of causes. When acute, as in the present case, and dependent on congestion and slight inflammation of the liver, it is in general easily cured. It yielded in this case to bleeding, cupping over the liver, and saline purgatives. Mercury was not employed at all in the treatment: the only character in which it could have been used with propriety was that of an evacuant,—and in this case it seemed to offer no particular advantages over saline and other purgatives. You will recollect that in the numerous instances recently brought to your notice in which this article was employed it was not as a purgative, but as an anti-phlogistic remedy in certain stages of inflammatory affections.

Headache was an important symptom in this case, and its occurrence induced us to repeat the bleeding. In all cases of jaundice, indeed, cerebral symptoms demand particular attention: for it is usually in consequence of the supervention of cerebral affections that this disease proves fatal. The cause of this complication is the suppression of the biliary secretion, the elements of which being retained in the blood, act like a poison upon the system, especially on the brain. In like manner, urea, if retained in the blood, proves deleterious. In fact, all diseases of the liver or kidneys, attended with suppression of their secretions, are followed by coma, and other signs of cerebral oppression, in consequence of which they terminate fatally. It is in this way that the granular affection of the kidneys, called "Bright's disease," often proves fatal. When the cerebral symptoms are active, the proper treatment is general and local bleeding, cold applications, &c. But in jaundice it is often impossible to remove them until the bile is eliminated from the blood; this is effected slowly, and by a process of nature. If the symptoms are attended with much depression of the vital energies, depletion becomes improper, and we have to rely on other means, the most effectual of which experience proves to be sinapisms and blisters.

At the last lecture I introduced a man labouring under acute laryngitis, upon whom an operation was performed in your presence, but without success. This case was one of acute, grafted on chronic laryngitis. The affection was originally acute (having commenced about a year ago), but became chronic, and continued so till ten days before the patient's entrance; it then became acute, and the symptoms were strongly marked at the time of his entrance. It was likewise observed that the lungs were affected,—but in what way, the signs were too obscure to enable us precisely to determine. The lungs were pervious to the air, so that there was little dulness on percussion; but the respiration was feeble throughout the right side, and some crepitus was distinguished below. It was hence inferred that the lung was congested, but nothing else could be made out with any certainty: as you will presently see, these signs were owing to the development of miliary, tubercular granulations, in great abundance, with congestion of the surrounding tissues. The operation of laryngotomy, performed by Dr. Gibson, produced some relief for the moment; but the dyspnoea returned every time the artificial opening became

obstructed, and not more than half an hour elapsed before the man died of suffocation. The operation was resorted to as the only chance of prolonging life; but even if it had been more successful for the time, it could not, in the end, have saved the patient—for an immense number of greyish, semi-transparent, tubercular granulations, had filled the upper and a part of the lower lobe of the right lung, and the upper and a part of the lower lobe of the left. But, had the condition of the patient been such as to allow a full examination and positive diagnosis, the operation would still have been justifiable, as the only means of securing to the patient a few more hours or days of life.

The immediate cause of the intense dyspnœa under which the patient laboured, was edema of the larynx, and inflammation of the trachea and bronchiæ. The former offered a very great obstacle to the passage of the air through the rima glottidis—while the trachea and bronchi were lined by a layer of very viscid mucus, which interposed a further obstacle to its entrance into the lungs. The matter lining the air-passages was not, properly speaking, a false membrane, but it was so dense that it could be detached in shreds of considerable length. There was likewise an ulceration of the lining membrane of the larynx, between the posterior extremities of the vocal cords, and extending to the cricoid cartilage.

This case is one of interest, inasmuch as it illustrates the connection between laryngitis and phthisis. Laryngitis sometimes occurs as the primary, sometimes as the secondary disease. The latter was the case in a patient who lately died in the female wards; during the progress of a tubercular affection, she was attacked with laryngitis, which was indicated by the ordinary symptoms, dyspnœa and aphonia. When laryngitis occurs as the original affection, it may continue for years, attended with more or less cough, hoarseness, and dyspnœa, but without any indications of disease in the pulmonary tissue. At last ulceration occurs; at this point, in a very large proportion of cases, tubercles are developed in the lungs. In this variety of phthisis the tubercles are generally greyish, semi-transparent granules, of small size, and uniformly diffused through the lung. Consequently, phthisis following laryngitis, is one of the most intractable varieties of the disease. In all cases where the affection of the larynx has advanced to ulceration, we apprehend the supervention of phthisis. Almost the only variety forming an exception to the rule, is that form of ulceration of cartilages and of the mucous membrane which occurs in secondary syphilis. But it is easy to discriminate such cases by the general condition of the patient, the history of the affection, &c. Besides, ulceration of the larynx consequent on syphilis almost always extends rapidly into the cartilages. The prognosis of laryngitis is never grave until ulceration has occurred: if there be merely thickening of the membrane, a cure may frequently be effected; but if ulceration takes place, this result can hardly be hoped for.

If the dyspnœa should be excessive, and threaten suffocation, an operation for its relief is the only resource. There are several different methods of performing such an operation. Dr. Gibson, in the case which we have been considering, preferred laryngotomy. This is usually done by making a transverse incision through the crico-thyroid membrane. In France, the operation for croup is often performed, and at the present day surgeons generally are in favour of tracheotomy. In this operation, a longitudinal incision is made into the trachea, which is kept open for the passage of

air, either by means of a canula, or of a blunt hook applied to each edge of the incision. This operation is preferred to laryngotomy; inasmuch as it admits of a more extensive opening, through which the false membrane may be pulled away.

I now show you the larynx and trachea of the man who died after the operation of laryngotomy was performed. The lining membrane of the larynx was at first highly injected; but by maceration in water, the blood has been almost entirely washed out. However, you can still perceive the edematous state of the glottis. This edema was produced by the effusion of serum under the mucous membrane, in the same manner that it is effused from the surface of inflamed serous membranes. The mucous membrane is softened; at the posterior part of the larynx is a large ulcer, and many smaller ones are scattered over the remaining portions of the larynx, as well as the upper part of the trachea. The mucous membrane of the trachea, like that of the larynx, was highly injected. The epiglottis is slightly thickened at its lower part. In the crico-thyroid membrane, you see the opening made by the operation; it is not quite so large, in fact, as the natural opening of the glottis; it therefore easily became obstructed by the viscid secretions which filled up the air-passages.

The upper lobe of the left lung, and all the lobes of the right one, contain an immense number of small, grey, semi-transparent granulations. In the right lung, they are so numerous as to have almost obliterated its vesicular structure. A tubercular deposition of this kind never occurs, except in acute phthisis. The right lung is likewise congested, particularly at the lower part, over which the crepitant rhonchus was heard during life. At the summit of the lung is a cicatrized cavity, containing a mass of calcareous matter. The surrounding parenchyma is puckered and contracted by the cicatrix, and the adjacent pleura is covered by adhesions. These appearances indicate the former existence of tubercles; these were probably deposited at the same time the chronic laryngitis occurred, and were removed by the absorption of their animal matter, the calcareous portion remaining behind and constituting the white masses which you here see.

