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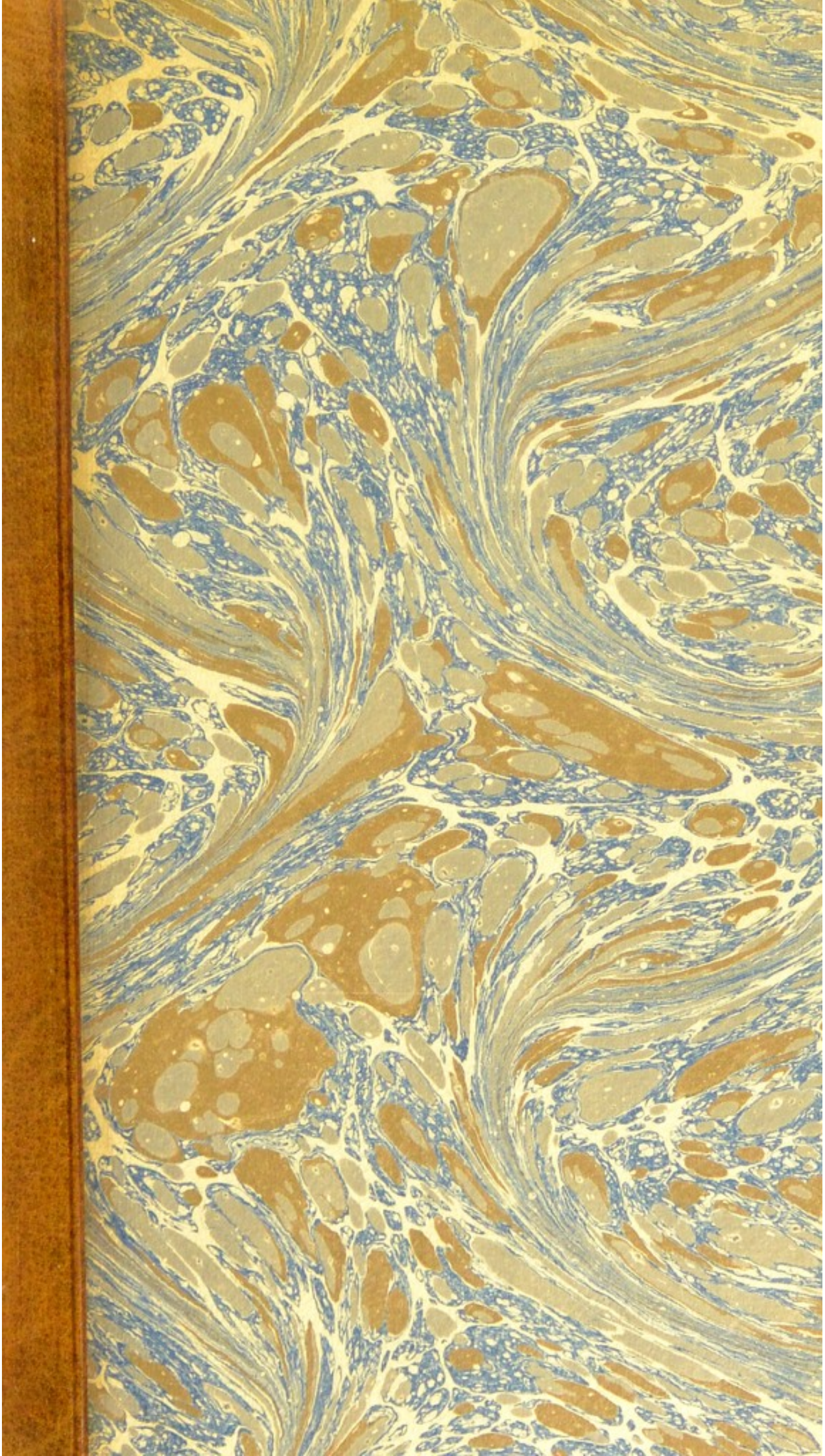
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That you may long continue to promote the cause of Science and Humanity, by your valuable labours, and your bright example, is the sincere wish of,

DEAR SIR,

Your obliged and faithful Servant,

CHARLES SCUDAMORE.

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PREFACE

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ALTHOUGH the subject of Gout has engaged the attention of Authors from the earliest records of Medicine, there are few diseases which have remained more enveloped in doubtful theory; or in which, the practice has been so unsettled, and involved in prejudice.

It may, indeed, be affirmed, that the Gout has, at all times, been a favourite object for the exercise of Empiricism; and every day's observation demonstrates, that whilst the impositions of quackery are received by gouty persons with the fondest credulity, the art of regular medicine is treated with indifference, or even rejected: so

powerfully does an unknown agent affect the imagination; and indispose the mind to the exercise of the more sober faculty of judgment.

How irrational, in principle, the employment of empirical remedies really is, may in a few words be pointed out. Even the occasional success of a nostrum is injurious in its consequences, from the numerous misapplications to which such success gives rise; and, in this way, the more popular its character, the more extensive is the evil.

In a medicine even of known composition and properties, when administered as a remedy for the same disease in different persons, we see the action so much modified by individual constitution, that in one instance it aggravates the symptoms, as much as in another it gives relief. How much more indefinite and hazardous must be the application of a medicine, which is offered as a remedy for almost every kind of disease, and indiscriminately adopted in every kind of constitution. If any active powers belong to such a medicine, its inappropriate employment must produce much occasional injury; if it be inert in its properties,

it becomes a strong negative source of harm, by excluding other means which might be beneficial.

It is now to be asked, in what degree has the reproach which has fallen on the Medical Art, with regard to Gout, been really deserved?

A large class of gouty subjects surrender themselves wholly to empirical treatment. Another portion, and probably not the smallest, prefer their *seeming* security in exercising the difficult philosophy of *patience and flannel.* They do this, either because they distrust the efficacy of remedies; or because they labour under the infatuation, that the gout is a certain remedy for other evils; and should rather be invited than forbidden, in its approach and stay. The observation of the late experienced Dr Heberden is still applicable to the present question. "But as the supposed hazard of curing the gout is now the general belief, it seems reasonable that it should not be made the opprobium of the art of healing, till the patients will conquer their fears, and allow that it ought to be cured. Happy, however, would it be

for mankind, if the difficulty of curing the gout were to become as little as the danger of it*."

The greater number of authors upon Gout, from the earliest period to the present, have adopted a species of empiricism, in founding their whole rule of practice on some imaginary hypothesis of a *proximate cause.* Nor can the regular physician be entirely acquitted of having lent his sanction to empirical remedies. In proof of this, I may advert to the medical patronage at first so freely bestowed on the *Eau Medicinale.* Its magic powers of ease were very naturally hailed with delight by the suffering patient; and Gout no longer appeared a disease of difficult management, or a source of terror. The sequel, however, has shewn the fallacy of the charm; and has served to illustrate the fact, that the best remedies are not those which hastily produce a palliative and transient relief; but, on the contrary, such as are administered upon sound general principles; are carefully adapted to the variations of every particular case

* Commentaries, p. 47.—"It is not a sacred disease: There will be no profaneness in handling it freely."—*Rush.*

and constitution; and are pursued with steadiness and perseverance.

It must, I fear, be allowed, that the regular treatment of Gout has been considerably neglected by the Profession. It appears to have been less an object of attention than any other disease of equal importance; and it is usually pronounced by all parties to be intractable in its nature, and but little understood. In this reflection, however, I do not overlook the several modes of active practice which have at different times been proposed within these few years. Yet it has always appeared to me, that the views which have been formed of the nature and cure of Gout, have been too partial; and deficient in attention to that code of general principles, which is essential to the true understanding and treatment of every disease.

Upon this conviction I was led to the present undertaking. I am well aware how imperfectly I have supplied the deficiency of which I complain; but I shall have performed no useless task, if it should appear that I have entered into the right path of investigation; and have succeeded

in making some advances towards a clear and comprehensive illustration of the subject.

In the tabular arrangement which is annexed to this Treatise, I have detailed the *analytical* method of examination, which I have adopted in the study of the cases which have come under my care, and within my immediate information. From the method itself I have derived great facility of arranging my facts, and establishing my conclusions; and it is after no inconsiderable exercise of observation and reflection, that I venture to present these pages to the public.

On these grounds I feel myself entitled to advance the following general positions:

That the Gout is a disease not only injurious to the constitution, but destructive of the organization of the particular textures which it affects; and, by such united influence, tends both to shorten and embitter life.

That it is as completely within the useful influence of Medicine as any other severe disease:

That the fit may be immediately relieved in its painful symptoms, and materially shortened in its duration :

That most of its natural bad consequences may, by timely care, be prevented ; and, finally ;—

That all these advantages may be afforded by means, which, in removing the disease, tend at the same time to restore the constitution.

The security of the patient from future attack is a question of separate consideration. It is true that it depends much on the Medical Treatment which is pursued in the paroxysm, and during the period of convalescence ; but it is still more connected with the patient's own peculiar care. The gouty diathesis being established in the constitution, it is excited into action by many remote causes ; and, certainly, of the chronic diseases, this appears to be influenced by a greater variety of hurtful agents than any other. Hence, without a corresponding observance of regimen, and general care, the gout, ere long, returns. In this case it will probably happen that the treatment which

was successful in the paroxysm, however judicious it may have been, is regarded as of little value; or is even accused as being the source of disappointment.

The *prophylactic* means, indeed, deserve the most serious and attentive consideration in every individual case. In no disease, however, can the skill of the Physician be proof against a want of care in the general habits of the patient; and those who are not their own Physician in this respect, have no right to censure the advice which they but imperfectly follow.

Upon the subject of *Rheumatism*, I have, on the present occasion confined myself within narrow limits; and the practical consideration of the chronic species of this disease, I have entirely reserved as matter for a future volume.

I have long conceived that some useful light might be thrown on the phenomena of Rheumatism, both in relation to its theory and treatment, by attempting a more accurate principle of classification than has yet been laid down by

authors ; and by employing that analytical method of inquiry, which unfolds to our view all the various causes and phenomena, both local and constitutional, which can be discovered in any way to influence, or to be connected with the disease.

The illustrious Sydenham remarks, " The improvement of Physic, in my opinion, depends upon collecting as genuine and natural a description, or history of all diseases, as can be procured ; and laying down a fixed and complete method of cure."

PREFACE

TO THE SECOND EDITION.

An early demand for the first impression of a work, is one of the most satisfactory proofs which an author can receive, that his labours have neither been altogether devoid of interest, nor exerted in vain.

Under the influence of this consideration, I have carefully endeavoured to render the present edition more copious and useful than the former. For this purpose, I have attentively revised the opinions before advanced; I have again studied the cases from which I had drawn my conclusions; and have also added a detail of all those results and observations, which a progressive experience and more mature reflection have since afforded.

Convinced of the real and extensive benefits, which are to be derived from a scientific and patient

cultivation of the healing art, I have strenuously opposed every innovation of empiricism and empirical principles; and have endeavoured to shew, that it is only by a steady and unremitting observation of natural phenomena, that the philosophy of medicine can be established on a firm basis; and the profession itself be elevated to its proper dignity and rank.

Between the diseases *Gout*, *Gravel*, and *Rheumatism*, there are so many points of natural affinity, that they have appeared to me to form a very suitable class of objects to be embraced in the design of the same work.

In the Treatise upon Rheumatism, which I have still offered in a limited manner, as compared with the extent of the subject, I have, in my introductory observations, entered into an apology for its brevity, which I hope will be found satisfactory.

In advancing many critical objections to the opinions and experiments of other authors, I trust that I shall not be found guilty of injustice or want of candour. I have used only that freedom towards them, which I desire and invite towards myself.

In the formation of every science, the collision of ideas, and comparative observations, invariably tend to elicit information, and establish truth.

In an art like that of practical medicine, which, under the most favourable circumstances, is difficult, and often deceptive, the distrust of received opinions and high authorities is calculated to lead to the discovery of new and useful facts; and to render the researches of genius and wisdom more firm in their foundation. A passive contentment with what has been already accomplished would at once tend to narrow the avenues of science; to arrest the progress of improvement; and to present a strong barrier to the advancement of human knowledge.

The mere desire of novelty is an unworthy passion; but that spirit of inquiring scepticism, which urges the mind to examine with strict scrutiny the present records of science, I hold to be the very spring of action towards all improvement.

How, unless in this manner, could the chaff be winnowed from the grain? How could the illu-

sions of false or mistaken philosophy be dispersed, and made to yield their place to the substantial forms of truth?

Impressed with these ideas, and at the same time desirous to cherish a due respect for the opinions of others, I must agree in the sentiments of Pliny, when he says,

"Quamvis enim cedere auctoritati debeam, rectius tamen arbitror, in tanta re, ratione quam auctoritate superari."

Lib. i. Ep. 20.

A TREATISE,

&c. &c. &c.

A CLEAR arrangement and exposition of the principles of a science, essentially conduce to establish correct views with regard to its theory, and to facilitate its practical applications. This is more especially the case with regard to pathology and the practice of medicine; and I trust, therefore, that no apology will be necessary for the extent of preliminary matter which the following pages may embrace.

I feel it, in the first place, incumbent on me to state the grounds on which I have ventured to propose a different nosological arrangement in my description of Gout, from that which was laid down by Dr. Cullen.

This author, who, on the subject of nosology, continues to be the standard authority in the British schools of medicine, has drawn his general characters and varieties of this disease as follows:

" *Podagra.*—Morbus hæreditarius, oriens sine

causa externa evidente, sed præeunte plerumque ventriculi affectione insolita; pyrexia; dolor ad articulum, et plerumque pedis pollici, certe pedum et manuum juncturis, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, vel aliarum internarum partium, affectionibus alternans.

" *Varietas* 1ma. Podagra (*regularis*) cum inflammatione artuum satis vehementi, per aliquot dies perstante, et paulatim, cum tumore, pruritu, et desquamatione partis, recedente.

" *Var.* 2da. Podagra (*atonica*) cum ventriculi, vel alius partis internæ atonia, et vel sine expectata aut solita artuum inflammatione, vel cum doloribus artuum lenibus tantum et fugacibus, et cum dyspepsia vel aliis atoniæ symptomatis, subito sæpe alternantibus.

" *Var.* 3^tia. Podagra (*retrograda*) cum inflammatione artuum subito recedente, et ventriculi vel alius partis internæ, atonia mox insecuta.

" *Var.* 4ta. Podagra (*aberrans*) cum partis internæ inflammatione, vel non prægressa, vel prægressa et subito recedente, inflammatione artuum."

I shall offer my comments briefly in the order of the quotations (which will be translated from the preceding original text of the author), passing over those parts, the correctness of which, as general statements, I admit; and reserving further and more extended observations, for the respective heads of the subject, in the course of this work.

An hereditary disease.—As the gout is found to be more frequently acquired where no hereditary reference can be traced, than where such influence does exist, this circumstance is erroneously stated, as a definite character of the complaint.

Arising without any evident cause.—This is obviously expressed by Dr. Cullen as a distinguishing character from rheumatism, which he begins with defining, "a disease from an external and often an evident cause." Although the gout is a disease arising out of the internal faults of the system, and does not, like rheumatism, originate as a *local disease* of structure externally excited, yet its two-fold character in this respect must not be overlooked.

The gout is often called into action even in the first fit, by a cause equally external and evident, as that which leads to rheumatism: viz. vicissitude of temperature; a sprain; contusion; or any kind of local injury, which, in a person not disposed to gout, would produce only common inflammation, or some other kind of inflammation or diseased action, according to the specific constitutional disposition of the individual.

Fever.—As a general position, fever is correctly stated to be a character in the gouty paroxysm; although it is not invariably an attendant; and indeed may be said to exist only when the action of the heart sympathises with local inflammation

and pain, or when the remote causes have induced the inflammatory diathesis.

Pain at a joint, and, for the most part, the great toe, certainly most strongly affecting the joints of the feet and hands.—This implies too strongly that a joint is the only seat of true gout. I admit that, if the foot be the part attacked, the description is just; and also that, in the majority of examples, the gout chooses the foot in its first attack, and that the ball or first joint of the great toe is the particular part affected. It is in the commencement of the disease that this circumstance is most remarkable; but even in a first attack, it sometimes happens that the inflammation fixes on the tendinous parts of the foot and hand; and in subsequent attacks especially, so many other situations remote from the feet and hands, and not only the articular structure, but tendons and bursæ also, are affected in an equally characteristic manner; —I mean equally serving to constitute the disease as gout—that the definition, putting false limits to the external indications, is calculated to mislead, and therefore is exceptionable. I may further add, that *Podagra*, which Dr. Cullen*, in imitation of Boerhaave, chose as the title of the disease, is really too confined in its expression.

* Arthritis nomen, utpote apud medicos ambiguum, rejeci, et *Podagra* nomine, utpote typum morbi præcipuum notante, cum celebri Boërhaavio usus sum.—*Synop. Nos. Method. Cullen.*

Arthritis, which is in more general acceptation, though not critically faultless, seems to me a preferable term.

And often alternating with affections of the stomach, or of other internal parts.—I presume that this passage expresses that there is frequently much mutual sympathy between the stomach, or some other internal part, and the external seat of complaint; so that when the stomach, for example, is affected with pain, spasm, coldness, nausea, or other uneasy sensation, the occurrence of external inflammation and pains, often may produce internal relief; and in a certain degree, the converse of this may take place: but if the idea be extended to the signification of *alternation* in the inflammatory action, it denotes a change of action which must tend to danger and death; and therefore is an expression not appropriate to a general description of gout.

The sympathetic action which Dr. Cullen appears to describe, relates rather to the passive form of gout (which hereafter I shall denominate *chronic*), in which, the external inflammation is slight and wandering, and external pains reciprocate with many internal sympathies. This definition accords in part with his *atonic variety*.

OF THE VARIETIES.

Variety 1. *Gout (regular).*—The fundamental distinctions which Dr. Cullen adopts, of *regular* and *irregular* gout, convey, on the one hand, more precision of definition, than the various modifications which the disease assumes, seem to admit; and, on the other, allow more looseness and latitude of application, than is compatible with good practice.

An attack of gout is not the less regular, because it seizes some other part not belonging to a joint; or appears in some other situation instead of the foot and hand; or because it proves of long duration, and changes frequently its seat. The following statement also is deficient in accuracy, and appears to me exceptionable as a definition. *With a sufficiently strong inflammation continuing for several days, and gradually receding with tumor, itching and desquamation of the part.*

The time of duration here mentioned belongs almost only to the first fit; and in regard even to this, much exception prevails. The *swelling* is not deferred till the inflammation has gradually receded; but usually takes place in the course of twenty-four hours, and is rarely delayed beyond forty-eight. The *itching*, as being the last and least remaining irritation of nerve, and also incidental to a scurfy state of the skin, is an ordinary occurrence; but the desquamation of the part is

by no means sufficiently frequent to serve as a characteristic description.

Variety 2. *Atonic. — With an atony of the stomach or other internal part, and either without the expected or usual inflammation of the joints, or with only slight and transient pains in the joints, and often suddenly alternating with dyspepsia or other symptoms of atony.* The *first* part of this definition is descriptive only of the dyspepsia, or other internal derangements, which may take place in the gouty individual as a common occurrence, and without being necessarily dependant on that state of the system which tends to gout. The latter part describes the passive or chronic form of the disease.

Variety 3. *Retrocedent. — With inflammation of the joints suddenly receding, and quickly followed by atony of the stomach, or some other internal part.* I am fully convinced, that inflammation, having even a fatal tendency, is a more frequent consequence of retrocedent gout than atony; and this definition therefore is of great practical importance. In two cases which have come under my own treatment, and which were produced by exposure to wet and cold, very painful inflammatory symptoms affecting the abdominal viscera took place, requiring the prompt and free employment of the lancet. I do not deny that in debilitated persons, in whom the circulation is weak, the local gouty action may suddenly and from slight causes, be exchanged for an internal attack of a spasmodic nature; but such a case, I should consider as an

exception to the more usual effects of true retrocedent gout; and I am persuaded that we should be very cautious in drawing the conclusion, that *atony* is the internal affection, succeeding to the suspension of that which is external.

Variety 4. *Misplaced. — With inflammation of some internal part, inflammation of the joints either having not preceded, or having preceded, and quickly disappeared.* This definition begins with direct reference to the occurrence of any of the phlegmasiæ in a gouty individual, whether the disposition to the paroxysm exist at the time or not. It concludes with a repetition of what was before said of the retrocedent variety, with the difference, that the new internal action is here unequivocally designated as that of inflammation.

To the term and import of *irregular* gout, I have already adverted, considering it to be like Musgrave's distinction of *anomalous*, uncertain and without limits in its application, and only calculated to preclude the possibility of accuracy either in theory or practice.

Dr. Cullen observes (Par. 518), "Whatever symptoms we can perceive to be connected with, or to depend upon the disposition, which produces the inflammatory affection of the joints, but without its taking place, or being present at the same time, we name the *irregular gout.*"

I grant, and even contend, that the disease possesses a complex character; and that it con-

sists of an external local action, which is the offspring of constitutional causes; so that, if it were true that we could point out any one particular state of the system, as the invariable circumstance either antecedent to the local action which we call the gout; or, co-existing with it in the clear relation of cause and effect, we might, on the occurrence of such a state of the system, without its being followed by the usual external characters, very justly assert it to be an attack of irregular or anomalous gout. We cannot however boast, that our knowledge of the intimate nature of the disease is sufficient to authorise such conclusions. It should be considered, that gouty persons are not exempted from other diseases; nor are the various morbid sympathies which they suffer internally, of a peculiar or specific nature. It is undoubtedly true, that the familiar employment of these terms, *irregular* and *anomalous*, gives an unbounded latitude to call every disease*, and every morbid sympathy occurring in a gouty individual, a *disguised gout.*

This consideration is of more importance than may at first sight appear. I do not take up the argument for the sake of verbal dispute. A name being so readily found for an obscure disease, the practitioner considers himself as excused from the difficult task of nicer discrimination. He proba-

* In proof of this opinion, I refer the reader to Musgrave de Arthridite Anomale, and to Par. 518, 519, 520, Cullen's First Lines.

bly directs his treatment according to some prejudiced views of the nature of gout, instead of taking his indications from an attentive investigation, founded on anatomical knowledge, physiological reasoning, and sound pathology. In other words, he treats the disease according to what *it is not*, rather than according to what *it is*. The *patient*, influenced only by the suggestions of his fears, anxiously desires to fix the wandering gout, as he pronounces it, in his extremities; and with this view, drinks brandy or madeira. From the depression which he occasionally feels, he seeks the false relief procured by stimulating cordials; and produces a state of intoxicating excitement, at the expense of positive injury to his constitution.

The circulation, when excited by heating cordials, may be urged to relieve itself by that kind of inflammation to which there is the principal tendency in the constitution; and, what may be regarded as a fortunate event under such a mode of proceeding, the gout may take place; but in the mean time, apoplexy, or some other evil much worse than the gout, so earnestly invited, may be produced.

I acknowledge that dyspepsia, and any other chronic affections, and even acute diseases, may receive considerable modifications of character from the influence of a gouty habit; and that some correspondent modification of treatment may then be required; but this admission is rather general

than particular, and forms a part of this medical rule, that our principles and practice should always be applied and varied, in correspondence with the character of the individual constitution and habit.

Finally, in regard to any disease in a gouty person, whether simple or anomalous, I should adhere to the ordinary nomenclature (if a name were desired); taking into consideration any probable influence, which, the arthritic temperament and constitution might exert.

Dr. Cullen has combated the doctrine of a morbific matter with much ability and ingenuity; but he is not himself very satisfactory in the following piece of pathology, Par. 533: "In some persons there is a certain vigorous and plethoric state of the system, which, at a certain period of life, is liable to a loss of tone in the extremities. This is, in some measure, communicated to the whole system, but appears more especially in the functions of the stomach. When this loss of tone occurs while the energy of the brain still retains its vigour, the *vis medicatrix naturæ* is excited to restore the tone of the parts, and accomplishes it by exciting an inflammatory affection in some part of the extremities. When this has subsisted for some days, the tone of the extremities and of the whole system is restored, and the patient returns to his ordinary state of health."

The loss of tone in the extremities, which is here described as the first link in the chain of the

phenomena, is rather fancifully conceived. The system, though in a plethoric state, can scarcely be said to be vigorous. The reflection of the loss of tone from the extremities to the internal functions; the impulse given to the *vis medicatrix naturæ;* and the consequent restoration of the general and local tone by means of the inflammation excited; compose a mass of doctrine, in which, a variety of hypotheses are confusedly blended together, and are calculated to perplex and mislead the judgment.

From the foregoing theory, Dr. Cullen appears to have deduced all his practical views.

Sauvages has given a very complicated arrangement on the subject of gout, creating many distinct species from the modifications which the disease occasionally assumes, by combination with other diseases, or by the influence of the season of the year*. The Greeks distinguished the varieties of gout according to situation; as, podagra in the feet; chiragra in the hands; pechyagra in the elbow; gonagra in the knee; dentagra in the teeth; cleisagra in the articulations of the clavicles; omagra in the articulations of the humerus; rachisagra in the spine of the back; and tenontagra in the large tendons†. These terms descended to the Latins, and were indiscriminately

* Arthritis asthmatica, rheumatica, æstiva, hyemalis, &c. &c. —*Sauvages' Nosol. Method.*

† Cœlius Aurelianus, Lib. v. cap. 2.

applied to gout and rheumatism. Indeed when we consider, that until the time of Ballonius *, rheumatism does not appear to have been considered as a distinct disease from gout; we should surely, on all occasions, receive the authority of the ancients upon the treatment of gout with much circumspection.

Boerhaave is said not to have introduced the mention of rheumatism in his first course of lectures; but he was afterwards but too well made acquainted with it, from becoming himself the subject of the disease.

Sydenham, in 1683, may probably be considered as the first author who wrote with much perspicuity on gout and rheumatism; but I cannot help thinking of this eminent man, that although his pen had the merit of great excellence, both in style and matter; and he himself appears to have been the very model of a virtuous physician; his doctrines upon gout, which were conceived in the full force of the humoral pathology, have had, even to the present day, a most injurious influence on practice.

The antiquity of the notion concerning the humoral nature of gout, is illustrated by the etymology of its name—*gutta*, a drop; signifying, it is said, that the disease was caused by the dropping of some humour into the joints.

* De Rheumatismo et Pleuritide Dorsali. *Paris*, 1642.

† "Gutta dicitur, ex absurda veterum hypothesi, qua ab humoris cujusdam stillicidio, in articulos facti, cum dolorem oriri putabant."—*Sauvages' Nosol. Method*, vol. ii p. 19.

It may be remarked of the nomenclature of the ancients, that it was always expressive, though often erroneous. The examination of medical etymology through its whole extent, would be a curious and interesting branch of inquiry. I shall not, however, pursue this digression any further, but proceed to the more immediate consideration of my subject.

It appears to me, that in nosological divisions, a degree of refinement is sometimes introduced, which rather perplexes than affords light to the practitioner. In medicine, more than in any other art, it is dangerous to frame distinctions without a difference. With this conviction, and with a persuasion that nicer separations are as useless as they are difficult, I purpose to divide gout into *acute*, *chronic**, and *retrocedent;* considering the acute form of the disease, without regard to particular situation, as the first variety; the chronic, as the second; and the retrocedent, as the third. In an attempt to mark the general characters of gout,

* Dr. Latham, in speaking of the usual denomination of the varieties of gout, thinks that "they might more properly be distinguished like rheumatism, into the acute and chronic."—*Letter on Rheumatism and Gout*, 1796.

Dr. Hamilton makes the following observation: "Perhaps it may be more simple to divide this disease into two kinds only, the *acute* and the *chronic* gout; because, agreeably to the different phenomena, the several gradations, if I may so term them, between the highly inflammatory acute state of it and the lowest debilitated chronic state, the two extremes of the disease, involving all the irregularities of it, may be readily comprehended."—*Letters on Gout*, 1806, p. 70.

I feel the necessity of entering into a description rather in detail, instead of confining myself to a brief definition ; because, the disease is too complex in its nature, to be distinguished with certainty by a few signs alone.

GOUT.

A constitutional disease, producing an external local inflammation of a specific kind ; the susceptibility to it often depending on hereditary bodily conformation and constitution, but more frequently wholly acquired ; not occurring before the age of puberty, seldom under the age of five-and-twenty, and most frequently between the ages of twenty-five and forty ; affecting chiefly the male sex ; and particularly, persons of capacious chest and plethoric habit ; in the first attack, invading usually one foot only, and most frequently at the first joint of the great toe ; but in its returns, affecting both feet, or other situations, as the hands, knees, and elbows ; and not only in the articular structure, but also in the other textures belonging to the moving powers, different parts being affected together, or in succession ; often accompanied with sympathetic inflammatory fever, which is usually marked by nocturnal exacerbations and morning remissions ; much disposed to return at periodical intervals, and for the most part preceded by some premonitory symptoms.

ACUTE GOUT.

Inflammation and pain of the articular, tendinous, or bursal structure, usually attacking one part only at the same time; but in succession of attack, affecting different parts together; with preternatural fulness of the adjacent veins, and, in certain situations, with œdematous swelling of the integuments occurring in twenty-four or forty-eight hours from the invasion of the fit; vivid redness of surface, which is sometimes shining; entire disability of the affected part, with peculiar sensations of burning, throbbing, cutting and pricking, and weight: the action sometimes readily changing situations spontaneously, or from slight causes; terminating almost invariably without suppuration, and usually with some critical indications of the event.

CHRONIC GOUT.

Inflammation and pain more slight, irregular and wandering, than in the acute; faint redness of surface; much permanent distension of parts, or continued œdema, and impaired moving power; without critical indications of its terminating; commonly associated with a morbid state of the digestive organs, a languid or oppressed circulation, and much nervous irritation in the system.

RETROCEDENT GOUT.

Metastasis, or transference of the gouty action in the paroxysm, from the external part, to some internal organ.

HISTORY OF ACUTE GOUT.

On some occasions, and especially in the first fit, the immediate invasion of the disease is not preceded by any warning; but the patient, after going to bed with the ordinary feelings of health, is surprised in the night with the first symptoms of the disease; yet, except in the first fit, it much more commonly happens, that some preceding symptoms intimate for several days, or give even a longer notice, that the gout is at hand. Of these *premonitory* symptoms, as I have found them occur in different individuals, more or less connected with a certain attack of the disease, I may enumerate the following:—

Depression of spirits, with drowsiness and frequent yawning, night-mare, and restless sleep; heart-burn, acidity of stomach, and sometimes to the degree of rejecting acid matter; flatulence; irregular appetite, with oppression after a meal; a frequent sense of coldness and soreness at the epigastric region; general itching of the skin; costive bowels; scanty and deep-coloured urine, becom-

ing turbid on cooling; pricking and numbness in the lower extremities; muscular twitchings in the day, and catchings or cramps in the upper or lower limbs, more particularly in the one which is about to be attacked; much coldness of the legs and feet, and occasional general chillness. Some complain of universal feverish sensations, having with cold extremities, heat of the head with pain, and frequent flushings. In the disturbed functions of the stomach, an excessive appetite for one or more days before the fit is not unusual, but this is attended with occasional heart-burn and nausea. One patient informs me, that for a week before the fit his appetite cannot be satisfied. To use his own words, "he could eat all day long." Another also describes this precursory symptom in the same degree, with the addition of having an excessive secretion of saliva.

The nervous system is often apprised of the approaching gout by previous general lassitude, with much agitation of mind, palpitation of heart*, and internal flutterings. A gentleman, who has for many years been afflicted with gout, for a day or two before his attack has alternate chills and flushings, is extremely nervous, and he says,

* The morbid sympathies are variously referred, and often without any apparent connection with the cause by which they are supported. I am informed by Dr. Baillie, of a gentleman who suffered palpitation at the heart for six months without relief from medicine; but a fit of the gout coming on, it suddenly and entirely left him.

without the power of restraint, sheds an abundance of tears.

A cough, with much mucous secretion in the tracheal membrane, sometimes precedes the fit; yielding when the gout becomes fixed, or occasionally continuing with the other symptoms.

This description of cough is to be distinguished entirely from the recent catarrhal cough and symptoms, which sometimes usher in a paroxysm, when exposure to wet and cold has been the exciting cause. The mucous membranes of parts which have been once affected with disease, or which are prone to disease, are much disposed to acquire a state of unhealthy action; in apparent sympathy, either with that condition of the constitution which borders on a fit of the gout; or in which, the disease is threatening its return, but does not develope itself.

In one person, a heat of the eyes with slight membranous inflammation, is one of the usual premonitory symptoms.

A remarkable irritability of the bladder and urethra, with increased secretion in the mucous membrane of these parts, prevails in some persons shortly before the fit; and in those, whose urethra is affected with stricture, these symptoms almost with certainty take place.

A gentleman who has a slight stricture, informs me that during a few days before one of his fits of gout, he was troubled with so much ardor urinæ, dysuria, and discharge, that he persuaded

himself of the reality of gonorrhœa; and sought advice accordingly. He was judiciously instructed to wait the use of any treatment for such a complaint. When the gout appeared in one foot, all the other symptoms just mentioned almost instantly left him. Sir Everard Home, in his work on Strictures, observes, "So much is the urethra in its natural state under the influence of gout, that it is sometimes affected by it on the coming on of every attack, with all the symptoms of inflammation, as pain in making water, and a purulent discharge; and as soon as the gout fixes itself in the foot, they entirely disappear." He adds, "this natural susceptibility of the urethra to be influenced by gout appears to be much increased, when that canal is in a diseased state, so as to increase all its symptoms, and when they have gone off, to produce a recurrence of them, and prevent the disease to which it is liable, from being completely removed." He offers cases in illustration of these remarks, noticing however, that some gouty persons even with stricture are exempted from this peculiar irritation in connexion with the paroxysm.

I have not myself witnessed more than one case with these complete symptoms described, unless that a stricture has existed; but with the exception of the discharge, I have seen persons so affected, in a very remarkable degree, shortly before the fit; and with them, this occurrence has been a sure presage of the gout which was to follow.

Sometimes the symptoms come on with the paroxysm, and in either case, whether in this manner, or precursory, most usually continue in a greater or less degree for a few days during its height. In some instances, however, as already mentioned, the whole complaint yields at once to the gout.

In addition to the local premonitory symptoms which have been mentioned, the following also occur. Unusual weakness and tenderness of joints, and more particularly in the limb threatened with immediate gout, accompanied with shootings, numbness, prickings and transient spasms; a fulness of the veins of the limb, and dark colour of the skin in the part about to be affected with inflammation. Although some stiffness and inability in the moving powers of the joints generally precede the fit, yet I am acquainted with one example, in which, the patient expects a long confinement, if he has felt increased energy and alertness of limbs a day or two before his attack: so curiously are diseases modified by idiosyncrasy of constitution.

A swelling of the feet after slight exercise, with uneasy stiffness, and a dry state of the skin with more or less of heat in the soles of the feet, may also be mentioned as precursory. One person informs me that he is generally warned of the approaching attack, by finding, a few days before, "that his shoes pinch him."

A sudden cessation of the usual perspiration of the feet, is also noticed by some gouty persons, just before the paroxysm.

I should add as a general statement, that the most severe of the local signs which I have just enumerated, affect those only who have experienced frequent returns of the disease; and in whose limbs, more or less of disorganisation of structure has been produced.

Those gouty persons who are affected with concretions (chalk-stones), experience for a short time before the fit, pricking pains in the parts where they are situated. This is described even by those who have minute points of concretion in the lobes of the ears, and in no other part of the body. When these concretions have given rise to ulcerations in the hands or feet, the sores are unusually tender, aching, and sometimes very painful, as the fit is making its approach.

On the subject of precursors of the fit, it deserves to be remarked, that in a general inflammatory diathesis of the system, and usually from partial exposure to cold acting as the exciting cause, an internal part is sometimes *first affected* with inflammation (constituting what Dr. Cullen denominates the *misplaced* variety), either for a short time, or for some continuance; but this at once suddenly subsiding, the *gout* succeeds; apparently concentrating in itself all the inflammatory disposition of the system.

In two cases of pneumonia which came under my observation, every symptom affecting the lungs immediately disappeared, on the supervention of the gout, that occurred within a few days.

In another instance, the inflammation of the lungs proceeded to its full extent, in union with the gout in both feet.

Morgagni mentions of himself, that he had suffered from an opthalmia in each eye, without relief from the usual remedies. At length, a mild attack of gout took place in one foot, doubtless solicited (though not expected, it being his first fit) by the pediluvium and friction, of which he had made a free employment. He adds*, "Oculorum inflammationem statim minuit, ac diebus insequentibus sustulit."

Such exchanges of disease have been called *conversions;* and the subject has been illustrated by many authors†.

OF THE PAROXYSM.

The description of *Sydenham*, drawn from his own sufferings in this disease with the hand of a master, is given with much spirit, and has been generally quoted for its acccuracy; but as in some parts, it is much obscured by the doctrines of the humoral pathology, and is altogether rather circumscribed, I shall venture to delineate its history

* *Morgagni*, Epist. LVII. p. 221.

† Dr. Hoffman de Morbis Mutandis. Dr. Ferriar, "on the Conversion of Diseases." Dr. Parry, in his late Work on Pathology, has presented us with much valuable matter on this subject.

from the results of my own inquiry and careful observation.

Of the Symptoms of a First Fit.—Whether any premonitory symptoms have occurred, or that the patient is seized with gout, while in the apparent possession of health, the most frequent time of the active invasion of the fit, is between twelve and three in the morning; the exact period being liable to some variation, according to the habits of the individual, and his hour of rest. He is suddenly awoke* with pain in the affected part, which is most commonly the ball of the great toe of one foot only; and immediately experiences in a slight degree, sensations of heat, stiffness and weight; which soon increase to burning and throbbing. He is restless, feverish, and watchful, till about five or six in the morning, when, under favourable circumstances, an abatement of the symptoms, with gentle perspiration, permits some tolerable sleep. Usually on the first morning, the surrounding integuments are swollen, the skin is slightly red, and the veins of the foot in a direction from

* I have lately met with an instance of a first fit, in which the patient slept with more than usual profoundness through the night, and was astonished in the morning by finding that the gout was severely fixed in one foot, which he discovered only on attempting to leave his bed. In another case also, the sleep was disturbed only by uneasy dreams, and when the hour of rising came, the gout had to a great degree taken its station in the ancle, wholly unexpected.

the inflamed part, appear remarkably full. In a severe attack, there is scarcely any remission of the symptoms for two or three days; but more usually, they are suspended or much abated in the day, and return with violence late in the evening, or before midnight, lasting till about five in the morning. Even on the first morning of the disease, the integuments pit slightly on pressure, and on the second morning this effect is very distinct. The surface is now of a vivid scarlet red. The patient complains of shooting pain, throbbing, heat and weight. The pyrexia, and disorder of the natural functions, as dependant on the first fit, appear to be truly sympathetic; and are proportioned to the local inflammation and pain. In very slight attacks, the sensible influence of the disease upon the system is so moderate, that sometimes the patient thinks he has received a strain, or some kind of local injury, and treats it accordingly*.

In the first fit, the attacks of this kind usually prove only of two or three days continuance; but in contradiction to this general statement, I know a case, in which, one foot was first attacked, and it being considered as an inflammation from a supposed strain, was treated with an oatmeal and

* In one instance of unexpected gout in the winter season, a gentleman first persuaded himself that a severe chilblain had seized the foot; but rubbing the part freely with a stimulating embrocation, he violently aggravated the inflammation, and then discovered his error.

vinegar poultice. The other foot shortly became affected, and three months elapsed before this patient regained his health. In another case of first attack, the ball of the toe being the part affected, the patient, conceiving that he had suffered a strain, applied a stimulating poultice. This fit was more tedious and painful than any which he has since suffered, although he has been gouty for many years.

The œdema which has been mentioned, continues a short time after the disappearance of inflammation; and sometimes the cuticle of the affected part desquamates, with much itching. The duration of a first fit is seldom less than five, or more than ten days. It now and then happens, that the other foot also becomes affected in succession, giving rise to similar phenomena, but with greater consequent disorder of the system; and such fits also are sometimes very tediously protracted, if left to their natural course. I am informed by a lady, that in her first fit, each foot being affected at first in succession, afterwards together, next appearing to recover, and then again alternately relapsing, five months of suffering were passed over before she felt any degree of convalescence. Another lady also relates to me, that her series of sufferings in the first fit was continued beyond four months; in the course of which time, one foot, each knee, wrist, elbow, and shoulder, were affected in as severe a degree as I have

ever heard described*. Of these and similar cases I shall again have occasion to speak. I may state as a general fact, that the gout is more disposed to be mild and regular in its first attack in men, than in women.

In one hundred and seven cases of gout, I have made the following comparison of the parts affected in the first fit:

In the great toe of one foot only, seventy cases.

In the great toe of each foot, eight.

In the toe and instep, two.

In the outer side of one foot, two.

In heel of each foot, hand, and elbow, one.

In one ankle, three.

In each ankle, one.

In ankle of one foot, and toe of the other, the ankle first, one.

In ankle and instep of one foot, three.

In toe, instep, and ankle of one foot, one.

In instep of one foot, two.

In instep of each foot, one.

In one instep first, afterwards each knee, wrist, elbow, and shoulder, one.

In heel of one foot, one.

In heel of each foot, one.

In each foot and hand, one.

* This case, which from the outline of my statement may appear to belong to rheumatism, was certainly an example of acute and chronic gout. Both from the communication of the medical attendant, and from my own observations since this lady has been under my care, I am convinced of the fact.

In the right thumb, and afterwards in the toe, one.

In right knee, one.

In left knee, one.

In hand and wrist, one.

In one hand at the back, one.

In each hand, at the back, one.

In one wrist, two.

From this statement it appears, that podagra (πους a foot, and αγρα a seizure) is too limited a term even to mark the first fit, as an appropriate designation.

The frequency of the returns of gout after the first fit, is in proportion to the constitutional tendency of the disease, and to the unfavourable mode of life of the individual. If the toe of either foot was the affected part in the first fit, the same toe is most frequently the part invaded in the second fit; but it seldom happens that the other foot escapes. The phenomena which arise, are similar in their character to those I have already described, but are more marked in their degree, are of longer duration, and from the connexion which the local symptoms are discovered to have with the general system, the constitutional nature of the disease becomes gradually more and more manifest.

As the disposition of the constitution to gout increases, the intervals are shorter, the fits of longer duration, and the parts affected more numerous. The gout, more than any of the other phlegmasiæ, is disposed to return at periodical intervals, and

sometimes, in its annual visit, it is punctual almost to a day. One patient informs me, that for three years in succession, his attack returned on the 12th of April. The early part of spring and the latter end of autumn, are periods during which it is most prevalent; for in these seasons, changeable weather with its attendant vicissitudes of heat and cold (the strongest of all the exciting causes of gout), is the most productive source of injury to the human frame. There is no part of the year which gives absolute exemption from the disease, when it is much established in the constitution; and summer alone is the period of expected security.

I have met with some cases in which the first fit has taken place in the middle of summer. One patient assures me that his worst attacks occur in summer; and another states, that all his fits have occurred in this season, except in one year, when a second afflicted him in winter. In our English climate, this account still involves in its explanation, the exciting cause of *vicissitude of temperature.*

The general circumstances of attack are such as have been already mentioned; but the premonitory symptoms, and subsequent sympathies in the paroxysm, usually increase in strength with each returning fit. Yet of its notice of invasion, such is the capricious nature of this disease, that even confirmed gouty subjects are sometimes attacked at the very moment, when they most congratulate themselves on the possession of health

and strength; and I have witnessed some fits thus sudden and unexpected, to be very tedious and severe.

In a few individuals, the gout never chooses any other situation than the feet; but in the greater number of examples, in the course of its progress, many parts become affected in the same paroxysm; and although the inflammation establishes itself in its different seats, in succession, it often occupies many parts at the same time; either raging with pain in all its situations, simultaneously; or affecting the different parts successively, with alternate violence. The feet, knees, hands, and elbows, become indiscriminately affected*; and together with the ligaments of the joints, the bursæ mucosæ, the sheaths of tendons, and the muscular aponeurosis, in various situations, are the frequent seats of the disease.

I have more than once seen the whole of the tendinous portion of the gastrocnemius muscle severely affected with gout. In some martyrs to the disease, not only the shoulders, but even the hips themselves are now and then affected with all the characteristic pains of the disorder, in the course of a long fit. The rapid and indeed instantaneous manner, with which, the inflammation sometimes quits one part, and transfers itself to

* It is however worthy of notice, that on many occasions, the disease has a remarkable disposition to observe a certain order; attacking, for instance, in a regular series, the right foot, the left foot, the right knee, the left knee, and so on.

another in the same or another limb, is not the least curious among the various characters of gout. As in the early attacks of the disease, so in all its returns, the night is the most common time of its invasion, and the period of the greatest suffering; yet instances are not unfrequent, in which the patient is surprised in the day by this unwelcome visitor, and often in a manner almost incredibly sudden. With some few, the pain prevails most during the day, and night brings a little soothing influence of sleep; but to others, neither day nor night scarcely gives any intermission of torture, for the first few days of an inveterate attack. One gentleman informs me, that in a late attack, the agony which he suffered from the gout in both feet, subsided only in a slight degree in the day, for three days and nights. Another describes, that a whole fortnight of the paroxysm gave him continued misery and torture, with scarcely any abatement of suffering in the day; and that during the whole time he could scarcely endure the weight of the sheet upon his limbs. The gout, in this case, was situated in both feet and both knees.

The external appearances of the disease vary considerably according to the situation, and particular texture of the part which is affected. The redness of surface, together with œdematous swelling, are most remarkable on the great toe, on the foot, the back of the hand, and at the elbow; while at the ankle, knee, and wrist, the increased bulk is produced chiefly by the distension of the bursæ, and of

the sheaths of the tendons, and takes place, often with little change in the natural colour of the skin. If there be redness, it appears in these parts, chiefly in patches. In the situations before-mentioned, the colour, which continues for some time to be of a scarlet hue, is diffused over a considerable extent of surface, and occasionally assumes the aspect of spreading erysipelatous efflorescence. When the cellular parts have been for some time swollen and tense, the blood which has stagnated in the loaded and obstructed vessels, ceases to give the vivid blush of red, and changes to the different shades of purple.

In some few instances, under my observation, the patient being corpulent and of a full habit, with a temperament partaking strongly of the sanguinous, the capillary vessels have partially given way to the force of the circulation, and the skin has been here and there, in spots, discoloured with the effused blood.

When the bursæ mucosæ are affected with gouty inflammation, they become distended, are exquisitely tender and painful, and often increase to a great size very suddenly. Sydenham observes, "Sometimes the morbific matter is thrown upon the elbows, and occasions a whitish swelling almost as large as an egg, which becomes gradually inflamed and red." This swelling is the enlarged bursæ. I have seen it formed in the course of a night, and sometimes even more suddenly, to a great size, in the ham, near the glutæi muscles,

and at the elbow as above mentioned. Sometimes these bursal distensions subside suddenly; but more commonly they continue permanent, tedious, and often untractable. The affected tendons, when carefully examined, appear to be much thickened; and sometimes seem not only large, distended, and rigid, but also inseparably matted together.

In urgent and continued gout, the veins of the whole limb are preternaturally distended with blood, and, when contrasted with the healthy limb, present the appearance of universal fulness. This state of the veins is most remarkable in the leg, but in the arm it is also very distinct. Near the part inflamed, the venous branches appear very numerous, diverging in their course, and almost bursting from fulness. The congestion which is here represented, becomes in some degree diminished, when abundant effusion into the cellular membrane has taken place at the gouty part, but even then the symptoms soon become aggravated by any attempt to keep the limb in a depending position; and if the patient endeavour to raise it even in a small degree, he feels it restrained, as if by a heavy and irresistible weight.

The disabled appearance of parts which have been long subject to the ravages of gouty inflammation, an appearance which is sometimes so distinctly marked as to resemble paralysis, is most strikingly exhibited in the hands and individual fingers.

The pain which is inflicted by gout, is much

more severe than that from almost any other kind of inflammation; and the complicated sensations that result from it, are really of a nature peculiar to this disease.

The pain which the patient describes, seems to be considerably modified by the particular texture and situation of the part affected. Observation has taught me, that the sense of weight and total loss of power, are most severely felt, when the whole of the anterior part of the foot is the seat of disease; that inflammation in the first joint of the great toe produces the strongest throbbing; and that the sense of tightness is most urgent, when the elbow joint and the tendons at the wrist are the parts affected. I gather from a careful comparison of different cases, that the two last situations are, of all others, the most afflictingly painful. In a fit in which the gout fixes in various situations, both old and new, any part which is for the first time affected with the inflammation, is usually described as the severest source of suffering. Sydenham described the sense of heat experienced in the height of the paroxysm, *as that of water just warm, being poured upon the membranes of the affected part* ("cum sensu quasi aquæ tantum non frigidæ, partis affectæ membranis affusæ"). This is a very inadequate account of the sense of temperature, produced by the local action of gout; which rather conveys to the patient's mind the idea of *boiling* water; or, in the strong language of some patients, even of boiling lead. The quan-

tity of heat which is evolved from the inflamed surface, is found by the thermometer to increase the temperature, always more or less beyond the natural standard. The strong metaphorical terms, by which gouty persons endeavour to convey an idea of their sensations during the paroxysm, are evidences of the extreme severity of the sufferings which this disease inflicts.

In order to exemplify in a familiar and striking manner this particular point, I shall state my quotations, abstracted from several cases, of the language of patients themselves, while describing to me their feelings, during the height of the paroxysm.