Here are the lungs of another patient, who entered the hospital in the last stage of phthisis, and died within forty-eight hours. I show them to you for the purpose of contrasting the early, with the latter stages of the affection. At the summit of one lung is a large cavity, and in that of the opposite one are numerous small granulations, of recent origin.

When the tubercular granulations are deposited in great numbers through the pulmonary tissue, the disease is almost always acute, and, in fact, is identical with what is often called the "galloping consumption." The termination of this variety, which is almost always fatal, occurs in two ways: in the one the patient dies of dyspnœa, and you find, as in the present case, the lungs excessively congested, through all that portion of them in which the granulations are deposited. The death then actually takes place by suffocation. I have seen some examples of it; one of the first was some years ago, when I was a resident pupil of this hospital. A black, who had been labouring under the disease for some time, with much dyspnœa, called to us one day while making the visit, that he was strangling, and died almost immediately; the lungs were excessively congested, and almost stuffed with these granulations.

In most cases, the disease passes on to softening at the summit, at least

of the lungs, while the rest of the tissue is engorged and filled with the granulations. In these cases there is high fever, sweating, and generally intense dyspnoea. The cough, however, may be very slight. You will find the respiration generally feeble, and the chest less sonorous than usual.

There lately occurred a disease of the brain, which I am accidentally prevented from showing you, and which was interesting as an illustration of an affection of which I may perhaps speak more fully at a future time,—tubercular diseases of the membranes of the brain. The case was that of an adult. On opening the cranium, tubercular granulations were found beneath the membranes, both on the superior surface and base of the brain; in the intervals left by them, the membranes were injected, and covered with lymph. The affection probably followed the development of tubercles in the lungs; the examination was not extended to these organs. The deposition of tubercles under the membranes of the brain was followed by acute inflammation, which resulted in effusion, and softening of the cerebral substance. This was indicated by rigidity and paralysis of the extremities; muttering delirium; subsultus tendinum; contraction, and afterwards dilatation of the pupils; distortion of the mouth. The occurrence of symptoms of meningitis in the course of tubercular phthisis, may be considered sufficiently certain evidence of the development of the affection of which I am speaking. In children it is indicated by the signs commonly described as belonging to acute hydrocephalus. This disease, so called, which is frequent from the age of two years up to puberty, is neither more nor less than tubercular meningitis; the inflammation is usually attended with effusion into the ventricles or on the surface of the brain, and from this circumstance the ordinary appellation of the disease is derived. But the effusion is altogether an accidental matter; and so is the softening which sometimes occurs. It is the tubercular deposit, and the concomitant inflammation, which constitute the essential characteristics.

LECTURE XV.

Typhus and typhoid fever—Symptoms—Treatment.

IN the works of many writers on the continued fevers of Great Britain and Ireland, you will find that the only distinction admitted by them, as to the nature of these diseases, is that of the degree of severity of the symptoms. Thence the common division into typhus mitior and gravior; terms indicative only of the greater or less intensity of these disorders. In France no efficient attempt was made to trace the distinctive characters of the different affections classed under the name typhoid until the year 1806, when the work of Petit and Serres was published. These writers found that in the forms, such as they witnessed at Paris, there was a constant anatomical lesion seated in the abdomen and occupying the follicles of the ileum, especially the agglomerated patches, or, as they are often called, the glands of Peyer, seated near the ileo-cæcal valve, the mesenteric glands, and the spleen. These alterations were inflammatory, the affection of the glands of Peyer being attended with redness, thickening,

and often passing into ulceration, while the mesenteric glands were enlarged, reddened, and softened, and the spleen was enlarged and softened. The evidence of inflammation was indeed perfect, except as regarded the spleen, of which the lesion might be regarded as dependent either upon inflammatory softening, or as the result of an alteration of the fluids of the body.

The after-investigations of Dr. Louis proved this matter much more conclusively. In his excellent work upon typhoid fever he has shown that the disease is uniform, and accompanied by a regularly-developed series of symptoms, not occurring in a confused manner, but forming together a well-characterized whole. It was this uniformity which enabled him to designate the disease in such a manner that there is now no difficulty in separating the cases of it which are met with from those of the different affections classed under the vaguely used terms—typhus and typhoid fever.

In Great Britain, and still more frequently in Ireland, another disease, which is endemic in those countries, is called typhus fever, and resembles in many particulars the typhoid fever described by Dr. Louis. It differs from it in its symptoms, but especially in its mode of extension and in its anatomical characters. The latter are not fixed and regular; on the contrary, the organs are diseased in so many different degrees, that observation proves that there is no one uniform anatomical character, unless it be the condition of the blood, which is evidently altered in many cases, and probably so in others, in which the demonstrative proof is wanting. The lesion of the glands of Peyer is not met with in this disorder, unless it be in a straggling case of typhoid fever, classed among the cases of typhus; or in a complicated case, which is extremely rare, but I believe occasionally met with.

The deductions of Dr. Louis, as to the anatomical lesions of typhoid fever, have not therefore lost any of their value; they still remain true as applied to the disease described by him; but they are not applicable to the English typhus, or, as Dr. Graves calls it, the maculated fever. In order to prevent confusion in these terms, I have for some years past used the term typhoid fever, as applicable to the fever described by Petit and Serres, Louis, and even by Ræderer and Wagler, and I restrict the term typhus to the disease described by the British writers, and not attended by the intestinal lesion. This distinction is gradually passing into common use in the United States. At one time I was disposed to adopt the term typhus mitior as applicable to typhoid fever, but I found that there were many cases and various epidemics of typhus fever in which the symptoms of the disease were extremely light and the mortality inconsiderable, but still the leading characters all remained, and the identity in the symptoms of the disorder was in nowise weakened. The terms mitior and gravior may, therefore, very properly be used to designate merely the degrees of severity of the affection, and not to distinguish two different forms of disease; the former is happily the more frequent form; the latter appears only in a few places, or in close confined ships and hospitals, where a number of men are crowded together.

The symptoms of typhoid fever are not all found in every case; that is, some one or more of those which are considered leading symptoms may be wanting, but the group of those which remain is in every case, or nearly so, quite large enough to identify the disorder. For convenience,

you may divide them into distinct groups ; first, those of the cerebral and nervous system ; secondly, of the skin ; thirdly, of the abdominal viscera ; and, lastly, of the thoracic organs.

Those of the first series are, loss of strength and prostration, which occurs very early in this disease, ringing in the ears, vertigo, and not unfrequently epistaxis. The pains in the head and limbs are not so violent as in the remittent or intermittent fevers. There is more frequently chilliness than a regularly defined chill. These are usually the earliest symptoms, followed after some days by slight diarrhoea and other abdominal disturbance. The brain symptoms increase slowly, the patient becomes dull and stupid ; if the disease be violent, he may become comatose. Delirium is not invariable, although it is rarely quite wanting ; but if the disease be mild, it shows itself only at night, and for a short time. In severe cases the delirium is violent, and if this be complicated with meningitis, the patient may fall into the wildest ravings ; it is in general much more mild and low, or muttering. In fatal cases coma almost always precedes death.

In typhus we have a different succession of symptoms, and a difference in their development. From the very first attack of the disease the stupor is the most prominent symptom ; sometimes the intelligence of the patient is in some degree preserved, although he seems to be in a dreamy, stupid condition, almost inattentive to surrounding objects, but still capable of answering correctly and continuously when his attention is excited. The recollection of the patient after the attack is extremely confused, and the stupor resembles in many respects a state of somnambulism. Besides the stupor, headache, dizziness, and tinnitus, are all amongst the early symptoms of typhus, but the strength is much less broken down than in typhoid fever. If the disease advances, the patient becomes comatose at a much earlier period than in typhoid fever, and generally dies, if the case be fatal, of the brain symptoms. Delirium is a very frequent symptom ; indeed there are few cases in which it is totally absent ; it is almost always of the still, muttering kind, except when complicated with inflammatory action of the brain. The cerebral symptoms of the two forms of fever differ less from each other than many other groups of symptoms, but there is, in the majority of cases, a greater difference in the character of the symptoms than is easily described ; especially as regards the stupor, which is much deeper and more disproportioned to the other symptoms in typhus than in typhoid fever.

The external symptoms of the two diseases vary ; you have seen that both are attended with a cutaneous exanthema, but in typhus this is general, extending over the whole body ; in typhoid fever it is limited to the anterior part of the trunk, that is, the abdomen and thorax, rarely reaching as far as the thighs. The typhous eruption consists of a measles-like rash, slightly elevated, of a light red at first, but after the second day, or in severe and malignant cases, from the first, of a darker tint. The papulæ are rounded and vary in size, from an almost imperceptible point to the breadth of nearly a line. The rash is not, strictly speaking, petechial, that is, if the term petechiæ be confined to ecchymoses of blood in the derm, but it is frequently called by this term, and in the papers which I have published in 1837 the word is used in this sense. The rash gradually subsides after four or five days, but it is sometimes visible for ten, twelve, or even fourteen days. It appears usually about the third day of

the fever. There is no other eruption which is peculiar to typhus; sudamina are, however, occasionally met with about the groins, and other parts where the skin is thin, especially during the hot weather. The measles-like eruption is evidently an exanthema, and very similar to the papular eruption of measles in its development and progress; and, from its constant occurrence, Dr. Graves calls the disease the maculated typhus.

The eruption of typhoid fever is papular, but the spots are rather larger, about a line in length, elliptical, more elevated, few in number, often not exceeding six or eight, and rarely more than thirty; they appear a little later than those of typhus, but last about the same time. The sudamina are much more frequent than those of typhous fever, and often appear in two different crops, one early in the disease, and another just before convalescence.

It is not yet settled whether any form of continued fever is met with which cannot be referred to one of these classes: I have myself seen none. But we must remember that some of the symptoms of typhus occur in many diseases in which the blood is more or less altered, such as phlebitis, asthenic pneumonia, &c., and thus may be confounded with these diseases, just as certain stages of remittent fever are often called by the same name, and regarded as mere varieties of typhus. But there is not in any of these cases the complete series of symptoms, although some isolated ones may be met with, in diseases which resemble in some respects these fevers, but are without the characteristic eruptions.

The symptoms connected with other organs vary in the two fevers. The abdominal symptoms of typhoid fever are, diarrhœa, which is a frequent though not invariable symptom, flatulence with tympanitic distension, pains in the abdomen, sometimes at the epigastrium, at others in the iliac fossa. In typhus no one of these symptoms is found, except as a rare and accidental complication. The thirst and anorexia are common to the two diseases; but the former symptom is generally more marked in typhus, the latter in typhoid fever.

The thoracic symptoms are but moderate in mild cases of these fevers. In the typhoid the bronchial mucous membrane is congested, especially in the smaller tubes. The congestion produces a slight sibilant rhonchus, and may of course pass into bronchitis or pneumonia of a severe character. In typhus the lungs are also congested, but it is in a different way. The posterior part along the spine seems full of blood; causing at times a mucous rhonchus, but preventing in a great degree the air from passing into the smaller tubes. This condition of the lungs seems more dependent upon the state of the blood than that of the mucous membrane, properly speaking, which is only secondarily involved.

The action of the heart is not violent in either disease; on the contrary it is often enfeebled, especially in typhus, in which the loss of power of the heart is one of the strongest indications for a stimulating practice. The pulse is more frequent in typhus than in typhoid fever. The capillary circulation is more or less altered in both diseases; hence the skin is dull and of a dusky tint, and at the face is often of a deep red colour, as if excessively congested, and the blood circulates slowly through the vessels, especially in typhus. The capillary vessels of the conjunctiva are injected in typhus, and full of blood, which circulates rather slowly through them; but in typhoid fever we have rather a bright eye than the dull, heavy, bloodshot one of the former disease. The medical physiognomy

of the patient, which is mainly dependent upon the capillary circulation, is one of the best diagnostic signs of the two diseases, but it is very difficult to describe.

There are some other circumstances which are of interest in relation to this matter. One is, that typhus fever spares no age, is more severe amongst the aged and those in middle life than the young, and generally prevails as an epidemic, extending itself by contagion, or direct propagation, from an infected individual, or still more frequently from a mass of infected individuals, to others. Typhoid fever, on the other hand, rarely assumes this infectious character, and is rarely epidemic, probably it is scarcely infectious, except when prevailing epidemically. I never met with a case of the genuine typhus in this country before the year 1836, but typhoid fever is always a common sporadic disease, especially in the northern parts of the United States. I have seen both varieties in newly-arrived passengers from emigrant ships, but rarely in the same ship. The typhus attacked a much larger number of patients than the typhoid, and was often increased in severity in direct proportion to the number attacked. In some of these ships the disease was evidently propagated from one individual, who contrived to embark while labouring under the disease, and then those sleeping in the same berth with him were the first attacked. The origin of the fever was clearly transatlantic in all such cases, and in fact it was merely the Irish typhus, carried over to America by Irish emigrants, and sometimes propagating itself afterwards.

The treatment of mild cases of typhus is extremely simple: regarding it, as I do, as a self-limited disease, which necessarily tends to recovery unless arrested by some accident, I content myself with the simplest measures, acting as it were in the direction of the disorder, but not opposing any obstacle to the natural working of disease which tends to relieve itself.