J. L. aged forty-six, had *acquired* gout, first at thirty-five. In the last fit, different parts became affected in the following order, the right hand, right elbow, right toe, left knee, right ankle, left toe, left ankle. The inflammation affected several of these parts at the same time, but in general, with alternation in the severity of pain. He felt as if wedges were forced into the joints, and were effecting their separation; and a throbbing tightness, as if from a strong ligature, a burning heat, and oppressive weight, were present in an exquisite degree. Upon the smallest movement of the fingers, instant pain and spasm seized the fore arm and elbow, and when the toes were moved, the whole foot and ankle became similarly affected.

M. K. aged fifty-five; first had *acquired* gout

at twenty-eight. Describes the pain, "as if a saw were at work in the joints;" has spasms on his first attempts to sleep at night, followed by agonizing sensations of cutting, pricking, and excessive throbbing; and feels the heat, as if from scalding water poured between the affected parts.

T. L. aged fifty-one; first had *acquired* gout at thirty. He compares his pain to the severe gnawing of a dog acting upon the joint, accompanied with cuttings and prickings; and with heat sometimes as from hot lead; and the sense of weight is intense. He also describes the pain at the ball of the great toe, as sometimes resembling that of a severely aching tooth.

A. G. aged forty-two; first had *acquired* gout at thirty-five. His legs, in the paroxysm, are often cold, while the affected feet burn, as if on hot coals; with great throbbing, and piercing shootings, sometimes as if a knife were thrust in; and he can scarcely describe the intolerable weight.

J. P. aged forty-two; first had *acquired* gout at thirty-six. Expresses the feeling of heat, as if the parts were in a furnace; with pulling and throbbing; and has a sense of weight, as if a hundred weight were placed on the foot.

E. S. aged fifty; first had *hereditary* gout (from his father) at forty-seven. The burning pain of the affected parts, is compared to the heat of a red-hot iron; the oppressive sense of weight is as if they were covered with a mill-stone; to which are superadded distressing throbbings, with qui-

verings of tendons, and spasms of the muscles; and the skin feels as if girt with a strong ligature.

J. S. aged forty-one; first had *hereditary* gout at thirty-four. In his last attack in the feet, conceived that some one was boring into the joint with a gimblet; then that an abscess was forming; and at the height of his suffering, thought that he could not have suffered more even from *amputation* of the part. Cramps in the muscles of the legs and the toes, and also in the intercostal muscles, were severely distressing.

In addition to these, the sufferings of gout alone, the patient is sometimes afflicted with accompanying rheumatism, which affects either the neck, shoulder, loins, or sciatic nerve; and in some urgent cases, in which continued exposure to wet and cold had been the exciting cause, I have seen two or more of these situations under its influence, at the same time that gout has been raging in other parts. If any of the other phlegmasiæ has either preceded, or immediately accompanied the attack of gout, it most commonly soon yields to the latter disease, as I have before mentioned; but rheumatism, when it becomes the companion of gout, is more obstinate and fixed.

The *constitutional* symptoms of the paroxysm are now to be further noticed.

In slight attacks of the gout it sometimes happens, that the secretions do not exhibit to the eye any morbid appearance; but in severe cases, the digestive functions are evidently much affected, as is shewn by the following indications:

The tongue is furred; there is thirst and loss of appetite. The stomach is affected with flatulency, occasional spasms, and many uneasy sensations. In conjunction with nausea, and sour eructations, a watery fluid is sometimes rejected, which is very acrid and acid. It is either colourless, or of a grass-green appearance; and, in a long fit, this occurrence happens from time to time. The bowels are for the most part torpid; and, being excited by medicine, the fæces appear unusually foul and offensive, are dark in colour, and often are loaded with vitiated mucus. The urine is of deeper colour than natural, is secreted scantily with relation to the quantity of the patient's drink; and on cooling, deposits a pink or brick-dust sediment, with much mucus. Its specific gravity is much increased beyond the healthy standard.

During the most urgent symptoms of the paroxysm, it is usually passed with considerable irritation, both as to frequency and sense of heat. The pink or lateritious sediment appears, more or less, in every portion of the urine, during the inflammatory symptoms*. When these have entirely

* In the London Medical Repository, the Reviewer (who has done me the honour to notice this Treatise at great length) is in error in the following criticism: "There is some degree of incorrectness in regarding the deposition of the pink sediment as one of the symptoms occurring during the continuance of the paroxysm, as it does not begin to appear until it is fairly over, or the crisis is passed." No. for Oct. 1816, page 294. I can confidently state that the deposition of the pink or lateritious sediment *begins* with the paroxysm; provided that the paroxysm itself commences with urgent symptoms; upon which, it is the attendant.

subsided, and the state of the liver (on the condition of which, the symptom in question principally depends) is still remaining unhealthy, the sediment of the urine often assumes a whitish colour, and is compared by the patient to the appearance of magnesia. This and the pink sediment frequently alternate, the one or the other appearing, as inflammatory or nervous action most prevails.

The sensibility of the nervous system, as is shewn by what has been related of the sensations of the inflamed parts, is in a high state of morbid excitement.

Sydenham describes his pain in the beginning of the fit, with all the force of figurative expression; so unequal are the terms of ordinary language to give a picture of the sufferings of the gout. He represents the pain as that of "a dislocated bone," and sometimes as "from the gnawing of a dog." He adds, that "the membranes of the parts affected become so exquisitely painful, as not to endure the weight of the cloaths, nor the shaking of the room from a person's walking briskly therein." And hence the night is not only passed in pain, but likewise with a restless removal of the part affected from one place to another, and a continual change of its posture. Nor does the perpetual restlessness of the whole body, which always accompanies the fit, and especially in the beginning, fall short of the agitation and pain of the gouty limb."

One lady informs me, that in her most painful

fits, she suffers still more distress from nervousness and general irritation, than from the pain itself.

In examining the symptoms of seventy cases of gout, which I have recorded in minute detail, I find that in forty-seven of the whole number, *cramps* are mentioned, more or less strongly, among the sufferings incidental to the gouty constitution; and, almost without exception, are described as being urgent either just before the paroxysm, or during its height, or just at the close; and with some persons, at each of these periods.

The muscles situated on the thigh and leg are the most frequently affected; but those which move the toes, and fingers; the diaphragm; the muscles of the chest, the abdomen, and even of the ribs, are not spared in this painful affection. Almost any change of posture serves to produce the spasmodic action when the disposition to it prevails. I have seen a patient instantly seized with cramp on the most careful attempt to extend the leg, when the gout was present; the gastrocnemii muscles becoming afterwards visibly trembling and convulsed. One person expressed, that with every spasm, he felt as if painfully electrified over the whole frame.

A general febrile action usually accompanies the local inflammation. This febrile action is symptomatic, and, together with the pain and increased disorder of the affected parts, returns at night, and remits when the local symptoms become

relieved in the morning; but when the local symptoms do not remit, the febrile irritation is also constant. In the evening, and sometimes in the day, the patient complains of transient chills, affecting the frame generally; or, in a more partial manner, they run in the course of the spine alone Some suffer this symptom together with much lowness of spirits, on first going into bed: and it is followed by an irregularity in the distribution of the animal heat; one part having the sensation of dry and burning heat, another of *marble* coldness. When a strong inflammatory diathesis is present, or after an excessive application of some of the exciting causes, the action of the heart and arteries is violently and permanently increased; and universal heat of skin with the usual symptoms of pyrexia, are proportionally urgent.

Painful hæmorrhoids, with occasional discharge of blood, sometimes accompany the gout.

The same internal causes which support a tedious and harassing continuance of the fit; or, as Sydenham has well expressed it, "the chain of fits," also often induce a severe relapse, at a moment when the patient flatters himself with the expectation of recovery. In this condition of the constitution, a relapse may follow a slight application of any of the remote causes.

The restoration of general health and vigour sometimes precedes the recovery of the limbs; but at other times is delayed till long afterwards. In old and violent gout, the lameness and tenderness

of the affected parts continue very permanent; the patient cautiously chooses the most even ground for his walking exercise; and still, with every care, his foot sometimes turns suddenly as if it were dislocated.

With respect to the length of the interval between the paroxysms, Sydenham has observed, "According as the immediately preceding fit has been more or less severe, the following fit comes on in a longer or shorter space of time; for, if the last fit proves violent, the next will not attack the patient till the same season of the year returns again."

This observation is not without its share of truth; but it may be remarked, that the benefit of a longer respite is in this manner dearly purchased; nor is the advantage certain. A long and violent fit is often succeeded by another of equal magnitude, in the same year.

Finally, it may with little exception be stated of the gout, that it acquires strength with each returning fit, both as to the number of parts which it attacks, and as to the duration and degree of suffering; and that it does not, like some chronic diseases, wear itself out by repetition, and yield to the friendly power of time. Both constitutionally and locally, also, the susceptibility to the disease increases. A premature old age comes on; and, together with crippled and painful limbs, the nervous system is so enfeebled, that both mind and body grow less equal to sustain the conflict.

Such is the melancholy but faithful portrait of the disease, when it is permitted to pursue its *natural course;*—such is the sad and certain tyranny of *neglected and encouraged* gout!

SEQUELÆ OF ACUTE GOUT.

The sequelæ, or occasional consequences of acute gout, may be divided into those which are *constitutional*, and those which are *local*.

The chronic form of the disease is of frequent occurrence.

The same state of system from which gout has been much produced, sometimes give rise to apoplexy, and paralytic affections; and very usually induces habitual cramps, and much nervous irritation and wandering pain.

A diseased condition of liver, sometimes proceeding even to a material change of structure, belongs to the train of gouty evils; for seldom indeed is the action of this organ healthy either before or during the paroxysm. In two very gouty females, I have met with chronic splenitis. Such, at least, was my view of the disease. For the reasons already stated, hypochondriasis is a common consequence of frequent gout.

The stomach often becomes permanently weakened; or even where it continues in due vigour, as far as is judged of by the appetite, it is found that an impaired state of the digestive functions, with

irregular action, and generally a sluggish condition of the bowels, are almost the certain consequences which follow a long series of gouty attacks.

Irritation of the urinary organs, and gravel, occur rather before and during the paroxysm, than in the interval; and according to my experience, calculus of the bladder is a very unfrequent complaint amongst gouty persons. The contrary opinion appears, however, to prevail. *Sydenham*, after enumerating the effects of the disease, "in the pain, lameness, inability to motion of the parts affected, the sickness, and other symptoms," adds, "the gout breeds the stone in the kidnies in many subjects; either because the patient is obliged to lie long on his back, or because the secretory organs have ceased performing their proper functions; or else because the stone is formed from a part of the same morbific matter; which, however, I do not pretend to determine. But from what cause soever this disease proceeds, the patient is sometimes at a loss to know whether the *stone* or the *gout* be most severe."

*Morgagni** relates the case of an arthritic patient, who had also *nephritis calculosa*. He died apoplectic. On examination after death, it is stated, "The kidnies were found larger than they naturally are, but the right was the largest; so that, together with the fat whereby it was covered, it was almost equal to the size of a man's head.

* Ep. LVII.

Therein were eleven stones; most of them large and ramifying. In the left was one, and that also was ramified and small. They resembled, in colour and branches, black coral." Morgagni, in another part of the same Epistle, observes, "The calculi of the kidnies are often joined with the gout."

In investigating the question of the occurrence of the calculus in the bladder (the disease which we call the stone), in those subject to gout, I find that among one hundred and twenty-seven persons, four only were so afflicted. Of the gravel, I shall again speak more particularly.

The local changes produced by the gouty inflammation are various.

The ligaments become thickened, shortened, much deprived of their elasticity, and habitually tender.

The bursæ mucosæ acquire a state of permanent distension, and are sometimes enlarged to a great size; their contents occasionally become so much inspissated, as to constitute hard, solid tumours, which, in some instances, are with difficulty distinguished from bone itself.

The secretion from the sheaths of the tendons is also vitiated in a similar manner; and hence arise the thickened knotty feel of gouty tendons; their hardness, contraction, and rigidity.

The muscular aponeurosis sometimes becomes thickened and contracted from gouty inflammation; and the muscles themselves apparently be-

come shortened from the influence of frequent spasm. This morbid change in the aponeurotic texture, in a great degree restrains the moving powers beneath it, from their necessary freedom either of flexion or extension. In one patient, who has suffered repeated severe gouty inflammation in the gastrocnemius muscle of one leg, I find such a state of *board-like* hardness, as to conclude, that adhesion has taken place, between the aponeurotic texture and tendinous fibres of the muscle, and the covering integuments.

A varicose state of the veins of the legs causing habitual sensations of achings, fulness, and heat, not unfrequently occurs in old gouty persons; and is occasionally accompanied with purple cutaneous spots (blotches); and, though more rarely, with ulcerations of the skin. In the legs of three gouty men, advanced in years, I have seen *icthyocosis* existing in a very great degree.

Dr. Munro, jun. observes*, "The extremities of the bones of the feet and hands have been said to be occasionally converted into a white substance like chalk, in persons who have long been afflicted by gout." From my own examination of the parts in the living subject, and in morbid preparations, I am induced to think that the bones do not suffer any morbid change of structure from the influence of gout; nor that this happens even to the periosteum. It has not appeared to me, that the gout fixes so deep as this texture.

* Outlines of Anatomy, vol. i. p. 154.

In the interesting case of dissection of a gouty person by Mr. Watson, the following account is related: "On the middle of the right tibia, there appeared an oblong tumour resembling a node; over which, the integuments were very thin and ready to burst. It was a mere deposition of chalk-like matter, between the skin and periosteum, and, though thick and large, had not as yet done any injury to the bone." The author also states, "One of the great toes was found to be much enlarged; and, upon dissection, the first joint of it was found to be enclosed in a bed of chalky matter like a fossil shell; but the bone itself was neither increased in size, nor altered in its texture*."

The gouty concretions (commonly called *chalk stones*) occur only in a few individuals of particular gouty idiosyncrasy. They result from an inspissation of the peculiar morbid secretion which constitutes their composition, and are found in various situations from within the synovial membrane of the joint, even to the layers of the cutis. I have found them in the living subject, filling the bursæ, and condensed to great hardness; in the sheaths of tendons, feeling almost stony; in the cellular membrane, either in hard or soft lumps; and under the cuticle, pressing for escape.

In one gouty person who comes under my frequent observation, the concretions near the surface have caused numerous ulcerations both in the

* Medical Communications, vol. i.

hands and feet, and the chalk-like matter is constantly secreted. I have met with many similar cases of less extent.

In three persons who have gouty concretions both in the hands and feet, I have found a remarkable state of hardness in the nails of the toes and fingers; possessing an extraordinary brittleness; frangible, and scarcely capable of being cut.

In very confirmed cases of concretions in the hands and feet, the fingers and toes present a sad spectacle of disorganization. When the deposit is external to the joint and contained within the bursæ, or the thecæ of the tendons, the finger or toe is stiff almost to the degree of a perfect anchylosis. When within the capsular ligament, ulcerative absorption takes place; the cartilage becomes removed; and one or more of the phalanges receive a distorted position from the action of muscles. I have seen from these causes, a finger and a toe drawn across the others in a completely transverse manner; and distortions in a less degree are always found in cases of this description.

In the Hunterian Museum at Glasgow, I examined several preparations, shewing the changes of structure caused by the concretions of this kind; and I here offer the written account of them*, which I copied.

" L. L. No. 26. s. A finger from a gouty

* The statements were chiefly in the hand-writing of Dr. Baillie.

hand; a joint opened, and bent upon itself, to shew the cartilages eroded a little.

"27. Ditto very much eroded, the joint full of chalk-like substance.

"27. a. s. Ditto, the joint invested every where with a thin layer of chalk.

"28. s. Thumb from the same hand, shewing the same effect.

"29. s. Another thumb, shewing the same.

"29. a. s. Ditto.

"29. b. s. Another thumb; the chalk accumulated about the joint in considerable quantity.

"30. The account omitted."

I am favoured by my friend Mr. Brodie, with the following clear and interesting particulars of the dissection of a gouty person.

"*External Appearances.*—Several joints of the fingers were anchylosed, and the fingers variously distorted. The middle finger of the left hand was shorter than the rest, and the skin over it was loose. The bone of the second phalanx appeared to have been nearly absorbed, so that there were scarcely any remains of it; and there was only a small quantity of soft substance in its place.

"The right wrist and elbow were anchylosed, as were also several of the joints of the toes. The knees admitted of incomplete flexion and extension, and the motion of the joints was attended with grating.

"In various parts of the body there were orifices in the skin, communicating with membra-

nous cysts, situated in the adipose substance, and discharging a chalky fluid of the consistence of cream.

"*Dissection.*—The pleura pulmonalis and costalis were universally adhering. The stomach, spleen, liver, and gall bladder, adhered universally to each other, and to the contiguous parts. The gall bladder contained two large gall stones. There were no other preternatural appearances in the thorax or abdomen.

"There were no remains of the cartilages of the left knee. The corresponding parts of the patella and condyles of the femur were worn into grooves and ridges, evidently from friction on each other: presenting, however, a compact surface, and not exposing the cancellous structure, as would have been the case, if friction had taken place in the dead body. A thin layer of white chalky matter was deposited on the bones, where the cartilages had disappeared, in several places. On the margin of the articulating surfaces were several small exostoses. The ligaments and the synovial membrane were in a natural state, with the exception of the thin layer of the latter which is extended over the cartilages, and which had disappeared like the cartilages themselves.

"In the right wrist, the first row of the carpal bones were united by long anchylosis to each other, and to the radius.

"The other joints were not examined."

"The patient was an elderly female, who had

been subject to severe attacks of gout for many years, and who was supposed to have died of a cancerous affection of the stomach."

Of the active influence produced on the absorbent vessels by the stimulus of gouty concretions when deep seated, the following account of a case, which has been obligingly sent to me by Mr. Howship, further serves as a demonstration.

"A female, aged 43, had for many years suffered severely from gout. The attacks of the disease, at first confined to the first joint of the great toe, subsequently affected the articulations of the fingers, the wrists, and the heels; ultimately the hands were almost covered with tumors, the action of the joints of the fingers being all either much impeded, or quite destroyed, by the repeated effusions of chalky matter.

"For the space of three or four years the disorder manifested itself principally by very extensive, painful, and tedious inflammation of the heel, which ulcerated, and threw out a copious and long continued secretion of chalky as well as purulent matter; and no sooner was the one heel recovered, than the other became affected in the same way.

"In 1815, this patient, still confined to her bed, and totally helpless from the inflamed and ulcerated state of the heel of the left leg, experienced a very smart attack of erysipelatous inflammation upon the right leg; and when this began to give way, violent inflammation took place lower down at the ball of the great toe. The integuments co-

vering the joint soon sloughed out, and exposed a deep ulcerating surface. A little dry lint covered with a warm poultice, was the only application made to the parts, which were examined daily. About a fortnight after the separation of the slough, some white matter made its appearance at the bottom of the ulcer, and was removed with the dressings. A few days after this, a mass of soft chalky substance as large as a pea, was seen, and was turned out with the end of a probe. In the course of a week, I observed that the same appearance had again taken place, and that the chalky secretion was deposited in exactly the same part of the ulcer, as before; and it seemed to be deeper seated than the surface of the head of the metatarsal bone. I therefore made a particular examination with a probe, and thus ascertained that part of the surface of the bone was removed; the margin of the opening being readily felt all round among the granulations. Within this space, there was a depression answering to the form of each of the small masses of chalk that had been previously removed. The ulcer, even within the cancellated texture of the bone, looked tolerably well; it was covered with granulations, and secreted healthy pus.

"This peculiar secretion continued for some time; a fresh deposit of compact chalky substance being protruded, and removed from the ulcerated space within the bone, every few days, for several weeks. At the termination of this period, the action lost its specific character, and the wound healed.

" This unfortunate patient, whose case I have already adverted to, in my Practical Observations in Surgery, as exemplifying the symptoms produced by gouty affection of the brain, eventually fell a victim to the disease.

" The above case affords an instance, in which, the capillary arteries within the cancellated structure of bone evidently took up the specific action of gout, by secreting the chalky matter peculiar to that disease. It appears to me, that the irritation from the inflamed surface, had, in the first instance, considerably disturbed the circulation upon the membranous expansions lining the cancellated texture of the affected part of the bone, increasing the activity of its powers, both in secreting and absorbing. In the papers published in the Medico-Chirurgical Transactions, on the Formation, Structure, and Diseases of Bone, I have already stated, that the first effect of a certain degree of irritation falling upon the membranous sheaths and expansions within bone, is a change in the state of the membranes, which, from being thin and transparent, become granulated and opake, from increased vascularity ; and that absorption of bone, more or less extensive, is one of the earliest consequences of this change.

" The circumstance of the bone having been in the present instance partially removed by absorption, argues no new rule for the treatment of such cases ; but the secretion of the urate of soda by the capillary arteries within the bone. affords a very curious, and at the same time a very interest-

ing proof, that the circulation within the ossific parts of our fabric, is not governed by laws differing from those that regulate the soft parts of the body; being equally subject to feel the effects of any transient impression, dependant on accidental surrounding circumstances."

With respect to the ossific changes which were produced in these cases, and which, in the first, were so numerous and remarkable, it appears to me necessary to consider them as wholly secondary; and, as being an effect of ulcerative absorption, occasioned by the stimulus of the uric compound confined within the capsular ligaments, and acting as a foreign body. It would seem to be more easy for nature, to remove by absorption, the bones pressed upon and resisting this deposition from the morbid action of the extreme vessels, than to exert her *vis medicatrix*, in putting a stop to this action of vessels, when there should be too little space for the bone and the secreted matter, both to be contained. On the subject of these concretions, I shall have occasion to remark further, at a future page.

THE REMOTE CAUSES OF GOUT, PREDISPOSING AND EXCITING.

Although I shall treat of these different causes separately, it is obvious that the distinction is in some degree artificial. The accidental and stronger application of some of the predisposing causes, as

for example, diet, strong liquors, &c. is sufficient to render them exciting causes ; and the effect which is thus produced, will be in relation to the state of the system ; and will be proportional to its readiness to take on the gouty action.

PREDISPOSING CAUSES.

Hereditary predisposition.—By Dr. Cullen, and by writers in general, gout has been too expressly defined an *hereditary* disease. In conformity with this character, the offspring of the gouty parent should seldom escape from having the disease ; and still less, should we find, that in the list of its subjects, the examples of acquired gout, *not* hereditary, form the most numerous class With a view of obtaining accurate information on this subject I instituted the following comparison :

Of one hundred and thirteen patients, the number of those, in whom the disease was

Hereditary from the father, was.....32
——————— mother, ... 9
——————— father and mother, ... 3
Of those whose grandfather only had gout, 6
——————— grandmother only had gout, 1
——————— uncle only in the family had gout, ... 3
——————— aunt only in the family had gout, ... 1
Not known either on the father's or mother's side, ...58

From this statement it appears, that the cases of acquired gout, in which no family reference could be traced, were to the rest, as 58 to 55; and in the examples contrasted with those immediately hereditary, as 58 to 44.

Morgagni mentions his own gout as original. Heberden observes, "I have known a female who suffered by the gout, to the degree of having numerous sores from chalk stones, though it had never been heard of among any of her relations." One patient, a butcher, who cannot trace gout to any former generation in his family, informs me, that he and his three brothers suffer the disease in a very severe degree. He has two sisters, one of whom is much afflicted with gravel.

Cadogan asserted of the gout, that "it is not hereditary." In the fair acceptation of the expression, this is inaccurate; but still it comes nearer to the truth than the opposite and more prevailing doctrine. I speak of hereditary disease, as one depending on similarity of organization between the parent and the child, although it is of too delicate a nature for the observation of our senses, and for direct detection. In the same manner as the natural functions of the body depend on particular structure, so we must conclude to be the case with regard to many diseased actions, which are of a specific nature; such as scrofula, cancer, idiopathic phthisis, or *hereditary gout.*

In my former observations on this part of my subject, I too hastily concluded, that the tendency of the gout to appear early in life, and severe, was

the most strongly manifested in those who possessed the hereditary disposition to the disease. I have now put this question to the test, in examining the cases of sixty-eight persons under my own care, who have had gout in a very severe degree; leaving out of the comparison, all the other cases which I have seen, of a mild description. From this estimate, the following result appears.

In Men Acquired.

Beginning between the 20th & 30th year,..11
——————— 30th & 40th year,..15
——————— 40th & 50th year,.. 7
——————— 50th & 60th year,.. 1

In Men Hereditary either from the Father or Mother.

Beginning between the 20th & 30th year,.. 7
——————— 30th & 40th year,..12
——————— 40th & 50th year,.. 3

In Women Acquired.

At the 18th year, ... 1
—— 20th year, ... 1
—— 26th year, ... 1
—— 34th year, ... 1
—— 40th year, ... 1
—— 46th year, ... 1
—— 57th year, ... 1
—— 60th year, ... 1

In Women Hereditary either from the Father or Mother.

At the 37th year, ... 1
—— 47th year, ... 1
—— 52d year, ... 1
—— 64th year, ... 1

In reading over my details of the cases of men, here alluded to, I find the examples of highly inveterate gout to have been on the side of *the acquired portion*, contrasted with the hereditary, as 18 to 8. Of the female patients, the comparison affords four on each side.

The proportionate number of cases of *extreme severity*, in women, is, in this comparison, on the side of hereditary gout. This part of the question appears to me very fairly determined, as it respects male gouty patients; but a larger series may be thought necessary, as it relates to females. I must retract the following observation which I formerly advanced: "it very seldom happens that a female has the gout, whose parents have been free from it." The present comparative view is in contradiction of this position. Of the rare occurrence of the disease among women, as contrasted with its frequency among men, I shall make a separate consideration.

Dr. Adams, in his late Treatise*, has drawn a distinction which appears to me not very well founded, between the disposition and the predisposition to a disease. He attaches the strongest signification to the former of these expressions (for they are only expressions); a signification, which as the word is compounded, is surely rather due to the latter. The epithets of strong and slight, in connection with either expression, would, I conceive, make the distinction sufficiently clear and

* On the supposed Hereditary Properties of Diseases, &c.

marked. The author, after having defined his terms, observes, " If it were true in all as it is in most cases, that the habits of the sedentary and healthy are necessary to induce the gouty action, there could be no question, that it is only hereditary in predisposition; but in some, the susceptibility to gout is so strong as to require no other stimuli for inducing the action, than such as seem absolutely necessary for the support of ordinary health. In *gout*, therefore, we must admit the two degrees of susceptibility, *disposition* and *predisposition*, nor will it be often difficult to fix their exact limits." In his fundamental arrangement of the subject, the following view is offered: " Diseases either appear at birth, in which case they are called *congenital* or *connate;* or they arise afterwards. The first only can with propriety be called *hereditary* or *family diseases*; all others we should consider as *hereditary* or *family susceptibilities* to certain diseases." This distinction seems both judicious and necessary; but the reference in each case, must, I apprehend, be made to *structure*. For myself, I confess, that I cannot form any satisfactory notion of hereditary quality, either healthy or morbid, which is not founded on structure. With respect to gout, we see in numerous instances, that the parents, either father or mother, of one or more children, that when adult, have sooner or later become gouty, had not themselves the disease until many years after the birth of such child or chil-

dren. The disease is not the less hereditary in the legitimate meaning of the term, because the susceptibility which is transmitted from the parent to the child, appears at an advanced period of life, instead of being *connate*, or instead of occurring before the age of puberty; and with regard to gout, it seems, that at this early period of growth, the actions of the system oppose its production. By way of illustration, though the analogy be but faint, I may make reference to the personal resemblance which a child acquires as he grows up, to his father or mother, or more distant relations, and which is not manifested at the infantile age. A gradual developement of function, in connexion with the constitutional tendency to particular diseases, is matter of daily and familiar observation; and equally implies, as it appears to me, a similarity of structure, brought to maturity by years.

With respect to *family* disposition to gout, and its dependance on hereditary influence, or upon other causes only; the comparison which I have made, presents the following results. I have found as many of the individuals of a family affected with the disease, and with as much severity, where it has not been known either on the father's or mother's side, as in the opposite instances, in which, either one or other of the parents has been gouty. In one family, three brothers and a sister, out of six children, have been severely affected; in another, also consisting of six, four brothers have suffered

very aggravated gout, and the two sisters only have escaped. In these examples, the disorder was not known in the two preceding generations. On the other hand, in one family, the father and his two sons and a daughter, out of five children, have had severe gout; in another, the father, mother, and all the sons and daughters, four in number, have been afflicted. Its confinement to one or two only in the number of a large family, is also to be noticed. Thus, out of fourteen children, but one brother and one sister had gout; and this was acquired without any share of hereditary influence. In another family, of ten children, the father had gout, and one son only was affected; but he very severely. Such is the variation which prevails; and in the endeavour to discover a general rule of conclusion, I can only say, that, cæteris paribus, those individuals of a family, whether either parent may have had the gout or not, will be the most liable to the disease, whose bodily conformation, constitution, and temperament, and particular habits of living, shall be most conducive to that particular state of the system, out of which I consider the gout to arise, and of which I shall treat in regular order. But before I take leave of the subject, I must remark, that in the case of one or two only out of a large family of children being affected, although one or other of the parents has had the disease, I have in two or three instances distinctly found the personal resemblance to the gouty parent, to be

much stronger in the gouty child than in any of the other children. When *both* parents have gout, we may expect the disposition to the disease to be manifested in *several* of the children. I have not yet met with an exception to the fact. Much is certainly to be assigned to the influence of hereditary claim; but authors have hitherto greatly mis-stated the question.

The adult age.—The exemption of youth from the gout, is a striking character of the disease. As some explanation of this phenomenon, it appears to me, that during the rapid growth of the body in the early years of life, that plethoric state of the system, which is connected with more or less of congestion in the system of the vena portarum, and upon which, I consider, that a first fit of gout in particular, so much depends, does not take place. The diseases which occur below the adult age, affect more particularly the general arterial system. It is true that in youth, there is an absence of many of the strong predisposing causes of gout, but not to the extent of serving as a sufficient explanation of the point in question. The gout does not usually take place, until many years after the full and continued operation of all the indiscretions and irregularities, which belong to the early life of the adult.

I am persuaded that the commonly-asserted cases, which represent the existence of the gout in early youth, are really examples of rheumatism.

Some gouty persons have given me confident assurances, that their first fit took place at fifteen; and one gentleman declares, at seven years of age. I am sceptical as to the accuracy of these statements, at the same time that I admit the occasional exception to the general rule, in the occurrence of the gout between the fifteenth and twentieth year; but at an earlier period, it would be a singular phenomenon.

Sydenham remarks, "I have not hitherto found children, or very young persons, affected with the true gout."

Hippocrates has an aphorism on this point, which may be thus translated: Puer non laborat podagra, ante veneris usum. Aph. xxx. Sect. vi.

Heberden says, "I never knew a certain instance of the gout beginning before the age of puberty*. Sydenham, in speaking of the gout in females, is erroneous in stating that it "attacks only aged women." The disease does not certainly make its invasion so early in the female sex as in men; but it seldom waits the period of very advanced years; and I know one female who was attacked with gout at the ball of the great toe, at the age of eighteen. The fit was of tedious duration, and irregular in its progress. The disease was not known in her family; but in her structure, temperament, and some of her habits, there was abundant illus-

* Commentaries, p. 33.

tration of several of the causes of predisposition, of which I am now treating.

The following tabular view exhibits the period of the first attack in one hundred cases:

At the age of eighteen	1
Between twenty and twenty-five years of age	11
twenty-five and thirty	23
thirty and thirty-five	19
thirty-five and forty	22
forty and forty-five	4
forty-five and fifty	11
fifty and fifty-five	4
fifty-five and sixty	3
sixty and sixty-five	2

I have not myself witnessed more than one example of a first attack, before twenty; nor any after sixty-five.

Particular bodily conformation.—It may be observed of gouty persons, that for the most part, they are formed with a capacious and circular chest; and that they have large full veins, and loose solids. Even in those examples, in which the veins are small, they usually appear very much distended, when the gout is approaching. In relation to stature and bulk, I have made a comparison in one hundred and fifty-six examples, the results of which are as follow:

	Males.	*Females.*
Tall and corpulent	47	9
Short and corpulent	16	8
Middle height and corpulent	30	3
Middle height and slight	3	0
Middle stature and bulk	12	1
Tall and middle bulk	6	0
Short and middle bulk	10	0
Short and slight	9	2
	133	23

This statement confirms the observation of Sydenham, that the gout chiefly attacks the gross and corpulent; but his opinion, "that such as are liable to this disease have large heads;" and Cullen's, that it attacks especially "men whose skins are covered with a thicker rete mucosum, which gives a coarser surface," I cannot, from attentive investigation, discover to be founded in truth.

Of the fourteen persons classed in the above calculation as short and slight, or of middle height and slight, twelve had *hereditary* gout.

Constitution and Temperament.—I believe it may with truth be affirmed, that the gouty in general possess good constitutions, *abused* by habits of indulgence; and hence the familiar adage, "Gout is the disease of those who will have it." A corpulent state* of body usually precedes the invasion of the disease, and in many persons increases with its progress; but when its miseries

* Corpulence is often such an excess of health, that it is really the beginning of disease.

are frequent and severe, loss of flesh, either partial or general, becomes a certain consequence; and this sometimes proceeds even to emaciation. On the *temperament* of gouty persons, Dr. Cullen remarks, "If with the ancients, we might ascertain, by certain terms, the temperament of men, I would say, that the gout attacks especially men of a *cholerico-sanguine temperament*, and that it very seldom attacks the purely sanguine or melancholic. It is, however, very difficult to treat this matter with due precision." I entirely accord with the author in the concluding part of this quotation. We should, however, aim at greater precision in our terms, in relation to the subject of temperament, than is met with in the medical nomenclature even of the present day. The notions of the ancients on this point, together with their general opinions on disease, were so much obscured by the extreme doctrines of the humoral pathology, and so much blended with fiction and wild hypothesis, that in our practical language we necessarily cease to employ their terms; yet they are still retained in books, and without any spirit of improvement being attempted.

The term temperament, as an expression for the particular character and bias of the living actions, marked in the original stamp of the constitution, and more or less evinced through life, is convenient in use, and forcible in meaning; and at the same time that we reject a few of the ancient epithets, which were applied to the supposed

morbid states of the blood and secreted fluids, we may preserve some arrangement on the subject with every advantage.

My present limits permit me only to be brief; but I would be tempted to propose a simple distinction into two kinds of temperament; the sanguineous, as designating that peculiar to persons in whom common inflammation is easily produced; and the *nervous*, as applying to those constitutions in which inflammatory action is excited with difficulty, but in which a morbid sensibility of nerve distinctly predominates; while the combination of the two, in different proportions, may be denoted by the expressions sanguineo-nervous, or nervo-sanguineous. Particular morbid tendencies I would express by the ancient term *diathesis* (διαθεσις), signifying disposition, as gouty diathesis, bilious diathesis, dropsical diathesis, &c. The term *melancholic*, though physically to be referred to the structure of the nervous system, may be applied with propriety to the mental disposition; and to this term may be contrasted that of *lively*, that is, possessed of vivacity. The terms *irritable* and *nervous*, as applied to the nervous system at large, are very synonymous in their usual acceptation; but probably it would be correct to apply the term *irritable*, to the morbid sensibility of nerve which is associated with quickness and vehemence of temper, and energy of mental action; and that of *nervous*, to the association of a *similar* state of nerve,

with weakness of spirits and more timidity of mind.

Gouty persons exhibit in the full and dilated state of their veins, strong marks of a stimulated circulation connected with weak vessels: and I concur with Dr. Cullen in the opinion, that they possess a mixed temperament. Even in the acute state of the disease, they can employ powerful stimulants (although such stimulants are always improper), without the same degree of injury, or the same certainty of producing it, as would follow in most kinds of inflammation. They are usually highly irritable and nervous, not only from being so rendered by the sufferings of the gout; but for the most part, from the influence of their original constitution.

The Male Sex.—The comparative infrequency of the gout in *females,* naturally suggests the inquiry,—Whence does the male sex derive its peculiar predisposition to the disease, if its greater frequency in them really arise from a stronger predisposition? But if not, what other causes for this fact can be assigned? The more common occurrence of this disease in men than in women, must, without doubt, be principally referred to the chief remote cause, excess in living, and especially excess in wine, being applied in a greater degree by the former. But in addition to this circumstance, the superior delicacy of the female structure and habit, puts some restraint on the acquire-

ment of the inflammatory and plethoric state of vessels which appertains to gout. The actions of the uterus are not without effect in counteracting a general redundancy of blood*. A gout of imperfect developement, or of a chronic form, is more common in women than in men. It is of unfrequent occurrence in the former, unless with the concurring influence of strong hereditary predisposition. In the few exceptions which do occur to this general rule, we meet with the circular chest, large full veins, relaxed solids, and tendency to corpulency, which have been already described as prevailing in gouty men.

Station of Life, and Occupation.—Sydenham, speaking of the calamity of the gout, says, with equal modesty and beauty of expression, "But what is a consolation to me, and may be so to other *gouty* persons of small fortune and slender

* Hippocrates gives an aphorism on this subject (Aph. xxix. Sect. vi.), which is usually thus rendered. Mulier non laborat podagra, si non menses ipsi defecerint. In the Medical and Physical Journal, No. 214, the Reviewer has called in question the accuracy of my interpretation of this aphorism. He attaches to the word defecerint, very improperly as I think, the literal signification of *deficient*, considering it as a comparative expression. To me it appears clear, that the Greek word in the aphorism εκλιπη signifies dereliquerint, or having left entirely. Those females who suffer gout are such as are very liable to *menorrhagia*, and have the disease either at the early part or about the middle of life; or those who have been so liable, and have the gout come on a few years, sooner or later, after the final cessation. It is at the latter period that the gout most occurs with females; and to this, I think, the aphorism is intended to apply.

abilities, is, that kings, princes, generals, admirals, philosophers, and several other great men, have thus lived and died. In short, it may in a more especial manner be affirmed of this disease, that it destroys more rich than poor persons, more wise men than fools; which seems to demonstrate the justice and strict impartiality of Providence, who abundantly supplies those that want some of the conveniencies of life with other advantages, and tempers its profusion to others with equal mixture of evil; so that it appears to be universally and absolutely decreed that no man shall enjoy unmixed happiness or misery, but experience both: and this mixture of good and evil, so adapted to our weakness and perishable condition, is perhaps admirably suited to the present state*."

Since the period at which these sentiments were entertained, luxury has so much increased among the whole community, that the gout sometimes finds entrance even into humble dwellings. In London, amongst the inferior classes, I have observed butchers, innkeepers, butlers, and porters in wealthy families, to be very subject to gout. It is also frequent amongst coachmen, chiefly such as live in families; for, together with much excitement from liquors, they are constantly exposed to the variations of the weather. In short, such sta-

* In a similar spirit of moral reflection, the Poet happily expresses himself:—

"O fortunatos nimium, sua si bona norint
"Agricolas!"— *Georg.* II. 458.

tions and occupations as most induce repletion and inactivity, or full living with only passive exercise, lead to gout; and even in some constitutions, in which there is great tendency to plethora and corpulency, moderate indulgence in diet, notwithstanding active exercise, seems to implant the disposition to the disease.

State of Mind.—The influence of the passions on the bodily health we know to be at all times powerful; but as far as respects the gout, I think that the depressing passions have the strongest effect. Grief and anxiety impair the healthy energy of the brain, primarily; and affect the digestive functions, the circulation and secretion of the liver, and the actions of the intestinal canal, in a secondary manner; thereby, in a gouty diathesis, predisposing to the disease.

Severe Study.—This cause comprising not only want of exercise, lateness and irregularity in the hours of rest and sleep, but also its consequences, weakness of stomach, and inactive bowels; by its effects on the nervous system, from the over-action of the brain, produces that form of irritative debility, which increases the susceptibility of the frame to disease, and consequently to gout, if such be the predisposition of the individual*. Sydenham mentions that his immoderate application to the com-

* The late Mr. Pitt, and his father, had gout at a very early period of life. The father was never a votary of Bacchus, and neither of *Venus* (as we are told); but both were *ardent students.*

position of his Treatise, occasioned him the severest fit of the gout which he ever had*.

Animal Food.—This, when taken in excess of quantity, not only weakens the stomach by distension, but stimulates and oppresses the whole digestive process, beyond its healthy power. In the form of high seasoned dishes, it proves a cause of morbid excitement, and induces such a false degree of appetite, that a quantity sufficient for several meals is often comprehended in one alone. An improper amount of quantity in the twenty-four hours, however divided, serves very materially to lay the foundation of a plethoric state; but in order that the gout may be excited, the influence of fermented liquors must be superadded.

Strong Liquors—Of these, in relation to the gout, wine, if in excess, is much the most injurious. The use of raw spirits destroys the appetite, weakens the tone of the stomach in a permanent manner, and even leads to disease of structure; so that although an inflammatory condition of vessels is produced, the *plethora* ad *molem*, as it has been called, is counteracted. Wine contains so much more of alcohol in a given bulk, than malt liquors possess, that it is probably from this cause, and at the same time from its not breaking down the energy of the stomach as spirits do, that it proves so active an agent in introducing the gout. Much of this effect also depends on the kind of wine which is taken, as the gouty know by constant ex-

* Dedicatory Epistle to Dr. Short.

perience. Champaign, bad claret, and new port, will predispose to the gout much more strongly, than equal, or even larger quantities of madeira and sherry; because, in addition to their equal or greater heating effects, they give rise to more acidity; from which, the stomach and alimentary canal suffer certain irritation. In a system, otherwise fitted for gout, or in the settled gouty habit, the limbs quickly suffer by sympathy. The light wines and acescent liquors made from our own fruits, contribute to the gravel rather than the gout; and raw spirits more particularly induce severe dyspepsia, obstructed and hardened liver, and dropsy. In comparing the influence of different liquors, it must be considered, that wine drinkers also partake much more largely of the solid luxuries of the table, than drinkers of spirits and malt liquors can do, and therefore produce more powerfully the combined effects of heating excitement and redundant assimilation. Dr. Rush, contrasting the diseases and remedies amongst the Indians of North America with those of civilized nations, makes the following observations: "I have heard of two or three cases of gout among the Indians; but it was only among those who learned the use of rum from the white people. A question naturally occurs here, and that is, why does not the gout appear more frequently among that class of people, who consume the greatest quantity of rum among ourselves? To this I answer, that the effects of this liquor upon those enfeebled

people, are too sudden and violent, to admit of their being thrown upon the extremities, as we know them to be among the Indians. They appear only in visceral obstructions, and a complicated train of chronic diseases. Thus putrid miasmata are sometimes too strong to bring on a fever, but produce instant debility or death. The gout is seldom heard of in Russia, Denmark, or Poland. Is this occasioned by the vigour of constitution peculiar to the inhabitants of those northern countries? or is it caused by their excessive use of spirituous liquors, which produce the same chronic complaints among them, which we said were common among the lower class of people in this country? The similarity of their diseases makes the last of these suppositions the most probable. The effects of wine, like tyranny in a well-formed government, are felt first in the extremities; while spirits, like a bold invader, seize at once upon the vitals of the constitution."

I saw lately a corpulent and robust man, aged thirty-four, labouring under very severe gout, for the fourth time. Both feet were affected. It was entirely acquired, and began at the age of twenty-nine. In the earlier part of his life, he had been constantly on the sea coast as a smuggler, and at the same time that he was exposed to the hardships of that irregular life, he drank two or three pints of hollands a day, during the long period of four or five years; with no other effect than being rendered very nervous, and occasionally dyspep-

tic. Afterwards, he became a bricklayer; and being possessed of property, indulged himself both in wine and porter, in addition to a slight use also of spirits. His exercise was much less active than formerly, and after about two years of this new mode of living, the gout came as the result.

In another instance also of a very similar kind, the patient, until he was twenty-eight years of age, led a country life, in a situation where he drank hollands freely and constantly. He then took the place of a butler in London, and entered upon the usual inactive habits of that situation, in concurrence with indulgence in wine and strong malt liquor, and abundant eating. His present age is fifty-nine; and during the last twenty-four years, he has not, in any one year, escaped a severe attack of gout. In this case, as in the former, the gout was unknown in the family; and each patient was of the make and temperament, which I describe, as the most predisposing to the disease.

Van Swieten states*, that the Dutch knew little of this disease till they changed their favorite beverage, beer, for wine. Linnæus informs us, that the Laplanders and many country people in Sweden, who drink malt spirits, but never wine, are strangers to the gout.

I am disposed to think, that in this country, and

* Commentaries, 1255.

particularly in the metropolis, gout is much increased in frequency among the lower stations of life, since the very general and free use of porter. This is a very nutritious fluid, and in conjunction with spirits, even with a moderate quantity of solid food, may be viewed as inducing the plethoric inflammatory state, and as a consequent introduction to gout.

In Scotland, gout is much more rare than in England. In Edinburgh, where the habits of the people approach the nearest to those of London, it is found most; but it is scarcely ever known among the inferior classes. In two thousand two hundred cases of disease admitted into the Royal Infirmary, as clinical patients under the care of Dr. Gregory, there were only *two* examples of gout. I also learn that Dr. Hamilton, who has been one of the physicians of the Infirmary nearly thirty years, and must in that course of time have admitted many thousand patients, has not seen more than two cases of gout, out of the total number of diseases under his care in that Institution. In the London hospitals, on the contrary, according to my recent inquiry, gout is by no means so uncommon; although, as it is not usual to admit cases of gout, its frequency in the list of hospital patients, must not be expected*.

* In the former edition of this Treatise, I committed a remarkable mistake with respect to gout, in my reference to the valuable paper in the Medico-Chirurgical Transactions, "On the Comparative Prevalence, Mortality, and Treatment of dif-

In Glasgow, the gout is very rare, even amongst the higher classes; and, in connexion with this fact, I may mention the following circumstances. Among a population of about 110,000 persons, which Glasgow and its environs comprehend, there are not, as far as I could learn, twenty private carriages in use. The demand for hackney coaches is so small, that the Proprietor has found it necessary to discontinue the regular stand, and the whole number of them does not exceed four or five. Sedan chairs are in common use with the ladies, but the gentlemen prefer the wholesome exercise

ferent Diseases; by Sir Gilbert Blane, Bart." The cases of gout, which I incorrectly stated as being in the list of the hospital patients, occurred only in the private practice of this physician; as the following quotation shews. "The diseases which stand most prominent for their prevalence among the upper classes of society, are gout, disorders of the stomach, and liver complaints. With regard to gout, there is not a single case of it to be found in the hospital list, whereas there are in the private list one hundred and thirty, constituting about a twenty-sixth part of the whole. No disease affords so strong a proof of the power of habits of life over health."

This calculation of Sir Gilbert's hospital practice, refers to the years from 1784 till 1794, and comprehends the number of 2406 patients. For the reason which I have suggested, it must not be concluded, that gout does not occur amongst that class of persons, who are admitted into the London hospitals with other diseases. At the same time, I grant entirely, that the prevalence of gout in the respective classes of society, proceeds in the exact ratio with the freedom used in animal food, strong liquors, and general indulgencies. The remainder of my argument I have already offered.

of walking; and as this city does not rank inferior to any other in liberal hospitality, the infrequency of gout must, in great measure, be imputed to the greater comparative activity of the people, and better regulation of the general habits, than belong to London. In Glasgow, also, punch is a more general beverage at the best tables than wine. Hence I often heard it facetiously remarked, "that punch keeps off the gout." It may certainly be said, that weak acidulated punch is much more diuretic than wine, and less heating in its effects. But although the argument may be maintained, that punch does not induce a predisposition to the gout, no one would deny that a free indulgence in this liquor must impair the healthy powers of the stomach, and lead to some serious disease. The lower orders in Scotland, who drink whiskey freely, and live chiefly on farinaceous and vegetable food, acquire severe dyspepsia, liver disease, and dropsy, or diabetes*; but seldom or never, the gout.

Indolence powerfully assists the predisposition to gout. It promotes the tendency of full diet to produce plethora, by its restraining the various excreting functions; and also prevents that regu-

* I am led to believe, from attentive observation, that *Diabetes* is considerably more frequent in Scotland than England; and that the opposite habits of the people in these two countries, such as I have described, tend, in a sort of respective ratio, to produce gout with the one course of life, and diabetes or dropsy with the other.

lar distribution, and due expenditure of the nervous energy, which the several secreting organs, and the healthy action of the brain, demand. It may be said to cause a morbid accumulation of nervous excitability.

Of facts, directly to illustrate the influence of the predisposing cause now under consideration, I might offer an ample list; but the following examples will be sufficiently in proof.

A gentleman, whose aunt only in his family had gout, of strong constitutional predisposition to the complaint, was first attacked at the age of thirty-five, when he was filling the situation of School-master in the country. His usual habit was to take animal food freely both at dinner and supper, with malt liquor, and either a small portion of wine, or a glass of mixed liquor. He described himself as carefully moderate in the use of liquor. The gout returned severely at short intervals. Soon after this he had occasion to travel into Ireland, during a period of nine months, and drank both wine and whiskey very freely; but his exercise was exceedingly active, and he was free from gout. Resuming again his sedentary life, although with more than his former care in his habits, the gout soon came back with violence; and in the course of its progress, has affected the feet, knees, ham-strings, hands, and elbows.

An officer, whose grandfather only in the family had gout, had been subject to severe attacks twice

every year. He was employed on very active service in Ægypt, for nine months, and often lay out on the sands protected only by carpets, the nights being cool and the days hot. He drank both wine and spirituous liquors very freely, and much more so than before or since; but his bodily exertions were excessive, and his mind was enthusiastic in his duties. He was quite free from gout. Leaving this station, he went to Gibraltar, and there becoming very inactive, in the course of three months, the disease returned with all its violence; and has ever since affected him severely, twice a year, as before.