At first I give the patient a dose of oil, which generally relieves his giddiness, and direct a mustard foot-bath at night, sometimes twice a-day, and give him either simple lemonade, a neutral mixture, or what is still better the solution of the acetate of ammonia. Should the face become flushed, a few cups may be applied to the nucha and behind the ears; but if the patient merely complain of great giddiness and deafness, without increase of the vascular action about the brain, dry cups are nearly as useful as the scarified. The oil may be repeated during the course of the disease if the patient be constipated. No other treatment is necessary during the mild form of the disorder; indeed any treatment can scarcely be said to be necessary; but it is useful, and diminishes the severity of the symptoms, and I am convinced, from long and careful observation of this disease, that even therapeutic means cannot be made more active without injury to the patient.

At the close of the fever, however mild it may be, there is always an incomplete collapse; the patient may then take wine- whey and a more nutritious diet; but I agree fully with Dr. Graves, that in any stage of typhous fever, a regimen of almost starvation is rarely justifiable.

In more severe cases of the disease decided treatment is necessary; we must guard against the complications, the accidental symptoms, and support the strength of the patient when recovering. The lectures of Dr. Graves are full of important practical illustrations of these points, which I am not able to enlarge upon without going far beyond the limits of this lecture.

My object as to the treatment is to impress upon you the leading truth, that typhus is a real exanthematous disease, and has a natural course to run. No one should dream of interfering with this course when it is passing through its regular and ordinary stages.

The treatment of typhoid fever is not yet well settled. Like typhus it has a natural course, and about the same average duration (twenty to twenty-one days), but it is not yet certain whether the treatment should be, as in the mild cases of typhus, purely negative and defensive, or more active and aggressive. My own experience leans towards the former conclusion: I am strongly inclined to think that in mild cases the physician should interfere as little as possible, should restrict himself to laxatives, abstain from stimulants, resort from these to cups, either dry or scarified, to the nucha, now and then, but rarely to blisters. Towards the close of the disease, a mild alterative, consisting of small doses of mercurials, such as calomel or blue pill with ipecacuanha, hastens the cleaning of the tongue, and favours the convalescence. Tonics and mild stimulants are at times necessary after the termination of slight cases.

The purgative treatment of typhoid fever has attracted much notice of late years. I mean what may be termed the purely purgative treatment, consisting in the repeated administration of saline laxatives, so as to keep the bowels in a soluble state during the course of the disease. The results of the treatment are certainly extremely favourable, and it is very possible that it may be the best mode of treating the disease, which differs from typhus, not only in the general symptoms, but in the very different condition of the alimentary canal.

The treatment of severe cases of typhoid fever is necessarily modified by the symptoms, and you must study carefully the cases of the disease which you see, and bear in mind the pathology and general course of the disease, and then you will at least rarely commit any important errors. You will find that, on the whole, the disease requires a less stimulating practice than typhus; it is more inflammatory in its primary as well as its secondary lesions. For details, I must refer you to the work of Dr. Louis, and to the excellent memoir published by Dr. James Jackson, of Boston.

In your practice you may rarely meet with typhus, but you will be sure to see cases of typhoid fever, and you should consider the two diseases as distinct, but as allied together more or less closely;—each one of them offering numerous sub-varieties, as different from each other as a mild case of scarlatina is from a malignant one. The advantages which I enjoyed of carefully studying the pathological anatomy, and the symptoms of the two fevers, enabled me to place the question of their identity upon more settled scientific points than had yet been done; for by reference to the writings, both of British and continental physicians, you will find that the confusion is but lately dissipated. It is true that, after the observations which formed the basis of the paper which I published in 1837, were collected, but before their publication, Dr. Lombard, of Geneva, who was of course familiar with typhoid fever, stated in the *Dublin Journal* that the two diseases were different; the same remark I remember to have heard Professor Andral make on the authority of Dr. Alison; and it was obvious to many persons that the description of Dr. Louis did not apply to the British typhus, but the points of resemblance and of difference were not settled, that is, they were not scientifically demonstrated.

The views which I have given you are gradually receiving the sanction

of physicians. How far experience may modify them I do not know ; but it is probable that it will only add some new facts to those which we possess, without impairing their authority. The seeming discrepancy of previous statements may be perfectly reconciled with the facts, as is amply proved by Dr. Valleix, in the memoirs which he published on this subject in the *Archives de Médecine*, about the beginning of the year 1840. In the last edition of his work, Dr. Louis has taken up the same subject, and I am gratified to find that, far from retaining any doubts as to the pathology of these diseases, he fully admits that they are allied, but not identical.*

NOTES ON TYPHUS AND TYPHOID FEVER IN THE YEAR 1848.

The subject of typhus and typhoid fever has received great attention in the United States, within a few years, from the large number of cases of typhus fever introduced in emigrant passenger ships from Great Britain. The disease has been in some of our large cities very extensively diffused, but chiefly amongst emigrants recently arrived, and a small number of native citizens who were accidentally brought into close connection with them. In all the large seaports, many thousand cases have occurred; and even in cities remote from the seaboard, the disease has extended itself, although it was mainly limited to the recently-arrived emigrants and to a few others who were brought into immediate contact with them. The large number of cases which have thus been freshly introduced directly from the British islands, have furnished us with the most convenient opportunities possible for the study of the disease, and to a great degree have diminished the difficulties which have hitherto belonged to this subject.

The principal question to determine was, whether this disease was identical with the typhoid fever which is always found more or less diffused in different parts of the world, or was in reality a distinct affection. My attention had already been given to this subject from being called upon to treat an epidemic fever which occurred at the Blockley Hospital (Philadelphia) in the year 1836; and, from much study of the disease, I was led to conclude that it was altogether a different disorder from the typhoid fever which we had been accustomed to see here and at Paris, and that it did not differ apparently from the typhoid fever of the British islands. In this opinion my colleague, Dr. Pennock, who was also perfectly conversant with the fever of Paris, agreed with me, and his observations fully confirmed my own conclusions as to this matter. I published an account of this epidemic in the *American Journal of Medical Science*, in February and August, 1837, and I there stated the conclusions to which I had arrived, and noted particularly the difference in symptoms

* The observations of British physicians confirm the views which I gave as to the pathology of these fevers. One of the latest writers goes over the same grounds as myself, and refers frequently to the memoirs of Dr. Valleix, without citing the papers which were the subject of his analysis; nor does he ever allude to them, except to give a garbled quotation from Dr. Valleix,—an apology, the author says, for citing American instead of British writers upon a fever which was especially prevalent in Great Britain. The observations in question, however wanting in scientific fairness, confirm the general statements as to the symptoms and causes of the continued fevers.

and lesions between this disease and the typhoid fever of Paris. Since that time, there has been an abundant opportunity of examining the subject more closely, from the continuance of this epidemic influence, which did not disappear at the Blockley Hospital for some years after its appearance; while from the opportunities which have occurred of studying the symptoms and lesions of the cases introduced into this country directly from the British islands, I have been able to compare the two epidemics of fever with each other, as well as with the typhoid fever which is always more or less present in this country. From these abundant opportunities, I have been enabled to extend my observations on this subject, and to a great extent have arrived at results more definite than those which I had already reached, because they were formed on a larger scale of observation, and extended to the diseases brought in masses from Europe, as well as to those which originated in the United States.

From these extended sources of observation, I have arrived at the following conclusions as to the symptoms and character of these fevers.

The typhoid fever of France is constantly met with in the United States, although it varies very much as to its relative frequency and severity. It is not confined to any particular season of the year, but occurs at every period. I have, however, found that it is rather more frequent in the autumn than at any other season. In the United States it is more frequent at the North than the South, where it becomes quite rare, especially in those parts of the country at which yellow fever or other autumnal fevers are very prevalent. In the New England States, it is more frequent than in any other portion of the country, and frequently appears there as a severe epidemic, extending itself to different parts of the country. When these epidemics occur, the disease becomes more certainly contagious than at other times, and does not follow the ordinary law relative to the freedom from the disease which generally prevails amongst persons who have reached the middle periods of life. The typhoid fever is, then, the regular continued fever of the United States, as well as of the continent of Europe.

The typhus fever of Great Britain appeared in the United States under circumstances very favourable for its study, inasmuch as it was with us almost a new disease—certainly a new one so far as regards the rigid examination of the distinctive symptoms. Although I call the disease the typhus fever of Britain, I do so, not because the disease is absolutely confined to the British islands, but because it is there much more rife than in any other country, and prevails there as the most constant form of fever. The epidemic of 1836, at Philadelphia, was evidently not of foreign origin, but originated in the city of Philadelphia, at a season of the year when very few emigrants arrive in this country, and amongst a class of persons who have very little connection with them. Still the disease is on the whole an infrequent one in the United States, while the typhoid fever is always to be met with in greater or less number of cases, just as it is in France, and presenting the same peculiar symptoms.

The proper typhus fever being the constant epidemic of the British islands, and vastly more frequent than the typhoid fever which is met with there, just as it is in France, has, to a certain extent, given a strong inclination to British physicians to regard it as the only, or at least the principal form of fever, while the typhoid form was looked upon as a more ameliorated variety of it, scarcely possessing the characteristic symp-

toms of a peculiar disease, but constituting little else than a new modification or variety of the regular typhus. With this view of the subject I am, however, far from agreeing; the forms of disease are on the whole quite distinct, and do not often offer much difficulty in the diagnosis, while the pathological lesions are equally characteristic. We always find in typhoid fever of the United States, the lesions of the glands of Peyer, of the mesenteric glands, and of the spleen, which are considered in France as the pathognomonic lesions of the disease; while in typhus fever we always find the follicles of the small intestines and the mesenteric glands perfectly healthy, the spleen is often softened, but not usually to as great a degree as in the typhoid fever. The only lesion which to a certain extent seems to be common to the two diseases, is an altered condition of the blood; what the nature of this alteration is, and how similar it may be in the two diseases, cannot be certainly shown, but it is evidently the immediate cause of the alteration of the spleen, and it probably gives rise to the various symptoms which are to a certain extent common to the two affections. I have never met with a case of typhus fever, or with a single exception a case (see *American Journal of Medical Science*, Feb., 1837), which I supposed at the time to be typhus fever, in which the lesion of the glands of Peyer was found. Cases undoubtedly are met with, although rarely, by physicians, in which a disease regarded as typhus fever during life was found to present the lesion of the glands of Peyer supposed to be characteristic of typhoid fever, but I cannot avoid thinking that in these cases one disease may have been mistaken for another, or that some of the proper symptoms of typhus fever may, during an epidemic, have been extended to cases of typhoid fever, so as to modify them to a certain degree. Of these cases I cannot, however, speak from my personal knowledge; but it seems to me that this explanation is one which more easily reconciles the apparent cause of difficulty in diagnosis, than any other one.

Typhus fever, which had appeared at Philadelphia in 1836, did not entirely cease for several years, but the cases were few in number and almost limited to the poorest classes of the population. In the year 1847, however, this city, like most of the seaports in the United States, received large numbers of Irish emigrants, who brought the disease with them. Some of these died at sea or recovered before reaching port, others were taken to the different quarantine establishments, and a large number, who landed in good health, were attacked by the disease soon afterwards. From these patients, a certain number of those who were thrown into immediate contact with them, contracted the disease. In the year 1847, a number of patients were admitted with typhus into the Pennsylvania Hospital: of these, nineteen cases entered the hospital labouring under typhus fever during my term of service. Of these patients, eleven were seamen, belonging to passenger ships from the British islands, on board of which were passengers labouring under typhus fever. Four were themselves emigrant passengers belonging to ships in which fever prevailed, but who were not taken with it until after they had passed quarantine. Of these nineteen, many of whom offered the disease in a severe form, seventeen recovered. Two died, both of whom were Italian seamen, belonging to the same ship. Four were patients who contracted the disease in Philadelphia from other patients affected with it.

Patients labouring under this disease are not commonly admitted into

the hospital; the fever belonging to the number of those diseases which are contagious, at least under certain circumstances. With strict attention to ventilation, the contagious character of the disease is so much diminished, that it is not considered necessary to entirely exclude those labouring under it, although the number of patients was not as large as it would have been if it had not been thought desirable to restrict them to a small number. All seamen, however, labouring under the disease were admitted without hesitation, and besides them, a considerable number of other patients, who were not selected on account of the disease having assumed a grave or slight character.

The patients who died with the disease both belonged to the same ship, from which we received in all four seamen, all labouring under the disease in a very severe form. Of the seamen who recovered, one of them was English, the other a German. I shall now give a sketch of the two cases which proved fatal.

An Italian seaman, P——, aged 27 years, entered Sept. 20th, 1847. Arrived in ship Berlin a day or two before from Liverpool. The disease appeared in the ship a few days after leaving Liverpool. A number of cases had occurred before her arrival in port, of which several died at sea, and many others were removed to the quarantine station. Patient speaks very little English, so that no anterior history could be obtained from him; it was known, however, that he had been ill but a few days before coming into the hospital. Present condition: skin hot, face flushed, eyes injected, much stupor, but no obvious delirium, eruption of minute red points, not elevated, covering the whole body, disappearing partially under pressure, conformation of abdomen natural, not sensitive on pressure, bowels not open since admission, tongue dry, coated, not very red, pulse 96, soft. Spts. mindereri, hot pediluvia, cold to head, sponging body, arrow-root.

Sept. 22d. Feels better, rather less stupor, face flushed, intelligence perfect, pulse 92, soft, easily compressed, eruption of a darker tint, no tympanitis, no sudamina, spleen slightly enlarged, tongue dry, coated, moderately red. Treatment continued.