Plethora.—A redundancy of blood in the general system, is certain to be a result of the combined influence of the three preceding remote causes; and appears, as far as I have observed, to be the condition most preparatory to the operation of the exciting causes. That form of plethora which is connected with congestion in the circulation of the liver, may certainly be considered as peculiarly concerned in the production of gout.

Nimia Venus.—From this cause, the nervous energy becomes unduly exhausted; much irritative debility is produced; and the digestive functions, together with the general powers of the system, are disordered. Habits of indiscretion, in this respect, are so constantly joined with the gratifi-

cations of the table*, that indirectly it may be considered a predisposing cause of gout. Sydenham describes this cause, as giving "the seeds of the gout;" and this position has some little truth; but I conceive that the agency which brings the disease forth, consists in the associated habits of living. Voluptuous passions, and the excesses of the table go hand in hand; and many of the gouty are not unjustly characterised in the Greek and Latin epigrams just quoted.

OF A MORBID STATE OF THE DIGESTIVE ORGANS, CONSIDERED BOTH IN ITS PARTICULAR RELATION TO THE GOUT; AND IN A GENERAL VIEW.

When we consider that gout is truly a disease of repletion, it follows as a necessary consequence, that the over-excitement of the stomach and chylopoetic functions, must lead to relative derangement and debility. Sydenham observes, "that upon a thorough attention to the various symptoms of the disease, he judges it to proceed from a weakened concoction both of the solids and fluids." This is

* The gout was saluted by the Greek poets as the daughter of Bacchus and Venus:

"Λυσιμελὴ Βάκχε, καὶ λυσιμελὴς Ἀφροδίτης,
"Γέννατα θυχάτηρ, λυσιμελὴς, Ποδάγρα."

And in the same sense runs the Latin verse:

"Ut Venus enervat vires, sic copia vini,
"Et tentat gressus, debilitatque pedes."

synonymous with the more modern language of unhealthy assimilation, which in quantity, and probably in quality, may be viewed as the parent source of the disease. It is in this, that the acquired predisposition, or that *not hereditary*, consists; and in most instances, the hereditary predisposition is aggravated by the same cause, before any developement of gout takes place. In a first fit of gout, and sometimes also in subsequent attacks, there is no very sensible disturbance of the digestive organs; but it does not follow that they are really in a state of healthy action. The patient judges only from partial indications. An active appetite is often joined with an unhealthy state of stomach, and particularly with an unequal performance of functions below this organ, after the food has received its first change. In the case of the *epicure*, there is much of artificial appetite, produced by the habitual and excessive gratification of the palate. The patient is often deceived into a belief, that being possessed of appetite, and apparent powers of stomach for the enjoyment and benefit of a hearty meal, his digestive organs cannot be in fault. But we must keep in view, that in the stomach itself, the important process of digestion only begins. Its next stage, and a very material one it is, takes place in the duodenum, and comprises the proper secreting action of the liver, and the healthy influence of the bile. The due excrementitious function of the bowels, constitutes also an essential part of the process of healthy

chylification ; and it may be fairly concluded, that upon the correct performance of these preparatory steps, the subsequent healthy and complete assimilation of the chyle into blood, will greatly depend. A morbid interruption to any part of the train of digestive functions, may become a predisposing or an exciting cause of gout, in the same manner as it is a cause, which commonly exerts an influence in other diseases.

The particular symptoms which arise, will, on accurate examination, generally indicate, with considerable fidelity, the particular seat of morbid action. On this head, I shall endeavour to offer some remarks, taking a general view of the subject.

When the stomach is the most affected part, the marks of indigestion are felt in the most sensible manner, by some or all of the following symptoms :—Heartburn ; eructations which are sour, attended with a sense of heat, and often conveying the odour of yesterday's meal ; a craving appetite, which does not become comfortably satisfied ; oppression after a meal, with painful sense of distension, and soreness of the whole epigastric region. To this account may be added, a furred tongue and clammy state of mouth, with viscid saliva, which is experienced especially in the first of the morning. In dyspeptic persons, in whom the nervous temperament predominates, the tongue is coated either with a white, or yellowish white fur ; but in those of the sanguineous temperament, the colour

of the fur is a deep brown ; or brown mixed with white. In the former class of patients, the complexion of the tongue is very commonly pale ; in the latter, quite red. But of all the appearances of the tongue, which indicate a debilitated state of the stomach in its greatest degree, is the cherry-red colour of the whole surface, with more or less of cracks in its substance, and a prominence of the papillæ. By these last characters, the pale tongue also, after a long duration of dyspepsia, is sometimes distinguished, and is to be considered as giving the most unfavorable evidence of the weak powers of the stomach. An extremely clean tongue, with streaks of white and red, is another distinct appearance, as the index of debility. Accordingly, as nervous irritation prevails in the general state of the constitution, a frothy appearance of the tongue and fauces, may, in addition to what I have above described, be noticed. Nausea, occasional sickness, flushings after eating a stimulating meal, a giddiness on sudden change of posture, and an uneasy or painful state of head, also occur. With this dyspeptic condition of stomach, the bowels are irregular, but for the most part torpid. The secretion of the urine is uncertain, both in quantity and in its properties. Sometimes it is deficient in quantity, of a deep colour, and of high specific gravity ; at others, abundant, pale and much diluted ; in which case, it is passed with much nervousness and irritation, but without difficulty.

When the chief seat of complaint is below the stomach, the tongue often bears an almost healthy appearance, and the appetite is strong, and for the most part regular. The symptoms are occasionally such, as are in common language called bilious; with which, a general sallowness, or partial stains of yellow in the skin, and a dark colour around the lower eye-lid, are more or less associated. While indigestion thus takes place in the intestinal canal, the stomach itself appears to be in too strong action, and prepares more food than can be afterwards converted into good chyle, and assimilated into healthy nourishment. All the secretions become vitiated. The bowels suffer much irritation, being often affected with painful excitement, fruitless of relief, and occasionally amounting to tenesmus. The peristaltic action is irregular; the fæces have an unnatural consistence and colour, and are peculiarly offensive. Sometimes they are passed as *pellets;* and when more formed by the bowel, it occurs, not unfrequently, that they are so contracted in size as to convey the apprehension of some stricture of the canal; but the effect appears to be really owing to the unhealthy state of secretions, and to spasmodic contractions of the bowel, irregularly occurring from irritation. The discharges are, however, much more commonly not formed, but are remarkably tenacious. They assume the appearance of pitchy blackness, or are muddy, or resemble dirty clay; and when the complaint has been of long continuance, an exces-

sive quantity of mucus is secreted in the intestines, which incorporates itself with the fæces, and sometimes exhibits almost the appearance of purulent discharge*. This mucus is to be distinguished from the gelatin-like appearance, which is seen occasionally in the evacuations, when the bowel suffers excessive irritation from an acrid purgative, or when under dysenteric affection; in which case, it appears detached from the fæculent matter, apparently almost organised from its firm consistence, and is indeed altogether different from the slimy accumulation before mentioned. This habitual mucous secretion has always appeared to me an indication, that the morbid condition of the alimentary canal has been of long standing. In the same manner we see the urine loaded with mucus, when the bladder is diseased, or under permanent irritation from a morbid condition of its contents. In investigating a disordered state of the digestive functions, frequent observation of the excretions is an essential source of information to the practitioner. Mr. Abernethy, in addition to his original and highly instructive views of the present subject, has laboured very usefully in exciting among the profession, an increased attention to these points. He observes, that "the colour of the alvine excretions in a disordered state of the viscera is various. Sometimes they appear to consist of the residue of

* If water be poured on these fæces, the mucus separates into small flakes.

the food, untinged by bile. Sometimes they are of a light yellow colour, which denotes a very deficient quantity of healthy biliary secretion. Any kind of brown which dilution will not convert into yellow, I should consider as unhealthy, since the colour of healthy bile is a bright yellow, which by concentration appears brown*."

It may be stated, that a bright yellow appearance indicates a fresh and hurried secretion of bile, and shews irritation rather than regular healthy action. A clay-like appearance is a sure indication of an obstruction of the bile into the duodenum ; and where the opposite colour is seen, sometimes to the degree of pitchy blackness, we may conclude, that not only the bile in particular is in a most unhealthy state, but also, that the secretions of the alimentary canal itself are much disordered. Another evidence of a wrong action of the liver, is very frequently found in the greenish appearance of the discharges from the bowels ; proving unequivocally a highly vitiated state of the bile. With this, there is often further attendant proof of derangement in the general secretions of the canal. It is objected by some, that conclusions drawn from the observation of the excretions are fallacious, because many of the appearances which have been mentioned, will be produced occasionally, in healthy persons, from irregularities in diet.

* On the Constitutional Origin and Treatment of Local Diseases, p. 35.

In answer to this, it may be affirmed, that such persons will have their feelings of comfortable health and tranquillity disturbed, in however transient a manner, when the alimentary secretions thus become vitiated. The occasional hypochondriasis which is experienced by many who enjoy general good health, will, I believe, on examination, most commonly be found connected with the faulty state of the digestive organs, and a corresponding indication in the appearance of the excretions.

More or less of jaundice usually accompanies the most urgent of the disordered functions which I have just described; and in proportion to the degree of this evidence, the nature of the complaint is apparent to common observation.

I have known in several instances, that a dyspeptic and bilious state of complaint has occurred as a preliminary, many weeks before a first attack of gout; and in such instances, the patient has found himself gradually becoming larger in the abdomen; oppressed at the stomach; and affected with many nervous sensations. Very lately, I saw a gentleman labouring under a first fit of gout, who, for two or three months before, had suffered an obstructed state of liver, with many attendant symptoms of derangement in the stomach and alimentary canal. So strongly was his nervous system affected, that, together with flutterings near the heart, and occasional palpitation, he was frequently seized with almost a loss of sight when

walking in the street. Sometimes objects appeared double; and much dimness of sight occurred on the slightest occasion. The whole of this sympathetic defect of vision yielded to a course of medicine; of which, mercurial purgatives formed a material part. Returning to some freedom of living, before the complete correction of the internal functions was produced, the gout arose.

In another case, attended with very similar symptoms, almost every attempt to stoop, as in the act of adjusting the shoes, was instantly followed by that sudden spasm of the diaphragm, which the patient describes as the cramp of the stomach. This symptom occurs chiefly with very corpulent persons; in those especially, in whom the nervous temperament predominates; but it also occasionally affects others, whose temperament is sanguineous. Thus it sometimes happens to the gouty patient, that when he is most complimented on his florid looks, and good appearance, the disease is making its insidious approach.

In those who have had frequent attacks of gout, the occurrence of urgent premonitory symptoms may be said to take place, chiefly in proportion to the degree of the abdominal visceral derangement previously existing.

From the connexion by structure which exists between the diaphragm and abdominal viscera, and the liver especially, the respiration is very commonly imperfect, and in some instances, is even difficult and painful on every occasion of

increased exertion, when a morbid condition of these parts is existing in any considerable degree. This disturbance may be produced in a transient manner, from the influence of disordered functions simply; or, may be the more permanent result of altered structure of contiguous parts.

I have seen this sympathetic affection of the diaphragm, in one case, amount to so great a degree of spasmodic asthma; attacking the patient periodically, at first twice, and afterwards once in the twenty-four hours; that each paroxysm was dreaded with horror, from the fear of suffocation. It was of three or four hours continuance, and until active treatment was adopted, the attack followed with certainty, and almost instantly, the least incaution either in the quantity or quality of the dinner meal.

In the dyspepsia of gouty persons, both in consequence of their temperament, and from the established influence of the gout on the nervous system, the severest state of hypochondriasis sometimes prevails. Under such circumstances the connexion of the functions of the brain with those of the digestive organs, is particularly exemplified; and a striking picture is seen of the reflected and mutual influence, which prevails between the mind and the body in disease. When that state of the system is taking place which is introductory to the return of the gout, the bowels fail in their regular action; the secretion of the urine is variable in quantity and in appearance; the patient becomes

sensible of enlargement in the abdomen, while the limbs sometimes are shrunk, and the muscles are soft; he complains of various nervous feelings; and is occasionally troubled with night-mare, and with cramps.

Dr. Cullen in describing the atonic state of gout, remarks of the affections of the alimentary canal, "that they are often attended with all the symptoms of hypochondriasis; as dejection of mind, a constant and anxious attention to the slightest feelings, an imaginary aggravation of these, and an apprehension of danger from them."

The active sympathy which exists between the stomach and the limbs, in certain states of chronic gout, I shall hereafter have to consider.

Under a disordered state of the digestive functions (whether the patient is gouty or not), and in proportion to the duration of complaint, and its dependance on change of visceral structure, the symptoms which arise from sympathy of distant parts, or contiguous organs, are strongly and variously marked. In addition to palpitations, an occasional disposition to fainting, and other symptoms already described, I may mention as another effect of the morbid sensibility of nerve which is prevailing, a remarkable tendency in the nerves of the arms and legs, to be affected with numbness both by day and night, on the application of very slight pressure from accidental posture.

The bowels are frequently distended with undigested food, and with the air which is generated

in consequence; so that many uneasy sensations are felt through the whole tract of the canal, which sometimes have the character of spasm.

Flatus in the stomach and bowels, or in the bowels alone, is now and then the sole symptom of indigestion, of which the patient confesses himself sensible; and this is, perhaps, detected only on attentive inquiry. A tenderness of the stomach to external pressure is now and then exquisitely great, so that the most gentle examination can scarcely be borne.

The hæmorrhoidal veins are sometimes painful; and a discharge of blood, which in some persons is quite irregular, and in others is almost periodical, very commonly accompany the gouty diathesis. The discharge in question sometimes occurs very profusely, and is of a dark venous colour, or of a blackish hue. When the hæmorrhage is slight, it is more usually arterial, and of a florid red.

The local abdominal sensations vary according to the parts most affected. It is difficult, however, to fix on the precise seat of diseased action, concerning which we are, indeed, often liable to be deceived. With parts of associated functions, there will be many sympathies spreading from contiguity. Mr. Abernethy observes, "It is probable that no material disorder can ordinarily take place in one of the digestive organs, without disturbing the functions of the others. When digestion is imperfectly performed, the functions of the intes-

tinal canal will soon participate in the disorders of the stomach. Under these circumstances, the secretion of bile will also become irregular. Should disease commence in the large intestines, as about the rectum, it disturbs the functions of the stomach and secretions of the liver, and becomes augmented in its turn by its sympathy with these parts. Should the liver be disordered in the first instance, the stomach and bowels may not immediately sympathise, although they will probably soon become affected *.

Sometimes the patient describes his feelings of uneasiness to be exactly in the line of the duodenum, passing through also to the back in the opposite direction. The sensation is that of aching dull pain with occasional shooting, and of heat, which often amounts to burning. In other cases, the right or the left hypochondrium is the seat of heavy dull pain, which is increased on pressure†. This is very dependant in its degree on the state of the bowels, and is mixed also with pain in the back and shoulder blade. It frequently happens

* On the Constitutional Origin, &c. p. 44.

† In examining the abdominal regions by pressure, in suspected disease of the contained viscera, we should not from our *tactus eruditus* hastily draw conclusions of the soundness, or morbid alteration of any of the organs. The mode in which the examination is made, is of importance. When the patient is in bed, the legs should be drawn up, so that the abdominal muscles may be relaxed. If not in bed, and a sofa be not at hand, the patient's most favourable posture for examination, is that of resting the hands on a table, and leaning with the body bent; or, more conveniently leaning forward at ease, in a chair.

that the only part which is tender or painful on pressure, is just at the ensiform cartilage. In association with a morbid state of the alimentary functions, this tenderness, especially if it be found when the stomach is not distended by food, is certainly indicative of a wrong condition of the liver. An irritable state of the abdominal muscles is a common attendant on a disease of the liver of long standing, and it is found very remarkably in some constitutions. In these cases, the muscles contract suddenly, even on gentle examination; and the abdomen, in consequence, conveys the feeling of hardness and rigidity. There are examples, in which, with uneasiness and even occasional strong pain in the parts which I have described, strong pressure is usually borne without complaint. In these cases, we may infer, that the viscera are most affected in their internal structure; or at their posterior surface.

The sympathetic pains are sometimes more remote and anomalous, affecting the shoulder blades, shoulders, or even the arms, as with rheumatism; for which, they are often mistaken.

The pulsation in the epigastric region, which is sometimes felt in an alarming degree by dyspeptic persons*, is seldom met with in persons who are subject to acute gout; and appertains

* Dr. Baillie has offered many valuable observations on this subject, in a paper, intitled, "Upon a strong Pulsation of the Aorta in the Epigastric Region."—*Med. Trans. of the College*, vol. iv.

rather to those, who, together with an unhealthy state of stomach and liver, have an obstructed and vitiated state of mesenteric glands; are badly nourished; and possess a morbid sensibility of nerve, in a high degree. It is occasionally found in those who have been weakened by frequent attacks of gout; have lost their flesh; and now have the disease only in its chronic form.

In the dyspepsia which attends an obstructed state of liver, and the various symptoms of indigestion of the lower bowels, the pulse at the wrist seldom conveys any corresponding indication of such derangement; but I must add, however, that the circulation is by no means equally performed in such cases, under particular excitement of diet; and in proportion as the temperament is sanguineous, marks of morbid determination of blood to the head, attended with pain, throbbing, heat, weight, and vertigo, are readily produced. When the powers of the stomach in a person of nervous temperament, have been weakened from errors in living, or other unfavourable causes, the circulation is universally languid, the extremities are easily chilled, and the general appearance is unhealthy and delicate.

How much dyspeptic persons are sensible to the influence of variable atmosphere, is familiarly known; and with gouty persons in particular, any considerable check which is given to the ordinary action of the skin, is with certainty succeeded by some uneasy internal feelings, together with sym-

pathetic pains in those limbs which have been affected with gout. A harsh and dry state of skin is a common attendant on bilious dyspepsia; and a distressing itching, particularly affecting the back and arms, is very much complained of by those who are liable to gout. It not unusually occurs as one of the premonitory symptoms. An erythematous rash; and urticaria, or nettle rash, also occur; and in one remarkable instance, I saw the latter irritation exist in a violent degree, during two days before the paroxysm; to which, and the treatment adopted, it immediately yielded.

Having now taken a cursory view of several points relating to the derangements of the stomach, the liver, the intestinal canal, and the skin; and noticed the sympathetic states of the circulation and of the nervous system; it remains that I should deliver some account of the function of the kidneys, as constituting a very important link in the pathology of the digestive organs.

With respect to the gout, an attentive observation of the changes and condition of the urine is an abundant source of information. The quantity which is secreted in the paroxysm is usually scanty, or, even when in natural proportion, is much concentrated. A portion of that which is passed the first in the morning, should be the particular example for medical observation and examination. The colour of the morbid urine is various, and is affected by different causes; but whether more or less deep, it is found under these circumstances

much increased in specific gravity, beyond the standard of health. This, from my experiments, which have been very numerous, I should state as ranging from 1·010 to 1·015*. In the morbid urine to which I have referred, I have found the density sometimes increased to 1·035, and even to 1·040; and very usually to 1·025, and 1·030. It possesses the natural acid character, invariably, when in the recent state; but such highly animalised urine soon becomes alkaline and putrid. It proves an unnatural stimulus to the bladder and urethra, exciting much irritation; and sometimes in a degree to cause the apprehension, that a calculus obstructs the passage, or that a stricture exists.

A deposition of pink or brick-dust sediment on the cooling of the urine, is of such ordinary occurrence when any active symptoms of gout are present, that its connexion becomes forcibly impressed on the mind of the patient, and he gives it the name of gouty urine. A copious precipitation of

* With a view to form some opinion of the degree in which the specific gravity of the urine, in health, might be influenced by modes of diet, I examined the morning urine of two healthy persons, daily, for ten days; during which period, their habits, as to fulness of living and moderation, and exercise and rest, varied exceedingly; and my results were, that under the greatest extremes of their regimen, the specific gravity of their urine was remarkably uniform; differing certainly, but not as might probably be expected. In several trials, I found that the urine of health possessed its highest specific gravity about two hours after dinner. I have stated these facts, but do not consider the examination of sufficient extent to be very important.

mucus is invariably an attendant on either of the sediments in question, partly intermixing with it, and in part forming a distinct stratum upon it*. This mucus also appears in the form of a pellicle on the surface of the urine, and stains the sides of the vessel with a milk-like fur. In some of its modifications, it has very much the appearance of floating oil. However much the urine may be loaded with these coloured and mucous sediments, it is transparent when first passed from the bladder, and does not, according to my experiments, become turbid until it has cooled down to 63 or 62 degrees of Fahrenheit. By the application of heat it becomes completely re-dissolved, when the temperature is raised to 98°. The whole sediment in question, uric, mucous, &c. adds but little to the specific gravity of the urine. I selected an example in which the pink sediment was unusually abundant, and found, that before filtration, its specific gravity at 60° was 1·0342; after, 1·0332. In the case to which this experiment refers, no tendency to gout belonged to the constitution; and in this part of my subject I shall only thus briefly advert to it, as one among numerous proofs which I could produce, that the appearance of these sediments is entirely dependent on a faulty state of the digestive organs; and upon unhealthy assimilation. It sometimes happens that the sediment changes

* The mucous stratum appears above or beneath the coloured one, according to the quantity and density of the two depositions.

from red to white; and a considerable portion of mucus also accompanies this kind of deposition. When this happens in a slight degree, the urine is transparent on being first passed, and precipitates its sediment only on cooling. Whether gout be present, or whether a patient free from the tendency to that disease, be affected with this deposition from the urine in any considerable degree, we may consider not only that the digestive functions are irregular, but that the different secreting organs are much influenced by a nervous state of the constitution.

When the sediment assumes a crystallized appearance, the state of complaint comes under the well-known denomination of *gravel.* I may observe, that the information communicated by patients on this point, is given with much incorrectness; some declaring that they are affected with gravel, if any deposition of the pink or brick-dust sediment appears; while others do not connect such an opinion with its appearance, although abundant, unless they suffer painful irritation in passing the urine; but when the crystals are seen, the representation that the gravel is affecting the kidnies or bladder, is invariably stated. Of these urinous precipitates, I have now to offer a few observations.

On the calculous affection of the kidney, called the Gravel.—Any elaborate view of the present very important subject would be incompatible with

the limits of this volume; but as the crystallized sediments of the urine now to be considered, fall equally with the preceding, under the head of a morbid state of the digestive organs, a brief description of their external character may not be altogether uninteresting.

The establishment of a correct pathology respecting them, is of all possible importance; as, in addition to the painful symptoms of irritation which they occasionally produce in the kidney and bladder, they not unfrequently augment, from neglect or ill treatment, so as to lead to that most painful of all diseases, *the stone*. These depositions may indeed be said to constitute the stone *in miniature*.

It happens, without any exception, that gouty persons are, at some period or other, either affected with gravel, or with the deposition of the pink or brick-dust sediment. I have met with many instances in which the patient has related that he was painfully affected with gravel, before he become gouty, to the degree indeed of apprehending the sufferings of the stone; but since, has only noticed the thick and coloured sediment. Some experience the gravel in the interval of the paroxysm, but very few are so affected when gout is present; and an explanation of this phenomenon, I shall hereafter endeavour to suggest.

The appearance of that species of gravel, which, from its physical resemblance to small gravel or sand, has given rise to this familiar term, varies in several particulars. It is either angular and shining and of an orange yellow colour; or

very minute, orbicular, shining, and of a bright red; or of irregular form, dull, and of a yellow or reddish colour. With the two first varieties, the urine does not contain much suspended mucus; but with the last, more in quantity. This last, indeed, is the intermediate kind between the angular bright crystal, and the pink or lateritious sediment. The urine which possesses either of these deposits, invariably reddens litmus.

The next species of gravel is not only of a white and shining appearance, but is altogether free from coloured deposit. These crystals vary like the former in size; are sometimes angular, and in fragments of no inconsiderable size; but much more usually, they are in the state of very fine lamellated scales, and shine with silvery lustre. When they are very minute, and in small quantity, they do not appear visible until the urine has been some time at rest, when they become aggregated. It usually happens that a mucous pellicle appears on the surface, entangling many of the minute crystals, which so refract the light, as to afford prismatic colours. The urine, in this case, is transparent, when passed from the bladder. When a very copious white sediment appears, partly crystallised, and partly in the state of rough powder, involved with much mucus, the urine itself is turbid, when first passed. The mucus in this sediment, as in the coloured uric, subsides both intermixed and in a distinct stratum; and sometimes appears to the eye, firm and gela-

tinous. On the surface of the urine, the floating mucus a little resembles oil. It now and then occurs that the two species are mixed; each partly crystallized, and in part in the state of powder; and a further variety is sometimes presented in the appearance of the crystals, from their being blended with dark-coloured animal matter, which is either greenish or blackish, in addition to the mucus, which in this case is very abundant. In short, so far as my observation has gone, the sediments in question present as much diversity, as the formed calculi of the bladder, and require the same pathological reasoning, and medical treatment. These points, together with some discussion of the chemical composition of the respective deposits, are to be considered in a subsequent division of the subject.

I return now from this long digression, and resume my more immediate treatise.

Variable climate, may justly be considered as a predisposing cause of gout; and to this may be added, a residence in a situation which is cold and damp.

OF THE EXCITING CAUSES.

Excessive intemperance.—The sudden repletion, and inflammatory action of the general circulation, which follow extreme indulgence at the table, sometimes introduce a fit, in the course of a

few hours, where the predisposition strongly exists. It rarely fails to occur, if the excess be much repeated; and now and then, a debauch of the stomach appears to be the sole occasion of introducing the first fit.

One patient, neither descended from gouty parents, nor having reason to expect such a disease, after three or four days of successive conviviality, in which he drank *champaign* very freely, was seized severely with the gout.

In another instance also of acquired gout, the patient, by his external characters, not appearing predisposed to the disease, suffered a first attack, which had a very evident connexion with the frequent and free use of champaign.

One, of a temperament bordering on the pure sanguineous, with a circular chest and large veins, not born of gouty parents, after committing the extraordinary excess of drinking four bottles of port-wine at a sitting, was seized on the same night, and for the first time, with the gout.

In those who have long been gouty, any great excess in wine is a pretty certain fore-runner of a fit. A gentleman for a few years subject to the disease, in whom the predisposition was hereditary, relates to me that on one occasion, after strong horse exercise, and supposing himself, from his comfortable feelings, quite secure, he drank a bottle of claret in addition to some general indulgence at the table; and on the following morning, the gout took severe possession of both ankles. It is a familiar

fact, that this consequence is more certain from a wine abounding in acid, as *champaign*; or from wines of bad quality of any kind. The stomach being over-excited by the stimulus of the liquor, derived from its alcohol, is weakened, and cannot resist the acetous fermentation, which its acid nature excites; and hence a double source of irritation is produced.

The heating, exciting, and certainly injurious qualities of champaign, with regard to gout, are much more remarkable than are found from any other liquor. If it has power to excite a first fit, we need not wonder that it is a fruitful occasional cause, in producing the returns of the gout.

I have met with several instances, in which, the patient thinking from his feelings of general health, that he might indulge a little with impunity, has taken a few glasses of champaign; but before twenty-four hours have elapsed, the gout has followed.

A gentleman, much disposed to gout, in the summer season, persuaded at the time of his security, drank six or seven glasses of champaign, at a convivial dinner; and in twelve hours he paid the penalty of his indiscretion, in the arrival of a decided fit: which, however, was not of long continuance. He had never before been attacked in summer. Some are so susceptible to the influence of champaign, that even a single glass very soon produces some sensation of gout in the limbs. One gentleman assures me, that either by the

slight use of this liquor, or even of perry, he could, at any time, bring on more or less of gout in his feet.

If the error of drinking champaign, be committed on one occasion only, and not in great excess, I have usually seen that it has given rise only to a fit of short duration. The effect, however, must depend on the state of the digestive organs, and the accidental degree of the gouty diathesis at the time.

The more habitual use of liquors of this class, and in proportion as it can be carried on long without exciting the fit, produces effects which are more lasting and severe. I saw lately a gentleman, who states, that in his last visit to France, he indulged every day for some time in the light wines, and without seeming disagreement; but on his return home, he was attacked with gout, which lasted *forty weeks.*

The gouty in inferior life, who cannot afford to excite a fit by wine, produce the effect with strong malt liquors and spirits: for in this way, also, indirect debility of the stomach is produced, acid matter is abundantly generated, and the inflammatory diathesis of the system takes place.

An eminent physician informs me, that he met with an extraordinary prevalence of gout in a country town, in which it was the custom at the best tables, to drink freely a very potent ale, and scarcely any wine.

I may add to this general account, that in most

of the instances, in which, the sudden seizure of gout takes place in the day time, the circulation has been suddenly excited by stimulating liquor, and the attendant provocatives of the table. In three distinct cases, I learnt that the patient sat down to a convivial dinner, with scarcely the sensation of gout, but on rising to depart, the feet were completely disabled by the inflammation and swelling, which had made such rapid progess.

Acidity, when much accumulated in the primæ viæ, will always powerfully concur with other causes to excite a fit, and will sometimes prove alone sufficient. During the paroxysm, if occurring in a considerable degree, it is always a cause which produces much aggravation of the symptoms. When rejected from the stomach, it is very acrid to the throat; and this may be considered as a proof of its irritating power in the stomach. As I have already observed, it is often of a grass-green colour, sometimes yellowish green, and now and then, but more rarely, colourless*. In proportion

* This fluid appears to be composed of the peculiar acid matter generated in a morbid condition of the stomach, together with bile and mucus. The green colour arises chiefly from a vitiated state of the bile; but may also in part be referred to the change produced in it by the acid matter. What the nature of this acid is, seems questionable. An artificial admixture of acetic acid and bile in any proportions, does not produce the green colour; but it is readily affected with diluted muriatic acid and bile. I added recent bile to some colourless acid fluid, recently discharged from the stomach, in the proportion of one part to

to its acrimony, mucus is mixed with it more or less abundantly. In the first volume of the Medical Observations and Inquiries (p. 41), an interesting case is related, in which, this kind of green acid vomiting proved critical to the paroxysm of gout. I have met with several instances, in which, the discharge of acrid fluid from the stomach has produced immediate and very sensible relief; but I do not remember any example of such a complete removal of the symptoms following, as described in this case.

Excess of bile.—A jaundiced skin with general fever, pain in either hypochondrium, costive bowels, with bilious vomiting, or acrid bilious diarrhœa, and scanty, deep-coloured urine, sometimes occur as the short precursors of a paroxysm.

A gentleman, whose gout was not due to hereditary influence, had been very industrious in gardening on a hot day in autumn. In the

sixty, and a light green colour immediately appeared, which, on standing, became grass green. If the bile be added in any considerable proportion, the yellow colour predominates. The fluid in question rejected from the stomach when in a weak and irritable state, is very weakly acid, as is proved by the slight degree of neutralising power which it exerts when added to an alkali.

In the specimen now mentioned, two drams were rendered neutral by three drops of the liquor potassæ of the Pharmacopœia. The patient's sensation of intense acidity, in this case, therefore, must be connected with a morbid sensibility of the surface of the œsophagus, continuous from that of the stomach.

evening he was seized with cholera morbus; and on the following day, the gout appeared in one foot.

Cold, with or without wet, applied to the body generally, or to the lower extremities only, especially when in concurrence with fatigue, proves in an equal degree, exciting to the gout in an individual who is predisposed to the disease, as to the phlegmasiæ in general; and it is by far the most frequent of the exciting causes. The act of walking in thin shoes on damp ground is always hazardous. One gouty patient informs me, that on several occasions, when in the occupation of his business (surveying buildings), he has been standing for some time on cold, damp pavement, his bowels have been quickly attacked with pain, with subsequent constipation; and the gout has followed in two or three days. This same patient was formerly in the habit of getting wet in the lower limbs with salt water (in an employment at sea), and continuing so for several hours, with impunity. I should add, however, that at that time he had never suffered the gout. I know several gouty patients, whose sensibility to the immediate influence of the east wind, or to the act of standing on damp pavement, or very damp ground, is almost incredible. We see that cold, whether applied locally or generally, acts most powerfully when conjoined with wet; but certainly the east

wind*, by itself, is a severe and active agent. Of all the forms, however, in which cold acts upon the body, a wet fog, with a penetrating east or north-east wind, appears to be the most certainly injurious.

In either case of the application of cold, its first effects appear to be very general; but injury soon becomes manifested in the weakest part of the body. The capillary circulation is checked near the surface, the blood flows to the internal parts in preternatural quantity, and congestion in the weakest organs, or most morbid part of structure, is consequently produced. The secretions become disturbed and vitiated; and the nervous system partaking in the irritation, many sympathies, and various sensations of disease, are the fruitful consequences.

External injuries.—Strains, concussions, contusions, or any mechanical violence, immediate or remote to the part which becomes affected with inflammation, very commonly prove exciting causes of a paroxysm. Even a first fit is sometimes excited in this manner, and the patient imagines that he labours under a common strain only.

One gentleman suffered his first attack, which was in the foot, after unusual exertions in dancing,

* Dr. Gregory, in his lectures, observes, that the genial south and west have alone been invoked with praise by the poet.

being at the same time under the influence of the effects of a convivial entertainment. In another case, an accident, by which one leg was broken, gave rise to severe gout in the other leg, on the following day.

A female, whose gout was *acquired*, had her first fit excited, in the great toe, by a severe blow on the foot. I am acquainted with seven other cases, in which the first attack was imputed to some local contusion or strain ; and was treated at the beginning, by the usual means employed for such accidents.

It seems necessary however to the effect of local injury, that the *constitutional* disposition to an attack should exist. In a gentleman for many years severely subject to gout, the knee received a severe contusion in a fall, and the muscles were violently strained, but only common inflammation followed. Another gentleman who had suffered repeated fits of gout during eight years, strained his foot violently ; but the accident did not give rise to any gouty inflammation.

The following interesting illustration of this principle of pathology lately came under my observation A gentleman gouty for many years, received a severe blow on the knee, which produced the tenderness usual from such an injury for two days. It then recovered completely. A week after, having two days previously indulged in champaign, he was seized with gout in one foot,

and before forty-eight hours had elapsed, the knee so recently bruised, became affected. On all former occasions the disease had only occupied the feet.

When the gouty diathesis is present, any considerable degree of local injury seems with certainty to be followed by a fit. A gentleman who had been subject to gout fourteen years, at a time when he considered himself in more than usual health (yet living very freely), strained his ankle, in slipping from a stool. On the same day, that foot was attacked with gout, which continued a fortnight. The other foot next became affected, and was under the disease three weeks. This was the most severe fit which he had ever experienced. Even a fall, as from a horse, giving only a general shock to the frame, sometimes proves an exciting cause. I know an instance of this, in which the gout took place on the following day, although no injury was received on the parts which became affected.

The pressure of too tight a shoe, and more especially if the patient walk much under such irritation, will occasionally induce gouty inflammation. That degree of straining of the disorganised and weakened ligaments and tendons, which appertains to an excess in walking, always proves injurious, and sometimes excites a fit.

A corpulent and elderly lady, seldom using exercise, from a pressing necessity walked a distance of four miles ; accidentally also, exposed to

rain. She considered herself in unusual good health. On the following day, however, the gout seized both feet; and afterwards afflicting the knees, continued four months. In this case, there was certainly the two-fold cause of fatigue and cold; but she described, that she felt such immediate sensible injury from the over-exertion, that she judged the consequences to be principally ascribable to it.

One patient assures me, that he is convinced from the occasional injury which he has experienced, that he could at any time produce an attack, by over-walking in any extraordinary degree.

I may add, that any of the modes of local injury, which I have enumerated, will powerfully operate to produce a relapse, at a time when the convalescence has begun apparently in the most favourable manner.

A gentleman, much subject to gout, informs me, that when quite convalescent from the paroxysm, he received a kick upon that leg of which the foot had been affected; and a consequent return of gout immediately followed.

It happens very commonly, that premature exertions in walking just as the paroxysm is taking its leave, produces a relapse.

Fatigue and anxiety.—That fatigue, which is the joint offspring of mental anxiety and bodily exertion, is a very common cause of exciting a

paroxysm. I have lately attended two female patients, who had suffered the gout in its severest form; one of them for the first time; brought on from the nervous exhaustion which they had sustained, each in nursing a relation dangerously ill, several nights in succession.

The passions of the mind.—Although in most of the instances related by authors, the strong passions have rather had the credit of *curing*, than the reproach of *causing* the gout; yet we may believe, that on some occasions, they will serve to excite a paroxysm*. One patient informs me, that some of his worst fits have immediately succeeded a violent irritation of temper; and in other examples, some mental shock has been quoted as the cause of attack. In such cases we may consider, that the system is at the time in a state of great readiness to take on the disease; the nerves are morbidly susceptible in a high degree, and the temper also is more irritable. In the fit itself, the irritability of disposition is almost proverbial with every author.

Sydenham observes indeed, " that every pa-

* The active influence produced both on the appetite and digestion, by violent emotions of the mind, is constantly exemplified. The secreting action of the liver is also affected very suddenly by the same cause. Horace, in his description of jealousy, has, with very little of poetical fiction, noticed this circumstance:

" Fervens difficili bile tumet jecur."—Ode XIII.

roxysm may be as justly denominated a fit of anger, as a fit of the gout."

Van Swieten relates, *I had long an intimate friendship with a person of very great learning, and otherways of a sweet, peaceable, and mild disposition, who, taught by his experience, could at last foretell when he was to have a fit, by his being peevish a little before, and out of humour with every trifle.*

THE PROXIMATE CAUSE.

This subject of investigation, has, with regard to diseases in general, proved an *ignis fatuus* to medical theorists; and the remark may be strongly applied to the case of gout. Aritæus considered, that the proximate cause was known only to the gods. By less pious inquirers, ingenious speculation has been exercised, and profusely substituted in place of solid principles; and various opinions built upon hypothesis (that is upon conjecture without proof, or even reasonable evidence), have been at different times advanced, with all the pride and confidence of truth.

The uric-concretions (or *chalk-stones*, as they are improperly called) which belong to the gout in a few individuals, appear to have been the chief source of the doctrine of a morbific matter, from Hippocrates to the present time.

A *materies morbi* has been differently conceived by every new author, and amongst the various denominations assigned to the supposed substance, I may mention the following—*phlegm; acidity in the semen; bilious humour; mucilage; tartareous*, or *urinous salt; an earth; a volatile alkali; an æther; a superfluous part of the chyle;* and the list might be greatly extended.

Some writers* have contended that an excess of uric acid, or its elements, in the system, is the *proximate* cause of gout. This inference seems to have been deduced, from the occasional instances of the external uric formations, already noticed; from the presence either of pink or lateritious sediment; or the reddish crystals (commonly called *grável*), so generally found to exist in the urine in connexion with the gouty paroxysm; and further, from the remark of Berthollet, "That paper coloured blue by litmus, becomes red on being exposed to the perspiration of a part affected with the inflammation of gout†." Dr. Wollaston remarked, that "In gouty persons there is always a redundance of uric acid‡." In reference to a similar theory, and upon chemical principles of practice, Sir Everard Home and Mr. Brande advised the

* Forbes in a "Treatise on Gravel and Gout, London 1787;" and Parkinson, "On the Nature and Cure of Gout, London 1805."

† Parkinson, p. 22.

‡ Phil. Trans. 1810, Part II.

employment of magnesia in gravel, and also in gout*.

In respect to the uric concretions, as a consequence of gout, it must be observed, that their formation is, comparatively, so rare an occurrence, and so much confined to certain peculiar habits, that the phenomenon cannot be assumed as a basis for the construction of a general theory of the disease; and much less, can this singular morbid process be considered as its *proximate cause.* In one hundred and sixteen cases of gout, I have not discovered any trace of this kind of concretion, in more than fifteen persons.

While on the one hand, I have also to observe, this process is sometimes described as a common effect of highly inflammatory gout, being thus considered as a general circumstance; it is on the other asserted, that it occurs occasionally, where no previous evidence of gout in the constitution has yet existed. The error of the first conclusion I have already pointed out; and I have sought, without success, for an example, to prove the correctness of the last opinion. In all the cases which have come within my knowledge, gout has more or less preceded.

The sediments in the urine to which I have adverted, are not the peculiar attendants of gout; but occur under various kinds of disease, both

* Phil. Trans. 1810, Part I.

constitutional and local, in connexion with a morbid state of the digestive organs.

Upon the question also of an excess of uric acid secreted by the kidneys, as indicated by the deposition of the crystals, or the pink or lateritious sediment, and its supposed relation to the proximate cause of gout, I may state, of the crystals more particularly, that they are not to be considered as a proof of an excess of uric acid; but rather as a separation of this principle from the urine, and a new combination with some other of its elements. If nitric or muriatic acid, be added to urine of moderate specific gravity which has deposited these crystals, scarcely any further uric precipitate is produced; and having in different experiments carefully estimated the quantity so obtained, with that procured from healthy urine of the same specific gravity, by the same methods, I have found the position in question to be fully manifested; equal portions of such healthy urine, furnishing an equal quantity of uric precipitate, with the whole of that spontaneously and artificially precipitated from the morbid urine, with which it was compared.

Such urine as deposits the pink or lateritious sediment in an abundant quantity, is, according to my experience, always of high specific gravity, and from such specimens I have invariably procured a much larger *total* quantity of uric acid, than from any urine of moderate specific gravity; but I must add, that if this sediment be in small

quantity, and the specific gravity of the urine be not considerable, almost the whole of the uric acid which such urine possesses, is found by experiment to have been precipitated in the sediment; further confirming the argument, that the relative quantity of uric acid in the urine has a great correspondence with its specific gravity, and cannot be so much inferred from appearances, as we have been hitherto taught to believe.

As such sediment, and in abundant quantity, is a very common occurrence in the urine secreted during a paroxysm of gout, a basis appears to be presented for the assumption of the theory under discussion, in relation to the proximate cause; but it must first be taken into consideration, that such sediments are neither necessarily nor regularly attendant on a paroxysm of gout, and that they are found, as I have before stated, under other circumstances of disease, in connexion with unhealthy chylopoetic functions. In proportion, therefore, as gout is associated with such disordered functions, and not further, are these urinary evidences connected with that disease.

An important fact is also to be added, of which I have obtained very abundant proof by experiment, that not only the uric acid is in excess, in urine of high specific gravity, in the examples of the gouty specimens to which I have now alluded (and also in urine of similar density in other diseases); but, other principles composing this secretion, as the phosphoric, sulphuric, and muriatic

acids, urea, &c. are also secreted in preternatural quantity.

An opinion suggested by Berthollet with regard to the peculiar nature of gouty urine, is of such importance, that it has engaged my particular attention. The following is a translation of the original, as quoted by Barthez: *That from numerous observations, he was convinced, that the phosphoric acid (which is always in the urine combined in excess* with calcareous earth) is naturally in much less quantity in the urine of persons subject to gout and rheumatism, than in healthy persons; but that at the approach of a paroxysm, and during its continuance, the urine contains as much of phosphoric acid, as that of persons of strong constitution, and much more than belongs to the gouty in their ordinary state*†.

I have submitted the truth of this doctrine to the test of careful experiment; and the results of this investigation, I now offer in the annexed statement:

* Berzelius has pointed out the error of the supposed existence of free phosphoric acid in the urine, in the following words: "As by the laws of chemical affinity, these acids will unite with any alkali that may be present, and saturate themselves with it in the order of the force of their respective affinities, it must follow, that where the quantity of alkali is insufficient to saturate all the acids present, the weakest acids must be those that will remain uncombined, and will give the urine its acid properties. These, therefore, must be the lactic and the uric."—Medical and Chirurgical Transactions, vol. iii. p. 257.

† Traité des Maladies Goutteuses, tome i. p. 50.

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
I. J. W. under a paroxysm of gout; urine of orange colour, with minute uric crystals, and some mucous cloud	1·016	22	13·7	2·88
II. Ditto, in health, and two months after recovery; urine natural.....	1·0199	18·4	4·6	·96
III. A. L. under a paroxysm of gout; urine of deep orange colour, with copious pink sediment and mucus	1·028	66·2	43.7	9·2
IV. Ditto, in health, and two months after recovery; urine natural	1·0168	26·3	14·1	2·97
V. J. C. under a paroxysm of gout; urine of amber colour, and with mucous cloud only, but precipitates albumen with nitric acid	1·014	28·8	4·8	1·02
VI. Ditto, in health, and three months after recovery; urine natural.....	1·0137	16·2	4·3	·91
VII. C. M. under a paroxysm of gout; urine of deep orange colour, with copious pink sediment and mucus	1·020	50·5	20·2	4·3
VIII. Ditto, in health, ten weeks after recovery; urine natural.....	1·0107	23.4	7	1·47
IX. E. P. under a paroxysm of gout; urine of deep orange colour, with very copious pink sediment and mucus	1·029	71·5	30·4	6·41
X. Ditto, in health, ten weeks after recovery; urine of orange colour, with uric crystals, and mucous cloud	1·0191	40	19·2	4·05

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
XI. W. W. (see Case I.) one day before an attack of gout, feeling in health; urine of amber colour, with some uric crystals and mucous cloud...	1·0094	13·8	3·8	·8
XII. Ditto, second morning of the paroxysm; urine of deep orange colour, with copious lateritious sediment and mucus	1·0201	55·2	25·4	5·36
XIII. Ditto, seventh morning; urine of amber colour, with mucus, but a trace only of the pink sediment	1·0099	30	15	3·17
XIV. Ditto, eighth morning; urine of deep orange colour, with dirty brick coloured sediment, and much mucus	1·0242	46	18·4	3·88
XV. Ditto, ninth morning; urine of amber colour, with the mucous cloud of health, but no other sediment	1·012	24	4·8	1·02
XVI. Ditto, tenth morning; urine as yesterday, with the addition of some minute uric crystals	1·0105	28	7	1·47
XVII. Ditto, eleventh morning; urine of light straw colour, with minute uric crystals, and more of mucus than yesterday.....	1·0106	32·8	16·4	3·47
Ditto, twelfth morning; urine natural.....	1·0085			
XVIII. Ditto, in health, about two months after recovery; urine natural	1·0172	26·8	13·3	2·8

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
XIX. J. G. (see Case) hepatitis, with gouty diathesis; urine of deep orange colour, with copious pink sediment, and mucus	1·0207	57·6	19·5	4·1
XX. Ditto, eleven months after the former period; digestive organs not in sound health; urine of orange colour; with abundant uric crystals, and mucous cloud.....	1·014	20·4	10	2·1
XXI. J. W. aged 45, under a paroxysm of gout; urine of deep orange colour; with pink sediment and uric crystals, and much mucus...	omitted	42·5	16·1	3·4
Ditto; no opportunity of comparison.				
XXII. J. M. aged 38, under a paroxysm of gout; urine of amber colour, with some pink sediment and mucus	omitted	35·6	10·6	2·24
Ditto; no opportunity of comparison.				
XXIII. T. A. aged 37, in health; of free habits; not subject to gout or rheumatism; urine natural	1·0113	25	13	2·75
XXIV. L. S. aged 37, ditto; of free habits; ditto; ditto;	1·0183	40·8	20·5	4·33
XXV. A. J. aged 24, in health; of free habits; subject to violent acute rheumatism; urine natural	1·0173	17·4	5·6	1·18

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
XXVI. E. J. aged 19, in health; not subject to gout or rheumatism, but plethoric, and liable to tonsillary inflammation; urine natural...	1·0217	49·2	20·4	4·31
XXVII. H. T. aged 48, not subject to gout; suffering under chronic hepatitis and morbid alimentary secretions; urine of deep orange colour, with copious pink sediment and mucus.....	1·0334	49·2	22·8	4·82
XXVIII. Ditto, in two or three months after, when in improved health from a course of medicine; urine of amber colour, and free from sediment	1·018	37·2	13	2·75
XXIX. J. T. aged 34, a strong man, under severe continued fever; urine of deep orange colour, with much pink sediment and mucus.....	1·025	32	18·5	3·9
XXX. Ditto, in six months after, in perfect health, and of moderate habits, but very plethoric, and of sanguineous temperament; urine natural.....		48	24	5·07
XXXI. S. P. aged 39, a robust man, of free habits, plethoric and sanguineous; under acute hepatitis; urine of deep orange colour, with much pink sediment and mucus	1·023	38·4	24	5·07

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
XXXII. Ditto; feeling in general health, two months after; but certainly the functions of the liver not yet correct; living freely; urine of light orange colour, with some pink sediment and mucus	1·0245	40	28	5·92
XXXIII. J. B. aged 13, robust, and not of unhealthy appearance; bowels constipated, with much spasmodic pain and nephritic irritation; urine of amber colour, depositing the phosphates, and also holding them abundantly in solution, although it vividly reddens litmus	1·018	36·6	17·7	3·75
XXXIV. L. S. (a female) aged 23; robust; under acute rheumatism: urine of orange colour, with slight pink and mucous sediment	omitted	29·2	5·1	1·07
No subsequent opportunity of comparison.				
XXXV. L. M. a boy, aged 4, diseased with tabes mesenterica; a large belly, with distension and hardness; narrow chest; cough; irregular fever and debility; urine of amber colour, with much lateritious sediment and mucus	1·0263	51·2	23·5	4·96

FROM FOUR OUNCES OF URINE.