Sept. 24th. Skin hot, pulse 108, tongue red at tip, less coated, with some tendency to moisture, eruption of a deeper tint, does not disappear on pressure, bowels open once since yesterday, subsultus moderate. Continued treatment. Ice constantly allowed to patient; swallows it with great avidity.

Sept. 25th. Skin comparatively cool, sweating, pulse 112, tongue red and dry, eruption still visible, bowels open once or twice since yesterday, bladder distended with urine, which is drawn off by catheter, stupor, but no delirium. Treatment continued, with addition of \bar{z} viii. wine in 24 hours, essence of beef, carb. ammon. gr. v. every hour.

Sept. 27th. Stupor increased yesterday, is now very heavy, cannot be aroused, unable to answer questions, pulse about 100, very irregular, excessively feeble. Treatment directed yesterday was continued, and \bar{z} vi. brandy given, and blisters applied to extremities. Died at 4 o'clock in the afternoon.

Post-mortem, 20 hours after death, was made in presence of Dr. Bartlett, of Transylvania University. The examination was not extended to all the viscera, from want of time. Viscera of abdomen and thorax were, however, carefully examined. Small intestines were found perfectly

healthy throughout their whole extent, presenting neither the slightest trace of inflammation nor ulceration. Glands of Peyer and Brunner were but moderately developed, without the slightest trace of inflammation or ulceration. Mucous membrane generally was also perfectly normal. Mesenteric glands natural in color and consistence. Stomach and large intestine by accident, unfortunately, were not examined, but no doubt were in a perfectly normal condition. Spleen enlarged to length of seven or eight inches, rather more soft than natural, engorged with reddish blood. Liver engorged with blood, perfectly natural consistence. Lungs congested with blood in posterior part. Mucous membrane of bronchial tubes slightly reddened. Heart rather soft in consistence, containing very little coagula.

This case, which was unequivocally one of typhus fever, terminated about the tenth or twelfth day after its appearance. At the admission of the patient, the usual symptoms of the disease were developed, but the disorder did not assume the character of extreme danger until about 30 hours before its termination. The examination after death, although incomplete in some respects, from accidental causes, afforded the same absence of positive lesions as is usually the case in pathological researches into this disease: the patient not apparently dying from any local inflammation, but, from the severe impression of the disorder upon his whole body, was perhaps less able to resist it than the natives of colder countries. The treatment was nearly similar to that used in the large number of cases that recovered.

P. T—, age 29, Italian seaman, admitted September 29th, shipmate of last patient, in Berlin. Taken ill on 24th, a week after arriving in port, with pains, cephalalgia, &c., had no chill. Condition, 29th and 30th: stupor, memory impaired, face moderately flushed, eruption of red points appearing over surface of skin, tongue red at tip—coated posteriorly, abdomen retracted—no sensibility on pressure, skin pungent, heat, pulse 100, easily compressed, bowels opened by Seidlitz powder on admission, neutral mixture, ice, pediluvia. Diet, arrow-root, &c.

Oct. 1st. Skin less hot, pulse 100, face flushed, eruption of spots abundant on abdomen and thorax, no sudamina, no cephalalgia, no delirium at night, much stupor. Treatment continued, with addition of wine $\bar{\zeta}$ iv., in whey daily, beef-tea.

Oct. 2d. Muttering delirium last night, intelligence now good, subsultus frequent, pulse 96, feeble, skin but moderately hot, eruption still abundant, tongue moist, coated, bowels open twice in twenty-four hours. Quinine, gr. i., every two hours, in addition to former treatment. Cold applications to head if stupor should increase, and carb. ammon., gr. v., every hour or two.

Oct. 3d. Symptoms continued as they had been, carb. ammoniæ, gr. v., every two hours was given, with wine, $\bar{\zeta}$ x., brandy, $\bar{\zeta}$ vi., daily. Blisters to back of neck and extremities.

Oct. 4th. Eyes injected, suffused, face flushed, much stupor, delirium at night, subsultus, abundant eruption over skin, tongue protruded with difficulty, very dry, coated, pulse 83, feeble; bowels also open this morning after taking Seidlitz powders. Continue treatment. Wine, brandy, carb. ammon., gr. v., every hour. Quinine.

Oct. 5th. Skin was cooler, face slightly flushed, eruption less distinct, slight subsultus, less stupor, but delirium at night, pulse 84, tongue dry,

covered with a dark coat, protruded more readily than before. Treatment continued.

Oct. 6th. Pulse very feeble, 85, still delirium at night, now very stupid, subsultus, with rigidity of muscles of arm, eruption still very abundant over the whole body. Wine increased to \bar{z} xii., carb. ammon. gr. x. every hour; other treatment continued.

Oct. 7th. Skin cool, pulse 85, intelligence better, medicine taken more readily, less subsultus, less lividity of face, urine sometimes drawn off with catheter, at other times passed involuntarily in bed. Treatment continued.

Oct. 8th. Skin less warm, face less flushed, less stupor, tongue more moist, eruption very faint. Continued treatment, reducing carb. ammon. to gr. v. every hour.

Oct. 9th. Skin nearly natural temperature, pulse 84, countenance more natural, intelligence clearer, but still stupor, subsultus subsided, tongue dry, red, brownish at centre, protruded with less difficulty.

Oct. 11. Still stupid, pulse 84, skin cool, tongue dry, brownish at centre, bowels open two or three times in last twenty-four hours, not involuntarily. Continue treatment, increasing carb. ammon. to gr. v. every half-hour.

Oct. 12th. Occasional delirium, tongue red and dry, bowels open several times last night and this morning; discharges involuntary, pulse 92, feeble, was attacked yesterday with nausea and vomiting, it still continues without being checked by blisters to the epigastrium. Ice-water, brandy and water, ess. beef, in teaspoonful doses throughout the day.

Oct. 13th. Emaciation greater, complete apyrexia, no vomiting since last night. Continue treatment.

Oct. 14th. Vomited this morning after drinking a quantity of water which was not allowed him; no return of vomiting afterwards.

Oct. 16th. Heavy, stupid, tongue red, dry, brownish at centre, pulse 100, feeble. Treatment continued, arrow-root allowed in addition.

Oct. 19th. Intelligence perfect, no return of vomiting. Treatment continued.

Oct. 20th. Sloughs have formed on sacrum and haunches, blisters on legs are suppurating, great feebleness. Treatment continued.

Oct. 21st. Erysipelas developed over left eye within last two days, patient extremely feeble. Egg and wine, arrow-root.

Died at half-past 4 o'clock, P.M.

Examination of body twenty-four hours after death.

Exterior.—Considerable emaciation, erysipelatous redness around right eye, scattered ulcerations on legs, extending vertically six inches in length. The ulcerations are in process of healing, are from three to six inches intervening, portions of inflamed skin intervening. Inflammations on sacrum and contiguous portion of Glutei muscles, with ulcerations; some twelve to eighteen lines in diameter. Integuments on each side of vertebral column, from spine of scapula downwards, of a dark red or livid hue, with occasional small ulcerations towards lower part.

Thorax.—Heart, pale, soft; contained small coagula. Lungs moderately engorged, at lower portion posteriorly. Bronchial mucous membrane perfectly healthy. Some old adhesions on either side of chest.

Abdomen—Stomach.—Minute vessels moderately injected with bright arterial blood, mucous membrane of natural thickness and consistence. Small intestines moderately distended, containing thin yellowish fluid, not injected, consistence normal, glands of Peyer and Brunner perfectly healthy. Large intestines healthy throughout the whole extent, neither injected nor

ulcerated. Liver pale, firm, structure not altered. Gall-bladder distended with dark-coloured bile. Spleen slightly softened, normal in size and colour. Kidneys rather pale, perfectly healthy in appearance.

This case terminated fatally on the twenty-seventh day. The disease passed through its usual course, the fever abating decidedly, eruption disappearing entirely, and the intelligence of the patient having nearly returned to its natural condition; the first symptom of a decidedly unpleasant kind was the nausea and vomiting, which rendered it impossible to continue the use of stimulants in as large doses as had been previously used. The strength of patient however improved, and it became possible to resume the stimulants in some degree, but he was already so debilitated that they failed to produce the wished-for effect, and the patient seemed to die at last of exhaustion; the ulcerations which had formed along the back and on the legs were probably a powerful cause favouring the fatal termination.

The lesions, as is usual in this fever, were almost totally negative, that is, no organ presented traces of evident inflammation; and we are, therefore, as is usually the case in typhus fever, obliged to look for the causes of death in the alteration of the blood, and the accompanying disorders of the brain and nervous system. This result coincides precisely with the lesions of the last case, as well as with those observed in a patient who died under the care of Dr. Pepper a few days before I took charge of the wards. The disease is therefore perfectly identical, so far as the absence of lesions is concerned, with the epidemic of typhus fever which occurred in Philadelphia in the year 1836, and occasionally reappeared for several years afterwards: this epidemic I described in the *American Journal* for February, 1837, and gave a short sketch of it in the preceding lecture in the year 1842. In several successive years, 1838, 1839, and 1840, I met with a number of cases of the same disease in recently-arrived emigrants, in all of whom the disease was identical, both in symptoms and lesions, with the epidemic of 1836-7.

During the years 1838-9, a number of cases of typhoid fever were also observed among the recently-arrived emigrants: some of these cases, I believe, came from vessels in which the greater number of passengers suffered with the typhus now described. The distinctive characters of the two diseases were, in almost every case, perfectly well marked, so that it was almost always as easy to distinguish the two diseases by the symptoms during life, as to point out the difference in lesions after death. At the Philadelphia Hospital, typhus fever prevailed this year on an extensive scale, but like the cases we have described, it was confined to emigrants and those who contracted the disease from them. In that institution I have learned from Drs. Buchanan and Thomson, who were lately residents there, that the bodies which they examined were also free from any characteristic lesion.

In the New York Hospital, however, I understood from some of the gentlemen in attendance this summer, that they sometimes met with the lesions of the glands of Peyer, similar to those usually observed in typhoid fever. I must confess I cannot reconcile this singular discrepancy of results, except by supposing that in some rare cases the contagious principle of typhus fever may have been applied to patients who were about to be taken ill with typhoid fever, and that in this way this seeming inconsistency should have appeared. So far as my own observation however extends, in a number of examinations which must now considerably exceed one hundred, I have never met with a case in which the symptoms of typhus

fever were followed by the lesions of the glands of Peyer, peculiar to the typhoid disease, if we except a single case mentioned in the paper published in 1837, which occurred when the disease was still new to us in Philadelphia, and in which there was really an error of diagnosis.

The symptoms of neither of the cases which proved fatal offered any thing peculiar. Although stimulants were used more profusely in this case than in the first one, the benefit resulting from them was by no means permanent; still, had the patient retained his food and medicines so that we could have given them in as large doses as seemed to be absolutely necessary, there is little doubt but that he would have recovered.

W. R., ætat. 35 years, English seaman, shipmate of the two last patients, was admitted 20th September. Was perfectly well when he left Lazaretto, where ship was detained ten days. Taken ill on 17th with chilliness, cephalalgia, pains in back and extremities. Took no medicine except a purge of calomel and jalap before admission. When admitted was ordered *spts. mendereri*, ℥ss. every two hours, cold to head, sponging.

Sept. 21st. Present condition: intelligence perfect now, but is conscious of being delirious at times, dull, heavy, but face not flushed, eyes nearly natural, skin hot on head and central parts of body, cool on extremities, pulse 84, soft, tongue dry, coated, red at tip, no sensibility of the abdomen, no tympanitis, no eruption; bowels open three times this morning, not disturbed yesterday. Continued prescriptions, adding *pediluvia* twice a-day.

Sept. 22d. Skin hot, pulse 88, less flushed, slight traces of the eruption on abdomen; treatment continued.

Sept. 24th. Eruption more distinct, extending over whole surface, pulse 84—intermitting one beat in every 8 or 9, tongue dry, covered with yellowish brown coat; treatment continued.

Sept. 25th. Mind at times bewildered, but not positively delirious, abdomen retracted, not sensitive to pressure, pulse 90: treatment continued: ice given him to chew.

Sept. 26th. Wine, ℥vi., given in whey, during day, with essence of beef.

Sept. 27th. Stupor increased yesterday, still continues, pulse 80, feeble. Discontinued *acet. ammoniæ*. Continued wine, *ess. beef*: *sinapisms* applied to legs.

Sept. 28th. Countenance better, pulse 66, tongue disposed to clean at tip and edges, skin cool, eruption nearly disappeared, few *sudamina* present, abdomen rather retracted, not sensitive on pressure, appetite not returning; continue wine, *ess. beef*, adding *quinia*, gr. i., every two hours.

Sept. 29th. Complained only of weakness, pulse 52, feeble, bowels once open last night, once this morning, tongue cleaning. Increase wine to ℥viii. Continue *ess. beef*, *quinia*. Brandy, ℥ij. daily, egg beaten up with wine in addition. *Carb. ammoniæ*, gr. v., wine given every two hours yesterday afternoon; discontinued to-day.

Sept. 30th. Pulse 48, feeble, increase brandy to ℥iv. daily, *carb. ammon.*, gr. v. every hour during day. Continued former treatment.

Oct. 2d. Pulse 44, tongue cleaning, *carb. ammoniæ* to be given occasionally only; other treatment continued.

Oct. 5th. Pulse risen to 48, skin of natural temperature, eruption disappeared on 1st.