EXP.		Sp. gravity.	Precipitate by Nitr. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.
XXXVI.	H. C. aged 42, robust, and engaged in laborious employment; ill, with continued fever; urine of orange colour, with pink sediment, and mucus	1·023	44·8	omitted	omitted
XXXVII.	Ditto in health; two months after recovery; urine natural	1·0154	24·6	ditto	ditto
XXXVIII.	A. B. a female, aged 3 years; a well grown child, now very ill with cough and fever, and disordered bowels; the fæces blackish; the urine of deep orange colour, with copious deposition of the phosphates, although reddening litmus in the usual manner: so much loaded with urea, that without concentration it immediately crystallised with nitric acid	1·0214	39·2	27·4	5·8
XXXIX*.	R. T. a female, aged 2 years and a half; of rather a healthy countenance, but suffering from mollities ossium, in a very great degree, both in the upper and lower extremities	1·0299	35·6	20	4·22
XL.	M. D. a female, aged 5 years; robust and of a full habit, and in a state of inflammatory diathesis	1·024	43·2	28	5·92

* It has been conceived that in mollities ossium, the kidnies secrete a preternatural quantity of phosphate of lime, depriving the bones of this principle. So far as one example may be quoted, I may refer to this Experiment in contradiction of the hypothesis.

In these experiments, nitrate of lead was the precipitant employed; and the urine was diluted with distilled water. A portion of the urine, first and separately passed in the morning, was, in each case, chosen for examination. The precipitate was carefully dried and scraped from the filter. Of this, a certain quantity was boiled in distilled water, that the muriate of lead might be removed; and with it also the uric acid was separated. It was then burnt in a crucible for about half an hour, that the several animal matters should be destroyed as much as possible. It was next boiled in diluted nitric acid; and being allowed to rest, the clear liquor was decanted from the sulphate of lead and some insoluble animal matter. To this, ammonia was added in excess; the precipitate was collected on the filter, dried, and weighed. This was the phosphate of lead, from which the relative proportion of phosphoric acid was estimated, by means of Dr. Wollaston's logometric scale. Equal quantities being always employed, and all circumstances of experiment being alike, it may, I hope, be presumed, that this investigation, by comparative experiments, is entitled to confidence.

The method which was thus adopted may appear improperly complicated; bnt I was led to employ it, from the comprehensive opportunity which it afforded me, of judging with tolerable accuracy of the relative quantities of the different principles of the urine in every example. I derived these results from estimating how much the given quan-

tity of precipitate under examination had lost by each process. By the agency of nitrate of lead as the precipitant, the several principles of the urine are almost wholly thrown down. Some muriatic, and a small portion of sulphuric acid, with a portion of animal matter, in union with lead, remain in the filtered liquor. It will probably be suggested as an objection against my conclusions from these experiments, that the urine is a secretion of such variable density, in the same individual in the course of each twenty-four hours, that fallacious inferences, deduced from the particular portion examined, can scarcely be avoided.

In answer to this objection, it can with truth be stated, that if the first urine of the morning *separately procured* be made the subject of examination, great accuracy of results will be obtained; and by observation and investigation, carefully conducted, I may assert, that a very faithful judgment may be formed, of the state of the important function which the kidnies are performing.

The general accordance of the specific gravity* of the urine with the principles which were sought for in these experiments, is further satisfactory, as proving the utility of the information, which may be obtained from examination of this point alone, with a view to forming general conclusions, when

* In all my experiments, I used the temperature of 60° of Fahrenheit. I found the following variations of specific gravity in the same urine, at different temperatures: at 60° 1·027, 70° 1·0256, 80° 1·0251, 90° 1·024, 100° 1·0201.

it is desirable to obtain some judgment, with convenient promptness, of the condition of the secreting action of the kidnies.

With respect to the position of Berthollet, it is manifest that in the urine of persons under a paroxysm of gout, the proportion of the phosphoric acid is greater than in their healthy state; but the same truth is also apparent in Experiment xxvii. in a person whose liver was diseased, and who never had gout. In Experiment xxxii, the same contrast to the former state is not presented, as the patient was under the stimulating excitement of free living, and was not quite free from hepatic complaint. In Experiment xxx, the actions of the system were vigorous, under a full circulation, and a sanguineous temperament. In Experiment xxxvi, the case of continued fever, the precipitate by nitrate of lead is as much more in quantity than that obtained in the health of the patient, as in most of the examples of gout. It seems, therefore, that the phenomenon in question cannot be considered as a specific occurrence in gout alone; and we are consequently forbidden from saying, that an excess of phosphoric acid in the system is the *proximate cause* of gout; and the more especially is such an hypothesis opposed, when we take into consideration the general fact already stated, that in urine of high specific gravity in gout, the other principles of this secretion also are in excess. It is incumbent upon us to avoid partial opinions founded on partial deductions.

With regard to the statement of Berthollet, "that the phosphoric acid is naturally in much less quantity in the urine of persons subject to gout and rheumatism, than in healthy persons," it may be remarked, that so far as these experiments apply to the question, this inference must not be hastily drawn. Each of the gouty persons was pursuing more or less a regulated regimen, and may be supposed also to have retained some corrective influence over the digestive functions, and the general secreting actions, from the previous course of medicine; while in the healthy examples which were chosen, and particularly in Experiments xxiv and xxvi, the habits of living were indulgent, and the circulation was plethoric.

In Experiments iii and ix, the proportion of phosphoric acid was in great excess, over the examples to which I have last referred; and in the Exp. xi and xii, the comparison is particularly interesting, together with the subsequent series. Exp. xi points out that the kidnies were deficient in their function of removing excretory matter from the blood; and two days after, a disease was set up in the constitution, for the relief of which, Nature immediately employed her own powers, and the kidnies became excited to increased excretory action. In how great a degree, a previous retention in the system of the elements of phosphoric acid, or the other principles to be discharged by the kidney, may be considered in the relation of cause and effect to the gout, it would be hypo-

thetical to contend, if the question of *proximate cause* be considered; but the general fact of an excess of excretion of all the principles of the urine, in the paroxysm, is very apparent.

The hypothesis of Berthollet, of an excess of phosphoric acid in immediate connexion with the paroxysm, as cause and effect, has not only been adopted by others, but has been carried to its utmost limits, in a comparison drawn between the phenomena of gouty inflammation, and of phosphoric combustion. The Experiments xxxv, xxxviii, xxxix, and xl, do not apply to the present question, as they are not comparative with respect to the individual children; but they serve to shew the large proportion of phosphoric acid, which belongs to the urine of children. It is a curious fact, that the child, whose urine was chosen for Exp. xl, and which possessed such a large proportion of phosphoric acid, was attacked in the evening of that day, when she was considered to be in her usual state of robust health, with a violent inflammation and swelling of half the face.

The proximate cause of a disease must not only be something which is invariably antecedent, but also that which is distinctly peculiar to such disease; and the whole of this position I am not able to demonstrate; although some general points are, I trust, satisfactorily proved.

The results which this experimental investigation has afforded, appear to me interesting, both in a physiological and pathological point of view.

They exemplify the activity of the kidney as a salutary organ of excretion, and as constituting a very material agent, which Nature often employs to relieve the overloaded system. In this view of the subject, at the same time that I consider the excretory function of the kidnies, as really a part of the curative process which Nature is attempting to accomplish, I do not mean to contend, that the *specific cause* of the disease is in this way removed; for such a conclusion would be at variance with the results of my experiments. The investigation appears to me of additional importance with reference to the doctrines of the humoral pathology, which have probably been too violently discarded in modern medicine. Notwithstanding, however, that I advance this sentiment, I would not be understood to lean to the extravagant notions of the mathematical sect of physicians, Langrish, Bryan Robinson, &c. who offered very refined calculations of disease, deduced from the state of the blood. Also, in admitting or contending, that the different fluids of the body vary in their chemical composition, in health and disease, we should abstain from all particular conclusions, which are not founded on careful experiment; and we should studiously shun the wild hypotheses of the humoral pathologists in general.

In pursuit of my present immediate inquiry, I have now to notice some further theories which have been advanced, as attempting the perfect explanation of

gout. The acid nature of the transpiration, as indicated by the reddening of litmus paper when applied to the skin under gouty inflammation, has been improperly quoted to suit the theory of acid matter being a proximate cause; for the same fact may be constantly demonstrated in the healthy action of the skin. In numerous trials which I have made to this effect (in one case, even of long standing jaundice), I have not found an exception*.

Barthez, the most copious French author on the subject of gout, appears to me obscure and perplexed both in his theory and practice; but his work contains much useful and interesting reference, and claims the attention of the medical reader.

He considers that the production of gout depends on two causes; the one, *a particular disposition in the constitution to produce a specific gouty state both of the solids and fluids; the other, a weakness (natural or acquired) which the parts appearing as the seat of the disease, suffer relatively to the other organs.* He does not attempt to explain a *proximate cause.* His hypothesis of *la situation fixe, in the muscular fibre and other textures,* does not convey to me any comprehensible idea. He entertains, after the example of Van Helmont and Van Swieten, the absurd notion, that the gout is a *contagious* disease. Amongst his

* Berzelius remarks, "The matter of transpiration is always acid, and reddens litmus paper very distinctly."—View of the Progress and present State of Animal Chemistry, p. 95.

varieties of gout, he includes the hot and the cold, according to the authority of Aretæus and Cælius Aurelianus, and from the example of Liger, a preceding French author. In this doctrine, he refers the *hot* kind, to the disease when seated in the neighbouring parts most external to the joint; and the *cold,* accordingly as the disease is more internal and deeply fixed; grounding this distinction also, on the particular effects produced by hot or cold applications to the affected part.

A recent author* upon gout, appears to believe that a peculiar secretion in the alimentary canal is the proximate cause; and that the disease, in its origin, is very local in its foundation. He remarks, "The symptoms attending gout give every reason to suppose, that its principal and exciting cause resides in the alimentary canal." And again, "The action of purgatives however, and their quick and decisive effects in subduing a fit of the gout, might lead to the inference, if other proofs were wanting, that this cause" (the cause of gout) "resided in the alimentary canal†."

This pathology, although useful in the practice to which it directly leads, appears to me not only unsupported in its theory, but much too restricted in its views.

Dr. Parry, in his elaborate work on *Pathology and Therapeutics*, considers that the gout is a disease depending on certain conditions of the circulating system; and offers it as one of the "exem-

* Tracts on Gout, &c. by Thos. Sutton, M.D. &c. † p. 220.

plifications of salutary processes*." He speaks "of the final cause of the malady being merely the correction of the irregularly directed circulation†;" and further, as being a mode of "the evacuation of the habit, and the consequent reduction of plethora, which is relatively excessive; and that another end, is the restoration of the due balance of circulation, previously determined in excess towards other and more vital parts‡."

In this view of the subject, some general circumstances of the disease appear to be correctly comprehended; but the problem still remains, What is the peculiar condition of the system, upon which the *specific* inflammation of gout depends? A preternatural afflux of blood to the affected part, is a condition of a general nature, belonging equally to any other inflammation depending on the constitution. This, indeed, might be assumed as the *proximate cause* of gout, if we considered the local characters as the whole disease, because it is the nearest antecedent to their occurrence. But such an hypothesis does not carry with it any explanation. The question under discussion is not probably more difficult than analogous questions as to many other kinds of inflammation, in relation to which we content ourselves with the general expression, that the tendency to a particular disease in an individual arises from the peculiar predisposition of his constitution.

* p. 428. † Ibid. ‡ Ibid.

Although any definite and essential condition either of the solids or fluids, standing in the immediate and certain relation of cause and effect, to gout, cannot be demonstrated with the precision which may be desired, yet our information appears sufficiently complete, to conduct us to a clear arrangement in theory, and a solid foundation in practice.

I shall pursue the present investigation under the next head of my subject.

RATIO SYMPTOMATUM, OR THE THEORY OF THE SYMPTOMS; INCLUDING THE CHEMICAL HISTORY OF THE URINOUS SEDIMENTS.

Of great affinity to the last question, and nearly allied also in difficulty, is the theoretical consideration of the various symptoms of gout. It may, however, be entered upon with less danger from hypothesis; and as it involves many interesting phenomena, its discussion becomes important.

It will be useful first to bring under review, some general circumstances which are associated with the invasion of the disease*.

* Those who possess the hereditary predisposition to gout in a strong degree, require only few of the adventitious aids towards the production of the disease; and in such persons, the exceptions which occur to the general statement which I offer, will probably be almost exclusively found.

The gouty, for the most part, have a circular form of chest; and as we may infer, a corresponding capacity of lungs. Such is the structure most fitted for the production of the plethoric habit. In the early part of life, they usually exhibit the stamp of health. Their indulgent habits of living concur with the structure which I have described, in forming an excess of blood. In proportion, chiefly, as the habits of bodily exertion are inadequately active with relation to the plethoric state of vessels, does a state of corpulency take place. As already noticed under the head of *temperament*, they are not the truly sanguineous, but possess a temperament of a mixed character; so that the consequences of a redundant circulation rather affect the venous than the arterial system, and do not give rise to the strong actions of common inflammation. I must here again advert to the enlarged and distended veins, which are so commonly seen in gouty persons; and in the lower extremities often to a degree highly varicose. The hæmorrhoids are also a complaint in them, of frequent occurrence; and when they are attended with much occasional hæmorrhage, may be considered as one of the indications of fulness and obstruction in the circulation of the vena portarum system.

I have met with several instances of patients, who state that previously to their being in any degree affected with gout, they were occasionally subject to epistaxis, or to hæmorrhage from the hæmorrhoidal vessels, in a much more remarkable manner than since.

While the *vis medicatrix naturæ* can in these or other modes, actively counteract the bad effects of plethora; or as long as the powers of the general circulation are adequate to the establishment of a healthy balance; bearing a just relation to the quantity of blood requiring to be circulated, and adapted to all its ultimate purposes, the gout does not make its first invasion.

I know a gentleman, about thirty years of age, whose case appears to me to afford an illustration of this latter position. His father was a martyr to the gout. He has the structure and temperament which I have just described, and is a free liver. At present his exercise is active, his strength is vigorous, and gout has not yet befallen him; but when the period arrives that his vessels lose their tone, his indulgent habits continuing, I expect that he will become a gouty subject.

This is a very general statement only of the question, and a closer view of it must be attempted. In a first fit of gout, the plethoric state of vessels, either absolute or relative (of which Dr. Parry has taken ample notice), appears the predominant, and often the only circumstance which can be detected in the errors of the constitution. In the returns of the disease, more or less of irregularity in the functions of the abdominal viscera becomes conspicuous; and it gradually assumes a more complicated character. In a general statement of the fact, it may be said, that the plethora which exists is of a partial kind. That deter-

mination of blood to the extremities, which, in its peculiar actions, exhibits the phenomena of gout, becomes more and more obviously connected with congestion in the whole system of the vena portarum, with a vitiated secretion of bile, costive bowels, and unequal function in the kidnies.

The stomach is truly the medium through which the gout is created. Excess of ingesta, beyond the powers of healthy assimilation, and the supply of blood demanded for the useful purposes of the body, is the material foundation of the disease. In those instances of sudden and unexpected attack, when the patient considers himself in the most vigorous state of his health, he is pursuing free habits of living, and carelessly producing a state of repletion, which insidiously grows into a fit of gout. The increased specific gravity of the urine depending upon an increase of its principles, which constantly takes place in a paroxysm, appears to me one certain evidence that the blood-vessels are surcharged with blood, unhealthy in quantity, and probably also in quality. In addition to the excess of the saline ingredients of urine, so constantly found in the paroxysm, with relation to the time of health, the fact, of which I have obtained abundant proof, that *urea* is also excreted in preternatural quantity, deserves particular attention. In several comparative examinations which I have made with reference to this point, I have invariably found that the urine secreted in the paroxysm, has furnished urea more abundantly than

the healthy urine of the same individuals; and in some instances, its proportion has been very much exceeding the measure of the general healthy standard. The excess of urea has, also, very remarkably corresponded with an excess of the phosphates.

A copious appearance of the pink or lateritious sediment, which is to be taken in connexion with an increased excretion of other animal principles, is an indication that the kidnies are secreting from the blood much unassimilated matter; and according to the degree and duration of this symptom, we are enabled to form a strong conclusion as to the magnitude and importance of abdominal visceral complaint. I consider that we are to view this preternatural secretion of the kidnies at once as the *sign* of disease, and as a salutary process, which Nature is performing, to relieve an overloaded and faulty state of the circulation of the liver, and the organs associated in its functions. In a morbid condition of the digestive organs, assuming the chronic form, whether in a gouty patient, or in one not liable to the disease, we find this sediment deposited only in the urine of digestion; as in that of the morning, or in that which is passed in some given time after the dinner meal. In the most aggravated cases, the urine which is secreted in the middle of the day, and more especially after a draught of any diluting fluid, will scarcely afford any of this evidence; but in the acute paroxysm of gout, and when the liver is much in fault, every portion

of urine throughout the twenty-four hours, although the patient is constantly and copiously drinking diluting fluids, deposits the sediment in abundance. In every inflammatory disease, the urine which is secreted bears a specific gravity much beyond the natural standard, although the ingesta consist only of thin fluids, which scarcely possess a nutritious quality; but this circumstance, together with the excess of matter which it can only hold in solution at a high temperature, is by no means so remarkable in any state of inflammatory action of the heart and arteries, as when the liver and organs of assimilation are immediately concerned in the disease; and of which, we have the purest specimen, in a severe paroxysm of gout occurring in a patient, whose liver is obstructed and under some degree of chronic inflammation; whose state of vessels is plethoric; and whose temperament approaches to the sanguineous.

Mr. Cruickshank, in speaking of the pathological sign of the pink-coloured sediment, remarks, "this peculiar sediment we consider as in some measure characteristic of diseased or rather schirrous liver." I must here observe that, although this sediment is a certain indication of some error of digestive functions, it does not necessarily denote so serious a state of complaint, as is here mentioned. In many instances I have seen it appear for a short time only, as an attendant upon transient derangement. In proportion, however, as its duration is continued, we must be led to believe in

a faulty state of the functions of the liver; and if the sediment continue to take place for months, the inference, that some alteration of structure in this organ must have followed such continued derangement of action as is indicated, would present itself.

Amongst the indications of a redundant circulation, existing with a relative debility of vessels, I may state the frequent occurrence of apoplexy in gouty persons, as life advances.

How much the œconomy of the circulating system is concerned in the immediate production of a fit of the gout, is sufficiently exemplified in the following phenomena. Previously to the attack, sometimes for several days, the lower extremities are constantly chilled; and the symptoms of inflammation do not under these circumstances take place, until the patient has been some time in bed, when the circulation becomes more equalised. This is at least one explanation why the paroxysm usually makes its invasion about midnight. When it does take place in the day, it happens as a consequence of some sudden excitement of the heart and arteries, from excess in stimulating liquor, as after a convivial entertainment.

We are now brought to the general conclusion, that gout is a disease depending upon a redundancy of blood with relation to the powers of the circulation, particularly affecting the system of the vena portarum, and the consequent functions of the liver; together with the production of a morbid

change in the secreted products of the alimentary canal in general, and of the kidnies in particular.

In proportion as the constitutional susceptibility to gout is stronger or weaker, whether founded in hereditary predisposition, or derived alone from habits of excess in living ; or increased by the influence of the disease long established in the constitution ; so it is obvious, that a fit will be accordingly excited at a more early period of life, and will be reproduced by a greater variety of remote causes, and a slighter degree of their application.

Enough has already been said to explain the common existence of dyspepsia in gouty persons, the stomach being the organ first over-excited in relation to its healthy powers, in the original institution, and in the subsequent recurrences of the disease. The liver not only suffers certain injury to its functions from the same cause, but it is also a fact, that a considerable proportion of gouty persons have the evidences of a bilious diathesis of constitution, both before and subsequently to the gout, as is proved in their being very subject to jaundice, and other chronic irregular actions of the liver ; and occasionally also to cholera morbus. The pure or mixed nervous temperament of the gouty, induces frequent and severe hypochondriasis, in connexion with the influence of weakened and morbid digestive functions.

When the gout has been frequent in its attacks, the sensibility of the nervous system is much increased, as is strongly exemplified by the various

premonitory symptoms which mark the approach of a fit, and the numerous sympathies which attend its continuance. The prevalence of cramp in gouty persons, which occurs in the paroxysm in the most exquisite degree, is a strong indication of high nervous irritation. The agitation of the mind is much more remarkable, than in any other inflammatory disease. The disposition to return at certain intervals (a character by no means so strongly marked in any of the other phlegmasiæ), although mostly to be referred to a periodical state of plethora, either general or partial, also shews how much the disease is connected with the nervous system, in which, the laws of habit are centered.

The influence of local causes in exciting a paroxysm is worthy of observation. A severe strain or contusion in a gouty person, sometimes produces only common inflammation, as I have mentioned some examples to shew; but at other periods, is immediately followed by a fit. Mr. Hunter remarks, "It is probable that the gout is not always an act of the constitution; but that parts may be so susceptible, or rather disposed for this action, that they may immediately run into it when deranged." The truth of this opinion appears to me in some degree questionable. The gouty inflammation is an external evidence of a morbid condition of the system. When from local injury in a gouty person, *common* inflammation alone is produced, I should infer the absence of the constitu-

tional gouty diathesis, and vice versa; so that I would rather affirm that gout is always, in a greater or less degree, an act of the constitution. This also appears to me, both the safer, as well as the more just conclusion to be adopted.

It seems beyond our scrutiny to point out the essential condition of the constitution, which respectively produces the several kinds of specific inflammation. Peculiar texture may be viewed as the entire source of the distinctive phenomena in the effects which arise from common inflammation, as we see in the example of a mucous and a serous membrane. But this consideration does not illustrate the difference of the two diseases, *gout* and *rheumatism;* as each disease is known to attack the same textures with very different symptoms and effects. The argument, indeed, might be much extended in application to other kinds of specific inflammation; in which, we see that each, although affecting the same textures in common, has its own peculiar laws of action.

It is unquestionably in the constitutional circumstances, that the grounds of our different pathology of these two diseases is to be found.

This part of my subject will again come under consideration, in the sequel.

The uric acid constituting the chief ingredient in the composition of gouty calculi, has led to that universal pathology of the disease with many theorists, which I have already noticed. From the same source, also, the hypothesis has probably

been derived, that the local action of gout is dependant upon the mechanical obstruction of the minute vessels; which was the favourite hypothesis of Boerhaave.

With regard to the curious phenomenon of the uric concretions, which occurs in occasional examples of gout, it is necessary in this place to advert to the opinion which some entertain, that this local secretion of the capillary vessels is a constant effect of the gouty inflammation in all cases of the disease; and it is assumed that the *concretion* does not follow, necessarily, because the secreted matter may be removed by the excretion of perspiration, and by the action of the absorbent vessels. This appears to me an extreme argument, and forced far beyond the bounds of fair reasoning. It could not happen in this manner, as the fact really is, that so large a proportion of gouty persons, as I have mentioned, should pass through life under the martyrdom of the disease, remaining wholly free from all evidence of these concretions.

It is also to be observed, that in some of the few individuals in whom this peculiarity occurs, it is found that repeated years of gout have passed away, before any trace of the concretions was found to exist. This morbid secretion does not necessarily require for its production, an active inflammatory action of vessels, or, in other words, an acute state of gout. It sometimes takes place under the chronic form of the disease.

We continually meet with proofs of the capricious action of the secreting vessels, and of such anomaly, the gout, in the manner now stated, occasionally affords a striking example. We have no proof of the existence of uric acid in the system, independant of secretion; or even if it were present, there is no apparent cause why it should not always be secreted by the kidnies, the glands obviously designed to separate saline matter; or why it should be thrown on the secreting vessels of the joints, or other distant parts.

I am disposed to conceive, that in these cases, the capillary vessels of the part affected with gout may act *vicariously*, in a greater or less degree, to the secreting vessels of the kidney. In three examples of the existence of *chalk stones* both in the hands and feet, I have found, by repeated experiments, a deficiency, and sometimes almost total absence of uric acid in the urine; in reference to the usual mode of obtaining it, by means of nitric or muriatic acid.

In taking notice of the *local* phenomena of gout, in its ordinary forms of occurrence, I have first to advert to the almost constant termination of the inflammation *without suppuration*. Only two examples have occurred under my observation, or within my knowledge*. In each instance, the re-

* The abscesses which are occasionally produced by the influence of the concretions, acting as extraneous bodies, must not be confounded with this description.

sult was curiously modified by an attendant secretion of urat of soda*.

Ligament is probably the texture which is the most frequent seat of gout; but the bursæ mucosæ, the sheaths of tendons, and the muscular aponeurosis, together with the respective vessels and nerves of these parts, may also be enumerated as textures *primarily* affected. *Secondarily*, the cellular membrane and skin share in the effects of the inflammation. The textures just now mentioned, belonging to the functions of the joints, do not appear susceptible of the suppurative inflammation. In the cases which I shall relate of gouty abscess, the purulent secretion was formed wholly in the common integuments.

Nor do we find that coagulable lymph is produced from the inflammation of gout. The thickened state of parts which is caused by repeated attacks, arises from a change of structure in the ligaments, the bursæ, and the tendinous sheaths; and also from the morbid secretion of the two last textures.

Mr. Hunter observes, "The inflammation of gout is very different from the adhesive and sup-

* I may here take occasion to notice, that, in every example of gout concretion which I have examined, uric acid and soda have proved to be the constituent ingredients. The nature of these concretions was first pointed out by Dr. Wollaston, who shewed, with his usual clearness of demonstration, that they are composed of uric acid and soda (see Phil. Trans. 1797, p. 387). Berzelius since speaks of them, as *super-urates* of soda.

purative in its sensation;" and further, "local inflammations depending on the constitution seldom or ever suppurate."

This last observation is, I conceive, rather exceptionable; and the explanation in question may apparently, with more correctness, be referred to the particular textures which are affected.

In gout, the inflammatory action of the vessels receives some abatement from the effusion, which in certain parts takes place abundantly, into the cellular membrane; and at the same time, the circulation is in a considerable degree restrained by the stricture of the vessels, which the great distension of cellular membrane and skin produces. Also some changes of sensation occur, in proportion as the swelling appears, and as the inflammation becomes more superficial. The severe sense of tightness, screwing, and boring, abate; the burning and throbbing, prickings and shootings, continue; and the cumbrous sense of weight and numbness, with entire disability, increase. It may be stated, that the most painful situation of the disease is in the deep-seated affection of the ligaments, and before the swelling and redness nearer to the surface take place.

In the course of the acute symptoms, the nerves of the affected part acquire the highest state of tenderness and irritation. In no inflammation, is the sense of throbbing so remarkable, as in gout. The pulsatory action of the minute arteries, which appears to be in part owing to the distension of

the contiguous parts operating as a ligature, is increased to the feelings of the patient, by the preternatural sensibility of the nerves.

In many examinations by the thermometer, I have found that gouty inflammation, when attended with severe pain, produces a much stronger sensation of heat in the affected part, in relation to the real quantity evolved from the inflamed surface, than is caused by common or rheumatic inflammation.

To exemplify this fact, I shall offer the following statements.

EXPERIMENT I.

W. W. *acute gout* in the left foot. The temperature at the external ankle, which he feels as the hottest part, and describes to be "in a strong burning heat," is 97°; two inches above, where he feels comfortable warmth, 94·5; at the external ankle of the other foot, which is beginning to be affected with the gout, but is not, he says, "half so hot as the other," 96°. Temperature in the axilla, 99°.

EXPERIMENT II.

J. P. *acute gout* in one great toe, with a sense of heat as if in boiling water; the temperature at

the hottest part is 84°; at the same part in the other toe, which is free from complaint, and feeling comfortably warm, 83°.

EXPERIMENT III.

W. C. *acute gout* (see CASE II.); April 15th. Temperature at the middle joint of the fore finger near the abscess, which gives to the patient a sense of heat, as if a hot iron were in contact with the part, accompanied with throbbing, pricking, and cutting, 94°; same situation in the fore finger of the other hand, which is free from complaint, 70·5; palm of gouty hand, 93·5; palm of sound hand, 81·7; the last joint of the affected fore finger, 94°; axilla in each arm, 96·5; under the tongue, 99°. He remarks that each part of the fore-finger at 94° feels very much hotter than the palm of the same hand at 93·5.

Ditto, April 17th. Temperature of the last joint of the affected fore-finger now feeling warm, but not very hot, and almost free from the painful sensations before mentioned, 87·5; the same part of the other hand, which he describes as comfortably warm, 75·5; of the middle finger of the gouty hand, which is beginning to be affected, is not yet red, but is very painful, and gives him as much sense of heat as water nearly boiling would occasion, 75·5; of the same situation in the middle finger of the other hand, which is healthy, and to

him feeling pleasantly warm, 69·5 ; palm of gouty hand, which has a much stronger sense of heat than the other palm, but is not expressed by him as painfully hot, 87·5 ; the other palm, 75·5.

EXPERIMENT IV.

W. H. *chronic* gouty inflammation of the back of the hand ; much swollen and accompanied with a sensation as if a lump of lead were upon it, and affected with occasional numbness and prickings. The temperature in the middle of the inflamed part, 96 5 ; of the same part in the sound hand, 84°. To himself, the sound hand seems the warmest; but he does not complain of disagreeable temperature from either.

EXPERIMENT V.

J. B. has had chronic gout in one hand for two or three weeks past, with much increase of pain and swelling within these two days. The back of the hand the part affected. It pits much on pressure. The colour of the skin is dark blue. He complains of considerable heat and throbbing, and suffers severely from the sense of weight and tightness. He describes the fingers as constantly cold, and usually almost without feeling.

Temperature between the fingers of the affected

hand, 63°; of the back of the hand, where he feels most heat, 86°; over the radial artery of this hand, where he has no unusual sense of heat, 91°; at the back of the other hand, which is perfectly free from inflammation, 74°; and between the fingers, 68·1.

EXPERIMENT VI.

J. D. *chronic gout.* Slight inflammation of the right wrist, with some preternatural sense of heat*, much thecal distension, so that the tendons seem matted together; the parts feeling tight, but scarcely painful, except on motion. Temperature at a spot near the radial artery, which he describes as the warmest part, 95°; at the same part in the other hand, which is free from complaint, 93°; and over the radial artery of this hand, 94°. His left foot is much swollen, and pits on pressure; towards the little toe the skin is vividly red, not very painful, and not feeling more than very warm. The veins of this foot much fuller than in the other limb, and particularly so near the inflamed part. Temperature at the warmest spot, 96°; at the same part in the other foot, which is free from complaint, 93°; just beneath the ensiform cartilage, 95·5.

* It is to be considered, that in all these examples of gout, the examinations were made in the day time; a period of the twenty-four hours, at which, the several painful sensations abate more remarkably in this disease, than in the other inflammations.

In every instance in which I have examined by the thermometer the state of parts under gouty action, however slightly existing, I have found the temperature more or less increased. This is illustrated by the three following experiments.

EXPERIMENT VII.

T. W. the last stage of *acute gout* in the hand and foot. A little remaining redness of a dark hue; much pitting on pressure; but this is borne almost without uneasines. Temperature between the thumb and finger, where most appearance of the complaint remains, but no particular sense of heat is felt, 93·5. At the back of the hand, 92·5. Between the thumb and finger of the other hand, which is free from complaint, 92·5. Between the great and second toe, where very slight gout remains without sensible heat, 89·5. At the ham of the same limb, over the popliteal artery, 88°.

EXPERIMENT VIII.

L. P. convalescent from *acute gout* in the foot. Expresses a slight degree of preternatural warmth at the ball of the great toe, where the temperature is 84°. Same part in the other foot which is not affected, 83°.

EXPERIMENT IX.

J. S. The last stage of *acute gout* in the side of one foot, slight aching only remaining; the most uneasy part scarcely warmer to his sensations than the sound parts, 86·5. Same situation in the other foot, 83·5.

EXPERIMENT X.

W. C. *rheumatic* inflammation in one hand, chiefly at the wrist. He expresses that he feels "fever heat, with some throbbing, gnawing, and pulling," and appears in very severe pain. Temperature at the ulnar side of the wrist, where he has most sense of heat, 92°; at the same part in the other hand, which is free from complaint, and comfortably warm, 85°.

EXPERIMENT XI.

W. C. *rheumatic* inflammation of one hand, and the whole of the wrist. She complains of pricking and shooting, and intense pain, and expresses the heat as that of hot water. Temperature at the most inflamed part, 97°; at the same part of the sound hand, the skin of which she feels as temperate, 93°.

EXPERIMENT XII.

M. H. has a whitloe at the middle finger; much surrounding inflammation; vivid redness of skin; the sense of heat as if in water just warm. Complains of severe pain, of much tightness, and some throbbing. Temperature at the most inflamed part, 83°; at the same part in the other hand, which has just been exposed to cold, uncovered, 66°. Palm of the affected hand, 88°; palm of the other hand, 69°.

EXPERIMENT XIII.

H. A. ulcer on the back of the hand, produced by a recent burn. The integuments are swollen, and pit on pressure; the skin vividly red; she complains of throbbing, pricking, and shooting, and describes the sense of heat as from scalding water. Temperature at the hottest part, 94°; of the same part in the other hand, which she feels pleasantly warm, 93°.

It appears from these experiments, that the sensation of heat (or of pain like that produced by a great degree of heat) which is experienced by the patient, even in gouty inflammation, corresponds rather to the degree of pain which is present,

than to the thermometrical* temperature of the affected parts; but it seems to me clearly proved, that, other circumstances being equal or nearly so, the gouty inflammation is productive of more intensity of sensation, both with respect to the heat and other sufferings, than in the contrasted examples of inflammation which I have offered. Haller considered the chief seat of the diseased local action in gout, as being in the nerves themselves. Without contending for the truth of this extreme position, which I consider too much an assumption, it certainly appears that the nerves are affected in a very remarkable degree.

In the case of inflammation from a burn, the subject of experiment xiii, it is shewn, that, as in some of the examples of gout, the sensation of heat was much more excessive than might be expected to have been present from the indications of the thermometer. In this kind of injury, we know that the nerves, in common with other parts, suffer violent lesion, and high consequent irritation.

The intense degree in which the gouty inflammation affects the nerves, is further exemplified by the following curious facts.

J. S. having the gout in both feet very severely,

* In these experiments, I employed a delicate animal-heat thermometer, covering its bulb with a thick cork hollowed out for the purpose, with a notch to receive the stem. As in neither experiment, the temperature of the apartment was more than 64°, I have not noticed the exact degree.

when much swelling had not yet taken place, and suffering such pain and sense of heat at the time, that he could imagine his feet in a furnace, or that some one was actually forcing into them red hot spikes, accidentally dropped on the inflamed part, a piece of tripe immediately from the boiling kettle. The skin became instantly vesicated, but he was not sensible of any increase of heat in the part.

R. D. having gout at its height in one foot, with much swelling, accidentally received a considerable quantity of *boiling* water on the part. The previous pain and sense of heat were only slightly increased; and, in this case, the cellular membrane being already extremely distended with serous effusion, no vesication ensued.

To the account which I have offered of the peculiar force of sensation which prevails in gout, I may add in recapitulation, the subsultus tendinum, tremor of muscles, severe cramps, and irritable state of the mind, which usually occur in a violent paroxysm; demonstrating altogether the acute sensibility of the brain and whole nervous system, which is connected with this disease.

I must not pass over entirely unnoticed, the circumstance of the desquamation of the cuticle from a part affected with gout, as the inflammation entirely ceases. Dr. Cullen notices it as among the characters of regular gout. In forty patients, with whom I have examined this point, I find that 15 have never experienced this symptom; not one of the 25 invariably, and many of them, in some

fits, and not in others: and in no instance, I believe, except from the hands and feet. This exfoliation of cuticle appears to be principally owing to the acrimony of the cutaneous secretion; but may probably, in part, be referred to the distension which the integuments suffer, obstrucing the free circulation of the extreme vessels.

Of the chemical composition of the urinous sediments.—A knowledge of the composition of the different sediments of the urine is so materially connected with the theory and practice of medicine, that I shall present, in the most compendious manner that I am able, some details on the subject; first taking notice of a refinement of opinion which has been advanced, respecting the peculiar acid existing in the pink sediment.

Proust*, many years ago, endeavoured to prove that the pink or brick sediment, to which he refers, *as the substance which during fevers separates itself from the urine at the moment of its cooling*, consists in part of a distinct acid, different from the uric, and which, from its colour, he termed the *rosacic*. In order to determine the propriety of this conclusion, I have, in repeated experiments, examined favourable specimens, both of pink sediment, and of the red crystals (gravel); and of this comparative investigation, as relating to the present question, I shall briefly offer the results.

* Annales de Chimie, vol. xxxvi. p. 265.

The crystals appear to be very little acted upon by boiling water, except sustaining some loss of colour, from the separation of animal matter; but if previously triturated to a fine powder, they acquire a considerable degree of solubility.

The pink sediment, collected on the filter and dried, is found to be an impalpable powder. It dissolves, with the exception of one tenth of its proportion, in boiling water; but partly separates into the solid state on cooling. Nitro-muriate of gold added to either of these solutions (of the crystals, or of the pink sediment) while yet warm, instantly produces a purple colour, and a precipitate subsides; but the effect takes place slowly, if applied to the liquor when cold.

Each substance is readily soluble in pure potash, and during the solution apparently yields to the muriatic acid stopper, the white fumes characteristic of ammonia.

The potash solutions, by the addition of muriatic acid, precipitate small grains of a greyish white colour, which, when washed, and treated with nitric acid in the usual manner by evaporation, and carefully heated, afford the rose hue * distinctive of uric acid.

* The rose hue which is obtained either from the crystals or the pink sediment, is heightened to a beautiful carmine by the addition of ammonia; and is rendered permanent in the evaporating dish for several weeks, if carefully dried and kept free from moisture. Without ammonia it more readily deliquesces, and assumes a yellowish green colour; but the former hue may

The crystals, separately treated with nitric acid (more favourably if diluted), afford the rose hue.

Precisely the same result is obtained from the pink sediment.

Muriatic acid added to the watery solution of the pink sediment, previously filtered, produces a precipitation of minute whitish grains; which, washed and treated with nitric acid, afford the rose hue.

Nitric acid added to the watery solution, evaporated and heated, presents the rose hue.

From these experiments it appears evident, that the uric acid is a constituent of each substance, and that the theory of a distinct* acid is not demonstrated.

be revived by heat; and, in a dry apartment, will continue a few days, more or less perfect. With or without ammonia, if transferred to paper, and preserved from light and moisture, the first tint is permanent. Lastly, the tint with ammonia, moisture being entirely excluded, remained unimpaired after daily exposure to light for about a month, when it began to fade.

* Subsequently to these experiments, I have read the paper on the rosacic acid, in the Annales de Chimie, No. 287, by M. Vogel, who concludes with noticing the similarity of the rosacic acid to the uric, and the easy transition of the one into the other, by means of the action of the acids. This fact alone, however, of its being changed indiscriminately by any acid, appears to me to invalidate his opinion, that the uric acid, and the rosacic so called, are distinct substances. All the facts which are stated, both here and by M. Vogel, seem to demonstrate that the phenomena do not depend upon mere conversion of the pink sediment into uric acid; but upon a separation of the uric acid, from some principle with which it was combined.

The crystalline form of the one sediment, and the divided impalpable nature of the other, in addition to its easy solubility in hot water, are circumstances of difference which are necessary to be considered.

Mr. Cruickshank observes of the lateritious sediment, " We have examined several portions of this sediment, and have generally found it to be composed of lithic acid, phosphate of lime, and some peculiar animal matter but little soluble in water. It has by some been supposed to consist entirely of lithic acid, but this substance for the most part constitutes by far the smallest part*."

I have derived the following results from my examination of different specimens of the pink, and brick-coloured sediment. Neither of the varieties effervesces with muriatic acid, nor affects vegetable colours. Heated before the blow-pipe or in the crucible, each kindles, blackens, emits pungent fumes, among which, the odour of prussic acid is perceptible, and consumes to a greyish ash. That afforded by the pink sediment forms about a tenth of the original matter. The ash of each sediment changes turmeric paper to brown, renders violet paper green, and dissolves with effervescence in muriatic acid, it having been converted into a carbonate, from the decomposition of the uric acid by heat. Ammonia added to this solution, causes a white granular light precipitate. Oxalate of ammo-

* Rollo on Diabetes, 2nd Edition, p. 449.

nia produces a white heavy precipitate. The ash on being exposed to the atmosphere, does not deliquesce*. This ash is also considerably soluble in boiling water; and, on the addition of ammonia, affords by its precipitates, the evidence both of phosphate of magnesia and of lime. Hence it seems to follow, that the pink sediment is composed chiefly of uric acid in combination, and animal matter, on which the colour may be considered to depend, together with a small proportion of the usual phosphates of the urine. It appears evident that the uric acid exists in combination with soda, for which it has a strong affinity. I have constantly found, that the sediment which is of the deepest pink colour, affords the least residue on being burnt, and contains the least proportion of the phosphates; and that in proportion as the shade of colour is lighter, the ash which remains is more abundant, and consequently the phosphates also. We may, therefore, form a good presumptive conclusion, of the nature of the sediment in the urine of a patient, from the colour

* In formerly believing that the ash was deliquescent, I conceive that from some accidental circumstance, I must have fallen into an error. In the several specimens of pink and lateritious sediment which I have lately examined, I have not found the ash left from long burning, to be in the least degree deliquescent; and it has invariably reddened turmeric, proving therefore that the alkali was *soda*. My notice was directed to the particular examination of this last fact, by learning from my friend Dr. Prout, that Dr. Bostock had found urate of soda in the pink and lateritious sediment.

alone. I have not found any difference of composition in sediments of similar external characters, whether procured from the urine of a person under gout, or any other disease connected with a faulty state of the digestive functions.

On examining the *crystals*, I obtained the same results as the above, except that the ashes which they left after combustion, were less than one-twentieth of their original weight, and consequently so minute, that when dissolved in an acid, they scarcely yielded a sensible precipitate on the addition of ammonia in excess. The two substances therefore appear to be very similar in their composition, and the probable reason why the uric acid does not crystallize in the pink sediment, is, that the animal matter or mucus discharged with it, so mixes with it, as to prevent it from assuming a regular form; for I have uniformly observed, that such urine as deposits the pink or lateritious sediment, is much loaded with a mucus-like substance; and that, on the contrary, such urine as deposits the crystals, is almost free from this mucus.

I lately had the opportunity of examining a small calculus, which was passed by the urethra from a gouty person. For a considerable time before its expulsion, it had occasioned irritation to the bladder, and for two days previously, excessive pain in the whole course of the cord on one side, and difficulty in the stream of urine. Since its discharge, he has been free from such inconvenience; but the urine has most commonly deposited

the lateritious sediment. The calculus was of the size and form of a full lemon kernel. Its colour brownish red. On being divided, the disposition of its component parts appeared in concentric layers ; the outer one yellowish, the inner brown ; and within, a blackish substance seemed like a nucleus.

The following were the results of my analysis. Almost wholly soluble in potash ley. Treated with nitric acid, it gave the rose hue. One grain boiled in distilled water left ·4 of a flaky yellowish residue ; and this, on being burnt, afforded a white ash of inappreciable weight, which reddened turmeric, did not effervesce with an acid, and proved to be pure lime. The filtered water on cooling deposited a profusion of minute pellucid needle-like crystals ; which, with nitric acid, afforded the rose hue. A portion of the water, concentrated with its solutions, on the addition of muriatic acid, precipitated minute grains, which also, with nitric acid, gave the rose hue. Pure ammonia added to some of the watery liquor produced a flaky precipitate, which on trial proved to be magnesia ; and with the filtered fluid, oxalate of ammonia instantly yielded the evidence of lime. Before the blow-pipe, the brownish red portion of the calculus blackened and gave pungent fumes. The blackish nucleus-looking portion kindled with a faint flame. The ash affected turmeric, and effervesced strongly with muriatic acid. In this case, the uric acid, which, in the boiling

process, was dissolved in the water, had been decomposed. The ash also afforded evidence of phosphate of magnesia, and phosphate of lime. Hence, with the exception of the presence of oxalate of lime, this calculus furnished results very similar to those of the lateritious sediment.

I now come to speak of the nature of the whitish or yellowish white sediment, and white shining crystals, which, as to their external character, I have before described.

When urine, as it is first passed from the bladder, appears turbid, it may immediately be pronounced to contain the phosphate of lime, and the ammoniaco-magnesia phosphate, both suspended and in solution; and on the cooling of the urine, a part of the crystallized precipitate forms with some mucus into an iridescent pellicle on the surface, and also subsides to the bottom, being the mixed sediment before mentioned. It is invariably accompanied by an abundance of mucus, which may be considered to be partly derived from the inner coats of the kidnies, but principally from the surface of the bladder; the arteries of these parts being excited to increased secretion, for the purpose of defence from such preternatural stimulus.

This urine, like that which precipitates the pink or lateritious sediment, is always of high specific gravity. It has been stated by authors, and it is the prevalent theory, that such urine is certainly alkaline; and the conclusion has led to a rule of practice, which I shall hereafter notice. I have ap-

plied the test of litmus paper, in at least thirty instances, to the most favourable specimens of urine of this description, and have invariably found it reddened in the usual manner. It is however highly animalised; very soon runs into the putrefactive process; and often contains such a remarkable excess of urea, that even without concentration, from the application of nitric acid in the usual proportion, crystals of urea very soon appear.

In order to the examination of the urine giving the mixed sediment in question, the following steps are to be pursued.

Filter the urine, and ascertain its specific gravity and other general characters. Collect the sediment from the filter, and adding diluted nitric acid to a small portion of it in the platina dish, evaporate it quickly over the lamp. Should the least portion of uric acid be present, the rose hue will appear, just at the moment when the evaporation is about to cease. From these trials, I have derived the knowledge that in every instance in which the sediment is entirely unaccompanied by red, reddish white, or pink, or pinkish white colouring matter, the uric acid is absent. The phosphate of lime thus treated exhibits a greenish white appearance, which quickly passes into yellowish white.

We are now to presume that the sediment consists of the phosphates; and this may be proved by digesting it in dilute nitric or muriatic acid. If the whole be dissolved without effervescence, and

be again precipitated by pure ammonia, it evidently consists of the phosphates. The triple phosphate of magnesia appears in minute grains, and being of light specific gravity, chiefly floats on the surface, and adheres to the sides of the vessel; while the phosphate of lime in small flakes immediately subsides to the bottom. I have invariably found the surface pellicle, which forms in urine depositing the sediment now under consideration, to be composed of the phosphates; and almost wholly of the triple phosphate.

Whether the white or yellowish white sediment of the urine consist of rough powder alone, or of shining crystals, or of both in mixture, and involved with mucus, the following is the more ultimate process to be employed.

Subject the mass to a red heat until the animal matter is destroyed, in a platina or earthen crucible. Supposing that it consist of the ammoniaco-magnesian phosphate, and the phosphate of lime, the ammonia having been expelled, the ash will be composed of phosphate of magnesia and phosphate of lime. This ash is found not to effervesce with muriatic acid; nor to affect vegetable colours. It is now to be analysed. It may be put into diluted acetic acid, which quickly dissolves the phosphate of magnesia, only slightly affecting the phosphate of lime unless heat be applied. What remains, therefore, undissolved, after a few minutes digestion, may be considered as phosphate of lime.—To the phosphate of magnesia now in solution, add pure ammonia in excess; which, neutralizing the

acid, combines with the phosphate, and unites to form the insoluble ammoniaco magnesian phosphate; and this salt, first appearing on the surface, slowly subsides in small shining crystals. The remaining part of the ash is to be treated for phosphate of lime, with muriatic acid and pure ammonia, as just now described*. The urinous sediment in question kindles and blackens before the blow-pipe without flame; emits an ammoniacal odour; and partly fuses, and forms into very thin enamel plates.

The dark sediment, possessing a blackish green colour, and appearing chiefly crystallised, alone remains for description. It kindles before the blow-pipe, blackens, and, apparently from the peculiar animal matter which it contains, burns with a faint flame. To the ash obtained from sufficient burning in the crucible, add diluted acetic acid, as in the former case. The kindling before the blow-pipe has already led to the conclusion that the sediment contained oxalate of lime; and this will be confirmed on finding that the ash (if extreme heat have not been used) affords a strong effervescence on the addition of muriatic acid. The crystallised appearance of this sediment, together with the peculiar colour of its accompanying animal matter, distinguish it to the eye from the pink and lateritious sediment, which also furnishes, on burning, a carbonated salt. For the analysis of

* Although this process is liable to some objections, where great accuracy is required, yet, from repeated trials which I have had occasion to make, I can recommend it as affording a proof of the existence, and a useful presumptive evidence of the proportions, of the two salts.

this ash, acetous acid is to be first employed, which proves a ready solvent for lime or its carbonate, as well as the magnesian phosphate. The acetic solution thus obtained, may be decomposed by oxalate of pot-ash, which will separate the lime; and the subsequent addition of carbonate of ammonia will throw down the magnesian phosphate. The remaining steps of the operation for the phosphate of lime, may be such as have been already described.

The ashes of the different sediments which I have examined, have invariably left some particles of a matter insoluble in muriatic acid, even with the aid of heat; and which appeared to be silex.

DIAGNOSIS OF GOUT, OR THE DISCRIMINATION OF ITS PRESENCE BY ITS SIGNS.

From Rheumatism, the gout is to be distinguished not so much by any one mark, as by the concurrence of several circumstances. In the first fit of gout, it seldom happens that more than one part is affected; and still more rarely, that more than one part is attacked at the same moment. This solitary disposition of gout, as to its situation in the first attack, is a striking point of discrimination; to which may be particularly added, the adult age. In ordinary examples, the diagnosis is not difficult. The remissions from pain and fever during the day, are much more distinct in acute gout than in acute rheumatism; and among the local characters which are striking in gout, the fol-

ling may be selected :—A serous effusion into the cellular membrane, which takes place almost immediately after the invasion of the fit in the parts already enumerated (p. 31), and which yields a pit to the finger as the inflammation ceases, and in a slight degree even before this, when the skin is not extremely tense ;—a turgescent state of the neighbouring veins, more marked and general than in rheumatism, sometimes appearing in the whole limb, and occasionally preceding the inflammation, a day or two, or even longer ; the severe intensity of pain accompanied with extreme sense of heat and violent throbbing ; the acute sensibility of the parts to touch, and particularly to any concussion ; the excessive sense of weight, with numbness and total disability. A Gentleman relates to me, that on one occasion just as he was convalescent from gout, after partial exposure to damp, he was seized with rheumatism in both arms ; the pain was agonising, peculiarly gnawing, and seemed to him to be in the very substance of the bone. He described it as quite different from his usual pains of gout. The symptoms which I have described, if not entirely distinctive, are strongly diagnostic. Sometimes the inflamed surface has a shining appearance as if varnished ; and occasionally desquamation takes place, a circumstance which I do not remember to have seen in rheumatism, unless as the consequence of particular applications. Our diagnosis is further assisted by collateral considerations, such as those derived from the habits of the patient, the constitution of the parents, and the

nature of those remote causes which may have led to the disease.

From Erysipelas.——The species, *phlegmonides*, can alone baffle the discrimination of the practitioner; and this only happens when it affects parts also liable to the gout. The inflammation in this complaint is more superficial than in gout, affecting primarily different textures, and is usually more disposed to spread. It is ushered in by stronger constitutional symptoms, as drowsiness, head-ache, and severe rigors, if the attack be urgent; if it be slight, the distinction may be deduced from the specific local characters. In erysipelas, the heat of the affected part resembles rather the stinging of nettles than the strong burnings of the gout; nor is there in erysipelas, the same disabled condition of the moving powers, as in gout.

From phlegmon, or common inflammation, the diagnosis can never be rendered difficult, except in a first case of gout; and even then, an attentive consideration of all the relative circumstances, constitutional and local, will remove every doubt.

PROGNOSIS.

In a first fit of gout especially, the favourable progress and termination of the symptoms are indicated almost solely by local appearances; and the event of first attacks is often so favourable, that the patient congratulates himself on the benefit

which he has received, or at least expects to receive. In the severe and complicated returns of the disease, it affords a very different prospect. Mr. Cruickshank remarks*, "In gout, the termination of the paroxysms is most perfectly indicated by a copious lateritious sediment; and when this suddenly disappears, and the urine at the same time affords a precipitate with the muriate of mercury, a fresh attack or relapse may be expected."

If this statement were correct, the practitioner would be furnished with a very simple guide in forming a judgment of the case; but I have invariably found, that except with very dilute urine, the muriate of mercury always produces a precipitate, even in health. With respect to the lateritious or pink sediment, it must be again observed, that its appearance and quantity are connected with the state of the alimentary canal, and of the circulation, and with the specific gravity of the urine itself. It begins and goes on with the fit, in a disordered state of the digestive organs, connected with some degree of inflammatory excitement in the system; and does not, as is sometimes stated, denote the close of the paroxysm, but the contrary. If, however, having disappeared, it again return, it certainly indicates, that the internal functions are not restored to health, and that, consequently, a relapse may be expected.

On the subject of prognosis, I am induced

* Rollo on Diabetes, p. 449.

to mention, among the favourable signs, the visceral organs being sound in structure, and not materially disturbed in their functions; an entire cessation of the sympathetic fever; the tongue becoming moist and clean; a return of natural appetite; the fæces recovering a healthy character; the urine *ceasing* to deposit sediment, and at the same time losing its high specific gravity; the nervous system becoming tranquil; the local sensations readily yielding in their severity to remedies, and the inflammation soon abating*, and not shewing a disposition to quick transference from one part to another; or if it be fugitive, not fixing severely in new situations.—The skin which has been affected, becoming pale and permanently cool, affords a favourable omen; and with regard to a desquamation of the cuticle, when it does occur, it may be considered as a strong indication that the inflammation is wholly removed from that particular part.

* Dr. Hamilton (Letters on Gout,) who assumed an opinion that the disease "depends on a fluid matter sui generis," speaks of a sweat issuing from the pores of the skin at the inflamed part, as the first sign of the resolution of the inflammation. He adds, "This discharge from the pores is accompanied with a very peculiar fœtor, which is the first and strongest proof, that is obvious to the senses, of the existence of the genuine gouty fluid." He pursues this idea of gouty effluvia at great length, and affirms that it is "like no other existing in nature." Except in two or three instances I have not been able to find that there is any truth in this asserted odour of a gouty part, and I can only consider the occurrence as the effect of a cutaneous secretion peculiar to the idiosyncrasy of some persons.

In proportion as the opposite circumstances are observed to take place, we have, according to my experience, the assurance of a tedious and intractable disease; and among the unfavourable signs, I consider the strongest to be, a quick transference of severe inflammation from one part to another, joined with painful sympathy of the stomach or the head; with irregular fever; and with exquisite sensibility of the whole nervous system.

TREATMENT OF GOUT GENERALLY CONSIDERED.

The prohibition of Sydenham against the least interference in the paroxysm, long exerted a powerful influence on medical practice; an influence which continues to this day to have considerable force. It is obvious that he derived all his opinions from the doctrines of the humoral pathology, which at that time pervaded the whole theory of medicine. His practice, as he himself declares, was still more rigidly cautious in the gout, "than in most other humoral diseases." In this disease, he says, "Nature seems to have the prerogative to expel the peccant matter according to its own method, and throw it off from the joints, there to be carried off by insensible perspiration." In his Treatise on Gout, he equally deprecated "bleeding, purging, and sweating, the only three ways proposed of expelling the morbific matter;" but in a subsequent treatise, "Of Bloody Urine, from a

Stone in the Kidnies," he expresses the following qualification: "With respect to purging, therefore, in the case of bloody urine, provided only manna be used according to the method above delivered, I must retract an assertion I formerly published in my Treatise on Gout; namely, that it is absolutely improper to purge gouty persons, either at the beginning, declension, or in the intervals of the fits: for I did not recollect then, that the fit, which I feared might be occasioned by the purgative, might be prevented by giving an opiate at night." He stills adds however to this passage, "If the gout only be attended to, all manner of evacuations are very pernicious therein, and therefore not to be used, unless the above-mentioned symptoms require them."

Much then as the moral sentiments, and a portion also of the medical reasoning of this amiable physician command our admiration, it would be unworthy of the great improvements with which time has since enriched our art, if we should continue fettered by the peculiar doctrines which I have quoted, and remain content to yield the cure of gout to *the nurse* alone. I freely admit what I have already stated, as a general position, that Nature is seeking a remedy for herself in a fit of the gout; and also that if her purpose were always accomplished with as much success as in a *slight* first fit, the physician might with propriety stand by, as a looker on merely, admiring the *vis medicatrix Naturæ*. But in truth the disease not only returns

frequently, but returns with constant increase of strength; and the remedial efforts of Nature, which were at first so satisfactory, become tedious, irregular, and uncertain. The gouty sufferer, gradually reduced to lameness, constant pain, and many secondary evils, suffers at length the fate described by Lucian, thus expressed in the Latin translation:

> " Multæ formæ infortunatorum,
> " Meditatio pœnæ, et consuetudo,
> " Podagros miseros consolentur."

Sydenham himself, in the feeling description which he drew of " the racking pains, unfitness of motion, and other disorders which afflicted him during the greatest part of his life," was a striking example of the imperfection of Nature considered as the physician, and of the erroneousness of his own doctrines of practice.

Under the artificial condition of man in social refinement, Nature is not always able (and seldom indeed permitted) to employ the wisest, shortest, or safest methods of cure. I trust that we are paying her sufficient respect, in attentively seeking to discover the kind of evil which she has to remedy; in taking all her indications for our guide, and acting truly as her servants; but not with *fettered hands.*

I would assume it therefore as a principle, that we should attempt the prevention of a fit of gout, if warned of its approach; and interrupt its pro-

gress when formed, *unless* such a state of the constitution exist, that the gout has taken the place of another more serious disease, or may be expected to prevent one which is threatening, and more to be dreaded than itself; but even in this case, it is incumbent on us to moderate the violence of symptoms; to study and fulfil particular indications; and carefully to estimate the balance of the present evil, with the expected good.

In the view which I have taken of this part of my subject, I shall first consider,

THE TREATMENT OF THE PREMONITORY SYMPTOMS.

These may sometimes be remedied with the effect of averting the threatened attack; and even when from the state of the system, in concurrence with general causes, this preventive object cannot be accomplished, the paroxysm will be rendered milder, and more tractable, by the previous removal of evident causes of irritation. Much may be effected by timely anticipation of that relief to the constitution, which Nature is about to attempt.

If the inflammatory diathesis be present in any considerable degree, general bleeding should be employed; or if congestion be indicated in the vessels of the head, or liver, or other internal organ, without an increased action of the pulse scarcely beyond the usual standard, local cupping will be more advantageous. Any tendency to hæmor-

rhoidal discharge which is manifested, should be promoted. With this view, aloetic and saline purgatives may with great advantage be administered in conjunction. The costiveness, which is so usual a fore-runner of gout, should be removed by an active purgative; and with this intention, calomel, antimonial powder, and the extract of colocynth. at bed time, followed by sulphate of magnesia, and infusion of senna with some aromatic tincture, in the morning, produce the best effects. If a furred state of tongue, with *heart-burn**, nausea alternating with a craving appetite, and acid eructations, be present, an emetic of ipecacuanha should be administered. If after the employment of suitable evacuations, the internal secretions continue to assume a vitiated appearance, as indicated by the state of the fæces and the urine, already described, small unirritating doses of mercury, according to the principles of Mr. Abernethy, and mild bitter aperients, constitute an efficacious mode of treatment. Alkaline medicine has its advantages, but produces only palliative relief, unless the bowels are also excited. Particular indications are to be met by corresponding remedies; but to the use of medicine should be joined careful moderation in diet†, or, on

* A medical gentleman, who has had severe fits of the gout, informs me that he has often taken warning from these symptoms; and considers, that by prompt appropriate remedies, and subsequent regimen, he has completely succeeded in averting a threatened fit, on several occasions.

† Quæcunque parit repletio, inanitio curat.

some occasions, a course of rigid abstinence; horse and foot exercise in the country air; repose of mind from anxious employment; early rest, early rising, and early meals; in one word, all the *lædentia* should be changed for the *juvantia*.

I have now to offer the arrangement which I have attempted.

OF THE TREATMENT OF THE PAROXYSM.

In our choice of remedies for the particular symptoms which appear in every individual case, we should reflect upon the kind and degree of the predisposing and exciting causes, by which the fit has been introduced; and our practice should be relative to such considerations, as well as to the age, constitution, and temperament of the patient.

I propose a detailed view of the several remedies which I have thought most deserving of attention, in the following order:

Of Bleeding.—The employment of the lancet in gout is not allowable with the same freedom as in the other phlegmasiæ, in most of which it is our chief dependance. It usually happens in the gout, that the increased excitement affects the nervous system much more than the heart and arteries; and, as I have before stated, the redundancy of blood appears to belong rather to the circulation of the vena portarum, than to that of the general

system. It may also be assumed as a practical fact, that this kind of partial plethora is more favourably and effectually removed by purgatives and diuretic medicine, than by the detraction of blood itself. With respect to the loss of blood from the system, as a remedy in gout, it appears to me wholly unnecessary for the removal of the local inflammatory action, to which other treatment proves very adequate. Nor does general bleeding, however freely employed, afford that relief to the local inflammation which might be expected. Of this fact I have seen many strong proofs. In one case, within my immediate knowledge, the patient was first attacked with inflammation of the liver, for which, from the urgency of the symptoms, seventy ounces of blood were taken from the arm in the space of thirty-six hours. In a few days, violent gout succeeded, and apparently not controuled in its severity by the previous depletion. In many instances I have seen the illustration of my present remark; and certainly it is a point of great practical importance. There are good grounds, therefore, for the objection to the general principle of bleeding in the gout; but it has been carried much too far, and a prejudice of very ancient date has been established against taking away blood *generally* in the gout, under any circumstances.

When the inflammatory diathesis is strongly marked by a full hard pulse, hot skin, scanty and high-coloured urine, with costive bowels, general bleeding will certainly be indicated, as it would

be were no gout present. And when any internal organ is affected with inflammation, the observations which I have just now offered of the unfitness of this remedy for the gout itself, alone considered, must not be allowed to have weight.—The greater indication must be obeyed. The quantity to be abstracted, and the repetition of the venesection, must be adapted to the urgency of the general inflammatory action; to the state of the affected organ; and to the effect produced. I may also add, that it should be in relation to the *powers* of the individual rather than to his age, of which, if we judge medically by years alone, we take a fallacious guide.

In forming our judgment as to the propriety of this active instrument of benefit or injury, we should give a due consideration to any influence from exciting causes, of a temporary or transient nature, such as the effects of sudden excess at the table, or of the passions of the mind; and which effects may be removable by other means. But when, under a predisposition of the system to inflammation, wet and cold, or a continued course of excess in stimulating liquors, have excited the paroxysm, the inflammatory diathesis is more permanent. In the circumstances in which bleeding is a proper remedy, its *early* employment is a point of much importance. When delayed, it will be found that the depression of strength resulting from the excessive irritation of the nervous system, counteracts its advantages in a great degree; and

although timely practice is important in all the remedies which are to be adopted, it is so especially with this of bleeding, in the few instances in which it is required.

The advantages of bleeding in the gout as a practice of familiar employment, have, I am persuaded, been much too strongly insisted upon by Dr. Hamilton*, and Dr. Rush†.

When there is tenderness to pressure in either hypochondriac region, not depending on a distended and faulty state of the upper bowels, but joined with strong indications of congestion in the hepatic circulation; or when marks of fulness in the vessels of the head appear predominant, the action of the pulse at the wrist not being increased, ample local cupping is to be preferred to the lancet.

Emetics.—From my own experience I am not induced to advise their employment, unless an evacuation of the stomach in a full degree is obviously required, from its being pointed out by indications of irritating contents. The influence which acid matter in the stomach may have in exciting or aggravating the symptoms, is such as to claim our particular attention.

I saw the good effects of an emetic exemplified in one very striking instance. A man, just seized

* Letters, &c.

† Rush's Medical Inquiry and Observations, vol. v.

with the gout in the hand, was in severe torture, so that he writhed and cried with anguish, and at the same time was affected with nausea, and had a furred tongue. He took a full dose of ipecacuanha; and, on discharging from his stomach much acrid acid, of a greenish appearance, together with heavy mucus, was so much relieved, that he fell immediately into a refreshing sleep; and although many other remedies became necessary for the removal of the paroxysm, this preliminary step was of great advantage.

Dr. Small* extolled, in his own case of gout, the use of an emetic, and gave the preference to tartarized antimony. This medicine he also gave with Peruvian bark, which, he says, in this combination acted very favourably as a mild laxative.

Cathartics and Diuretics.—On the choice and free employment of purgative and diuretic medicine, the successful treatment of the paroxysm chiefly depends. The least reflection upon the state of the system in gout; and how much it is connected with previous repletion, which exhibits its influence in various ways, and manifestly in the secretions, will necessarily lead us to this method of practice. When the eau medicinale, the hellebore and laudanum, and various other specifics, have been most successful in the paroxysm, the action has been powerful on the bowels. Many

* Medical Observations and Inquiry, vol. vi. art. 20.

authors have given their testimony to the propriety of purgatives in the gout; and Dr. Sutton*, who has recently offered many excellent observations on this disease, ably enforces the advantages of this treatment actively pursued.

In considering the rationale of the evacuating treatment from the alimentary canal, in gout, we must refer to the pathological principles of the disease, upon which I have already expatiated; and in this view of the subject, the following intentions seem to be presented: to unload the bowels of solid accumulation, and excite vascular secretion and consequent discharge throughout the whole tract of the intestinal canal; to promote the excretion of vitiated bile, and remove also the acid matter and unhealthy mucus to which disordered digestion has given rise. In some degree we thus detract from the circulation at large, and more particularly from the vessels belonging to the system of the vena portarum. In imitation of Nature's efforts to remove redundant matter by the medium of the kidnies—an action, the existence of which I think myself entitled to infer from my experiments—we are to keep the corresponding treatment attentively in view; and I have invariably employed, with the greatest advantage, purgative and diuretic medicine conjointly; so that the exhalant vessels of the alimentary canal, and the secreting function of the kidnies, are stimulated to increased action

* Tracts on Gout, &c.

at the same time. With this view, probably, some have employed elaterium; and, by Dr. Sutton, it has been advised in combination with opium. But when I reflect on the uncertain operation of elaterium, and its injurious violence occasionally, even in small doses, I can but consider, that unless in a sluggish state of bowels, which is also joined with anasarcous swelling in the extremities, its active nature should be rather dreaded than chosen as a regular remedy in gout. Under certain indications, and within proper limitations, however, it is a medicine as useful as it is powerful.

In stating the kind of purgatives which I have found most favourable and effectual, I shall offer, in as brief a manner as I can state, the general plan which my own experience has sanctioned, by its being attended with particular success. Occasional doses of calomel, in conjunction with antimonial powder, compound extract of colocynth, and a little soap, fulfil, in the most useful manner, the first part of the intention which I have expressed; and they should be repeated each night, or each other night, according to the degree of vitiation which the bilious and other matters from the bowels appear to possess, and according to the advantage derived.

For the purpose of co-operating with the medicines just described, so as to affect the bowels and kidnies at the same time, without nausea to the stomach, and with the least uneasiness to the bowels, I have experienced the most remarkable success from a draught composed of Magnesiæ

gr. xv. ad xx.*; Magnes. Sulphat. ʒj. ad ʒii.; Aceti Colchici ʒj. ad ʒii.; with any distilled water the most agreeable, and sweetened with any pleasant syrup, or with 15 or 20 grains of Extract. Glycyrrhei. It should be repeated at intervals of four, six, or eight hours, according to the freedom of its operation and the urgency of the symptoms; and I must dwell upon the importance of adapting the activity of this part of the treatment, entirely to the degree of gouty inflammation which is present. However reluctant we may feel to lower the powers of the patient by general bleeding, we must not be restrained by any unfounded fears of debility which may be entertained as to the present mode of reduction. Such apprehensions must be satisfied by those sound arguments of good practice, which the practitioner alone can demonstrate. The inconve-

* It has been suggested to me, that the combination of the alkaline earth with the acetic solvent of the colchicum appears *unchemical* and contradictory; and I think it necessary therefore to enter into some explanation of my views in this formula. I find by experience, that magnesia and the sulphate, in conjunction, act very happily as a certain and easy purgative; and that the colchicum, brought to the state of a mere solution in water by having its acid menstruum neutralised, is in the most favourable state of preparation in which it can possibly be administered. A very small portion of magnesia proves sufficient to neutralise the acetic acid, becoming an acetate, and the remaining portion is left to act as an ant-acid in the stomach and bowels, and unite with the sulphate in the advantageous effects just described. When the patient is furnished with this medicine in quantity, for occasional use, I recommend that the magnesia be added to the dose at the time only of its being taken; as otherwise it adheres with much inconvenience to the bottom of the vial.

nience of the operation will be abundantly compensated by the important advantages produced; and if any treatment of the paroxysm is entitled to be considered *radical*, I am sure it is one which aims at the removal of those obstructions and vitiated actions of the visceral organs, which are the great supporters of the disease. In the advice even of particular remedies, it is obvious that I can only lay down general principles of treatment; but I may say, that the purgative and diuretic medicines in question should be actively administered, until the gouty inflammation subsides; and so long as the urine, which is first passed in the morning, retains a high specific gravity; or, as a rule of more easy application, so long as it deposits sediment. In proportion as improvement in these points is obtained, the frequency of repetition of the medicine should be lessened, to twice or thrice in the twenty-four hours: but it should not be discontinued until all inflammation is removed; the fæces and urine acquire healthy characters; and the tongue becomes clean and moist. The fluctuation of improvement and relapse which a severe paroxysm of gout so often produces, must be watched with the best attention; and the use of effective practice should not carelessly be conceded to the first flattering marks of convalescence.

In two or three instances of particular idiosyncrasy, it has appeared to me that the colchicum, although thus mildly exhibited, by causing some distressing heat in the bowels, was too acrid in its operation to be continued. I have to add, how-

ever, that this symptom is very much owing to the vitiated state of the secretions. It often abates as the appearance of the discharges improves, although the same formula of medicine be continued; and the exception which must occur to all general rules, scarcely ever applies, according to my experience, to the fitness of administering this medicine in the paroxysm, or when gouty action is in any degree present, agreeably to the rules which I offer of combination with other general and particular treatment. I may affirm that this preparation of colchicum, in union with the other medicines, has never disappointed me in its effect, either to *assist* in the production of watery evacuation from the bowels, or to increase the discharge of urine abundantly, or both. It also assists the excretion of bile; and I may further mention, that it does not tend to produce the nausea and weakness of stomach which squill is apt to occasion; nor is the draught in question disagreeable to the palate.

Very rare occasions only (in the acute disease) will call for the preference of the more stomachic* purgatives; which are probably often prescribed upon the theory, that an atony of stomach necessarily belongs to gout, as a primary character.

Mercurial Preparations.—The administration of mercury during the paroxysm, and more especially in the interval, appears to have been recom-

* The London *gout cordial* is, I believe, composed of rhubarb, senna, liquorice extract, and aromatics, digested in proof spirit; and very similar to the gout cordial of *Boerhaave*.

mended by some authors from a theory of its *specific* operation; and by others upon more general principles. When employed occasionally as a mild alterative, or joined in a full dose with purgative medicine, this active agent has full claims to our regard. With the former intention, calomel, or the quicksilver pill, in a small dose with antimonial powder, or the compound calomel pill, produce excellent effects; but if any of these preparations be given in frequent doses, so as to excite mercurial fever, more or less of serious injury follows as a certain consequence, without any corresponding advantages. I shall mention three strong instances which I have witnessed of this general fact; but slighter forms of the evil to which I refer, such as increased fur of the tongue, and nausea, attendant upon an irritated stomach, and in union with much general nervousness, have frequently come under my observation.

In one gentleman, who in three days took a quantity not exceeding six grains of calomel, in divided portions, at bed-time, in conjunction with small doses of opium, while the bowels were daily acted upon by purgative medicine, a very severe salivation took place, attended with high fever and irritation. The gout, which had almost quitted him, and had declined in the most favourable manner, was re-excited, and became more painful, intractable, and tedious, than almost any case which I remember to have seen.

In another example, mercurial inunction had

been incautiously used by a gouty patient for a slight venereal complaint. The strong effects of mercury were produced, and a violent paroxysm of gout immediately ensued, which proved of unusual severity and duration. In a third case, the mercurial action, together with an attack of gout which seemed entirely *consequent*, produced such continued irritation and debility as proved fatal; the patient, also, I must add, having had a diseased state of lungs. I have been induced to suspect, from these and additional facts, that gouty persons, in general, are more easily affected by mercury than others. Whether or not this opinion be correct, I am persuaded that they require more than ordinary caution in the employment of mercurial medicines.

Upon this conviction, it is my invariable practice in using mercury as an alterative with a gouty patient, to give it in a single defined dose at bed time, each night, or each other night, according to the circumstances of the case; never to employ a large dose, except as an immediate purgative; and very cautiously to avoid the excitement of mercurial fever and irritation.

Pretended Specifics.—Of the unbounded list of boasted remedies for the gout, with which every age, from the earliest history of medicine, has supplied credulity, I shall notice under the present head, a very few only, and those of modern date and existing repute. Tincture of white hellebore

with laudanum (which has been offered as *identical* with the *eau medicinale**) has gained considerable estimation with some practitioners, either as an active purgative, or as possessing *specific* properties. From some examples which I have seen of its operation, I am convinced that it is too dangerous a medicine to be familiarly employed, and also that it can seldom be given in free doses to the gouty patient, with any prudence. Even in careful and gradual doses, its accumulated action sometimes becomes alarming, and causes serious hyper-catharsis. In its severer effects, under a bolder administration, I have known it to produce in quick succession, vomiting and purging, great depression of strength, spasms, and *burning* pain in the bowels, cold sweats, and in some instances tremors and faintings, and the very sensations of approaching death. I am informed, on good authority, of a case of gout, in which a saturated preparation of hellebore in alcohol proved fatal by its action on the stomach and bowels; and of another case in which the patient died apoplectic, after a free use of the tincture of hellebore and laudanum. This termination was attributed, and with great apparent probability, to the stimulating properties of the medicine.

A gentleman informs me that in his last fit of gout, which had attacked him severely in the feet,

* See Mr. Moore's Letter to Dr. Jones, on the Composition of the Eau Medicinale.

he took the tincture of hellebore to the extent of three drachms, in divided doses, in the space of twenty-four hours, joined with laudanum. It caused profuse perspiration; and the operation on the stomach and bowels was most alarming. The griping was so severe, and the depression of the animal powers so excessive, that, he declares, he wished for death.

Dr. Woodville mentions, that "upon opening those who have died by the effects of this poison, the stomach discovered marks of inflammation, with corrosions of its interior coat; and the lungs have been much inflamed, and their vessels much distended with dark blood*."

Even when the tincture of hellebore acts with comparative mildness, it has occasioned, under my observation, in two cases of gout, considerable irritation of the stomach, causing a distressing sense of heat, a white tongue, with thirst, and, together with inflammatory excitement, much nervous depression. Finally, of this medicine, I am well persuaded that in any form or combination, it should be entirely deprecated as a remedy for the gout.

The gratiola, or hedge hyssop, has been much extolled, and has, by some, been considered as the chief ingredient of the French medicine. I have employed a saturated tincture of the plant well prepared, without any satisfactory result; and indeed in the two cases in which I gave it free trial,

* Medical Botany, p. 276.

it proved rather an inert medicine. An eminent practitioner informs me, that he has seen effects from this tincture very analagous to those of the eau medicinale, when that medicine acts mildly as a sedative.

The *colchicum autumnale* has more particularly been asserted to be the essence of the eau medicinale; and certainly, on very insufficient grounds, active *specific* virtues in the gout have been assigned to this medicine*. Of the acetic preparation of colchicum (now in our Pharmacopœia) I have already spoken. I have repeatedly also made trial both of the powder and the tincture, but from neither have I been able to trace the smallest *specific* operation. It was taken in free doses, but with effects altogether unsatisfactory, when used in either of these forms, and relied upon as the only medicine. I observed that the stomach was irritated; an increased fur of the tongue, with thirst, were produced; and no certain action of the bowels occurred.

The *hermodactyl* of the ancients, a species of colchicum, seems to have been often employed as an ingredient in medicines for the gout; but doubtless its powers have lately been much overrated.

* Essays in the Medical and Physical Journal, No. 185, &c. by Mr. Want.

Such was the statement which I offered in the former edition of this work, which I have quoted, in order that I may lay before the reader, more clearly, my sentiments respecting this medicine. I am the more anxious to state the results of my increased experience with colchicum, because, thinking very highly of its powers in gout, under the mode of administration which I have detailed, I fear that I have not given to it the full credit which I think it deserves, in the preceding observations. I have not changed my general view of the nature of the remedy, as I shall proceed to shew; but I think that a more particular explanation of the grounds of my praise and dispraise of this medicine, than I have yet given, is due to the subject. This leads me to the consideration of a paper on the colchicum autumnale recently published by Sir Everard Home, in the Philosophical Transactions*; which I feel it incumbent on me to notice, both from some particular opinions which it contains, and from the recommendation given of the eau medicinale. This recommendation, from the high reputation of its author, is calculated to prolong the popularity, as I think, of a very injurious medicine, and to promote the exercise of empiricism. Sir Everard observes: "For the cure of gout, the eau medicinale of Husson has been most fortunately discovered to be a specific remedy, and it is now ascertained, by experiments on different people, that a

* Part II. 1816.

vinous infusion of the colchicum autumnale or meadow saffron, is equally so, and therefore the two medicines must be considered the same." The most substantial answer which I can give to the first of these opinions, will be found in the details, which I shall presently offer, of the effects of the eau medicinale on those gouty persons who have come under my care, and from whom I have collected their own unbiassed report. I shall state all the cases, of which I have thus come to the distinct knowledge, being desirous to offer to the public a fair and genuine statement of the question. That the two medicines are to be considered "as the same," is surely a very unsupported opinion, when it is made to rest only on the general assertion of a similarity of power in removing the immediate symptoms of gout. Although the action of medicines upon animals, contrasted with their effects on the human system, is liable to fallacious inference, an experimental comparison between the influence of the colchicum and the eau medicinale upon the dog, would have been interesting. The infusion of colchicum was the only agent employed, and the conclusion of its being the same medicine as the eau medicinale, appears to be founded only on the statement just quoted, that the paroxysm, or, to use the author's words, the local symptoms of gout yield to each medicine in the same manner. A general claim of this kind (if it be a wished-for object to represent the eau medicinale) may be maintained by many other medicines; as the tincture

of hellebore and laudanum; elaterium, guarded by opium; and, according to the opinion of some, even the gratiola or hedge hyssop: and two quack medicines, called Wilson's tincture, and Reynolds' specific, may be added to the list. That all these medicines, except the gratiola, have usually, for a time at least, an immediate controul over the local symptoms of gout, I am well assured; and much observation has taught me, that the tincture of colchicum has also a similar influence, but in a far less degree.

Dr. Sutton, when speaking of the eau medicinale, states*, "When I became acquainted with the publication which announced its efficacy, I proposed to my medical friends a substitute for this secret medicine, and which should produce similar effects: this was elaterium, in doses of one or two grains, with forty or sixty drops of tincture of opium. In one case, I soon had an opportunity of finding this remedy to be completely effectual; and Mr. Green, of Lewisham, administered it in smaller and repeated doses, in two instances, with the best effect; in one of them with such rapid success, that the patient thought he had taken the French medicine." It is well known that Mr. Mores's preparation with hellebore, for a long time, was considered to be the eau medicinale; and, doubtless, this belief was in a great measure founded on a comparison of the effects of the two medicines. Wilson's tincture and Reynolds' specific, have, in

* Tracts on Gout, &c. p. 201.

many instances within my knowledge, acted successfully in removing the immediate appearances of gout, as readily as the eau medicinale, and particularly the former medicine. In some cases I have procured equal palliative power from opium alone; in others, from opium and antimony; and opium and digitalis; but with each of these medicines, my attention has also been given to the action of the bowels and kidnies. I have traced a considerable difference in some of the effects on the system, which all the various medicines I have mentioned have respectively produced; although they have had so much, in common, the effect of procuring a *palliative* cure. The construction which should be fairly given to the term *specific*, deserves some discussion. Sir Everard Home, in his zeal to commend the eau medicinale, and the vinous infusion of colchicum, describes its power over gout, as corresponding in point of efficacy with that which mercury possesses over the syphilitic virus, with no other difference than that of being more rapid in its operation. Dr. Parr in his medical dictionary, thus expresses his article, "*specifica* (from speciem faciens, peculiarly adapting) specifics. By specifics, are meant such medicines, as infallibly and on all patients, produce given salutary effects; acting by some unknown power on the disease, without being directed by indications. Such was the bark supposed to be in intermittents, and mercury in lues: such are the boasted remedies of the quacks. In general, how-

ever, as sound science has increased, these vaunted specifics have disappeared, and we now find no remedy which does not, by some action on the system, point out the principles by which its salutary effects are produced." The very general success of mercury in destroying the syphilitic virus in the system, gives it a real claim to the title of specific. The Peruvian bark deserves almost the same general praise for its speedy and permanent controul over a regular intermittent fever. This, however, cannot be said of the eau medicinale, tincture of colchicum, tincture of hellebore and opium, elaterium and opium, Wilson's tincture, and Reynolds' specific. They do, in most instances, for a few trials, influence the local symptoms very speedily, but so far from removing the cause of gout, they leave the disposition to the disease much stronger in the system, with less powers, it is true, to produce violent inflammatory attacks; and lead to the still more calamitous, because more constant pains of the chronic form of the disease. With the effects of elaterium and opium, I am the least acquainted; but I have had abundant opportunity to know that each of the other medicines, sooner or later, disappoints the patient of his expected cure, rendering merely a palliative assistance, and keeping the disease dormant for a time only, so that it is left to prey on the constitution with more lasting and serious ill effects. In an inveterate paroxysm of gout, I should not be induced, from my experience, to place any confidence in the tincture of colchicum,

as the only medicine administered. In two cases of gout in both feet, very lately, I gave a fair additional trial to the powers of this medicine. It produced, in each instance, very similar effects; the fur of the tongue was increased, and there was much thirst. It acted on the bowels as an acrid purgative, causing remarkable heat in them, and also affected the kidnies as a diuretic, very favourably. The symptoms of gout yielded very soon, but returned after an interval of ten days; and the disappointed patients begged for other treatment. One very gouty person informs me, that in the summer season he took every day, for three months, six grains of genuine colchicum root dried. At first it affected the bowels and kidnies moderately, and he felt improvement in his limbs. Afterwards it had scarcely any sensible action. At the expiration of the three months, and first at the beginning of October, he was seized more violently with the gout, than upon any former occasion; and not adopting any medical treatment, he was confined, with severe symptoms of gout, to his chamber for nineteen weeks, suffering for three weeks great torture, equally day and night. In three well-marked cases within my observation, the gout has returned with increased malignity after the use of Reynolds' specific; in the same manner after Wilson's tincture: and with respect to this last medicine, one gentleman, who took it very steadily for many months, and was a warm advocate for its effects, relates to me, that the

gout, which formerly observed intervals of at least three months, has, since the indulgence in this nostrum, returned every ten or fourteen days. His previous favourite remedy was the eau medicinale, and from the similarity of operation in his case, he considers the medicines as the same. I trust that I have now satisfactorily explained the grounds of my conviction, that not one of the medicines in question has any claim to be pronounced a *specific* for the gout. I have admitted their general power of occasional dominion over the local symptoms, as Sir Everard Home has very properly expressed it, and so far, therefore, I coincide with him; but I deny their power to remove the internal causes which have produced the fit; which, if thus neglected, soon shews itself again in external symptoms; and which is not to be considered as a peculiar virus in the circulation, to be rendered harmless by any one particular medicine. From a very careful investigation into the properties of colchicum, I am led to think that the acetic acid takes up all its active properties, and that, given in the formula which I have already mentioned, it produces all the good effects of which the medicine in its other forms is capable, and is not chargeable with any one ill consequence. I have given the draught in question, containing from one to two drachms of the acetic preparation, in the height of the paroxysm every four or six hours, and afterwards at intervals in the twenty-four hours, suitably distant, for weeks in succes-

sion, without the least inconvenience to the stomach; and almost invariably found it act as a pleasant diuretic purgative in the most favourable manner. In the paroxysm and afterwards, I must, however, observe, that I have embraced several other points of treatment; and have by no means confined myself to the use of this draught, of which, from an experience very extensive in its effects, I have now spoken in such terms of confidence and praise*.

* In Bernard's edition, Leyden, 1743, of a very old Greek M.S. upon the Gout, written by Demetrius Pepagomenus at the desire of the Emperor Michael Palæologus, who reigned anno 1282, and which appears to have been first rendered into Latin by Marcus Musurus, at Rome, in 1517, I find the following prescription:

"*Compositio simplicium Pilularum purgantium.*—Aloes pars una; *hermodactyli* dimidium; glycasini aut cinnamomi quod hermodactylus stomacho sit infestus, dimidium; scammoniæ pulcherrimæ sextans. Ex iis fiant pilulæ; denturque pro viribus, materiæ copia, et natura ejus medicamenti quod datur, et tempore."

In several other prescriptions in this little Treatise, the hermodactyl was the principal ingredient.

Quincy, in his Dispensatory, 11th edition, 1739, observes of the colchicum, "that it stands so much in the esteem of some writers, as to be dignified with the name of Anima Articulorum, the soul of the joints." Because they believed it to be very efficacious in scouring the mucilaginous glands, and preserving them free from the lodgment of such gritty matter, as occasions the gout and arthritic complaints. Quincy makes reference to many officinal preparations containing colchicum, and thence styled *arthritic*.

Mr. Battley, the chemist in Cripplegate, whose useful labours in preparing and preserving all vegetable medicines in their

Upon the *Eau Medicinale*, I shall offer my observations at considerable length. Of the composition of this medicine, I have no satisfactory conclusion to offer; but I do not give credit to any of the supposed discoveries of it. I have carefully again examined the preparations which have been stated to represent it, and have added to my former report, the account of Wilson's Tincture and Reynolds' Specific. This statement I subjoin*, in

most pure and active state amply merit the thanks of the profession, informs me, that he is making a set of experiments with colchicum, as to its best mode of preparation, and he promises to favour me with the earliest communication of his results. He purposes to take the root about this period (the beginning of June), just at the time when the old bulb has nearly disappeared; expecting to find that the new bulb is possessing more active properties than in autumn; the season when the plant is in flower, and whence it derives its appellation *autumnale*.

* In the examination of the following medicines, I used a very moderate temperature (not exceeding 120°) in bringing them to the consistence of syrup, leaving them finally to spontaneous concentration. After the first evaporation, I added distilled water to the mass, and re-evaporated; performing this process twice, so as to prevent any fallacious inferences which might arise from the difference of menstrua in the several preparations. The following were the results, the wording of which I have a little varied from my former statement; having conferred with an ingenious chemist on the best comparisons of the sensible properties of the medicines.

Exp. 1. *Eau Medicinale.*—Colour, similar to the extract of gentian; smell, very similar to it inclining to the treacle lozenge; taste, much resembling the extract of gentian; soon deliquesces after being dried.

Exp. 2. *Mixture of tincture of white hellebore, and vinous tinc-*

order to shew the marked contrast in the sensible properties of the respective medicines; and such a demonstration, in connexion with some points of difference in their action in the system which I find each medicine to possess, very sufficiently proves to my mind, that they are all more or less essentially of a distinct nature. The medicines now in question seem to possess a common power of exciting the action of the bowels, the kidnies, and the skin, in conjunction with some anodyne quality; and hence their influence over the local symptoms of gout, in producing a temporary cure.

With respect to the chemical part of the inquiry into the nature of these medicines, we are

ture of opium.—Colour, similar to the Eau Medicinale; smells slightly, and tastes strongly of opium; deliquescent.

Exp. 3. *Tincture of Colchicum.*—Colour, light brown; smell very similar to the extract of hop; taste, slightly but distinctly bitter, and entirely different from that of the Eau Medicinale; deliquescent.

Exp. 4. *Tincture of Hedge-hyssop.*—Colour, almost black; no distinct comparable smell; taste, very bitter, like Taraxacum; dried and exposed in a damp apartment, very slowly and scarcely deliquesces.

Exp. 5. *Wilson's Tincture.*—Colour, pale brown; smell, resembling that of extract of gentian mixed with orange peel and an aromatic; taste, similar to what is afforded by the substances just mentioned mixed together; deliquescent.

Exp. 6. *Reynolds' Specific.*—Colour, blood-red, resembling compound spirit of lavender evaporated; smell, slightly similar to benzoic acid; taste, at first sweet, but afterwards imparts to the tongue a slight taste like that of benzoic acid; deliquescent.

confined within narrow limits; for, as is well known, the substances of the vegetable kingdom do not admit of satisfactory results in any attempt of ultimate analysis. From this cause, an easy and convenient cloak is afforded to the purposes of empirical compounders of medicine.

The credit of the Eau Medicinale appears now to have declined so universally, that any laboured exposure of this baneful nostrum might appear unnecessary; but as it still finds some strong advocates, and as the panegyric bestowed on it by Sir Everard Home* must tend to encourage an inclination for this remedy, in the minds of those persons who are impatient of the rules of regular treatment, I shall endeavour to discuss its real pretensions.

In the first trial of the medicine, it proves in most instances a powerful palliative or short cure; removing the paroxysm as by a charm, and not unfrequently without any very sensible operation upon the stomach, or upon any of the excreting organs. This curative power of the remedy gradually lessens on repetition, and with many persons becomes entirely lost. Such disappointment occurs very commonly, even where its first agency produced the most flattering expectations. In one example

* I will not apologize for the freedom which I have used in criticising the statements of this distinguished author; being well assured, that from his zeal in science, he will court the contest of opinion, where any important truth is to be established.

of peculiar idiosyncrasy, which came under my observation, the patient reported that he had in a severe paroxysm taken six bottles (procured from the depôt) within a few weeks, and yet from this free use of the medicine no sensible influence, either as to operation or relief, was produced. On the other hand, the capriciousness of its action is now and then manifested by very alarming consequences; affecting the stomach and bowels with all the virulence of an active poison. Such opposite effects from the medicine may perhaps, in part, be attributed to accidental difference in its strength*, but chiefly, I presume, to the modifying influence of constitution, in different individuals.

To the objection derived from the uncertain immediate agency of this medicine, although certainly it is one of great importance, we might reconcile ourselves with less difficulty, than we can to that of its insidiously leading to a train of subsequent evils; the former being only an inconvenience of a similar kind to that which attends the use of every active substance derived from the vegetable kingdom. When the eau medicinale does not immediately debilitate by the violence of its effects, it often leaves behind an impaired condition of the nervous system; so that the head is affected with frequent giddiness; the stomach

* In an old bottle of the medicine which I examined, the sediment, which adhered tenaciously to the bottle, was considerable.

with weakened digestive power, and frequent sensations of sinking and vacuity; the limbs, and especially the parts affected in the paroxysm, suffer for many weeks with tremblings, numbness, and coldness, and very commonly with tedious œdema; these symptoms appearing variously in different individuals. It tends also to render the bowels inactive, to diminish the alimentary secretions, and materially to weaken the functions of the liver. In the general character of the medicine, it may with truth be stated, that sooner or later, in proportion as it is freely employed, it leads to a broken state of health. Of its deleterious powers in a more immediate manner, I may offer the following examples.

In one case, the contents of a single bottle taken as a dose, so paralysed the stomach, that for many days it was scarcely sensible to the strongest stimulants. The patient was recovered with much difficulty, and remained for a long time in a state of serious debility.

Mr. Ring* relates an instance of its causing the death of a gouty patient, by the direct violence of its operation.

Dr. Gregory, the distinguished Professor of Medicine in the University of Edinburgh, has received full conviction, from his own observation, of the injurious tendencies of the eau medicinale in gout. One of his patients almost fell a victim

* Treatise on Gout, p. 175.

to the cholera which it produced. Another was soon affected with symptoms of hydrothorax. In the next attack of gout, this patient rashly repeated the medicine, and hydrothorax again followed. His health was as before fortunately restored by good treatment; and his lessons of future prudence were purchased at a sufficient price in the dangers he so narrowly escaped.

This was my former report of the character of the eau medicinale; and I have now to offer my promised further details.

CASE I.

J. S. aged 55, robust and plethoric; of nervo-sanguineous* temperament; gout first at 29, not hereditary. In one paroxysm, just on its decline, took fifty drops; its effects delightful, and operating mildly on the bowels. Repeated it on several subsequent occasions, and believes that he has taken a dozen bottles. Gout returned every month or two since this use of the medicine, not so painful as before, but very harassing; and contrary to former experience, the stomach became much weakened, with severe symptoms of dyspepsia; and the bowels were with difficulty regulated even by medicine: In every attack since, also has noticed abundance of the pink sediment in the urine.

* Sanguineous the chief character, but mixed with the nervous; and vice versa, when sanguineo-nervous is expressed.

CASE II.

L. M. aged 59; formerly robust; corpulent in the abdomen only, and constitution much worn; of sanguineo-nervous temperament; gout first at 25, not hereditary. Has taken the medicine many years past. It has always quickly removed the painful symptoms; but it has been only palliative, as the fits which previously returned twice, or at the utmost three times in the year, have since taken place every four or five weeks. Last week took three bottles; half of one each night; the stomach much nauseated every day, and on the morning following the last dose, he vomited so severely that arterial blood came from the stomach; and this has happened before. Has recently complained of an unusual weakness in all his joints, and of an œdematous state of ankles towards night, which has much alarmed him. He looks very sallow and unhealthy, and is altogether highly nervous; much more so than formerly, but asserts that he does not consider his stomach weakened, or his digestion impaired.

CASE III.

D. T. aged 46, robust and plethoric; of nervo-sanguineous temperament; gout hereditary, and first fit at 30; took the medicine in one attack, in full doses, with much less effect on the immediate symptoms than commonly happens, and considers that it produced such uncomfortable and even alarming feelings of the head, which continued

very troublesome, that he would not be induced on any account to repeat the medicine.

CASE IV.

C. B. aged 56, formerly muscular; corpulent in abdomen only, and now very infirm in the limbs; of nervo-sanguineous temperament; gout first at 26, not hereditary. When he began the medicine he took a bottle at twice on succeeding nights; it did not operate sensibly, nor much relieve the paroxysm. For a year and a half after, no regular fit, but often affected in a distressing degree with flying pains in all the limbs, to which he had never before been subject. Doubtful whether this chronic state of complaint had been produced by the medicine, or from cold. In the next painful attack, took half a bottle, without the smallest relief.

CASE V.

C. L. aged 56; very corpulent and plethoric; of nervo-sanguineous temperament; gout hereditary, and first fit at 42. Having severe gout in one hand and both feet, and quite disabled, at six in the evening took three parts of a bottle; it almost immediately produced delirium, which became violent, but yielded to a profuse perspiration. It acted moderately on the bowels. At six next evening, could walk across the room even without a stick. The swelling and soreness of the parts remained a fortnight, but without much pain. For a long time unusually nervous. Fit returned in

four months. Took, as the first dose, half a bottle, with much relief to the symptoms; but it first produced delirium as on the former occasion. Four months after, in summer, again attacked, when he repeated the medicine. Has not resorted to it for three years past, and his final report is, that for some time after its use, he suffered much from flying pains in the head, with other uncomfortable feelings; from dyspepsia; cramps; œdematous swelling of the legs with much weakness; and indifferent sleep. He became extremely corpulent; as already stated, the recurrences of gout were frequent; and since the discontinuance of the medicine, he adds, the fits have observed an interval of twelve or fifteen months, and his health has latterly, from regular medical treatment, much improved.

CASE VI.

T. F. aged 44; corpulent in the abdomen; of nervous temperament; gout first at 37, not hereditary. Four years ago, both feet and hands being attacked, took half a bottle at bed time; no particular operation except a gentle perspiration; was so much relieved, that he could walk about the room next day. Much chronic gout afterwards, and in two months had a return of severe symptoms; then took four bottles in the course of the month. All acute pain again removed by the medicine; but says, that his limbs have been distressingly weak ever since, and much disposed to œdematous swelling.

CASE VII.

W. J. aged 52; robust and almost of the sanguineous temperament; gout first at 49, not hereditary. Took one bottle at twice; it nauseated exceedingly, and acted much on the bowels; the immediate symptoms quite relieved; but long after, he suffered so much dyspepsia, and severe occasional spasms affecting the stomach, that no suffering of pain would induce him to take it again.

CASE VIII.

D. W. aged 40; plethoric and corpulent; gout hereditary and first at 28. In a severe fit took the third of a bottle; in about four hours, the pain subsided into numbness; perspiration followed, succeeded by a sound sleep. Next morning walked down stairs; the head uncomfortable, tight and heavy; no effect on the bowels, which were confined; thinks it was diuretic. Some purgative salt removed the unpleasant feelings of the head. Not aware that the next fit returned sooner than usual; on its occurrence, took half a bottle, its effects sudorific; on the following day was able to take a short journey in a carriage; next fit returned soon, and attacked both feet (the previous time one foot). Took a third of a bottle; it gave immediate relief. Gout returned very soon and very severely. Again took the medicine, when it acted both as a purgative and a sudorific, but only in a slight degree mitigated the pain. This fit, which lasted several

weeks, left the head for a month after extremely uncomfortable; his feelings were wretched; had often *horrors;* was for a long time very dyspeptic, and suffered much from chronic weakness of limbs.

CASE IX.

H. B. aged 62; robust, plethoric, of sanguineo-nervous temperament; gout first at 47, not hereditary; has taken the eau medicinale freely, and has been a great advocate for its effects, finding it always prove a quick palliative; but confesses that the fits, which formerly observed distant intervals, have, since the use of this medicine, so much increased in frequency, that of late he is almost always more or less under the influence of gouty pains in the limbs.

CASE X.

O. J. aged 60; slight in limbs, but corpulent in the abdomen; of nervous temperament; gout first at 25, not hereditary. Took the medicine three years ago; half a bottle in the morning, the remainder in the evening; says that it proved almost fatal; produced constant nausea, violent pains in the abdomen, without any effect in the bowels for five days. The paroxysm was very much relieved. Concluding that he had not taken the medicine properly, resumed it shortly after, both for the purpose of removing the remaining symptoms, and to act as a prophylactic; but the gout returned soon, and with its usual severity.

CASE XI.

T. K. aged 57, corpulent and plethoric, of nervo-sanguineous temperament; gout hereditary, and first fit at 30. When attacked severely in the feet, took one third of a bottle; it produced much delirium, and excessive perspiration. Opium affects his head in the same manner, in a slight degree. Next day took the remainder of the bottle, with a similar effect. It did not disturb the stomach and bowels. No relief to the symptoms. At intervals only of a few days, took a second and a third bottle in divided doses, being resolved to give full trial to the medicine. Again the same effects as before, but in a less degree. The gout not checked in its course, and it progressively attacked the feet, knees, hands, and elbows. Relates, that after the third bottle, he seemed to gain some motion of the fingers, and felt that the medicine was searching every part; yet the fit was of six weeks continuance, and upon the whole not apparently relieved by the medicine.

CASE XII.