Oct. 6th. Pulse 52. From this time he continued to improve. Brandy discontinued on 11th; wine diminished to ℥vi. daily; *quinia* and *ess. beef* continued. Eggs, chicken, &c. On 14th left his bed. On 27th, after

being up several days, pulse was examined and found to beat 64 in a minute. Was discharged on 30th.*

This patient was ill about 20 days until his convalescence was fully established. His symptoms, like those of the last patients, consisted in extreme prostration, stupor, with delirium, characteristic eruption on body; the pulse was feeble and not very frequent. At the conclusion of the disease, the pulse became exceedingly slow, and was also quite irregular. Treatment consisted in the abundant use of stimulants, which he bore perfectly well, and which he still required after the entire cessation of the fever. The eruption, as in most of the cases during the present epidemic, extended over the whole body, but was less abundant than it usually was during the epidemic of 1836-7.

The cases which I have just given will serve as abundant proof of the perfect identity of the form of typhus described by me as having occurred in Philadelphia in 1836, with the British variety. The same symptoms, the same absence of distinct lesions, and the same necessity for using a stimulating treatment at the conclusion of almost every case, and in the earlier periods of many of them. The treatment is always perfectly simple: the patient should be placed in a well-ventilated room, in which but few persons should be allowed to remain. He should have wine at an early period of the disease, with light animal broths and nutritious but digestible articles of diet, such as sago, arrow-root, and the like, at a much earlier period than in most febrile diseases. Brandy is sometimes necessary, especially for patients who are accustomed to the use of spirits when in health, but it should be allowed only when the patient is so much exhausted, that wine would seem to be an insufficient stimulant. The proper medicinal articles are of comparatively little avail in checking the course of the disease, although they are very important in relieving the temporary causes of danger into which a patient may fall. In moderate cases of the disease, I merely keep the patient's bowels open, and give the ordinary neutral mixture, or the spirit of mindererus, with cold sponging to the head and sometimes over the whole surface, either with simple water or vinegar and water, or with a solution of chlorine. When there is extreme congestion towards the brain in the early periods of the disease, blood-letting may be borne without depression by the patient; but I almost always prefer the application of a few cups to the back of the neck: this is a safe and quite as effectual a mode of taking away blood as venesection. Dry-cupping will often quiet the restlessness of the patient, and is therefore a valuable remedy. In more severe cases, we are obliged to use nearly the same means: wine may be given more freely, sometimes camphor is a useful adjuvant, opiates are generally totally inadmissible, but sometimes, when there is much restlessness and great jactitation, a very small dose of morphia will quiet it better than any other remedy. Blisters are not so objectionable as in typhoid fever, but as they cause much irritation and restlessness, they should not be often used; sometimes, if they are applied to the back of the neck, they diminish the delirium and do good.

With this treatment the mortality in typhus fever will in general be small, but it is a disease which will give very variable results, depending as much on the character of the epidemic as upon the condition of the patients when they are attacked.

* The notes of these cases were taken from my dictation by a very intelligent young physician, Dr. Hutchinson of Missouri, then a member of the class.

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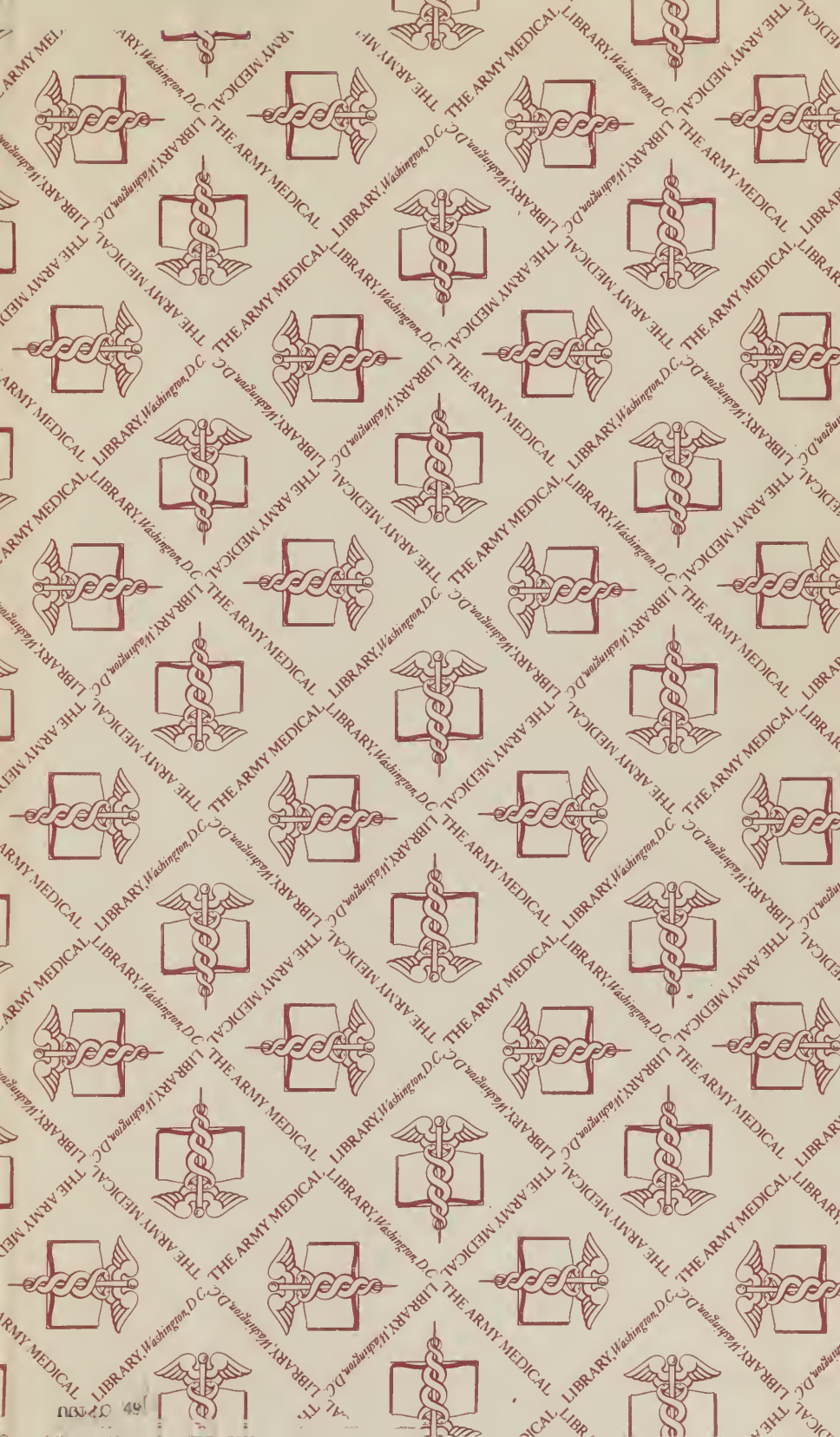
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