C. L. aged 51, corpulent and plethoric; of nervo-sanguineous temperament; gout hereditary, and first fit at 42. In a severe attack, took first half a bottle. It nauseated much, caused great perspiration, acted strongly on the bowels, and removed the pain in three hours. Took the remainder of the bottle, at divided doses, within the next

three days. In four days could just walk without assistance. Has taken altogether six bottles, dividing each into four doses. Does not think his stomach particularly weaker since, or that he is more nervous; but reproaches the medicine with having caused an extraordinary frequency in the returns of his gout.

CASE XIII.

P. A. aged 28, moderately robust; plethoric, of sanguineo-nervous temperament; gout first at 21, not hereditary. In a severe attack, took a bottle at two doses; it nauseated very much, but had not any other operation, and did not relieve the symptoms.

CASE XIV.

T. W. aged 41, formerly rather stout and corpulent, but now thin, and much worn in constitution; truly of the nervous temperament; gout first at 28, not hereditary. Has taken three bottles: the first at twice, with an interval of a few hours. It produced very severe cholera. The stomach was left remarkably weak for some time. The affected parts were relieved from pain almost immediately, yet remained a long time much debilitated. The second bottle acted as before, but less severely, and had not much influence on the symptoms. Never suffered in the loins, as he has done of late severely, before taking the medicine.

The third bottle had less operation than the second, and did not in the least degree influence the painful symptoms.

CASE XV.

C. W. aged 64, robust, corpulent, and plethoric; almost of the true sanguineous temperament. In a severe attack, took a bottle at two doses. It produced much perspiration, but no other sensible operation. The symptoms which were at first relieved, returned in a few days, and continued more tedious than on any former occasion; indeed he was hardly free from them before a fresh fit took place. For some time, "lost the natural feelings of his feet very remarkably. They were so cold and benumbed, that he feared he should never recover their use."

CASE XVI.

L. S. aged 46, corpulent and plethoric, of sanguineo-nervous temperament; of highly bilious diathesis; gout hereditary, and first at 35. Began the medicine three years ago. It acted as a narcotic, producing sleep; caused some perspiration; and affected the bowels moderately. One bottle removed the painful symptoms of the paroxysm, leaving only weakness; but the general debility was also considerable and of long continuance, attended with many nervous symptoms. On a second occasion took another bottle in divided doses, which left behind still more remarkable

debility, and for a long time much trembling of the hands and knees.

CASE XVII.

S. B. a female, aged 50, corpulent, plethoric, and of nervo-sanguineous temperament; gout hereditary, and first at 47. In the first fit took one bottle in three doses, without any marked operation, and with slight relief only to the symptoms.

CASE XVIII.

C. T. aged 48, robust, plethoric, of strong bilious diathesis, and of sanguineo-nervous temperament. Gout hereditary, and first at 40. In an attack of both feet, took half a bottle with much relief to the symptoms. It acted as a purgative. Contrary to custom the paroxysm returned in the same year. Repeated the medicine, taking a bottle at twice with only a few hours interval. It acted as a strong poison, producing severe cholera. His stomach was left for a long time much weakened, his limbs very œdematous; and, in mind and body, he experienced a depression and languor, which he had never before known.

CASE XIX.

W. M. aged 42, slight, and of the nervous temperament. Gout hereditary, and first at 28. Has taken several bottles of the medicine. The first gave immediate relief; it acted slightly as a purgative and diuretic. In the subsequent use of

it, the paroxysm became so slightly relieved, and returned with such unusual frequency, that he gave up the remedy in despair. He adds that it rendered him very bilious, highly nervous, and his limbs became exceedingly weak and much affected with cramp.

CASE XX.

S. J. aged 41, of nervo-sanguineous temperament; gout first at 30, not hereditary; very subject to violent attacks of the disease. In the beginning of a paroxysm, took a bottle in two doses; and not finding the smallest relief, did not persevere; but does not ascribe any ill consequence to it.

CASE XXI.

W. L. aged 42, corpulent, rather plethoric, of the nervous temperament, with a scrophulous diathesis. Gout hereditary, and first at 34. Has altogether taken twelve bottles of the medicine (procured from *Befort*) without any discoverable effect either of benefit or injury, although in one attack took two bottles at two doses, with an interval of a few days only between each. In all this gentleman's attacks, the gout has assumed chiefly the indolent chronic character.

CASE XXII.

G. K. aged 55, thin and delicate, of the nervous temperament. Gout hereditary, and first at 28. A butcher. Two years ago, having an attack in

both feet, took a bottle at twice. The first dose stupified him. Awoke in a strong perspiration after seven hours sleep. It had not any sensible effect on the stomach and bowels. Afforded great ease. He took the remainder of the bottle on the succeeding night. Appeared to the by-standers to be stupid and convulsed. So much mended on the following morning, that he stood in his shop, and, it being warm and settled weather in autumn, rode out in a cart. Suffered a severe relapse in the ankles, instep, and toes of each foot, and both knees. Repeated another bottle with similar immediate effects, but was left very weak and low. Gout returned, in the hand, within two months. Again took the medicine with similar inconvenient action on the nervous system, but with less controul over the symptoms. Reproaches the medicine with having produced such weakness in the back and lower limbs, that ever since, he has been under the necessity of using a pair of crutches.

CASE XXIII.

B. R. aged 41, corpulent, plethoric, of nervo-sanguineous temperament, and of very bilious diathesis. Gout hereditary, and first at 28. In a severe attack, took half a bottle at bed time, without any immediate effect; the remainder in the morning. Violent cholera ensued, with much perspiration. The symptoms quickly removed. No remote ill consequence on that occasion. In the next fit took two or three bottles, in divided doses, within a

few days, but without much relief. On the following attack, still believing in the powers of the medicine to give ease, took four bottles in the course of eight days. It did not at all mitigate the symptoms, and the following distressing results were produced. The bowels were left very inactive. He was afflicted with hypochondriasis. The limbs were extremely weak and œdematous, and even ascites took place in a considerable degree. The muscles of the whole arm were remarkably relaxed, and of the thumb in an extraordinary degree. Indeed, in this gentleman's case, the indulgence in this medicine brought with it such dangerous symptoms, that he considers himself as having narrowly escaped from death.

Sir Everard Home himself in describing the power of the Eau Medicinale, mentions that he has ascertained it more than six times by experiment on himself, in the paroxysm of gout; and this very fact, taken by itself, appears to me to point out that the medicine does not possess more than palliative power, when it acts most favourably; and cannot have the least claim to be called "a specific remedy for the cure of gout." How much evil it tends to produce in the constitution, I think, is sufficiently exemplified in the foregoing cases.

In conclusion of the subject, I shall at least repeat my former affirmation, strengthened as it is by additional conviction, that the usual bad results

which the Eau Medicinale produces, are very slightly balanced by the few examples in which it has given continued satisfaction; and unless its composition should become known, and then receive some useful combination with other medicines, and from union with more general principles of treatment, I hope it will be entirely discarded from the list of remedies for the gout.

The Peruvian Bark has been recommended very strongly by Dr. Tavares*, a Portuguese physician, as possessing the power of cutting short the paroxysm, and rendering its returns less frequent. He quotes further in its favour the authority of Dr. Held, and his remarkable praise of the remedy, in the following words: "Uno verbo, cortex peruvianus in podagra *divinum est remedium.*"

Dr. Small also, in the paper already quoted†, offers a favourable testimony of the effects of bark, freely administered in the intermissions of pain and fever, and when the local inflammation has abated.

I have not hitherto been induced to make trial of this medicine in a paroxysm of gout; both from the perfectly satisfactory success of other treatment; and from an unfavourable idea which I en-

* Observationes et Epicrisis de Corticis Peruviani salutari et proficuo usu in Podagra.

† Medical Observations and Inquiries, vol. vi.

tertain of the propriety of bark, in the circumstances under which this disease occurs.

Sudorifics.—Medicines of this class, as tending to debilitate the stomach, should be given with some caution. Antimony, in small doses, and conjoined with opium, in order to lessen the stimulating action of that medicine; and also with calomel, when it is used as a purgative, or as an alterative, is an important remedy, and has always appeared to me very useful. I consider, however, that the skin should not be made a channel of evacuation, either for the removal of the fulness of the habit, or for the diminution of the local inflammation. When the treatment is such as to relax the skin very powerfully, an obvious disadvantage follows; namely, that of an increased susceptibility of the surface of the body to changes of the atmosphere, at the period of convalescence; and the consequent danger of relapse. A hot and dry skin will be much relieved by free sponging with tepid vinegar and water, by cool drink, and by a well-ventilated apartment, kept at a moderate temperature. All sources of stimulus to the circulation being avoided, the heat of skin soon yields to the action of the purgative, diuretic, and sedative medicines.

Narcotics.—Opium, under proper management, is a remedy no less advantageous than

powerful for the relief of the most distressing of all the symptoms, *the pain* of the disease.

Although Sydenham, upon the humoral principles of practice, considered the pain to be "the disagreeable remedy of Nature," and "a security to the patient's life," he permitted, in the event of violent pain, a dose of laudanum in the evening.

Warner expatiates warmly on the comforts which laudanum afforded him. He employed, with great propriety, a watery solution* of opium; and occasionally also an anodyne elixir, the formula† of which is complicated, and constitutes too heating a preparation. The good effects which opium is capable of affording, are dependant on the manner of its use, both as to the preparation and dose, and other points which I shall mention: accordingly as it is administered, it may either aggravate or relieve the severity of the sufferings.

Dr. Cullen observes‡, "The opiates give the most certain relief from pain; yet, when given in the beginning of gouty paroxysms, they occasion them to return with greater violence."

As a rule of practice, always requiring careful consideration, any excessive state of inflammatory diathesis, and a constipated state of bowels, should be removed previously to the administration of opium.

With respect, however, to the first part of this statement, we have to estimate the genuine effects

* A full and plain Account of the Gout, p. 166.

† *Ib.* 164. ‡ First Lines, Par. 570.

of the stimulus of pain on the action of the heart and arteries, as well as upon the immediate vessels of the affected part. Sir Everard Home, in an interesting paper*, "On the influence of the nerves, upon the action of the arteries," has related several experiments which unite very well in the support of my present conclusion, that in any inflammation dependant on local and general irritation of the nerves, our rules of treatment must often be varied from that which we observe in the primary excessive action of the vessels in *common* inflammation, from which the nerves become affected in a secondary manner. On many occasions, in the gouty paroxysm, when the patient has described the pulsatory throbbing of the inflamed part, to resemble almost the successive blows of a hammer; when the heart has been in inordinate action; and the inflammatory diathesis has appeared altogether urgent, I have stood by the bed side and witnessed the happy power of a free administration of opium, in causing an abatement of the action of the vessels, and producing universal tranquillity in a short time†. Nevertheless, under the circumstances which I have just stated, we must employ united means; and although the use of general bleeding may be dispensed with on most occasions of this kind, we must avail ourselves of other modes of relaxant

* Phil. Trans. 1814, Part II.

† The effects of opium, in the agonizing pain of tooth-ache, when that severe affection of nerve produces high sympathetic fever, also illustrate the present point of pathology.

practice, in addition to the sedative influence of opium. In this intention is comprehended the action of purgative and diuretic medicine, and the procuring of a cool and soft state of the skin.

In an ordinary state of the bowels, and when pain is urgent, the full action of a purgative is not essential as a preliminary; and under these circumstances, I have met with success in the exhibition of the draught p. 186, at regular intervals, conjointly with the opiate at bed-time in adequate doses; so that by the united effect of each remedy, relief has been obtained without delay—the influence of the mercurial purgative being added or not, as the particular symptoms might require. Under this regulation, comprising a due action on the bowels and kidnies, I have not found the observation of Dr. Cullen, just now quoted, to be confirmed; but I have several times experienced, that if I have trusted to the purgative, or the opiate, singly, a re-action of the circulation and violent return of pain have taken place at night.

In reference to the method of employing the remedy now under consideration, I shall quote the following excellent remark of Dr. Sutton:—"In the use of this medicine, also, it must be observed, that the benefit is not connected with a small dose of opium; but the quantity is defined by its producing a complete cessation of pain *."

I have myself found the use of this medicine remarkably successful in its crude state, and when

* Tracts, &c. p. 216.

joined with a small dose of antimonial powder. The patient being furnished with twelve pills, each containing one grain of *crude* opium and half a grain of antimonial powder, may be desired to take one, two, or, if pain be very severe, even three at bed-time, as the first dose, and repeat one every hour or two afterwards, according to the degree of pain; this being the only regulation as to the quantity to be employed, when no contra-indications are present.

It is worthy of consideration, that so powerfully does pain modify the influence of opium on the nervous system, in every kind of disease, that it may be given in the boldest doses without hazard, or ill effect, when pain is intense * ; and in no other way than by the active repetition of such doses, can it be really efficacious, when the occasions for its employment are urgent.

* Lately a striking example of this fact occurred to me. A young woman of delicate constitution suffered severe torture from some branches of the fifth pair of nerves supplying the cheek; the pain being of equal intensity with that of the *tic douloureux*. Even delirium ensued. Three grains of crude opium, and one grain of antimonial powder, were administered as the first dose; and of pills, containing a grain of opium and half a grain of antimonial powder, one or two were desired to be repeated every hour, until pain should be overcome. Twelve grains of opium were thus taken in twelve hours; the pain was removed, and not the least inconvenience was experienced. A fortnight after, a little pain threatening the return of former suffering, she had recourse to one pill; but this now very sensibly disagreed, and caused sickness, and confusion and uneasiness of the head. Abundant proofs of the truth of the position in question I might state, both from my own experience, and on the authority of authors.

It has long been a desideratum that this medicine should be rendered as free as possible from its heating and stimulating qualities, which prove always more or less unfavourable to its anodyne effects, and often forbid its employment, even when pain demands its use. The Lancastrian or *black drop*, which is a concentrated preparation of opium procured from boiling and digestion in a vegetable acid*, is found to agree with many individuals much better than any of the usual forms in which it is prepared; and of this fact I have had many convincing proofs. The chief advantage

* Dr. Armstrong, in his late valuable publication on "Typhus and other Febrile Diseases," gives the following account of this medicine: "The black drop was originally prepared, upwards of a hundred years ago by Edward Tonstall, a medical practitioner of Bishop's Aukland, in the county of Durham, and one of the society of Friends. The recipe, passing into the possession of a near relative, John Walton of Shildon, who also prepared that medicine, was found amongst the papers of his brother, the late Edward Walton of Sunderland, and by the permission of my much respected friend Thomas Richardson, senior, of Bishop's Wearmouth, one of his executors, it is here inserted.

"Take half a pound of opium sliced;—three pints of good verjuice;—one and a half ounce of nutmegs;—half an ounce of saffron. Boil them to a proper thickness, then add a quarter of a pound of sugar, and two spoonfuls of yeast. Set the whole in a warm place near the fire for six or eight weeks, then place it in the open air, until it become a syrup: lastly, decant, filter, and bottle it up, adding a little sugar to each bottle."

Dr. Armstrong quotes the authority of a friend, in estimating the strength of this preparation, to be as one to three, compared with the ordinary tincture of opium. He considers from his experience that this view his just; and my own trials of the medicine, both on myself and patients, lead me exactly to the same conclusion.

which it has appeared to possess, has been in much less disturbing the stomach during its immediate operation, and the head on the following day, than either the tincture or wine of opium prepared according to the Pharmacopœia. It is perhaps imagined that the vegetable acid does not dissolve the resin of the opium, which appears to be the most heating of its component parts, but this is not a correct opinion; and although the black drop, both from its menstruum, and from the palatable ingredients mixed with it, proves rather grateful to the stomach, I must consider it a heating preparation. The resin of opium, apparently from the influence of extractive matter also contained, is in a considerable degree soluble even in water. M. Orfila quotes some experiments*, to shew that the watery extract of opium is of all its preparations the most active; but that each of its component parts possesses more or less of an anodyne power; and of the unessential principles (if I may be allowed this expression), the resin, the most. He adds, that the resinous part, although separately and freely administered, does not inflame the mucous membrane of the stomach. Later examination tends to disprove these statements, as I learn from Mr. Battley, who has bestowed much attention on the subject. This gentleman has succeeded in forming a preparation of this inestimable drug, which is entirely freed from the saline, the resinous and other stimulating properties (to use

* Traité des Poisons, partie iii. p. 144.

his own words), which he considers as impairing its useful qualities as a sedative, on the principle before-mentioned, that in certain cases of pain accompanied with peculiar irritation of the nervous system, these properties counteract the favourable anodyne effect of opium; but at the same time he is led to believe, that the power of the medicine to relieve pain simply, is considerably diminished by the absence of the resinous and other principles. He employs processes of decomposition * to obtain his results, and promises to communicate his method to the public, when he has confirmed his opinions fully to his own satisfaction. I have made trial of the fluid preparation, to which he gives the name of liquor opii sedativus, and must in justice declare, that it has produced very satisfactorily all the effects of an anodyne and a sedative †, namely, in relieving pain, and procuring tranquillity and sleep, with less subsequent inconvenience to the nervous system, the skin, and the action of the bowels and kidnies, than from any other form of opium which I have used with equal freedom. In one most urgent case of pain from gout, attended also with excessive nervous irritation, I found it

* I have not yet had the opportunity of forming any judgment of the medicinal properties of *Morphium*, the principle newly announced by M. Sertürner, and stated to be the characteristic constituent of opium. See Thomson's Annals of Philosophy, No. LIV.

† By the term anodyne, I speak of a medicine relieving pain; by sedative, of a medicine more particularly allaying simple nervous irritation.

necessary to give in divided doses one hundred drops in the course of three or four hours; and this, for two or three nights in succession. No inconvenience followed, and the patient was much satisfied with its superiority over other preparations of opium, which had been variously tried. In this case, I may add, the extract of stramonium (from the seeds) had also been given in free doses without success. So far as I can at present judge of the relative strength of this medicine, I should direct it in similar doses with the tincture of opium of the Pharmacopœia; and I am convinced that it may be much more relied upon as a sedative. In extreme pain, however, opium in any form deserves our full confidence, and in the liquid state, the most, from its more immediate power of acting. I require for myself further experience, to convince me as to the comparative power of the liquor opii sedativus and the usual tincture, in relieving *extreme* present pain; but when this symptom is to be anticipated at night, I would recommend a dose of Mr. Battley's medicine (either in the liquid or solid form, and in such combination with antimony or other medicines as the case may require), or of crude opium with antimonial powder, according to the formula before suggested, but in small doses, early in the evening; and to be repeated afterwards, if necessary, at suitable intervals. With this last view of *preventing* pain, I am not entirely decided in my preference between these two last medicines; but certainly, when relief from weariness and exceeding restlessness, instead of urgent pain, is

sought to be procured, I should not hesitate to choose this new and very excellent preparation; and I may add, that when administered for such purpose, the doses, begun and repeated, should be small; namely, from five to fifteen drops.

Notwithstanding, however, these stated improvements in the mode of administering opium, there are some occasions of particular idiosyncrasy of constitution, in which this medicine cannot be borne in any form. So repugnant is the nervous system to its influence in these instances, that sometimes even a moderate dose of the syrup of the white poppy produces a state of temporary delirium; and in less aggravated examples of disagreement, the smallest portion of opium confuses the head, and deranges the stomach in a distressing degree. The exceptions to the advantages of employing opium, when pain, not depending on *common* inflammation, is urgent, fortunately do not often occur; but with such persons as do experience from it, in any dose or form, an increase of nervous irritation, so that even the relief from pain is an advantage too dearly purchased, it is incumbent on us to make trial of other narcotics, respecting which, I shall give a brief account.

The extractum hyoscyami, as a sedative and weak anodyne, is entitled to some reliance; but it has appeared to me to vary in its powers more remarkably than any other in this class of medicines. Thus, with some individuals, three or four grains twice in the day, prove a quantity as much as can be taken without disagreement; while, in other

instances, a drachm in the twenty-four hours is given without inconvenience: but when the system is not soon sensible to the influence either of this medicine, or of *conium*, which I should place in the same scale of power as a sedative, it follows, according to my experience, that a perseverance in the dose is quite useless, and tends only to weaken the stomach. The very opposite degree of effects produced by all vegetable medicines, does, in most instances, unquestionably depend in a great degree on their different mode and state of preparation, and consequent virtue*; but with respect to the statement just given of henbane, I have made reference to cases, in which the same extract was employed.

The humulus lupulus was strongly recommended by the late Mr. Freake, as a remedy in the paroxysm of gout; but from very sufficient trials which I have made of this medicine, I can assert that it is quite undeserving of dependance. It is

* It not only happens, that the extracts of the vegetable substances are sometimes ill prepared in the first instance, but also that they undergo decomposition from long keeping, and particularly if in a damp situation. In order to have a vegetable medicine most active in its properties, the first step is to collect the plant in its best state of vigour; the next is the drying it by a proper heat; and the last, to reduce it to powder, and put it up for use in a closely stopped bottle, covered with dark paper to secure it from the influence of light; according to the method which the College directs. In this statement, however, I admit, that an extract well prepared, and carefully preserved, is also fully entitled to our confidence.

in any case a very weak sedative. This opinion is also supported by the experiments of Dr. Bigsby*.

The soporific medicine prepared from the inspissated white juice of the latuca sativa, or common garden lettuce, introduced to our notice by Dr. Duncan, sen. is well entitled to good report; and I am happy in this opportunity of bearing testimony to its virtues. The tincture of the dried leaves, or of the dried inspissated juice exuding from the plant when wounded, evaporated to the consistence of extract, to which the Professor has given the name of *lactucarium*, is the preparation of which I have made trial; and from my experience of its effects, in at least a hundred miscellaneous cases, I can very much recommend it as a mild sedative, calculated to tranquillize without stimulating; to allay a cough; to assist sleep; and, in a *slight degree*, to relieve pain. But I find that the dose should be more freely administered, than I have understood to be directed; and indeed a smaller quantity than four or five grains at bed time, to be repeated also at convenient intervals, in a similar dose, as occasion may require, would, according to my experience, be insufficient to any satisfactory result.

I have endeavoured to compare the powers of this medicine with those of the lactuca virosa; and although I do not consider these trials sufficiently confirmed, to be stated, I am certainly led to give

* See Medical Repository, vol. iv. p. 287.

a positive preference to the latuca sativa, prepared as Dr. Duncan directs*.

The use of the datura stramonium, or thorn-apple, prepared and formed into an extract from the seeds of the plant†, has lately been revived to the notice of the profession, and much recommended as an active anodyne by Dr. Marcet‡. I have on several occasions made trial of this extract, in free doses, in the severe pain of gout; but certainly with a most inferior effect to that afforded by the forms of opium which I have mentioned: and now on every occasion of prescribing for the relief of severe pain in gout, I do not hesitate to confine myself either to crude opium, or to Mr. Battley's extract or liquor; but, to return again to those cases of exception, in which opium is inadmissible from the idiosyncrasy of the patient, I must very conclusively give the preference to the stramonium over all the other narcotics which I have tried. It has most succeeded in relieving that kind of pain which is dependant upon, or im-

* Mr. Probart, of Great Portland-street, by my recommendation, has been at great pains to prepare this medicine in a genuine manner; and sells it under the name of Lactucarium.

† Mr. Battley informs me, that in his opinion the far more active properties of stramonium reside in its capsule. I shall take the first favourable opportunity of putting this comparison to the test.

‡ See a paper on the subject, Medico-Chirurgical Transactions, vol. vii.; to which, for further particulars of the properties of this medicine, I refer the reader

mediately connected with spasm of the muscular fibre; and, given at bed-time, is well calculated to counteract the tendency to cramps. I have never found it necessary to commence the dose in a smaller quantity than a fourth of a grain twice a day; and, as to the maximum, I should say, that when used with the freedom of ten grains in the twenty-four hours, in divided doses (of course gradually brought to this amount), if it do not produce decided advantage, its use should be entirely relinquished. In conclusion of the subject, I think it important to add, that I have obtained more decided advantage from employing the stramonium extract and lactucarium, in conjunction, than from the former separately; and from much reflection on my experience with these medicines, I am tempted to affirm that the former acts most as an anodyne, the latter as a sedative; and that where both effects are desired, they will be most favourably procured from the union of the two preparations.

The *atropa belladonna*, or deadly night-shade, is a narcotic of well known activity, and in cases of pain and spasm, which have resisted other anodyne and sedative preparations, it is eminently entitled to trial*. In hooping-cough, and in one case of spasmodic asthma, I have been much satisfied with its effects; but in the gout, having suc-

* It is not imaginary to state, that all the narcotic vegetables have their own peculiar mode of acting, and which may be called *specific*. Hence the propriety of change, when any one narcotic disappoints our expectations.

ceeded in soothing by other narcotics, I have never yet been induced to employ it.

The aconitum napellus, or wolfs-bane, is quoted by Barthez (tom. i. p. 152), as efficacious in relieving the chronic pains of gout. From such little experience as I have with this medicine, I am not disposed to give it confidence.

That I may not be misconceived in my opinion of the value of the narcotic class of medicines, in relieving the symptoms of pain and irritation which the gout produces, I must, in conclusion, state, that in the importance which I do attach to them, I view them as subordinate to the more principal means of treatment; as auxiliary only to the primary objects of removing inflammatory action; of rectifying all the secreting functions; and adjusting the circulating system to a healthy balance.

Diet.—It is in this important particular, most generally, that the greatest errors are committed by the gouty patient. This fault is sometimes founded on his own love of habitual indulgence; but it is also connected with the false doctrines which he has imbibed concerning the disease, and with mistaken notions of the prevalence of debility.

The avoiding of every circumstance with regard to food, both in respect to its quantity and quality, which can produce hurtful excitement; and still more especially, the shunning, or very cautious employment of wine or any spirituous stimulant, are

obviously considerations of the utmost importance. Not only, are the symptoms of the paroxysm aggravated and prolonged by errors of this nature, but the additional evil of erysipelas sometimes arises as a consequence, and takes place either in conjunction with the gout, or as an immediate sequel to it. Of this result I have seen some very striking examples. Under very acute symptoms, the nourishment should be wholly fluid, and not stimulating. A debilitated stomach, with weak constitutional powers, may sometimes require a diet rather cordial and supporting, even in the paroxysm ; but this matter should be managed with much discretion. We should be careful not to support the disease, at the same time that we assist the powers of the patient; and on this principle, any stimulant article in the nourishment should be subservient chiefly to the curative employment of medicines.

On the few occasions which authorise the use of wine in the paroxysm, it should, as a general rule, be given in dilution ; and its cordial powers are in general most usefully obtained when mixed with some article of nourishment, such as arrow root, sago, or gruel.

As a diluent beverage, rennet-whey is equally agreeable and useful. Sometimes the thirst of the patient is so urgent, that he desires the coldest drink, and solicits even that the water should be iced. I have not opposed an inclination thus dictated by disease ; nor have I seen any harm pro-

duced by the occasional use of such a refreshing indulgence. Yet the action of the medicines on the bowels and kidnies must be studied by frequent draughts of warm diluting fluid, as tea, thin gruel, or very warm water alone. Acidulated drink is usually unfriendly to the gouty stomach, and especially during the paroxysm; but I have met with some instances, in which even at that time the free use of lemonade has perfectly agreed. I need hardly mention, that, during the action of the mercurial purgative, acid matter should be avoided in every shape, and the warm fluids already mentioned ought alone to be in free use.

With the exception just mentioned, the subacid fruits in season, as oranges, and grapes of a good quality, and apples roasted, may be included in the proper gratifications of the palate; and beyond this also, permission may be given to use them, when they perfectly agree with the patient's stomach, and are not contra-indicated.

Bodily exertion.—Sydenham advised that the patient should take daily exercise in a carriage, even in the beginning of a fit, except when in excessive pain. Such a degree of resolution as this would require, is not easily practised, nor can I assent to its propriety. It would indeed be incompatible with the attentive treatment suggested in these pages. The opposite extreme, however, of the entire quiescence and relaxing influence of the bed, is to be equally opposed. Practice affords us

abundant proofs in how great a degree, a stiffness and debility of the limbs may be counteracted by moderate and early efforts of exercise.

Van Swieten relates * with pleasantry, the story of the dancing-master, whose large family did not allow him to be long idle in nursing his gout.

Some few on being threatened with an attack, have removed the symptoms by the spirited exertion of a long walk; but it is a doubtful experiment, and is much more commonly followed by serious disadvantage.

Dr. Small walked abroad as soon as the inflammatory action had ceased; and expresses his opinion, "that nine in ten of gouty cripples owe their lameness more to indolence and fear of pain, than to the genuine effects of the gout†."

In cases of great suffering, and of neglected treatment, and when the patient has for a long continued period an entire confinement to the bed, or by choice indulges in it, it is probable that the excessive secretion of mucus in the urinary bladder (already described as accompanying the irritating quality of urine of high specific gravity) may indirectly, by its cementing quality, tend to the production of calculous concretion; and thus lead to the double tortures of the stone and the gout.

This statement, I wish however to be understood, belongs exclusively to the greatest misma-

* Commentaries, § 1261.

† Med. Obs. and Inqu. vol. vi. p. 200.

nagement of the case, and to the consequent occupation of the bed for weeks and months.

Except under extreme circumstances, it may be said, the patient should every morning leave the bed for the couch or the chair, having his legs raised and supported in the most easy position; and in proportion as inflammation and pain abate, should gradually employ such further exertion, as relieves, rather than produces irritation.

I have witnessed many instances, in which the too early exertion of the limb, has, by the over-action of the weakened parts, produced relapse. This part of the management of the last stage of the fit often requires a very delicate exercise of medical judgment.

The Passions.—Many marvellous cases of the immediate cure of the paroxysm are related, by ancient authors, to have been effected by the sudden influence of the strong passions of the mind, and more particularly by *terror*. Dr. Falconer very justly observes, that these narratives "are rather matters of curiosity than utility, and what we can make no application of in practice*."

It should, indeed, be our care to allay rather than to excite any violent emotions, which are so much the prolific offspring of the disease itself. We cannot too freely introduce hope, cheerfulness,

* Upon the Influence of the Passions on the Disorders of the Body.

and tranquillity; and the attention should be agreeably diverted. Fortitude and true philosophy are more valuable aids to the welfare of the patient, than the superstitious charms of the ancients; in proportion as it is better to improve the reason, than to deceive the imagination and destroy the judgment.

LOCAL TREATMENT IN THE PAROXYSM.

The present consideration is truly a point of great importance, and offers in its details much useful opportunity of novelty. The inflammation of gout has never been treated upon fixed and regular principles. It has most commonly been left to its own injurious course, unchecked and unrelieved. By one kind of management, it has been nurtured, increased, and prolonged; by another, it has with hazard been at once dispersed. Amidst such irregular practice, it becomes a valuable desideratum, to establish a settled mode of practice, which may at once be safe and effectual. This view of my subject I shall now endeavour to offer, in a short notice of the chief topical remedies which are in use at the present day, or such at least as are not wholly discarded; and in describing the particular method of treatment which I am induced to recommend.

Leeches. — The immediate emptying of the vessels under inflammatory action, may appear at

first sight very consonant to the just doctrines of pathology; and the propriety of the practice has been advocated by authors in general. Some practitioners prefer the more prompt method of opening one of the distended veins by a lancet, expecting in this manner a more effectual relief.

From an attentive experience of the effects of local bleeding, however performed, I am led to consider, not only that such treatment is unnecessary, but that it is in most instances injurious, and, even when apparently useful, is seldom attended with permanent advantage.

It has always appeared to me to be a correct and sound principle of practice in local inflammations of every kind, that, whenever their violence is such as to influence the action of the heart and arteries in any considerable degree, the abstraction of blood should be made from the arm, rather than from the part affected; but that when the inflammatory action is almost entirely local, the depletion of the vessels should be local also. With regard to the inflammation of gout, however, we are to reflect, that it forms only a part of a constitutional disease, and that it is often of a more fugitive nature than any other kind of inflammation.

In a few instances after the application of leeches, I have seen that the inflammation has very suddenly transferred itself to the other limb; hence pointing out, that the constitutional causes were in active force, and not to be relieved by local

loss of blood. I do not argue that it is hazardous to the constitution ; nor can it be liable to such an imputation : but I must add, that the indiscriminate use of leeches in gouty inflammation is by no means innocent in its local consequences. An increase of inflammatory irritation and pain now and then follows their application ; but as a more serious, because more lasting evil, I have often seen the debility of parts increased in this manner; and when much blood has been removed, a troublesome œdema of long standing has followed, attended with a corresponding incapacity in the action of the nearest joints. In three instances, I have witnessed the effect of taking blood from one of the distended veins near the foot, when violent gout was situated in the toe ; and I was by no means satisfied with the result. An increase, rather than a diminution, of pain, was the consequence in two of the examples ; and in the third, much local weakness seemed to be the result. The affected parts during the inflammation are in a state of such high irritation, that it is requisite to exercise great delicacy in the local remedy which is used, both as to its nature and mode.

It has invariably happened within the range of my experience, that active constitutional treatment, as already detailed, together with the employment of local evaporation in the mode presently to be described, has entirely superseded the necessity of more doubtful and complicated means for the removal of the inflammation.

Vesicatories and Irritants.—I have not sought for any experience in this class of remedies in acute gout, from the objection which I conceive to their most probable agency, and from my being satisfied with the efficacy of other means.

Cullen (Par. 565, 566) speaks of blisters as effectual, but hazardous; and expresses the same opinion of *stinging with nettles.* The burning with *moxa* (the Chinese mode of cautery) must be considered as a species of painful blistering. Sir William Temple relates the cure which he received from it*. Hippocrates employed the burning with raw flax in the neighbourhood of the affected joints. Of *ludicrous* applications, a copious list is furnished in Sydenham's extract from the curious τραγοποδαγρα of Lucian.

Warmth.—The various contrivances of warm covering to the affected part, for the purpose of producing perspiration; or, in the fanciful language of humoral pathology, *to invite the deposition and discharge of the morbid matter*, although apparently full of prudence, and seemingly warranted by the custom of ages, do indeed belong to the worst part of the ancient practice. Combed wool, or socks and bootikins, have been favourite modes of fulfilling this plan of treatment†. One gentleman, who gave ample trial to the use of bootikins,

* See his Works, vol. iii.

† Gardiner on the Gout.

informs me, that his ankle joints have never recovered the excessive weakness which they occasioned. Others have, in a more partial manner, applied silk oil skin to the affected part; sometimes with relief to the inflammation by means of the perspiration produced, as in the effect of bootikins; but which was not a sufficient compensation for the subsequent weakness to which it led. *Flannel and patience* still form the adage of many, whose caution is greater than their judgment. It is obvious that the confinement of morbid heat by warm covering, on the one hand, must serve to increase pain, and prolong the disease; or if, on the other hand, perspiration be much induced, the debility which is consequent on this mode of evaporation, becomes a secondary evil of great magnitude. The most tedious and intractable cases which I have seen, have been those in which the relaxing practice has been carried to its fullest extent, both by local accumulation of warmth, and by the influence of oppressive covering of the bed, together with corresponding errors in the regimen throughout. Even in those occasional exceptions to the general course of the complaint, in which a fit of the gout has made its arrival, rather as a remedy than a disease, it is proper that only moderate warmth of covering should be employed; and I may add, that in the paroxysm, the patient should at all times prevent the heating influence of the fire in his apartment, from being received on the inflamed parts.

The pediluvium, fomentation, &c.—Hot bathing of the feet is inadmissible while any inflammation remains; and I have even seen the symptoms re-produced by its employment very remarkably, where no hazard of such an occurrence had appeared to exist. Those who have adopted this practice, as a remedy in the paroxysm, have, for the most part, informed me of very unfavourable results. A lady of great nervous sensibility, on the fourth night of the paroxysm, immersed her feet, one of which was much inflamed and swollen, in hot water for ten minutes. Almost instantly the gout quitted the foot; and such was the progress of its transference, that, during the night, it affected the knees, the elbows, and the wrists; never again, in the course of the fit, which was of unusual length, returning to the foot. A gentleman, having gout severely in each ankle joint, immersed the feet in hot water with bran, which gave him present ease, but seemed to occasion a quick removal of the inflammation to the knees and to the elbows, which followed in a few hours; and a tedious fit ensued. Poppy fomentation, and the vapour of hot water impregnated with aromatic herbs, have been patiently tried for the relief of pain and inflammation, but seldom with any good result, and more commonly with manifest disadvantage.

Also when the cleanliness and softening of the skin of the surrounding parts, together with that immediately affected, are desired during the paroxysm, the use of free sponging with tepid water

is much to be preferred to immersion. *The muriatic acid bath* first adopted in France, is still occasionally employed in this country. I have witnessed its effects in one patient, who found from it an aggravation of pain and inflammation. Some inform me, that they have obtained relief from this remedy. It appears to me an injudicious practice, and to be either too exciting, or too relaxing, according to the degree and continuance of temperature at which it is employed.

I know a gentleman of great intelligence, much subject to gout, who is partial to the use of heated air as a remedy, which he obtains by burning alcohol at the extremity of a tin tube, bent in its form, and connected with a wooden cradle, to be received under the bed clothes, so that the air has free circulation. He finds that in about twenty minutes, it begins to produce perspiration, which soon becomes profuse. He states that he has materially reduced the duration, and the degree of pain of his paroxysm, by this treatment; and is convinced that he has also, on several occasions, effectually carried off the gout by the skin. I had the opportunity of witnessing the operation of the remedy in this gentleman's case, and came to the following conclusions. It appears to me that this process constitutes a very ingenious mode of procuring to the body a medium of warmth, in which, from the blood being universally determined to the skin, general perspiration, under favourable circumstances, becomes speedily excited. I think it

calculated to answer a very useful purpose in the cold fit of any fever which is forming; and in the chilled state of body after any hazardous exposure to wet and cold. As it regards the gout, notwithstanding the favourable report which this gentleman makes of its effects, I do not consider it an appropriate remedy on a general principle, although there may be circumstances, under which, in the first invasion of the fit, its use would be highly rational*. I have lately stated my objection to the plan of excessive perspiration in the cure of a gouty paroxysm; and, in addition to what I then observed, I may again advance the arguments, that as this disease has its seat only secondarily on the surface of the body, and is in its true character radically depending on an obstructed and vitiated condition of the digestive organs, and the liver especially, and a disordered state of the nervous system, so, in conformity with this view, the use of diuretic purgatives, of mild mercurial medicine, and of sedatives, forms the most direct and efficacious method of cure.

Poultices, as a mode of evaporation, either simple or variously medicated, have been generally considered useful. Sydenham speaks of having derived some occasional benefit "from a cataplasm

* It is my intention to make trial of this process, as an auxiliary, for the purpose of procuring general perspiration, in cases of disease, when by ordinary methods it is difficult to affect the skin; and I shall take a convenient opportunity to offer a report of my results.

made of white bread and saffron boiled in milk, with the addition afterwards of a small quantity of oil of roses." Experience has convinced me, that a free employment of poultices has the disadvantage of increasing œdematous swelling, and subsequent debility. I have, however, found great cause of satisfaction in the *occasional* use of a simple poultice, made with bread, which has been scalded with boiling water, pressed almost dry, and again rendered of sufficiently soft consistence by means of the lotion which I shall presently describe. It is then to be applied just tepid over the affected part*. This remedy I have employed at night only, a time when the patient wishes for quietude, and cannot allow of the same regularity of attention that is offered in the day. Also, I have not directed it, except when inflammation and pain have been severe, and the suspension of the more active evaporating treatment through the night, could not with propriety be allowed. In a moderate degree of inflammation, I have sometimes used, as the application at night, the soap-plaster of the Pharmacopœia, spread on linen or soft leather:—but I have to conclude with observing, that if the affected parts are cool and free from pain at the period of bed-time, all local treatment may be omitted till the following day; and no unusual covering of any kind need be used.

* A hot poultice is very injurious in its effects, for, in addition to the debility to which it leads, it renders the part very liable to be affected with rheumatism.

Of other modes of evaporation.—The practice of Dr. Kinglake (for so it may be designated, although originally derived from Hippocrates*, and other ancient writers) seems, and most justly, to have fallen into disuse among most of those who were its first promoters. Dr. Kinglake introduced this treatment on the narrow principle of considering the gout as a local disease, and as analogous, in this respect, to simple inflammation. Such confined and erroneous pathology requires not any serious refutation. That the gout is sometimes *comparatively* very much a local complaint, is a position not to be denied; and the *cold water* practice in the paroxysm has occasionally been successful. It appears to me, however, a more safe and correct conclusion, to consider that gouty inflammation is always more or less intimately connected with the system; and that it requires a treatment in conformity with this principle. When we reflect on the facility with which gouty inflammation is transferred from one part to another, the sudden repelling influence of intense and continued cold must appear, even in theory, full of hazard; and in practice, its bad effects are now notorious. Indeed, from all that I can learn of the practice of applying cold water, the relief is never so certain as the danger; and I could enumerate many instances, in which the patient has, in the very beginning of the treatment, received a timely alarm

† Aph. xxv. sect. 5.

from a sudden spasm at the stomach or diaphragm; and well attested cases of danger might be quoted without number.—A few also, certainly, of speedy death as the consequence. The immediate abatement of pain is often followed by numbness, increased swelling, and much continued uneasiness; and in muscular and tendinous parts, its influence is by no means favourable to the free return of motion. Even in its most successful operation, the effects are too suddenly produced. The cure is rather local than constitutional; whereas we should consider that we have a two-fold object to accomplish.

In this disease, indeed, it must be steadily kept in view, that our first and sovereign object, is the constitutional treatment; and that local treatment is of secondary importance:—but that this last consideration is nevertheless a point of great magnitude, cannot, upon any reasonable grounds, be denied. The certain consequence of *neglected* gouty inflammation is, sooner or later, permanent debility and lameness; and, as we see by many melancholy examples, the patient, eventually, is often disqualified, by the crippled state of his limbs, from the degree of exercise which is equally essential to his health and to his comfort, even in this his limited state of enjoyment.

It had long since appeared to me, that a more gradual exhaustion of the inflammation, and a more soothing mode of effecting this than can be obtained by active cold, might be free from all the

objections and disadvantages of the treatment in question. It seemed also not unreasonable to expect, that a moistened evaporating surface would procure very different sensations to the patient, from those which accompany the dry and burning heat of skin, and which gouty inflammation so certainly produces.

I have now the satisfaction to state, that in more than seventy cases, I have made very free use, and with the best success, of a lotion composed of one part of alcohol and three parts of Misturæ Camphoræ; applying it to the affected part by means of linen rags, first rendered just agreeably lukewarm, by the addition of a sufficient quantity of boiling, or very hot water. In this manner, a prompt and convenient method is afforded of using the lotion, on the principles on which I recommend its adoption. The evaporation, which the alcohol alone would produce, is advantageously restrained by the dilution with the camphorated mixture; and the warming it, by the addition of hot water, preserves it from that escape of the volatile parts, which the sudden heat of the fire would occasion. In using the lotion, if it be applied either hot or cold, the intention of the remedy is considerably frustrated; and I have observed, that from being made too warm, its operation has been injurious, rather than beneficial. If the temperature be measured by the thermometer, I may state that it ought not to be less than 75°, nor more than 85°. I consider however that the expression of

just agreeably lukewarm, is a secure and sufficient direction to the patient. The linen compress, constantly kept wetted with the lotion, should consist of six or eight distinct folds, one laid upon another; and the slightest and coolest covering only should be used in addition. The effects of this lotion, when it has been attentively employed, have been most satisfactory, and have really answered my warmest expectations.

In the extensive opportunity which I have possessed of putting this local method of treatment fully to the test, I have only met with two instances in which the lotion has been laid aside from disapprobation. In the one case, the nervous system of the patient was peculiarly sensible, and at the same time, the gouty inflammation shewed an unusual disposition to quick transference, and to fix severely in every part. The lotion appeared to irritate rather than relieve, and was on this account discontinued. In the other case, it produced this last mentioned effect only in a slight degree. On a smilar occurrence, I should feel induced to vary the proportions of the mixture, and instead of the use of compresses, direct that the parts should be kept very frequently wetted with it by means of a sponge; after which, the skin might receive any kind of light covering the most agreeable, or be left uncovered for the purpose of free evaporation; the sensations of the patient being chosen as the guide. I have not in any one instance discovered from the most unlimited free use of this lotion, that

it has had the smallest tendency to produce retrocession, even with patients who have on other occasions suffered actual transference to internal parts, from the influence of exposure to cold. In the two cases to which I have just now alluded, the disagreement was only local. No internal part was in the slightest degree affected. It will be readily imagined that its operation could not prove equally beneficial to every patient, in a sensible and immediate manner; or to every part under inflammation, in the same degree. The majority of persons, however, have praised even its immediate palliative effects in very strong language of satisfaction, and have called it soothing and delightful. It is an agreeable circumstance that its odour is pleasant and refreshing. In order to procure fully its good effects, the linen compresses should never be suffered to become dry, and one set of them should be alternated with another, when the part is much heated, for the advantage of a cooler medium of application. The following report from two patients, given in their own language, will serve to point out in how great a degree this method of evaporation is capable of relieving the painful symptoms; and I can with truth add, that these statements are by no means too partially chosen from amongst my cases.

A gentleman was severely attacked with gout, which affected in succession the right hand, left foot, ankle, and knee, right foot, ankle, and knee, and lastly the right hand. He stated of the lotion, "I must unequivocally declare, that the benefit I

received from this application was great beyond what I could have expected, and infinitely mitigated the usual throbbings consequent on gouty inflammation. My right hand first yielded to its influence, the pain and swelling gradually subduing; and in a few days, all vestiges of either were removed in it. The other parts affected, nearly I believe in the order in which they had been attacked, exactly followed the hand, the swelling *gradually* subsiding, and leaving the joints unaffected by the least hardness."

Another gentleman much subject to violent paroxysms, was attacked with the usual severity in both feet. He began some purgative diuretic medicine late in the evening, and went to bed not having made use of the lotion. The pain became intense; the heat and throbbing were excessive; and it appeared to him that the parts "were tearing and separating in the sinews." At about six in the morning, having passed a sleepless night, and still in agony, he applied the lotion, and, in less than an hour, the pain so much subsided, that he fell into a refreshing sleep. He awoke free from pain. His medicines did not act until the middle of the day; and he praised the lotion as the surprising source of his comfort. Two days after the hand was affected, and became equally relieved by the free application of the lotion.

It is necessary to observe, in reference to the narration of the first case more particularly, that the internal means of treatment were adopted

with very active attention, and that the patients' expressions of approbation of the lotion, must be received in connexion with the effects of the still more important influence of internal medicine.

To continue my account of this remedy, I may state that in slight inflammation and pain, its powers of relief are soon procured, and very sensibly acknowledged by the patient. Under symptoms of great suffering, although its influence is very beneficial, it is inadequate to procure ease; and it is in *opium* (the proper indications, as already stated, being fulfilled) that our superior and most necessary confidence must then be placed.

It will readily be supposed that accordingly as the affected texture is deep-seated, the good effects of the lotion are less immediately shewn; as for example, when the ligaments and bursæ mucosæ of the knee are the seat of complaint: but the patient must be enjoined to be the more assiduous in its use, in proportion to the difficulty of making an useful impression; and by keeping the integuments constantly saturated with the evaporant, he will certainly derive more or less of present sensible relief, and of future certain advantage.

With respect to its use in effecting slow evaporation from the inflamed part, I may be allowed to indulge in a few further observations.

The tepid temperature of the application has a pleasing soothing influence; and its more active operation is obtained so gradually and securely,

that I have never been able to lay any bad effects to its charge. Of its advantages, much might be said. In the same degree that we mitigate the local symptoms, we tend to relieve the general irritation of the constitution, and help to abridge both the violence and duration of the whole disease. It is also a fair subject of consideration, that present relief is not the only benefit that is gained. This lotion, also, independently of its powers in removing the inflammation as an evaporant, stimulates the absorbent vessels to useful action; and further, acts as a tonic to the parts, greatly counteracting the ordinary debility which follows the inflammation of such important textures, and which is especially produced by the peculiar action of gout. In our successful treatment of the local inflammation, we accomplish much towards the preservation of the organization of the affected parts; and I do not hesitate to affirm, as a general position, that, with *timely* management of gout, a crippled state of limbs may with certainty be prevented.

With regard to the wandering character of gouty inflammation, I have not observed that this local treatment has increased the disposition of the disease to change its situation, unfavourably; and in no case, I must repeat, has any injury followed its most free employment. In conclusion, I have further to assure my reader, that the interruption of the paroxysm, by the combined method of practice which I have endeavoured fully to lay down, has not been attended with the serious objection to

which some remedies are liable, namely, its inducing an earlier return. On the contrary, however, I can with truth affirm, that if the patient adhere steadily to the continued rules of treatment which it is the duty of the physician to prescribe, this first abridgment of the paroxysm by active practice, is at once the safe and direct method of striking at the root of the disease.

The occasional transgression of the patient, in taking too early an advantage of his amendment, or in abuse of rules after recovery, is not a fair impeachment of the propriety of the past treatment in the paroxysm.

The constitutional remedies, as already mentioned, having been employed to the necessary extent, and the evaporating treatment having fully produced its auxiliary effects, in the entire removal of all inflammation, we arrive at the next distinct stage which requires consideration.

THE CONVALESCENCE.

In the early and least severe visits of the disease, the state of convalescence, as to constitutional management, often requires no other attention than what is prompted by good sense, and the consequent exercise of correct habits. In older and violent paroxysms, the continued assistance of the physician is of the utmost importance.

Those tedious fits which run a neglected course

of many weeks or months, and even those which have been correctly treated, but yet shew a strong disposition to relapse, may always be considered as radically depending on the presence of visceral disease of more or less magnitude. It is incumbent upon us to be careful that the patient is really convalescent. It is not sufficient that our treatment has been active in the paroxysm. We have a great and two-fold duty remaining to be performed ; the restoration of the healthy state of the digestive functions, and of due strength to the weakened limbs.

It occasionally happens, that the returning powers of the stomach require, rather that the patient should exercise a degree of self-restraint, than that his appetite should be excited by medicine ; and careful regimen, both as to diet and exercise, early hours, and a due regulation of the bowels, may constitute in such case all that is necessary to restore the general health. *Festina lenté* should be the constant motto, both of the physician and the patient. We should restrain the tendency of the vessels to acquire again the plethoric state ; and keep in our recollection, that excess of blood in a weakened circulation will lead to many evils even worse than the gout ; and the gout itself, may, or may not follow as a consequence. In judging of the propriety of employing bitters, or other stimulant tonics, simply, we should carefully ascertain that the secreting functions are become regularly healthy ; and this inference must be

drawn from the appearance of the tongue, the fæces and urine; and where it is necessary to make the judgment still more accurate, the specific gravity of the morning urine may be examined from time to time. As a general rule of practice it may be stated, that where simple debility alone exists, simple tonics only need be employed; and with this view, in cases where the habit has not been too plethoric to forbid the employment of a chalybeate, I have found the tincture of ammoniated iron to succeed very favourably. It may be taken advantageously in warm water twice a day in doses of twenty drops, gradually increased to sixty; joining with its use, as occasion requires, a suitable dose of the *pulvis aloës compositus*, formed into pills, with the decoction of the same and a little soap. The ammoniated iron in pills may in some instances be given with more advantage; the proper attention being at the same time directed to the regulation of the bowels, and the state of the secretions.

Dr. Cullen, in speaking of tonics under the head of gout, remarks, "The most effectual medicine for strengthening the stomach is iron, which may be employed under various preparations; but to me, the best appears to be the rust in fine powder, which may be given in very large doses." I am well persuaded, that this very insoluble preparation of iron is the most objectionable of all its forms, and as I have remarked in my Analysis of the Chalybeate Water of Tunbridge Wells, the

most soluble preparations of iron may certainly be esteemed the most active and useful. The tincture of muriated iron is one well deserving recommendation, though less delicate than the ammoniated tincture, and therefore not so generally admissible; but if suitable, it may be usefully joined with the cascarilla, or cusparia bark. And certainly, when from great debility of the constitution, the skin is so relaxed, that on the slightest exertions profuse perspirations take place, the muriated tincture may prove a very useful astringent tonic, as I have often found it to be. It much more commonly happens, however, that in gouty persons, *corrective* tonic medicine is more required than tonic astringents, simply, of any kind; and in combination with that method of treatment which may be most favourably adapted to answer a part, or all, of the following intentions.

The stomach is to be restored to its proper energies; the liver to its healthy state of functions both as an organ materially concerned in the just balance of the circulating system, and as furnishing by its secreting action an important stimulus to the digestive process; the bowels are to be directed to their due and regular action; the kidnies to their share of duty in separating from the blood itself what is intended to be excrementitious; the skin to an equal and uniform office of insensible perspiration; the animal heat of the body to a proper standard, and an equal distribution. If these points be accomplished, the nervous system

will require no other assistance by medicine ; and equally useless and improper are stimulants given to the nerves, when the condition of the various functions just mentioned is neglected.

Sydenham, after many excellent observations on general rules of management, says, " It is clear from what has been delivered, that whoever undertakes the cure of this disease, must endeavour to make a thorough change of his habit of body, and restore it to its former constitution, as far as age and other circumstances will permit."

It may be stated as a very general axiom, that in every case, in which the constitution has been much under the influence of gout, the liver is more or less obstructed, and under error in its secreting functions ; and also that such a condition of the digestive organs prevails, that however the appetite may seem active at a favourite meal, the digestive process is imperfect, and the assimilation of the chyle is not completed in a manner favourable to perfect health. This, therefore, is the period at which the skill of the physician is to be exercised with the greatest attention ; and the patient is to consult the future welfare of his constitution, by the careful observance of all the rules which are laid down.

The particular method of treatment which the convalescent period may require, must obviously vary in its shades of difference, as much as every case itself varies in some of the particulars of the age, constitution, temperament, and habits of the patient ; and the peculiar individual features of

complaint. And unless we make this discrimination in practice, we render ourselves truly empirics. It is with this provisional restriction that I now enter on my further details. As a formula of stomachic medicine, I can much recommend the following combination :

℞ Calumbæ radicis concisi ʒi ad ʒiss
Cascarillæ corticis contusi ʒii ad ʒss
Rhei radicis concisi ℈i ad ℈ii
Cardamomi seminum (capsulis demptis) contrit. ʒss
Aquæ ferventis octarium dimidium.
Macera per horas duas, et cola.

℞ Hujus infusi ʒxi ad ʒxv
Tincturæ Aurantii ʒj
Sodæ Carbonatis gr. x. ad gr. xv. M.
Fiat haustus bis quotidie sumendus.

It is sometimes an advantage to increase the proportion of the carbonate of soda in this draught, and to direct a dessert spoonful of lemon juice to be mixed with it, so that, taken in effervescence, it becomes a more agreeable, and often a more useful medicine. When the palate of the patient is more to be studied, or the delicacy of the stomach require it, the rhubarb should be omitted, and pills, consisting of pulv. rhei, pulv. aloes compos. and sapon. dur. to be taken at bed time, may be substituted for it.

As an alterative pill, to be given with the view of exciting healthy secretions, and administered in a dose of five grains every other night, the pilula hydrargyri submur. compos. has appeared to me

more decisive in its good effects than the pilula hydrargyri*.

In those examples of convalescence, when an attention to the bilious secretion and the action of the bowels is alone required, it will be sufficient, with regard to medicine, to administer the alterative and a purgative pill on alternate nights. This latter pill may consist of suitable proportions of gum. gambog. pulvis aloes compositus, et sapo durus. The patient, under this course of medicine, should receive particular injunction to avoid any careless exposure to wet and cold, at all times a matter of some hazard to a gouty person; and such caution is the more important, when we consider that the gout chooses that season of the year for inflicting its worst pains, when wet and cold almost constantly prevail. Still the necessary treatment must not be deferred; for I can scarcely conceive that any one, however circumstanced in occupation, can find a real difficulty in observing those moderate rules of care in clothing, and ge-

* It may at first sight appear immaterial, whether corresponding doses of the pilula hydrargyri, pilula hydrarg. submur. compos. or hydrarg. oxydum ciner. be employed; but experience teaches us that each of these preparations possesses considerable difference in its action. We see also that in some individuals, one or other of these preparations will agree, when the other forms of the medicine have disappointed our expectations.

It is a circumstance always demanding careful consideration, that the quicksilver from which the pilula hydrargyri is prepared, should be perfectly freed from lead or other contamination, by distillation.

neral means of security, which common prudence itself points out.

In some cases it may meet the wishes of the practitioner to employ a vegetable tonic diluent, as the decoctum sarsaparillæ compositum ; the effects of which were much praised by Sydenham ; but on the particular form of restorative medicine, it would be both tedious and superfluous now to enlarge.

The particular kind of diet, which may be most appropriate, must, as with regard to medicine, be suitably varied for different persons ; but to the prudent, a few plain rules will prove a sufficient guide. I think it, however, necessary to observe, that the general rule of moderation in diet at the convalescent period, which is so important a point of observation, is sometimes carried to an injudicious degree of abstinence; and much debility of the system becomes the consequence. I saw lately a striking instance of this result, in a gentleman, who pursued unnecessarily very low living, when all the inflammatory action of the paroxysm had been perfectly removed. He brought on so much constitutional relaxation, that petechial spots (purpura *simplex*) appeared in various parts of the body, associated with œdema of the ankles, excessive languor and depression, and a disposition to perspire profusely on slight exertion. All the symptoms soon yielded to invigorating treatment.

While on the one hand, therefore, we avoid that repletion of vessels which too much indul-

gence would produce, we should, on the other, equally guard against incurring a state of inanition and debility, by an extreme restraint of regimen.

The use of ass's milk, as a mild nutritive diluent, is particularly deserving of recommendation, when it is our object to pursue the restorative plan of treatment in the most efficacious manner. Half a pint should be taken every morning early, and, if convenient, should be repeated at night. It often has the property of acting gently as medicine both on the bowels and kidnies, and has a very favourable influence on the stomach itself*.

The advantages of a good air, and of a change of air and scene, with a suitable portion of exercise, are points of obvious importance towards the perfect establishment of health. As the present subject of general management will again come under our notice, in the consideration of *prophylactic regimen*, I proceed now to discuss the treatment of the weakened limbs.

The permanent œdema, and excessive debility, almost amounting to paralysis, which are sometimes consequent on the paroxysm, are more especially the effects of warmth and relaxing treatment, and may be prevented by correct proceeding; but present care cannot always repair the evil of former error; and it becomes sometimes a difficult task to invigorate the enfeebled limbs.

* Ass's milk was much extolled by Hippocrates, Celsus, and Pliny, in the cure of the gout.

As a general rule, it is useful, after the perfect removal of inflammation, to employ a circular roller, either of flannel or calico, according to the season of the year, and other circumstances. When œdema and weakness are considerable, this practice is of essential importance. I have sometimes seen that from nervous irritability, the patient at first objects to the sensations of restraint and pressure from a bandage; but a little resolution may cause these soon to be disregarded; the degree of tightness being duly regulated.

The employment of an occasional pediluvium, for the sake of cleanliness, might be permitted, care being taken, that much heat is not used, and that the parts are not kept in continued immersion. A preferable method, however, is the daily practice of sponging the parts in the morning with water, having a little salt dissolved in it, and at a temperature slightly tepid. This acts as a tonic; but much heat over-excites the weak parts, and indirectly debilitates. Cold water is not altogether safe, even at this period, and has the effect of increasing debility in parts of weak circulation. The skin being wiped carefully dry, diligent friction with the hand or flesh brush should be continued till a comfortable glow in the skin is produced.

To remedy the more serious debility to which I have adverted, it is right, in addition to the tepid sponging, to assist the latent energy of the vessels and nerves, by stimulant liniments. The following formula may be mentioned, as one which I have

found remarkably successful. It is to be made more or less exciting, as the individual case may require; this being a point deserving most particular attention.

R. Tinct. lyttæ ℥ss.
Linim. camph. compos.
——— saponis compos. āā ℥iss. M.
Fiat linimentum, quocum partes affectæ diligenter fricentur semel vel bis quotidie.

In further illustration of the principles of practice which I have advanced, I shall now offer a few cases, transcribed from the register which I kept of them; accompanying the narrative with occasional observations*.

CASE I.

W. W. a coachman, aged 60; tall, of stout make, was originally robust and vigorous, but now his muscles, and particularly those of the lower limbs, are small and weak; has a circular chest; of sanguineo-nervous temperament, plethoric habit, and irritable disposition. He is occasionally nephritic, and once, a few years ago, suffered very severely with retention of urine and severe spasms of the bladder. He is frequently, of late years, dyspeptic; his tongue is always more or less furred; and his

* I have preferred to state a few of the cases considerably in detail, rather than to offer a numerous list described with more brevity.

nose and face exhibit the *gutta rosacea** in a great degree. With such exceptions, has never had any other disease than gout. This disease quite unknown in his family. When young, he was fond of athletic exercise. Having always lived in good places as coachman, and for a part of his life kept an inn, he has had very constantly the means of indulging in free living. He describes himself "as a moderate eater, and for many years past, particularly, not indulging freely in liquors;" but acknowledges, that he has regularly been in the habit of taking porter and mixed spirits. When he has occasionally exceeded in a glass of raw spirits, has experienced much consequent heat of stomach, a feverish state generally, and now and then a paroxysm has followed such irregularity. His first attack was at the age of thirty. He says he was in full health at the time. He had been bathing in the sea, and, when returning to shore, contused his foot severely on some rock. He reached home without much inconvenience, and went to bed well; but in the middle of the night awoke with pain in the great toe of this foot: it was decided gout, and continued a fortnight. It returned in two years after, first in the same foot, and then in the great toe of the other foot. This second fit lasted a month. He soon became a confirmed gouty subject, seldom escaping a whole year; more commonly affected twice a year; but his chief fits were in the beginning of spring, and were remarkably

* Acne *rosacea*.—Bateman.

periodical in their return. He imputes his attacks most commonly to wet and cold; but some of the severest have followed blows and strains; and the most violent fit which he ever had, succeeded immediately to a bad strain of the ankle. On that occasion other parts became affected, but in some of the fits excited by local injury, the disease has confined itself to the part so inflamed. He wears flannel socks, and commonly perspires much in the feet; and he remarks, that a little previous to an attack, this perspiration is often suspended. His usual premonitory symptoms are, depression of spirits, much listlessness and yawning; flying cramps, especially affecting him at night before his first sleep; a cough, with nauseous expectoration. A fit usually makes its invasion about one or two A. M.; but this happens with some exceptions, which are more remarkable when local injury has been the exciting cause. Some of his fits have continued twelve or fourteen weeks. Three years ago he was bled at Christmas (from choice only, being then as well as usual), and entirely escaped gout the following year.

Progressively he has had gout in every part of each foot, in the knees, hands, and elbows. Has *uric-concretions* at the outer side of each heel, from which, painful ulcerations have now and then formed. A little finger, which was inflamed in his last fit, bears the whitish appearance of incipient concretion. Has large distended veins, and those of the legs are varicose. The bursæ mucosæ, both

in feet and hands, are either much puffed, or in the state of *ganglion*. The tendons of the fingers are rigid from their distended and thickened sheaths; and from this change of surrounding structure, the phalanges have the appearance of bony enlargement. He has long suffered constant lameness and uneasiness, both in the feet and hands.

Intending to make this patient the subject of some comparative examinations, in regard to the secreting action of the kidnies, I examined his urine on the 3d of May 1815, when he was not complaining. Having already detailed the particulars of this investigation, at p. 121, I shall in this journal, for the most part, only state the specific gravity of the urine on the relative days, and the proportion of phosphoric acid. The morning urine of this day was of specific gravity 1009·4; and four ounces afforded of phosphoric acid ·8 grain.

On the night of the 3d of May, he was exposed on his box, a considerable time, to wet and cold; and remained several hours in wet clothes. On the 4th, although he went about with difficulty, the invasion of a paroxysm had begun. He was chilly, feverish, and his right arm was painful. On the 5th (Friday) I visited him, and found him with severe gout in his elbow and hand. In each part there was swelling and some pitting; but most at the back of the hand. The skin was vividly red. The usual sensations of acute pricking, tearing pain, burning, throbbing, and weight, were present in an intense degree. He expressed most suffering

from the elbow; the difficulty of the least motion of the arm being infinitely distressing. To use his own words, he felt also, "spasms in the limb, and hot glows all over; qualmish and thirsty; sudden perspirations as suddenly leaving him; heat and spasms in the stomach; spirits very low." Pulse frequent, and rather full; skin hot; tongue much furred; much thirst; bowels costive; the urine passed with frequency and irritation, and in small quantities at a time, as is usual with him under gout. It deposits, on cooling, a copious mucous and lateritious sediment. Its specific gravity 1·0201. Four ounces afforded of phosphoric acid 5·36 grains.

With a view to acquire some opinion of the comparative quantity of urea in this urine, with what it should be found hereafter, at the restoration of the patient's health; and also to judge of its relation in this respect to the urine of other persons in health, I evaporated a portion to a third, and added concentrated nitric acid freely (about an eighth part). Crystals of the combination of the acid with urea, were produced in much greater abundance, than I have ever found in a similar experiment with healthy urine.

From the persuasion of a fellow-coachman, he was taking a quack medicine, *Bateman's drops;* and on this account I did not see him again until Tuesday May 9th, when I began the following journal:

He reports that the drops have occasionally pro-

cured him sleep, and caused much perspiration; but he felt heated by them. Bowels open daily, the last two days. Last night was the worst which he has had; quite sleepless. At five this morning, his agony was very great. Pulse now 84, and full; skin hot; much thirst; no appetite; tongue much covered with brownish white fur. Very restless and nervous; sore to pressure at the stomach, and in the right hypochondriac region. Bladder very irritable; passes much less urine than natural, with frequency and some difficulty. At all times, says, his bladder is rather irritable; yet in general he has a free and easy stream. I had not the opportunity of seeing this day's urine; but he states that its appearance was similar to that of the 5th. The catarrhal cough, with which his gout commenced, is much abated.

The elbow is improved since last report; the hand still much affected; thumb the most inflamed part; middle finger much inflamed; vivid redness; no pitting. The whole of the external part of the left foot much inflamed; vivid redness; much bursal distension around the ankle joint, but no pitting, veins very full, and particularly all those ramifying from the inflamed part*. Two of the small toes red and swollen; much subsultus tendinum. He was seized first around the heel,

* The veins of the right leg, at the lower part, very full in the line of the inflammation; and altogether fuller than in the other leg. No difference in the veins of either upper arm. In the affected one, the fulness begins at the wrist.

with numbness, and sudden entire loss of strength in the foot. Last night severe throbbing; sense of great weight; foot feeling as if not belonging to the leg; tightness; burning heat. The following treatment was adopted:

℞ Hydr. submur. gr. iv.
Pulv. antimon. gr. ij.
Extr. colocynth. comp. gr. x.
Saponis duri, gr. iij.—M. fiant pilulæ iij. statim sumendæ.

℞ Magnes. ℈iv.
Sulph. magnes. ℥vj.
Aquæ menthæ viridis, ℥v.
Aceti colchici,
Syrupi croci āā ℥ss. M.—Hujus misturæ capiat partem quartam, 6tis vel 8vis horis, prout alvus soluta fuerit.

The *Diet* to be limited to gruel, tea, and bread, barley water, or rennet whey. The constant application of the evaporating lotion to the affected parts, according to the formula, p. 251; a sufficient portion of hot water being added to it, to render it just agreeably tepid.

Wednesday Evening, the 10th, 9 *o'Clock.*—The medicines have agreed perfectly. The bowels copiously affected twice, at twelve last night, and at eight this morning; the evacuations very green and foul. The pain was very soon much mitigated by the lotion. As soon as the bowels yielded, his skin cooled; he became easy, and passed a comfortable night. He has not perspired. The

urine *first* passed in the morning, of an amber colour, with slight pink sediment, and less mucus than yesterday; its specific gravity 1·0099. Four ounces afforded of phosphoric acid 3·17 grs.

He continued easy and comfortable till five this afternoon, when the paroxysm was renewed in the right ankle; and he is now suffering *such agony*, that he repeats an expression which he has before made use of during the sufferings of this attack, "*that he would be thankful to any one to shoot him.*" The inflammation in the newly-affected foot is deep seated, as the skin is scarcely discoloured; much bursal and thecal distension; pain shoots through both ankles; violent throbbing and burning; sense of immense weight, and extreme tightness; has frequent spasms, pricking and shooting; subsultus tendinum, and convulsive state of gastrocnemii muscles; receives only momentary intervals of relief. Pulse 72, rather full, but not inflammatory; excessive thirst; skin temperate. The application of the lotion has been neglected this afternoon: now to be used freely and constantly. The bowels having been freely emptied, and constitutional inflammatory irritation being much abated, the indication for direct soothing treatment appeared clearly manifested. I directed the following pills:

℞ Pulv. opii crudi gr. xx.
Pulv. antimonialis gr. x.
Confect. rosæ canin. q. s.—M. et divide in pilulas xx, quarum capiat iii. statim; et repetatur i. omni hora, donec dolor sublevetur.

Thursday, May 11*th*, 1 P. M.—He felt immediate comfort from the lotion; but the great relief, which he very soon obtained, was certainly due to the opium. Even in a few minutes he was a little composed; in twenty minutes, a numbness, rather pleasing, of the affected parts, with an abatement of heat, throbbing, &c. took place; and the convulsive action of the muscles and subsultus tendinum ceased in about half an hour. He did not find it necessary to take a second dose of the opiate. The night was passed in tranquillity and dozing. Now has slight perspiration, and no feverish heat of skin; thirst is abated; tongue rather more furred than yesterday, but he has some appetite; head rather aching, yet has not experienced any confusion; an excellent pulse at 76. He lies upon the bed; and his apartment is kept temperate. Uric deposit appears to be taking place immediately under the cuticle in two of the fingers. Both feet almost easy, and but little discoloration remaining. Bursal distension lessened; there is some pitting of the integuments; fulness of veins much removed; temperature at the right ankle, at present most the seat of complaint, 97°. Has taken the mixture regularly every six hours; it has acted twice freely; the fæces very foul, with much acrid bile, very hot to his sensations, less green than before. Much diuretic effect also from the medicine.

The urine is passed both more copiously and comfortably than at any period since his attack. It

deposits dirty brick-coloured sediment, some reddish crystals, and much mucus. Its specific gravity before filtration, 1·0242; after, 1·024. Four ounces afforded of phosphoric acid 3·88 grains.

To continue the mixture every six hours; the opium pill as the pain may require, and every night, five grains of pilul. hydr. submur. compos. The lotion constantly. Diet as before, fluid and wholly unstimulating; may take bread and milk, or milk porridge, at discretion.

Friday 12*th*.—Much better. Has not had severe pain; slight accession of symptoms about nine last evening, continuing till twelve; but he did not suffer enough to be induced to take the opium; a small dose of which, however, I should have approved. His night was rather restless and feverish. The gout, about four A.M. affected one middle finger, but not severely. I find it swollen, hot, and partly red. All inflammation removed from the left foot; a little remains in the right ankle, with slight redness; very little pitting in either foot; little toe in right foot still red and painful; he expresses great ease and benefit from the lotion; has taken the mixture at the regular intervals of six hours. Pulse natural; spirits improved; surface temperate; tongue less furred; nose, which has been *glowing* red, now getting pale; the heat in the stomach and bowels, of which he has been complaining, is removed. The discharges less heating, but still foul and of yellowish-green colour; no preternatural thirst; no

nausea; moderate appetite. The urine has a slight mucous cloud, and no other sediment. Specific gravity 1·012. Four ounces afforded of phosphoric acid 1·02 grains. To continue the treatment.

Saturday 13*th.*—Going on most favourably; passed a good night; no return of pain; every part almost free from inflammation; and the parts most affected yesterday, to-day bear considerable pressure; feels uneasiness through the foot at the little toe, and there is a slight spot of redness on the upper surface at this part; suffers most tenderness from the old concretions near the heel, but derives much relief from a simple bread poultice; begins to walk tolerably. The medicines have produced their usual effect. The urine similar in appearance to that of yesterday, with the addition of a few minute crystals; specific gravity 1·0105. Four ounces afforded of phosphoric acid 1·47 grains.

Sunday 14*th.*—Did not pass so good a night on account of pain in the last phalanx of the little toe, and along its metacarpal bone; the spot of redness before described continues; the pain was not sufficient to render the opiate pill necessary; has slight spasms from the foot to the knee; pitting of each ankle in a small degree, with paleness of skin; pulse and skin natural; tongue still rather furred; three stools in the last twenty-four hours, much improved in appearance, thin and of a light yellow colour, with but little accompanying heat. Urine abundant, of a light straw

colour, with a fine flocculent mucous sediment, and a small portion of minute uric crystals; specific gravity 1·0106. Four ounces afforded of phosphoric acid 3·47 grains.

Has lived hitherto on diluents; but on this day he has eaten bread-pudding, with appetite and relish. The last two nights, has taken the alterative pill at bed-time, till last night; has continued the lotion to all the parts yet affected with any tenderness.

Tuesday 16*th*. — In all respects doing well. The urine of specific gravity 1·0085. I discontinued my experiments for the present. The mixture now to be taken twice a day, with ℥j. only of sulphate of magnesia as a dose, and the other ingredients as before; the alterative pill on alternate nights. All inflammation being removed, apply rollers from the foot to the knee; sponge the extremities with water containing salt dissolved, and the chill removed so as to feel pleasant; wiping the skin afterwards perfectly dry, and using diligent friction. He expresses benefit from using a horse-hair brush through the stocking. Much caution to be used in diet; a little animal food of light digestion, once a day, with mashed potatoe, and some fresh table beer. The weather being fine, to be much in the air, and to use gentle walking exercise.

I may here observe that each day's urine has reddened litmus; has precipitated reddish-white or brownish-white flakes, more or less abundantly

with oxy-muriate of mercury; brownish flakes with infusion of galls*; has not suffered any change of transparency from nitric acid, or from the application of heat.

Sunday, May 21. — Has daily improved in

* I have invariably found, that the first urine of the morning, such even as is secreted in good health, *immediately* becomes turbid with infusion of galls, and with the solutions of oxy-muriate of mercury and of alum. The precipitate which subsides, is more or less abundant, and dense and coloured, according to the proportion of saline and animal matter present, and the consequent high specific gravity of the urine. The galls occasion the darkest coloured precipitate. That from the oxy-muriate of mercury is usually most dense, and is often coloured of a reddish hue. It has the appearance of pus mixed with water, and a little coloured. The precipitate produced by the solution of alum is more white and flocculent, and possesses also uric acid deposited in crystals.

Mr. Cruickshank has erroneously described the effect of the oxy-muriate of mercury, as being an indication of disease, in the following words (Rollo on Diabetes, 2d edition, p. 443): "The corrosive muriate of mercury is a very useful re-agent, as it has no immediate effect upon recent healthy urine; but in every case of increased action of vessels, more particularly of the inflammatory kind, a greater or less milkiness, and a whitish precipitate is instantly produced." This erroneous statement is copied by Berzelius (View of Animal Chem., p. 98). That the effect is *greater* in urine of high specific gravity, and therefore in certain states of disease, I have already granted; but the very material mis-statement to which I have referred, deserves, I think, to be pointed out. Dr. Blackall (on Dropsies, p. 15) speaks in doubtful terms of the effect of the infusion of galls, as to the nature and extent of its indication in disease, or, "in some circumstances of *apparent* health." Here, the powers of this re-agent also are not correctly conceived.

health ; appetite good, and digestion comfortable; tongue has still a whitish fur, but it lessens. Walks with much more strength ; ankles swell a little after exercise, but the swelling is on the decline ; the veins have acquired a healthy appearance, and are even appearing in a better state than before this attack. The bursæ are smaller. The temperature at the ankle, which in the paroxysm was 97°, is now 86·5. The bowels have been kept in a free state by the mixture, suitably abated in the frequency of dose. The fæces, though much improved, are not yet healthy. The urine is quite healthy. Discontinue the mixture, take the alterative pill every third night, and the following purgative pill occasionally :

℞ Pulv. alöes compos. ℥j.
Pulv. antimon. gr. v.
Saponis duri gr. x.
Decoct. alöes comp. p. q. s. M.
Fiant pilulæ xx. quarum capiat ii. vel iii. h. s. alvo astrictâ.

Disliking exceedingly the sensation of the rollers, he may be allowed to discontinue them ; but must regularly pursue the plan of sponging and friction in the morning. Having now to return to his work, may take half a pint of porter at dinner ; but on no account to take animal food more than once a day, and that of the most digestible kind. Did this patient's station of life permit it, I should much prefer allowing him two or three glasses of good wine daily, rather than porter.

Saturday, May 27.—Convalescence most favourable. Tongue almost clean; appetite and spirits good; healthy strong pulse. Urine passed very freely, but the long acquired irritability of the bladder remains in a considerable degree; bowels open each day; discharge not yet appearing quite healthy; lameness almost removed; some tenderness at the seat of the uric concretion at the side of the heel. In order to excite absorption of the uric matter, apply freely night and morning, by means of friction, the following lotion:

℞ Liquoris potassæ
Misturæ amygdalæ āā ʒij. M.—Fiat lotio.

To wear over the part, a soap plaster spread on soft leather. Continue each pill a fortnight, as before directed; and then lay aside all medicine, except the occasional employment of the purgative pill. For several days past, he has taken a pint of porter or upwards. On no account to exceed a pint and a half in the day; and to eat animal food once a day only. To guard very carefully against wet. To sponge the feet and ankles thoroughly every morning, in the manner described at p. 266*, as a constant habit; wiping them carefully dry; using subsequent friction till a comfortable glow in the skin is produced; and finishing the process with one foot, before the other is begun.

July 4th.—He assures me that he has pursued

* See also under the head of Prophylactic Regimen.

attentively all the regulations prescribed. He is now restored to good health. Tongue clean; countenance clearer than I remember to have seen it; appetite and digestion good, and alimentary secretions healthy; spirits cheerful; limbs much stronger than they have been for years, the uric matter very much absorbed, and the parts where it was deposited almost free from tenderness.

The morning urine of this day of amber colour, with a slight mucous cloud; specific gravity, 1·0172. Four ounces afforded, of phosphoric acid, 2·8 grains.

I now made a comparative experiment with reference to the proportions of urea and uric acid, and found that these principles were also, comparatively, in much smaller quantity than had been afforded by the urine voided during the paroxysm.

June 1816.—This patient has entirely escaped gout since the last report, notwithstanding he has been regularly employed as coachman, and consequently exposed to the changes of weather, both by day and night. He has, also, during the whole period, enjoyed unusual health and spirits. An example of a habit more completely gouty, could scarcely be selected. Under the disadvantages of exposure, which are attached to his situation in life, and of occasional inattention to regimen, it cannot be presumed that the gout will not return; but it is shewn, both that the treatment in his last violent paroxysm (similar in degree to his former fits, which neglected, or slightly treated, always ran a

course of twelve or fourteen weeks) was speedily successful; and that it has not, by shortening the disease, or by a quick removal of its most urgent symptoms, induced any disposition to a more early return; but quite the reverse, as the present date abundantly shews.

June 1817.—He makes at this period a very favourable report of the improved state of his constitution. In the course of the last winter and spring he had two or three very slight attacks, in consequence of continued exposure to wet and cold, and living in a damp situation; but they proved tractable and of short duration. He expresses himself now to feel in good health and spirits.

CASE II.

April 1815.—W. C. aged 38, a plumber and glazier, short in stature, has a circular chest, is thin, but, according to his statement, was formerly corpulent, both before and some time after he became gouty; of sallow complexion; of nervous temperament; has great sensibility of nerves, but is apparently of mild disposition; perspires easily on exertion; suffers much from the cold of the winter, and particularly in the feet; for two years past subject to copious hæmorrhoidal discharge; and says, that if this occur when the paroxysm of gout is present, he experiences from it immediate and very considerable relief; previously to the flux, has local heat, weight, and fulness; habitual state of bowels costive, since he has been gouty; before

this, they were regular. Has pursued his trade in London, nineteen years. Has always drunk porter and gin daily, and formerly in excess; also, till of late that he has been debilitated, ate much of animal food. Not subject to other diseases. Gout unknown in his family. He was first attacked nine years ago, at the latter part of spring, when the weather was hot, in the great toe of one foot only. The fit continued ten days. The second attack was at Christmas following; first in the same part as before; next, on its subsiding there, in the great toe of the other foot. This fit continued three weeks. In subsequent attacks, the knees and hands have been severely affected. Exposure to cold the most common exciting cause. The time of the invasion of a paroxysm generally about twelve or one in the morning; sometimes, when having gone to bed with the usual feelings of good health. When he has had precursory symptoms, they are the following: unusual fulness of the veins; prickings at the ends of the fingers, if the hands be threatened with the disease; but if the feet, flying pains in them; feels getting lame; restless at night, with little and unrefreshing sleep; depressed spirits; loss of appetite; suffers cramps also severely, at the side of the hand, and in the fingers themselves, if the hand be about to become the seat of gout; in the calf of the leg, if the foot; commonly has rigors on the invasion of the fit, and sometimes afterwards, very irregularly; always suffers most pain in the night; most in an old part

again affected. In some fits, the pain has continued a fortnight with little intermission, even in the day; the longest duration of a fit, eight weeks; the shortest, ten days; the longest interval, fourteen months; the shortest, three weeks or a month.

The present paroxysm began on Monday, April 3d. I saw him first on the 15th. He relates that he was exposed for several hours on the Monday, to a cold wind and rain in cleaning windows; went to bed, however, without complaint; was awoke between one and two in the morning with pain in the middle finger of the right hand, which rapidly inflamed and swelled. The whole hand was also soon affected. Gout continued in these parts for eight days; then seized the left hand; first in the middle joint of the fore finger, and subsequently in the metacarpal joint of the same finger, the inflammation spreading also to the back of the hand. Describes his pain as most excruciating, and sometimes to the degree of producing delirium. To use his own language, "he screams from agony; the affected parts feel as if in the hottest fire; sweat issues from the ends of the fingers in the pain; often feels as if dogs were gnawing the flesh from the bones; violent throbbing; sometimes it seems as if pins and needles had been forced in under the nails, and were again forcibly drawn out of the flesh; heavy as if a ton weight were hung to the foot." He says that this last sensation, though very strong in the hand, when it is the seat of complaint, is still more

violent in the foot; does not speak of the tightness which is so often complained of in gout.

At present (15th), the wrist and back of the left hand, and middle and metacarpal joint of the same, are the most affected parts. An abscess has formed over the middle joint of the finger externally. Part of the skin covering the matter, is black from effused venous blood; part exhibits the appearance of white chalk-like spots. The abscess was opened, and a considerable quantity of white curdy pus was discharged*.

The inflamed parts are vividly red†; the back of the hand pits much on pressure; the adjacent veins, and particularly those in the line of the inflammation, are in the fullest state of distension. The great toe of each foot is much enlarged from the swollen bursæ; the skin faintly red, and there is much bursal distension at the external part of each ankle; suffers great uneasiness in walking, from the weakness of the ankle joints; and particularly on uneven ground, either foot sometimes turning suddenly with severe pain.

Pulse 104, full, and rather throbbing; irritable, with an unequal beat; tongue moist, and not very foul. Some days ago, vomited sour mucous matter, of a greenish yellow colour; is liable to this in the gout. Has some tenderness in the right hypochondrium on pressure, but none at the epigastric region; not costive; has a foul state of

* See Appendix to the Case. † See Exp. p. 150.

bowels, much slimy, clay-coloured discharge from them; the bladder very irritable, urine being passed frequently, and of a deep orange colour, but without any sediment, except a slight mucous cloud. That of the morning was found to possess the following properties: Its specific gravity 1·014; it reddened litmus in the usual degree; was rendered slightly milky by heat; and on cooling deposited an albuminous precipitation, appearing in whitish coalescing flakes. Four ounces afforded of phosphoric acid 1·02 gr. (see Experiment v. p. 120). In the treatment of the case, the pills of calomel, colocynth, &c. (p. 185) containing of calomel three grains, with two of antimonial powder, were directed immediately; the draught (p. 186) containing sulph. magnes, ʒiss. acet. colch. ʒj. &c. every six hours; the evaporant lotion constantly to the inflamed parts, and a bread poultice to the seat of abscess. The diet, gruel, tea, and bread.

16th.—Much better. Has taken the pills and three doses of the draught, without nausea; two copious evacuations, foul and dark, watery and hot. Urine much more abundant, and passed with less frequency and irritation than yesterday; its specific gravity 1·0105; affected as yesterday by heat. Pulse 84, with diminished irritability; has passed a good night, sleeping comfortably from ten to six without the assistance of an opiate. Previously, his nights have been sleepless, painful, and most distressing. Found great relief from the

poultice, and assures me that the lotion gave ease to the inflamed parts in an hour. The appearance of the knuckle affected with abscess much improved; skin now of pale red; œdema lessened; finger less swollen, and can bend it a little. Still much tremor of muscles; often has palpitation, and is indeed altogether in a very nervous state. Continue all the treatment; add light broth and bread to the diet.

17th.—Feels much amendment. Had rigors yesterday afternoon, with a sensation of cold water down the back, not followed by a hot skin; still has tremors; complains of thirst and want of appetite; pulse 72, more equal and natural; tongue moist, but furred. Gout exceedingly relieved in the parts yesterday affected. The little finger of the same hand has inflamed suddenly within the last two hours; the skin is vividly red, burns and throbs. No further apparent secretion in the abscess. The skin appears as if inflamed from a scald; some vivid redness remains. He mentions that three days ago he observed a red line, beginning from the abscess, passing round the elbow up to the shoulder, with much tenderness in the whole course. Was rather faint and weak on rising this morning. Has not passed urine so abundantly in the last as in the preceding twenty-four hours, but with ease and freedom. It was affected as before by heat, and I now observed that it became turbid at 180°. The draught has acted freely four times; the stools hot and watery, and

without griping. Yesterday they were almost black; this day rather lighter. Repeat the pills, and all the other remedies.

18th.—Much improved. Has passed a good night; pulse natural; scarcely any redness remaining in any part; can move the finger having the abscess, without pain; its appearance improved; it bears some pressure; the swelling of the hand almost removed; expresses great satisfaction from the lotion. Free from rigors; appetite returns. The bowels have continued to be much affected; the discharges becoming natural. The urine still flaky from heat, but in a less degree. Continue the draught twice a day, and take five grains of the compound calomel pill each other night. Dress the sore with simple dressing. To increase the diet gradually, but to observe a correct regimen. To sponge the limbs and use subsequent friction, on the plan before mentioned, every morning.

June 20th.—He reports that he continued the medicines about a week. He rapidly recovered after the last report, and has remained well; feeling better, he assures me, than for two or three years past. This morning's urine possesses every healthy character, and is not affected by heat, or nitric acid. Its specific gravity 1·0137. Four ounces afforded, of phosphoric acid ·91 gr. (See Exp. vi. p. 120). A small speck of uric concretion appears under the skin, but the part is free from tenderness, and the use of the finger is perfect.

In addition to the injunction of a careful regimen, and the morning practice of sponging and friction, he is desired to regulate his bowels by means of pills, containing pulv. aloes comp. pilul. hydrarg. gum. gambog. and sapon. dur. in suitable proportions.

Appendix of the Chemical Examination of the Matter from the Abscess.

Having collected a sufficient portion of this curdy pus, and exposed it to dry spontaneously, I submitted it to chemical examination*, with the following results:

This matter, exhibiting the appearance of *chalk-like* particles intermixed with pus, seems to be a mixture of albumen and urate of soda. Before the blow-pipe it decrepitates slightly like albumen, emitting an ammoniacal odour, and burning with flame. When urged by increased heat, the white residue fuses like carbonated alkali, and, like it, has a powerful effect on turmeric paper. The residue, exposed to the influence of a damp atmosphere, effloresced; whence it may be concluded, that the alkali was soda.

Like urate of soda, on being treated in the usual manner with nitric acid, it exhibited distinctly the rose hue.

* My friend Dr. John Davy was present, and obligingly joined in the experiments.

March 1816.—This patient has continued perfectly free from gout, and has not experienced any interruption of good health. He has however lately relapsed into irregularity of habits; and consequently his future security will be very precarious.

June 1817.—No opportunity of discovering his present place of abode; or of learning his subsequent history.

CASE III.

J. W. aged 42; of small stature, chest circular; thin; of nervous temperament; of active habits, walking much daily; has habitually drunk porter and spirits, but he says never in excess, and eats moderately. His mother was severely gouty, and died at the age of 46, he says, from the gout. He is not subject to other diseases. Was first attacked at the age of twenty-eight in one great toe only, from continued exposure to cold on a snowy night. This fit was of short duration. Second attack in seven months after, and in the same part only. The third fit about July in the succeeding year, affected the following parts in succession: the toe of the same foot as before, each hand, one elbow. Continued to have gout annually, and often twice in the year; and in one year, after the free use of the eau medicinale, four times in the year. This medicine gave him present ease, but he felt, long afterwards, extremely nervous, and local weakness in a greater degree than he had ever before experienced. His bowels were left costive, and his skin appeared

yellow and sallow for many months. Some of his fits have lasted twelve or fourteen weeks. One attack, a year since, affected various parts in the following order; right foot, right elbow, right hand, left elbow, left hand, left foot, and also both knees. The diaphragm was frequently affected with spasm. His most remarkable premonitory symptoms are, cramps in the muscles of the lower limbs, affecting him severely as he is getting his first sleep, for several days before the attack; and sometimes for a week before, he has much scalding of water and sense of strangury. Also is dyspeptic, with great depression of spirits. The present fit (Dec. 1813) in which I saw him, was excited by cold and wet from walking in thin shoes on snowy ground. As is usual to him, he was attacked soon after midnight. The fit began three days before my visit, which was in the evening. I found the gouty inflammation just abating in one foot; and attacking one hand, which was inflamed and swollen, and in exquisite torture. His bowels were costive, and his urine deposited much pink sediment. I filtered it, and found that it coagulated with considerable firmness from heat at 180°; and gave a very dense whitish precipitate with nitric acid*. I prescribed the purgative pills and draught

* Dr. Wells observes (Trans. of a Society for the Improvement of Medical and Chirurgical Knowledge, p. 208), "I never, but in two instances, saw a pink-coloured sediment in urine, which contained the least quantity of serum." In addition to the phenomenon in my present cases, I have met with it in a

already mentioned in the two preceding cases, and the use of the lotion. This patient lived at a considerable distance in the country, and I did not see him again; but in a few days after, I received a circumstantial account of his progress. The bowels were freely purged in three hours, and he was immediately relieved, so that comfortable sleep followed. The fæces were dark and slimy. The lotion proved very comfortable, and assisted much in giving ease. He has not required opium. The draught has been continued regularly, twice or thrice a day, with much purgative and diuretic effect. The urine still deposits pink sediment, and is in a slight degree affected by heat and nitric acid. A week after, the report was quite satisfactory. Appetite, sleep and spirits returned; fæces of healthy appearance; the urine clear, and no longer affected by heat or acid. From the severity of this attack, he believes, from former experience, that without assistance, it would have continued two or three months, and attacked various parts. From his long fits, he has always experienced much constitutional and local debility

female who had ascites. The pink sediment was considerable, and the urine was strongly affected, both by heat and nitric acid.

The *precipitation* which is produced by nitric acid, or other re-agents, is commonly but very improperly expressed, as that of *coagulation;* a term which relates only to the agency of heat. The error in question was first pointed out by Dr. Bostock, in his interesting paper on the "Nature and Analysis of Animal Fluids."—Medical and Chirurg. Trans. vol. iv. p. 56.

for many weeks after their going off. Now his strength and energies return daily.

The only circumstance on which I shall further remark in this case, is the albuminous state of the urine, which was more remarkable than in the preceding case. This phenomenon has been more particularly presented to our attention than before, by Dr. Blackall, in his valuable publication on dropsy*. In eighteen gouty cases, in which I have examined the urine with a view to this circumstance, I have found it albuminous in five. The particulars which belong to two examples, I have just stated, and the remaining cases I shall briefly add.

CASE IV.

J. M. a strong man; of sanguineo-nervous temperament; has gout at present in the feet, but the paroxysm is abating; slight œdematous swelling remaining; pulse natural; nerves irritable; tongue furred; bowels costive; urine not abundant; of specific gravity 1·0196; of orange colour, depositing much pink sediment; filtered and heated it became flaky, and with nitric acid also afforded a

* Dr. Wells, in the paper to which I have already referred, read to the Society June 1811, has considered the subject of serous urine in a truly elaborate manner, and has presented an extensive series of examples.—Mr. Cruickshank, in the second edition of Dr. Rollo's Treatise on Diabetes, in 1798, appears to have been the first author who gave notice of the phenomenon in question.

copious flaky precipitate. Two doses of the pills, with calomel, colocynth, &c. and the daily employment of the draught, p. 186, soon restored the health of the patient, and in a few days even, the urine when examined was found to possess every healthy character.

CASE V.

E. L. of middle age, and originally of strong constitution; of nervous temperament; has lately had a severe paroxysm of gout, in both feet and one knee. The feet are very œdematous; the skin is pale. The pulse is rather weak; he is extremely nervous, and complains of much lassitude. Occasional spasms affect both the upper and lower limbs. His urine is clear and light, with only mucous sediment. I had not the opportunity of ascertaining its specific gravity. It coagulated with considerable firmness near the boiling temperature, and gave a dense precipitate with nitric acid. This patient was soon restored to health by a steel tonic, an invigorating diet, and by the local plan, of friction with a stimulating liniment, and the use of circular rollers. The urine, examined at the expiration of a week, from the beginning of the treatment, was perfectly healthy.

CASE VI.

T. W. aged sixty-four; of sanguineo-nervous temperament, frequently dyspeptic, and subject

to bilious obstruction. A *martyr* to gout. He has numerous uric concretions both in hands and feet. No part of his family have had gout, except an aunt who suffered from it severely. I first examined his urine under a paroxysm of gout, before any œdematous swelling had taken place, and found it albuminous in a great degree. Its specific gravity was 1·0141. It became turbid at 120°, and, as the temperature advanced, formed heavy flakes. It afforded a dense precipitate with nitric acid. This urine contained a very small proportion of saline matter, yielding from four ounces, by means of nitrate of lead, not more than 4·6 grains of precipitate. It possessed slight traces only of urea or uric acid.

At the patient's restoration to his usual state of health, I was much surprised to find similar characters of urine remaining. At several distant periods for a year past, in his best health, and when his appetite and digestion, though never entirely correct, have appeared to be very near the standard of health, I have examined his urine. It has always been secreted in abundant quantity, and I have, without one exception, found it more or less strongly affected, as described, by heat and nitric acid. Its specific gravity in these trials has varied from 1·0041 to 1·0076. These specimens of urine have scarcely afforded the least traces of urea* or

* Oxalic acid was used in the examination of this urine for *urea*, as also the nitric. It is a more delicate test of this principle, although acting more slowly, than the nitric acid. For this fact I am indebted to Dr. Prout.

uric acid, and a very small proportion only of phosphoric acid; but it is worthy of observation, that of each of these principles, the gouty specimen afforded comparatively the strongest evidence, though still only slight. On each occasion the urine reddened litmus.

At my request, Dr. Prout obligingly examined a portion of this patient's urine, when he was least complaining of indisposition. The following is his statement of the results: "I found the specific gravity of this urine at a temperature of 45° to be 1·0084. It coagulated at a temperature of about 130°, which is considerably below the coagulating point of albumen. I could not satisfy myself so well as I could wish of the existence of uric acid, though I believe it contained a small quantity. It contained also some urea, but less than natural. After having been kept some days in the bottle, it acquired the smell of sour whey, and very strongly reddened litmus; evidently from the developement of acetic acid. The animal matter present differed somewhat from albumen, and approached in its properties to curd, though it is evidently a distinct substance from either." It seems to me probable, that the peculiarities of this patient's urine are connected with the extensive secretion of uric acid, which is continually going on in the hands and feet. He has several ulcerations, from which the inspissated discharge has furnished me with white concretion; and this, treated with nitric acid, has produced the rose hue. In my present digres-

sion, I purpose briefly to consider the pathological character of a serous state of the urine. Dr. Blackall conceives, that an inflammatory disposition of vessels "prevails in those cases principally, in which the urine is coagulable." In this observation, the reference of the author is made to dropsies alone. Not intending to discuss the accuracy of this opinion, or to animadvert on his practical statements, which are numerous and highly instructive, I shall offer only a few marks further in connexion with this subject.

This anomalous function of the kidney has appeared to me sometimes associated with nervous irritability, and general weakness, rather than with an inflammatory state of the circulation. I examined the urine of a gentleman under inflammatory excitement from mercury, and its transparency was perfect at the boiling temperature. Some time after, when debility only was present, it coagulated very considerably from heat.

Both in *dropsical* and other urine, which I have found to be more or less albuminous, the kidney has seemed to be sustaining an irritable and hurried action; the patient, I think, in every case, passing urine with considerable frequency and irritation, and in some of the examples very abundantly. It must not, however, be understood, that I intend by this observation to ascribe this peculiarity simply to *nervous* disturbance. As a general position, I believe it may with truth be contended, that most of the morbid actions of the kidney,

which we find, are derived from some error in the functions of the digestive organs; and hence, probably, the source also of the present anomaly. In six examples of albuminous urine, procured from patients not dropsical, I have found, by careful examination, a remarkable deficiency of urea and uric acid, and also of the usual saline principles. Thus it appears that the secreting action of the kidney, under these circumstances, is very imperfectly performed. The probability may be also further suggested, that urine, which by examination affords the evidence of being serous, does not contain much true albumen; but that this albuminous principle is chiefly a modification of the animal matter, which the kidney, at all times, secretes from the blood; and is not, therefore, necessarily to be regarded as an extraordinary drain of serum from the circulation; which, by the common theory on the subject, it might be considered.

Proceeding, however, in the belief, that urine which is affected by heat and acid, as I have described, is always containing a portion of the serum of the blood, it becomes an important desideratum, to possess the means of forming, with some facility, a presumptive calculation of the quantity which it bears to the urine in any given measure, and to rate the consequent estimate of what may be discharged in the twenty-four hours. Dr. Wells, by inference from comparative experiments, adopted as a criterion, the apparent degree of coagulation,

which the urine presented from the application of heat. I have repeated the method which that author has detailed (in the volume before mentioned, p. 224), but I could not arrive at any satisfactory results.

The test of nitric acid, employed as I shall now describe, appears to me, a process at once simple and instructive. I found that one part of serum diluted with five hundred parts either of urine or water, instantly yields to nitric acid a slight precipitate, perfectly white. Diluted even with seven hundred parts, after some time, a sensible precipitate is afforded ; and this is the *maximum* of the power of the test. The *immediate* result, however, produced from the first mentioned proportions, is the most convenient evidence. Accordingly, therefore, as the urine under examination will suffer dilution with distilled water, and continue to furnish an *immediate* sensible precipitate with nitric acid, is the proportion of serum to be estimated, as so much *exceeding* 1 to 500. For example, urine that exhibits this effect, after dilution with four parts of water, may be considered as containing 100th of serum, or rather, of albumen. The nitric acid should be added in about the proportion of a 6th, as albumen is soluble in very dilute acids ; and without this precaution, the method which I propose will not succeed. I ascertained that the power of nitric acid as a test, was superior to that of heat, which renders the fluid (urine or water) faintly milkish, when the

proportion of serum is 1 to 600; but when extended as 1 to 700, does not impair its transparency. Nitric acid produced as much effect on the proportion of one 1 to 500, as *muriatic acid* did on that of 1 to 100. The specific gravity of the serum which I employed in these experiments, was, at 60°, 1·0285.

Finally, in the practical consideration of this subject, we do not appear warranted in our present state of knowledge, in affixing certain diagnostic conclusions to an albuminous condition of the urine; and it seems probable that our treatment under diseases in which it is found, must chiefly be governed by other indications.

As a copious detail of general cases, in addition to those which I have offered, might rather fatigue than interest the reader, I shall content myself with offering an account of some examples, in which a relapse shortly followed the recovery from a paroxysm; and of quick returns of the paroxysm in other instances, in consequence of causes admitting of clear explanation, and affording some instructive lessons both to the practitioner and the patient.

CASE VII.

J. L. aged 46; a mechanic; has a circular chest, and is corpulent; of sanguineo-nervous temperament; rather plethoric; irritable in disposition; often dyspeptic and subject to hæmorrhoidal discharge; habits of living sometimes free, and formerly excessive. Neither father nor mother had

gout, but his grandmother on his father's side was afflicted with the disease. This patient was first attacked at the age of thirty-five, in the toe of each foot in succession. The ankles, knees, hands, and elbows, have been affected in subsequent fits. The disease has gradually increased both in severity, and in the frequency of its recurrence.

I visited him first in March 1815. He had been suffering a severe fit, five weeks, and had still active inflammation in the right ankle, right hand, and right elbow. Other parts had been previously affected. He had chiefly employed sudorific medicines, rather a supporting diet, and flannel covering to the parts. His tongue was furred, his pulse irritable, the skin relaxed, countenance sallow, urine of natural colour, but depositing pink and mucous sediment; the bowels costive, and the fæces blackish and slimy; the nervous system extremely irritable. On most nights his gout was severely painful. I adopted the mode of treatment mentioned in the former cases, purging him twice with the pills, p. 185, and with daily doses of the draught, p. 186; at night tranquillizing him with the pill p. 225. The lotion afforded its auxiliary benefits most satisfactorily. At the end of a week, he was convalescent, and I discontinued my attendance, enjoining a strict attention to diet, care against exposure, &c. and prescribing as internal medicines a mild alterative course of *Plummer's pill*, and a daily bitter aperient; with the use of bandage, liniment, and friction to the weak parts.

Flattered with his rapid amendment, he too soon, and too far presumed upon it. He had neglected the methodical treatment which I had prescribed, and carelessly exposed himself to a cold east wind with wet.

In May, I found him again suffering in both feet and one knee; and together with pain and nervous depression, the stomach was deranged, and the secretions were very unhealthy, indicating, in concurrence with a *leaden* complexion, and some hypochondriac tenderness, that the liver was much deranged in its functions. No alteration of structure was discoverable. The first mentioned treatment being repeated, he soon again became convalescent; and I now arranged a strict plan which I should superintend. The alterative employment of mercury with the bitter aperient, p. 262, and regulated diet and exercise, were pursued until the secreting functions became healthy, and the complexion indicated the constitutional improvement. Finally, I directed that he should carefully at all times regulate his bowels by the pills, p. 280; take from two to four glasses of sherry, or old port, daily, accordingly as fatigue might require it; avoid malt liquor, and take animal food once a day only; and every morning pursue the plan of sponging and friction of the limbs, with strict attention.

He has found full advantage from these means. The present period, April 1816, is already a longer interval from gout, than he has enjoyed for a few

years past; and his general state of health, together with the improved vigour of his limbs, afford us complete satisfaction.

In this case we see it exemplified, that an unhealthy state of the digestive organs, and particularly of the functions of the liver, may be the foundation of a severe relapse. An exposure to cold, which, in a state of truly recovered health he might have borne with impunity, again excited the gout.

The obvious inference presents itself, that the physician should never pronounce his patient *cured* from the fit, or secure from its early accidental return, until the digestive functions, in the comprehensive extent of the expression, are permanently restored to health.

CASE VIII.

D. S. aged 38; has a circular chest; is tall, robust and corpulent; of a nervo-sanguineous temperament; very plethoric; has been of indulgent habits, drinking wine and other liquors indiscriminately. Father had gout severely. First attacked at the age of thirty-four, in the knee, in the month of June. He thought it was a strain. In the autumn of the same year he suffered another fit, the ball of the toe in the same limb being the part affected. From this period to the date at which I saw him, his gout returned frequently, and with increased severity. Each knee and foot became affected. I visited him first in December 1814.

Severe gout was in the feet. He had been much distressed with cramps, and stated that these commonly occurred in the legs, after much exertion in walking or dancing, or from wearing thin stockings, or standing in slight shoes on a damp ground, or exposure to a cold night air. From the same causes he suffered occasional spasms at the stomach. *Punch* was a liquor that did not sensibly disagree with his stomach; but he accused it of sometimes exciting a fit. In some of his former attacks he had taken hellebore and laudanum regularly, and purgative doses of calomel occasionally. From this treatment he procured ease in the affected parts, and shortened the paroxysms; but sometimes he suffered much inflammatory heat of stomach from the hellebore; and, as I have related, the gout recurred quickly.

On the present occasion he had much visceral derangement; the tongue was furred; the bowels were inert without medicine; and such discharges as had been procured, were foul and highly bilious; the urine was of deep colour, and with much pink sediment. I adopted my usual treatment with speedy success; and took leave of him with many injunctions of caution and forbearance. In Feb. 1815, after exposure to cold without a great coat, he became chilly with subsequent heat of skin and head-ache: and the throat became slightly sore. Gout in one foot soon followed, but not with its usual severity; yet the other foot did not escape. The former general and local treatment was re-

peated. I saw him first on the 6th, the second day of his attack; and on the 16th he felt perfectly recovered. During this period of my attendance, I found that his secretions had not become permanently healthy in the interval of the two fits. I now, therefore, pursued the usual plan of corrective tonic remedies, till this result was obtained; and pointed out a strict prophylactic regimen, as essential to his permanent cure.

At the present date, April, 1816, he informs me, that he has escaped gout and all complaints. He has duly regulated his bowels with the pills, p. 280; and on being occasionally heated from accidental circumstances, has also taken a portion of a solution of sulphate of magnesia in mint water. He has practised the morning sponging and friction with considerable regularity: and ascribes to this method much improvement in the power of the limbs, and a diminished susceptibility to the impressions of variable atmosphere.

In this example of youth and robustness, an abstemious course of life and vigorous exercise should be steadily continued, in order to counteract successfully a fulness of habit, and secure an exemption from gout.

CASE IX.

J. S. aged forty-three; has a circular chest; is tall, robust, and corpulent, and very plethoric; of nervo-sanguineous temperament; costive habit of bowels; has hæmorrhoids, and occasionally

gravel; perspires freely on much exertion; has been a full liver, and indulged in meat suppers, in the use of porter, wine, and other liquors. His exercise has been irregular. Has lived in London seven years, and his gout has been more frequent and severe since he quitted the country*. He has suffered much from dyspepsia. His father had gout. This patient was first attacked at the age of twenty-eight, in the ball of the toe of one foot; but since, scarcely any part either in the upper or lower limbs has escaped. Twelve months have made the longest interval of exemption from a fit; and four, the shortest. The longest duration appears to have been ten weeks; the shortest, five or six days. He has often been warned of an attack by symptoms of severe dyspepsia, a very costive condition of bowels, high-coloured and scanty urine, depression of spirits, a numbness of the parts about to be affected; and just at the invasion of the fit, he suffers severely from cramps.

The fit in which I first saw him, in February, 1815, had already existed for seven weeks, and was still severely affecting various parts. Wet and cold had been the exciting cause; and diffe-

* The increased frequency of the disease in this patient must not, however, be ascribed to this circumstance alone; but rather to the continuance, or probable increase, of improper habits, co-operating with the loss of country air; and, added to such causes, is to be considered the sure tendency of gout to increase in the constitution, when unrestrained by true *prophylactic* care.

rent situations had been seized in the following order: Left elbow; left knee; right shoulder, right elbow, and right hand. He was entirely in a helpless state; and suffered each night, pain and fever, cramps and violent startings. He had employed continual means, both by medicine and warmth, to produce sweating; but with no marked good effect, and with obvious increase of the weakness and irritability of his limbs, attended with general languor. The skin of the hand had almost a *scalded* appearance, and the fingers exhibited the character of paralytic weakness. The secretions were in the most vitiated state. The tongue was foul; the urine scanty and much loaded with mucous and pink sediment; and the fæces were slimy and bilious. His nervous irritation and depression of spirits could not be exceeded. The successful treatment of a case so long neglected, supported by much internal derangement, and attended by morbid sympathies established by repetition, became a matter of great difficulty. To the parts yet inflamed and tender, the lotion was applied with the utmost advantage. Five grains of the compound calomel pill were directed each other night; and the usual pills of opium, p. 225, to be taken as pain or restlessness should require. The bowels were freely acted upon by the draught, p. 186, repeated three times a day; and the diet, which had hitherto been too supporting, was now simply diluent. So early as the 8th of February, he appeared convalescent, and an improvement of

diet was admissible. The urine had assumed a healthy appearance, but the bowels were not yet in a correct state. The alterative pill was continued; a draught of infused rhubarb and columbo with magnesia, and compound cardamom tincture, was substituted for the former medicine. The weak and œdematous limbs (together with the usual plan of sponging and diligent friction) were rubbed with linim. camph. compos. and linim. saponis comp. in equal proportions; and rollers were applied.

On the 14th and 15th, he took carriage exercise. At my visit on the 16th I found that he had ventured in the air, the wind being in a cold quarter, with too little caution, and he was beginning to feel its ill effects. On the 17th he complained that his night had been restless and painful. One knee and one foot were rather inflamed, and all the parts affected in the foot were tormented with shooting pains. The nervous system was exquisitely sensible, and his mind was depressed with all the horrors of returning suffering. The first treatment, both general and local, was repeated; but more frequent doses than before of the opium pill became necessary to tranquillize pain and irritation; although the total quantity of this medicine was not much increased.

At this time, the pink sediment in the urine was again abundant, and the alimentary secretions bore an unhealthy aspect. Very light diet only was allowed, and the medicines were conti-

nued. In a few days the pink sediment of the urine was changed to one of whitish colour; and this I found on trial to consist chiefly of phosphate of lime with mucus, a little animal matter, and about a fourth of uric acid. The urine itself reddened litmus paper. The state of the bowels gradually improved.

On the 28th he was a second time convalescent; and appropriate treatment, in reference to the favourable change of circumstances, was renewed. The unhealthy state of bilious secretion still demanded attention; and with a view to this point, and the improvement of the whole digestive functions, the alterative calomel pill was directed every third night, and the columbo mixture, with cascarilla and rhubarb, p. 262, twice daily. The local management described on the 8th, was again adopted; but the liniment, p. 267, was now used; the parts so often affected, being extremely debilitated and requiring artificial excitement. I desired that he should take animal food of light digestion once a day, with any vegetable in season; shun malt liquor and spirits; and drink, after his dinner-meal, a few glasses of old sherry.

These means were pursued with advantage; and the general health being restored, he was directed to regulate the bowels with pills, according to the formula, p. 280, and to be strictly careful in regimen. The limbs still suffered with much weakness, which had been implanted in them by long neglect. Upon uneven ground the feet would turn

suddenly*, with excessive pain, and he scarcely escaped immediately falling. At night the ankles were frequently œdematous, and affected with much aching; and cramps were not yet absent. Twelve months elapsed before I had the opportunity of seeing this patient again; and I had the pleasure to find that he had continued quite free from gout; but his limbs were not wholly recovered It is true that he had not patiently persevered in friction and other treatment; and I enjoined, therefore, an employment of the means before mentioned, to be pursued with due attention; tinctura lyttæ being still added to the liniment.

I have the satisfaction of adding, that the patient is now, April 1816, gradually recovering the strength and ease of his limbs in the most favourable manner, with every prospect of a perfect cure.

CASE X.

The following case, exhibiting a most striking example of acquired gouty diathesis, appears to me peculiarly interesting in the many instructive views which it affords. It points out the disposition of this disease to increase its severe holds in the constitution, when indulged in its own course according to the doctrines of Sydenham; it exhibits the

* He mentioned, "that on first rising in the morning, his right knee would feel as if slipping out of the socket; snapping also, with some degree of pain." Lately, on getting into a carriage, he inadvertently bore his weight for an instant on that limb, and suffered much consequent pain and inconvenience.

power of regular treatment; and at the same time discloses a strong warning as to the care required on the close of the paroxysm, however favourable the circumstances of convalescence may be.

B. M. aged 41; of middle height, circular chest, muscular, and of late years disposed to corpulence; of nervo-sanguineous temperament, and of strong constitution. Not subject to other diseases. Gout unknown in his family. His habits of life for many years free, and without any attention to regimen. Exercise irregular, but strong and violent, particularly on horseback. Was formerly much subject to violent bleeding of the nose. His first attack of gout at 30, in the great toe of one foot only. Thought it was a strain. For the first five years had not either frequent or severe returns. During the last five years, the longest interval from a fit has been eight months; the shortest, two. Has not noticed any distinct premonitory symptoms to precede his attacks; but has found himself getting corpulent, and particularly in the abdomen; and during the summer months to have acquired a very sensible fulness of habit.

For the last three years, the most violent paroxysms have taken place in November or December, and continued with only occasional intermissions of suffering, till March. In some of his fits, he trusted to nursing alone, with the most simple expedients for the regulation of the bowels; being taught to believe that the course of the gout should, in regard to the safety of the constitution, be encou-

raged, and on no account be disturbed. In other fits, however, like gouty patients in general, who are so much prone to extremes in doing too little or too much, he resorted occasionally to irregular and rash methods.

In the fifth year of the gout, the feet being highly inflamed and painful, he immersed them in cold water, and by its continued use for half an hour at a time, and repeatedly in the course of the night, the symptoms were very much abated. In the night the stomach was affected with spasms; but with respect to the limbs, they were so much improved by the next morning, that he was able to leave his bed and walk. Much internal derangement soon succeeded, continuing throughout the remainder of the year; and the stomach and bowels became in a serious degree subject to occasional spasm and pain.

Since that time the paroxysm has been more frequent and violent. In the year 1814 the attack began in the first week of December, after very severe exercise and irregular living during the two preceding months. On the day previously, had been in very strong exercise in hunting, and did not use the precaution of changing his clothes, although very wet. In this fit suffered much from general fever and irritation, with excessive local pain. The feet, knees, and elbows, were affected in succession. Profuse perspiration, and much headache. Common aperients, and laudanum, constituted the only treatment. Did not recover till the

warm weather. In the spring, and through the whole summer, took a table spoonful of cream of tartar in a tumbler glass of warm water; but notwithstanding this constant attention to the bowels, and considerably more care in the habits of living both as to diet and exercise, a violent fit returned in the following year. Passed the summer, as usual, well, until September, when he had a slight return of gout in one foot, and was again severely attacked in November; so unfriendly was the disposition of a severe fit to prevent an early return. On the quitting of every paroxysm, severely affected with spasms, mostly seizing the knee, but also the feet.

In this attack in November, the symptoms became more than ever severe and untractable. He took laudanum, and also the black drop, in very large doses, with only slight relief. He underwent frequent and excessive perspirations without the smallest permanent good effect. To the knee, when affected with deep-seated pain, he applied a liniment, by means of strong friction, of sulphuric acid and oil of olives, and vesicated the skin. The parts were much relieved; but in a few days afterwards (not considered as the result of this application) the stomach and bowels became severely and dangerously affected with vomiting and obstruction, and much spasm. These symptoms soon yielded to medicines. In the following week, however, the muscles of the chest, and the collar bone, were seized with excruciating pain. Violent vomiting

came on, lasting two days. Then some interval of ease. But in the following week, a painful diarrhœa commenced on the Saturday, and continued until Wednesday, producing excessive weakness. From this time his recovery progressive, but his debility very considerable. Came to London in the middle of February 1816, and in the first week of March was attacked with much pain in the chest, collar bone, and shoulders. Very soon the feet and ankles were inflamed and severely painful. Afterwards, the knees and elbows suffered equally. Purgatives, and some stomachic medicines, were taken during this attack. No return of internal complaint. The paroxysm was in every respect much milder than the preceding one of November. Recovery very slow. In the summer found himself in good health. Took regularly every morning through the whole summer a tea spoonful and a half of calcined magnesia, which acted well on his bowels, and he thought it was affording him a cure.

Such then was the determined character of the disease in this case, and in a constitution irritable in the highest degree. It was scarcely possible to have an example of more difficult and intractable complaint.

I saw this gentleman first in October, 1816. He was soon afterwards severely attacked; the fit returning a month sooner than in any former year. On the first day, in the left ankle; on the following, in the right foot; on the third day, in the right

foot; in three days afterwards, in the left foot with great violence. I adopted my usual methods of treatment with immediate success. The symptoms in each part did not exceed two days, although the hand was seized more violently than on any former occasion. He used the lotion unremittingly. The internal parts were not in the smallest degree affected with spasm or pain. Almost in the first week he began to think himself convalescent. This promising amendment was now sadly interrupted. Eager to get abroad, he exposed himself a little to the atmosphere. He threw off a blanket from his covering at night, and on the very morning of taking a mercurial purgative, on one of the coldest days in November, went into the drawing-room very slightly clothed. In the most sudden manner, the stomach, bowels, and kidnies, were affected with intense pain and spasm, and with the utmost rapidity of symptoms. The pulse was low, and the attack was evidently spasmodic. It yielded to external fomentations, and to purgatives and antispasmodics. He soon recovered from all these serious inconveniences; but while pursuing a plan of alterative medicine, and of course on all accounts highly susceptible, again exposed himself towards evening to the most unfavourable state of atmosphere, a heavy fog with a piercing north-east wind. A severe relapse of gout consequently took place, which became very tedious; and my attendance, which before had been interrupted, was now regular. The severity of the symptoms was suc-

cessfully controuled by the treatment; and ease and sleep were procured under those intense sufferings, which on former occasions had failed to receive relief with three or four hundred drops of laudanum, administered in short intervals of time. In no case did I ever witness such constant and excessive deposition of pink sediment, or so completely vitiated a state of the alimentary secretions. That the deep foundation of this case of gout existed in a disease of the liver, was verified by the following indications;—a pain in the right hypochondrium, increased on depressing the ribs by strong pressure; by the symptoms already mentioned; by a complexion considerably jaundiced; and by a tongue always furred. The appetite, however, was scarcely ever interrupted. It would be tedious to detail the exact progress of the case. I treated the disease on the usual principles of conducting the cure of an unhealthy liver, having more than ordinary regard to caution in the use of mercury, for the reasons which I have before stated. The draught, p. 186, was regularly taken first twice, and then once a day, for a long period; the dose of the acetum colchici being ʒiss. It did not once produce nausea or inconvenience. It will be readily imagined, that some chronic symptoms of pain in the limbs and difficult motion attended so determined a state of visceral complaint; but a comparison drawn between the sufferings of all his former fits, and on the present occasion, notwithstanding the effects

of accident and carelessness of exposure, was to his own mind so favourable, that he spoke of every remedy which was used in the highest terms of satisfaction. No case could be more demonstrative than this of the perfect safety of the lotion; applied as it was with unlimited freedom; in a constitution which had so often shewn the tendency to retrocession, and indeed had suffered some actual attacks. After some difficulty and untowardness of treatment, the progress of amendment at length became perfectly favourable; and he can scarcely date the period when he has felt so much freedom from gout, as for some months past. He has, on several occasions, exposed himself to offending causes, with impunity. He is instructed to pursue every point of prophylactic regimen; and to enter upon a course of ass's milk, with a mild plan of alterative treatment, in order that the liver and connected functions may be as radically improved, as medical means can accomplish.

With attention to good rules, he is free from serious fears of relapse. If the gout return, he knows by experience that the painful symptoms may be readily controuled; but he is sanguine from his present satisfactory recovery, that he shall by care obliterate his tendency to gouty attacks.

I do not confine him to any severe restraints in his habits of living, and have allowed the regular use of the purest port, sherry, or madeira, in a limited quantity.

I myself entertain the confident expectation, that with a due observance of prophylactic regimen, the future issue of this case will be quite satisfactory.

CASE XI.

The following case of gout is an additional example of a remarkable frequency of attack, even where the diathesis was wholly acquired, arising chiefly from the influence of a morbid state of the liver; and consequently pointing out, that in these instances, our only method of cure for the gout is the adoption of that treatment which is the most suited to restore the action of the liver to health, and also to rectify the digestive functions in general. It further demonstrates that the action of gout, although not interfered with by any treatment, entirely fails to prove a curative remedy for such internal derangement, and apparently serves only to harass and depress the powers of the constitution.

S. J. aged 40, of middle height and bulk, and not very plethoric; of sanguineo-nervous temperament, and strongly bilious diathesis. Seventeen years ago had the yellow fever in a hot climate, the shock of which to his constitution he has never recovered. Once since he has been severely jaundiced. Of moderate habits, and usually very careful. In general sedentary, and disposed to retirement. Gout unknown in his family. First attack was in January 1814, in the great toe of one foot only,

Has since had five regular paroxysms. Passed two winters in Paris, without any advantage from the climate of that city, as compared with a residence in London. His attacks always violent. In the fourth fit, both feet and hands were affected. He usually adopted only simple treatment, and in the first two attacks did not use any remedy, but merely covered the parts with flannel.

In one paroxysm took magnesia very freely, which acted beneficially as a purgative; but on being discontinued left the bowels costive. Has occasionally complained of great debility of stomach, and, according to his own statement, "accompanied with shiverings, coldness of the extremities, weak pulse, very low spirits, total want of appetite, and, as it were by instinct (it being so contrary to his custom), a desire to take some spirituous liquors." Also, when he has found himself dyspeptic and bilious, has complained of the sensation commonly called that of *pins and needles*, in the legs particularly, and in the arms slightly.

In the third fit, having severe pain, inflammation and swelling in one foot, he went into a warm bath at 95°, which for about a quarter of an hour very much relieved the intensity of the pain; but on his quitting the bath, it returned in an increased degree: and this fit proved of more tedious duration, and produced more œdema and weakness of limbs, than any which he has ever experienced.

I was consulted by this gentleman in January

1817, when the gout was affecting first the feet in the usual manner, and afterwards the hands. In union with this attack much jaundice was present, a furred tongue, loss of appetite, depression of spirits, the urine of a deep colour and depositing lateritious sediment, the fæces of a dark green colour and in every respect indicating bilious derangement; and the right hypochondrium was also tender on pressure. I directed in this case, repeated purgatives of calomel and colocynth, together with the colchicum draught p. 186, and the use of the evaporant lotion, until all the acute symptoms were removed. Except on one night, the aid of a narcotic was not required. Of the lotion he stated, "that it quickly relieved the pain, heat, and throbbings of the parts, and he soon found his feet sensibly strengthened from its use." He did not suffer the subsequent œdema and debility of the ankle joints, which, on previous occasions had rendered him very infirm. He had recourse to the tepid salt water sponging in the morning, with bandages during the day, and a stimulating liniment at night, with the best effects in the convalescent stage. He pursued a mild corrective course of mercurial medicine, in conjunction with the stomachic draught, described at p. 262, and took ass's milk night and morning.

By these means, steadily pursued, in unison with a strict attention to general regimen, he gradually lost his jaundiced complexion; no longer was sensible to any pain on pressure in the region

of the liver; acquired a good appetite, cheerful spirits; and in short, a general renovation of energy and comfort.

CASE XII.

A gentleman, aged 48, of sanguineo-nervous temperament, and of very bilious diathesis; affected with hereditary gout, and having suffered frequent fits in the course of the last ten years, was attacked with severe acute symptoms in each foot, and one knee. A few days previously, the second toe of one foot had accidentally suffered tight pressure from a new boot, so that pain and swelling soon followed as a consequence. At the moment when the inflammation of the other parts was at the height, the integuments of the toe were evidently in the state of abscess, and on a puncture being made, a considerable quantity of curdy matter, mixed with particles of chalk-like substance, was forcibly pressed out. This, on being submitted to chemical examination presented results precisely similar to those which I have described at p. 290. One of the fingers also which had for a long time past been thickened in its tendinous sheaths, in this paroxysm, without the influence of external injury, became more than usually swollen, and so distended near the surface on the palmar side, that some fluid was distinguishable to the touch. On being punctured, much blood and a small portion of the curdy pus were discharged. This pus agreed in all its properties

with what was furnished by the abscess. The thickened finger, which had long been deprived of free motion, was treated with the empl. hydrarg. cum sapon. in the day, and a mercurial poultice at night, with the best effects; and the toe was soon restored by simple treatment. The gouty inflammation of the feet and of the knee yielded very favourably to the combined influence of purgative mercurials, the draught p. 186, pills of crude opium and antimony, and the free use of the lotion; but I have introduced the short narrative of this case, as affording the second instance only with which I have met of gouty inflammation proceeding to *suppuration*. In this, as in the former example, Case ii., the common integuments were the seat of the abscess. In the toe, which was injured from violence, we may conceive that common inflammation and gouty inflammation were mixed; but it certainly appears, that in gout, when the capillary vessels are from any cause excited to that increased action which is analogous to the suppurative, a secretion of urate of soda is the consequent result.

In the present case, during the whole continuance of the inflammatory symptoms, the urine deposited an excessive quantity of the bright pink sediment, and it was much loaded with urea. The fæces abounded with vitiated bile; pain, and tenderness to pressure in the right hypochondrium were felt considerably; and indeed every indication of an unhealthy state of liver, requiring an

alterative course of treatment, was strongly marked.

This gentleman had never before experienced any signs of urate concretion; but has always noticed the pink sediment to be abundant in the urine during the paroxysm; and it was so in an extreme degree in this attack, during the whole continuance of the inflammatory symptoms.

He stated that in former fits not commencing with more violence than this, he had suffered far more severely, and for a much longer time. At the period of convalescence in this case, I directed an alterative course of medicine to be pursued for several weeks, with the free use of ass's milk; and that the empl. ammon. cum hydrarg. spread on leather should be worn on the tender part of the hypochondriac region.

OF CHRONIC GOUT.

This species of gout, according to its characters which I have offered at p. 16, occurs most commonly as an ultimate consequence of the acute form of the disease; and appears when the paroxysm has not formed a crisis; or, when repeated attacks have so much enfeebled the constitution, that strong inflammatory action no longer takes place. In this case, the former severe paroxysms, which occurred with distant intervals, become exchanged for those which are milder, but which are more frequent and irregular.

This chronic state of gout is more commonly blended with wandering pains than *the acute*; and these pains have now and then the rheumatic character, and are at other times indefinably nervous. It occasionally occurs in subjects, in whom the acute form has never existed; but examples of this kind are comparatively rare, and are found more frequently among women than men. In this mode of attack, it seldom happens that the great toe is the part affected; but sudden swelling and pain, having but little of the regular character of gouty inflammation, fix in preference on the hand or wrist, or instep, and about the ankle.

When the chronic gout occurs as a sequel to the acute, the various parts which have been in-

flamed in the paroxysm, continue affected alternately or in conjunction. The following may be offered as a further description of the local and constitutional symptoms in both the states here mentioned, viz. when original and when consequent.

The sensations of the affected part are rather those of heat and coldness alternately, than of the more continued *burnings* which take place in the acute disease; but, as in the acute, the night time is most the period of active pain. Frequent numbness is present, and an uneasy sense of fulness, bulk, and weight. The muscles, tendons, and ligaments appear, from weakness, unequal to their office; and cramps, which especially affect the lower limbs, occur even in the day, but mostly at night, when the patient attempts to take his first sleep*. Startings also, in the imperfect sleep which is procured, take place in a very distressing degree, both when chronic gout is present, or when it is threatened. If any redness appear on the surface of the pained parts, it is of a pale colour, and usually transient: sometimes it is of a purplish hue; but often, indeed, the skin retains its natural colour, and especially when the knee is the part affected. The bursæ and the sheaths of tendons are much more the seats of complaint in the chronic,

* Sydenham observes, "The tendons of the muscles of the tibiæ are sometimes seized with so sharp and violent a convulsion, or cramp, that if the pain it occasions were to last only a short time, it could not be borne with patience."

than in the acute gout; and these textures acquire a very continued state of puffiness and distension, producing, at the wrist and instep, the matted feeling of parts to which I have adverted in a former page. In situations more cellular, œdema is very permanent; and this is attended with a preternatural fulness of the adjacent veins. In the most favourable state of the general health, the ankles are affected with aching and a distressing sense of heat after every unusual exertion in walking. The tenderness of the parts on pressure; the shooting pains of different nerves; the painful difficulty of motion, and entire want of energy in the limbs, under any effort of the will, belong also to the local debility produced by the disease. The state of the constitution in chronic gout embraces a great variety of symptoms, which are modified by the temperament and the habits of the patient; by the situation and degree of local disease; and also by the seat and nature of the internal visceral derangement. Indeed so many anomalies often arise in this impaired state of the health, partly depending on internal causes, and partly on the painful or uneasy state of the affected textures, that probably no description would be adequate to include all these shades of sympathy; and it may be sufficient to delineate a general outline.

It most commonly happens, that the patient is severely dyspeptic, and that the stomach is distressed with various uneasy sensations. A craving desire of food, and nausea, are often felt alter-

nately. Oppression after an incautious meal, and flatulent distension, attend the gouty dyspepsia in an urgent degree; and to this may be added *heart-burn;* or, in some individuals, a coldness at the stomach of a peculiar nature and intensity, compared occasionally to that of marble, or even of ice. Fugitive spasms affect the muscles of the abdomen, or ribs; or cramps occur, which are of more distressing continuance.

In many examples in which the appetite seems natural, the patient has not the feeling of benefit from his diet; and when this is of too stimulating a kind, the irritation produced by local uneasiness grows into feverish action. An exceeding irritability marks the temper. The mind is hypochondriacal; imaginary evils disturb the judgment, and shake the resolution on trifling occasions. Palpitations affect the heart; and the sensations, described as flutterings, are still more frequent. Either from pain or uneasiness, the sleep is disturbed and unrefreshing. I have met with female gouty patients in particular, who are so exquisitely sensible to the vicissitudes of atmosphere, that instantly on the change of the wind to a cold quarter, and especially if accompanied with moisture, they feel wandering pains in the limbs; and indeed are so susceptible, that their nerves are true barometers.

In the worst instances of the disease, a general *cachexy* takes place; or the former bulk of health is partial; so that the lower limbs are wasted and

weak, and the abdomen becomes large. The secretions are more or less vitiated. The bowels are in opposite states, but for the most part costive; and the bilious secretion is deficient and unhealthy. The hæmorrhoidal veins are often painful; and blood, either arterial or venous, is occasionally discharged; but, when in much quantity, it is venous and very dark. The urine is variable, being influenced by many circumstances. In some instances it is in sparing quantity, and much concentrated; in others it is abundant and dilute. In that of the morning, there is usually much mucous deposit; and under excitement of the circulation from disease or diet, the uric sediment (pink or lateritious) is almost certainly present.

A gentleman, much afflicted with chronic gout, informs me, that he notices his fæces to be particularly clay-coloured, and that the pink sediment appears in his urine, when he is most complaining of weakness and pains in the limbs. He readily suffers dyspepsia in a distressing degree from slight causes.

A chronic cough is not unusual; and in some cases it is of a primary nature; but more frequently it is truly sympathetic, and depending on the faulty state of the digestive organs. I have repeatedly seen instances of this kind, in which the patient and his friends have been alarmed for the safety of the lungs; but the cough has entirely yielded to the treatment best adapted to the threatening symptoms of gout; and in these cases, I have not

forbidden the moderate use of wine. I have described the nature of this cough at p. 19.

Another example of chronic gout may be stated, in which the natural functions seem little disturbed from their healthy course; and irregular pains, and transient inflammation at the ordinary seats of the disease, with consequent lameness, constitute the patient's chief complaint.

Such are the forms of broken health and frequent sufferings, which chronic gout produces. When neglected and left to its natural progress, its inroads on the constitution are so sure and constant, that the afflicted patient, in many cases, is indebted to the genial summer alone for a state of partial ease.

In this state of the frame, any internal disease which is casually produced, assumes a modification more or less remarkable, in consequence of the gouty diathesis; and, as I have formerly observed, such occurrences have been the fruitful source of error and confusion both in theory and practice.

CAUSES.

When it is considered that the chronic state of gout is truly a modification of the acute, but that it is essentially the same disease with a difference of degree and circumstance, it follows as a consequence, that the same general pathology, with an exception which I shall presently offer, must be ap-

plicable to each. I trust, therefore, that in my remaining pages, I may with propriety adopt a convenient conciseness of discussion, and depart from that close analytical arrangement which I have hitherto endeavoured to observe.

It appears to me that the difference in the agency of the remote causes, either as producing the acute or chronic forms of the disease, must be wholly referred to the particular state of constitution. If, when the gouty diathesis prevails, the system possess considerable energy, and the action of the heart and arteries be in sufficient vigour, the acute symptoms will be produced by the application of the remote causes.

If, on the contrary, languor and debility possess the frame, chronic symptoms and various anomalies arise.

In the theory which I have offered of the *first* paroxysm of acute gout, as it usually appears, I have considered that a redundancy of blood, chiefly affecting the system of the vena portarum, induces, in persons of a certain predisposition, temperament, and diathesis, the peculiar inflammation of gout. In a favourable case, Nature with her own powers relieves the system by this process, and health returns.

The circumstances of the chronic disease, as the term itself expresses, are very different; and the constitution is involved in a more complicated manner, than in this theory of the first fit of *acute* gout. To the returns of the acute attacks, how-

ever, a similar principle of pathology may apply, as to the chronic; observing the modification which arises from the different state of the powers of the circulation and of the nervous system, as I have so lately explained.

It remains that I should briefly describe, in a more particular manner, the chief causes which influence the production of chronic gout.

It sometimes happens, that the gout not appearing till the patient has arrived at an advanced age, it is connected with a plethoric state of system which is joined with much debility; and then, chronic symptoms alone shew themselves. The disuse of former exercise, and increased indulgence in the general habits, introduce the disease in this manner.

Examples of the gout assuming in its first invasion the chronic form, as early as the middle age of life, most frequently occur in females of weak constitution, whose parents have been, one or the other, gouty. It may be added, by way of explanation, that the remote causes are applied more weakly in the female sex; and hence, in women, the gouty action is often less completely evolved than in men. The mismanagement of the paroxysm is probably the most frequent source of the chronic symptoms. The neglect of purgative medicine, and the injudicious employment of stimuli, produce irregular inflammation, indirect debility, and excessive nervous irritation. The improper use of mercury powerfully contributes to produce

these effects. Hot clothing of the inflamed parts, as is usually practised, prolongs the symptoms, and increases the tendency to relapse from slight external causes.

In the examples which are most obstinate and untractable, the cause will certainly be found to exist in some visceral disease. The liver itself is most usually the chief organ affected; but I have sometimes been persuaded that the spleen has also betrayed strong symptoms of disease; which have concurred to support the gout. It is in the chronic form of gout that we often meet with the worst instances of dyspepsia, and that the urgency of flatus is so remarkable. This state is certainly existing in connexion with a vitiated state of the bile, and of the whole alimentary secretions. A deficient or irregular action of the kidnies is also an usual attendant.

The *eau medicinale* has been the fruitful source of many cases of chronic gout, by enfeebling the nervous system; and occasoning, together with irregular pain and obscure inflammation, a degree of despondency and langour never before experienced.

In proportion as the gouty diathesis is strong, and the constitution is unsound, so will the power of all the remote causes be more strongly marked. Thus, where the susceptibility is established in a great degree, every accidental exposure to wet and cold, and even the influence of the east wind alone,

will more or less give rise to flying pains, and inflammatory action of a slight and transient kind.

Distress of mind acts powerfully in keeping up the symptoms of chronic gout. I have seen very strong proofs of this fact; so that in some constitutions, while the feelings are anxious and much afflicted, it is truly difficult to accomplish a cure.

DIAGNOSIS.

The distinction of chronic gout from *chronic rheumatism* is seldom very difficult, when all the circumstances, both general and local, are carefully considered. Chronic rheumatism, not preceded by the acute form, occurs much more frequently than chronic gout *. Our opinion will be assisted by reference to the constitution of the parents. The presence or absence of dyspeptic sympathies is not a certain criterion of distinction; but it may be stated as a general proposition, that the natural functions are much more deranged in chronic gout, than in chronic rheumatism, and invariably, according to my observation, when the disease originally fixes itself as chronic gout; but when the occurrence is subsequent, the phenomena are in this respect sometimes different. I have seen some examples, in which, the pains of chronic gout

* Dr. Haygarth, in his *Clinical History of Disease*, mentions, "that out of 470 cases of rheumatism, only 170 had the rheumatic *fever*.

affecting those who have had frequent acute fits, have very much assumed the character of rheumatism, and have not been attended with any disorder of the appetite or digestion. The structure, constitution, and temperament of the patient; his age, and his habits of living; together with a consideration of other remote causes, must be brought under review. Dr. Clerk, with great confidence, founded his distinction of the two diseases, as he says*, "on white ropy filaments floating in the urine, which when taken out of it are pellucid, and when dried turn to a kind of calx." This cannot be justly considered as a pathognomic symptom. Such an appearance of the urine (produced by mucus and saline matter) occurs in various kinds of disease, in connexion with disordered digestive functions.

The character of the local appearances, in chronic gout and chronic rheumatism, is an important point of distinction. Although the gout in its chronic form is still more fugitive and uncertain in the part which it occupies, than when acute, and in this respect approaches nearer to the nature of rheumatism, yet it is much more disposed to attack the hands and feet than the last disease, and also to be more solitary in its situation.

The circumstance of rheumatism affecting tendons at their insertions, the aponeuroses of muscles, the ligaments, and branches of nerves, more com-

* Edinburgh Phys. and Lit. Essays, vol. iii. p. 442.

monly than any other parts of structure, and consequently not producing in these situations any very evident swelling, it has been assumed by Dr. Haygarth*, "that absence of tumor constitutes a clear criterion of chronic rheumatism, from acute rheumatism, gout, scrophula, nodosity, and white swelling of the joints."

In a reference to three hundred cases of chronic rheumatism, he remarks, "Out of the whole number, only fourteen patients were noted with any swelling in the seat of the disorder; and it appeared, upon a more careful and deliberate investigation, that all these fourteen cases ought to have been classed under the other genera. "I am now confining my notice to gout; and to me, I confess, it appears, that the ground of diagnosis which is here chosen, is neither sufficiently faithful nor comprehensive. The result of my own observations has been, that if the chronic gout affect the foot or hand generally, an œdematous swelling is almost certainly present; but if the chronic rheumatism be so situated, this occurrence is exceedingly rare. If, however, the bursæ mucosæ and the thecæ of tendons be the seat of complaint; namely, either of chronic rheumatism or chronic gout, the external characters are very similar. Under each disease the bursal membrane becomes distended to a great

* On the discrimination of chronic rheumatism from gout, acute rheumatism, scrophula, nodosity, white swelling, and other painful diseases of the joints and muscles.—Med. Trans. of the College of Physicians, vol. iv.

degree; and this is often seen in a remarkable manner at the knee joint. The mutual resemblance also in the distension of the tendinous thecæ, which, at the wrist particularly, produces considerable fulness of parts, further serves, in my apprehension, to destroy the accuracy of the diagnosis in question.

The textures which have been often affected with gout become so much debilitated as to be very susceptible of vicissitude of temperature, either in the house or abroad; and in this way, the general disorder may often partake of *rheumatism*. It is only from such combination, that I can attach any propriety to a very common expression, *Rheumatic gout*. I do not conceive that gouty inflammation and rheumatic inflammation can exist in *the same part*, at the same time; but certainly we find gout and rheumatism occasionally existing in *different parts* of the body at the same time. Of this last fact I have seen many instances. The patient, when he has gout in the regular situations, suffers, in consequence of some partial exposure to cold, a rheumatism in other parts, as in the muscles of the neck, or in the shoulder joint: and a seizure of lumbago at the time of the invasion of the gout is also not uncommon.

The peculiar affection called "Nodosity of the joints," is distinguished by Dr. Haygarth according to the following characters:—*Almost peculiar to women; without fever; the swollen joints on examination representing an enlargement of the bones*

themselves; the comparative freedom of the integuments from inflammation; the muscles seemingly not affected.*

In some examples of this disease which have come under my observation, the bone-like hardness of the affected parts; the general state of freedom from pain, and which at no time was severely felt, together with the absence of sympathetic disturbance of the digestive organs, have sufficiently convinced me of the distinction of the complaint from gout. On the other hand, I have seen two instances, in which the gout has always been so local, that one or two tendons only on the hand have been occasionally affected with the usual characteristic pains, in sympathy with certain states of the stomach; and two cases also, in which, the bursæ belonging to the sheaths of the tendons of the fingers have been so knotted, as truly to be in the state of nodosity; and have now and then given slight evidence of gouty inflammation, no other part having at any time been affected. I learnt in the history of these four persons, that the gout was a family complaint.

It is scarcely probable that chronic gout can be confounded with the pains and swellings produced near the joints by secondary syphilis. In such affections, the symptoms have a more increasing progress than those of gout; and are also much less influenced, either as to relief or aggravation, by slight external causes, or by diet, or the state of

* Clinical History of the Nodosity of the Joints.

the mind: and it may be added, that the syphilitic characters presented to the eye, and to manual examination, are in general sufficiently marked to be recognized without danger of error.

OF THE TREATMENT.

From the history which has already been delivered of chronic gout, the necessity of an extensive application of the principles of pathology for its elucidation must appear as an immediate deduction. It is only by a theory founded on just physiology, and by a practice resulting from careful discrimination, that our footsteps can be safely directed in the present path. In acute diseases, the bold hand of the Empiric, or even some happy effort of Nature, may sometimes be speedily successful; but when the chronic form of disease is deeply established in the system, no pretended universal, or even expeditious method of cure; or treatment founded on a partial application of principles, has any just claim to our regard.

In the practical arrangement of my subject which I have now to offer (using the privilege of some recapitulation), several distinct modifications of the disease may be presented to our consideration.

I. From that original languor of constitution,

or prevalence of the nervous temperament, in which, although the gouty diathesis is strong, the powers of the system have been insufficient to produce the acute form of gout; and pain, swelling, and difficult motion, are the symptoms which chiefly appear. The internal functions are weak and unhealthy, and much nervous sympathy is present.

Here our indications will be chiefly derived from the state of the chylopoetic viscera, and from an attentive observation of the several secretions. It sometimes happens that stimulating medicines, and too cordial a diet, have produced, in this constitution, a slight degree of inflammatory diathesis joined with plethora; but even in this case, general bleeding will seldom be allowable. The employment of purgative diuretic medicine, such as before recommended, with the occasional interposition of a dose of hydr. submur. et pulv. antimon., and the abstraction of all heating stimuli, will usually constitute a treatment of sufficient activity.

The soothing influence of narcotic medicine should be employed at bed-time, for the relief of pain and nervous irritation. Active doses of opium are however both unnecessary and injurious; and indeed some other narcotic will usually be found sufficiently powerful, and therefore more deserving of choice. I have already, when speaking of narcotics in the treatment of acute gout, entered fully into detail; and shall here only state, that for the

relief of these minor pains of chronic gout, I have found great success in using the combination of stramonium and lactucarium.

In chronic complaint, when we are not compelled by urgency of symptoms to choose the most active forms of medicine, it is desirable to select those which act in a gradual yet effectual manner. As opium restrains the action of the bowels (a circumstance of only slight objection in the treatment of the acute symptoms, when we are at the same time administering active purgatives), we gain a great advantage in the cure of chronic gout, by the use of the weaker narcotics, which have not this effect; and although the extract of henbane is on this account an excellent medicine, and its soothing powers are not to be disregarded, I am, from comparative experience, quite decided in favour of the united influence of stramonium and lactucarium.

The local treatment is to be conducted exactly on the principles formerly described. Inflammatory tenderness being removed, friction and bandage will be eminently useful.

The more permanent method of practice comprises the improvement of the internal functions, by a plan of medicine, and of regimen, corresponding to the changing indications.

Tonic medicines are usually injurious, and tend rather to fix than remove the disease. Whatever formula we choose, it must be our care to promote the functions of the liver and the kidnies, to correct the morbid processes of disordered digestion,

and excite the action of the bowels, without nauseating and weakening the stomach. The tinctura benzöes composita, formed into a draught, and given once or twice a day, in conjunction with magnesia, is an useful stimulant to the bowels, and at the same time corrects acidity. If this medicine prove too heating to the stomach, the red rose draught with sulphate of magnesia may be substituted, with a larger proportion of the infusion than is usually directed, and with any addition which circumstances may suggest. If defective appetite prevail, a light corrective bitter should be prescribed.

In a course of medicine, it is desirable that the dose should not be repeated more than twice in the day; but if the bowels do not become sufficiently excited, the use of some purgative pills at bed time should be added. I may mention as useful, a combination of the pulvis alöes compositus, pulvis rhei, et sapo durus, with the occasional addition of the pulvis antimonialis. As a part of the plan in question, the alterative use of some mild mercurial oxyd is of indispensable importance.

If, when the secretions are rendered permanently healthy, debility of stomach and general depression should remain, we are consequently led to the use of a tonic; but in this choice we must guard against the effects of heating stimulants.

The regimen, in every particular, must be carefully regulated according to the individual constitution; but daily exercise in the air of the country,

and the avoiding of a diet too full and stimulating, are cardinal points of observance.

2dly, The consequence of acute gout, when its repeated invasions have impaired the energy of the constitution; and from the weakened circulation which is induced, the chronic diseased action alone takes place. The functions of the internal viscera are more or less deranged; and the nervous system is much disturbed.

In this example, we commonly see that the primary character of constitution remains to so great a degree, that signs of plethora are often manifested; and slight local inflammation is readily aggravated by the injudicious use of stimulants. Under these circumstances of vascular susceptibility, in conjunction with languid powers, the treatment which has been stated in the preceding example is generally applicable. The purgative treatment will, however, sometimes be required to a greater extent, and for a longer continuance. The state of the secretions will be the true guide to the practice which should be adopted. Material information will be derived from a knowledge of the specific gravity of the urine. I have invariably found, that so long as this has been very high, the more or less active employment of a diuretic purgative has been attended with the best effects*. The

* It may interest the curiosity of some of my readers that I should mention the following formula of *the Chelsea pensioners'* medicine, which, it will be seen, consists of ingredients that are

draught, p. 186, regularly repeated twice a day, and the compound calomel pill each other night, usually prove very successful in answering this intention of continued evacuation; but I have sometimes found the action of the kidney to be so deficient, that it has been necessary to join some other diuretic combination with the draught in question. In a very torpid state of the bowels, I have occasionally added guaiacum to the purgative ingredients with advantage. When the practice now mentioned has been sufficiently pursued, a tonic mode of treatment will follow in the order of succession. But in some instances of prevailing fulness of the habit, local congestion is pointed out, and the consequent propriety of relieving the loaded vessels, by cupping, becomes manifest. An obstructed circulation in the liver seems to be the common cause of partial determinations of blood in gouty persons; yet the symptoms are consider-

in common use. This is a heating medicine; and I should consider it an improper remedy in the paroxysm. I am informed by some individuals, that in the intervals of their fits, they have found it agree very well, as a purgative.

" Take of flower of sulphur, two ounces.
" Cream of tartar, one ounce.
" Rhubarb powder, two drachms.
" Guaiacum, one drachm.
" Honey clarified, one pound.
" One nutmeg, finely powdered. Mix them intimately.

" Two large tea spoonfuls to be taken night and morning, and to be persevered in till the whole is consumed. For the three first nights, a large tumbler of warm rum and water is to be taken at bed time; or, if fever is present, white wine, instead of rum."

ably varied. When the right or the left hypochondriac region is affected with pain and tenderness, the blood should be drawn from these situations. If pain, heat, and sensible fulness distress the head, cupping at the neck will be an appropriate remedy; but it should be well remembered, that the symptoms now spoken of are of a secondary character; and the permanent cure will be found in the judicious treatment of the chylopoetic viscera, and in the collateral points of practice.

What has already been said of local management, need not here be repeated.

In the various shades of the chronic gout; between that fulness of habit and remaining degree of action, in which the symptoms approximate to those of the acute form, or even sometimes are actually converted into it; and that universal languor and debility, with which the weakest inflammation alone is found connected, the practice must also be accordingly modified.

In this last case, it may be stated, that although the use of stimulant and tonic medicines is indicated, and demands occasional preference, the purgative and corrective intentions must equally be fulfilled, to a given extent. Subcarbonate, or the neutral carbonate of ammonia, will be found a medicine highly useful when stimulant treatment is indicated, and may be favourably joined with the compound decoction of aloes, infusion of gentian, and peppermint water; the alterative pill also being employed.

For the relief of symptoms of a spasmodic and nervous character, which are connected with debility and morbid sensibility of the stomach, a stimulant antispasmodic medicine may be given occasionally; such as a conjunction of the aromatic confection and carbonate of ammonia, or æther, with camphor mixture; but, to palliative remedies of this kind, the patient should not too familiarly resort.

In certain states of debility and general disorder, into which some gouty invalids decline; or in anomalous cases of disease, where gout has not yet existed, but is suspected; and the symptoms are those of excessive languor, or even of partial privation of function with a threatening of general paralysis, it has been a common practice to invite a fit of the gout by various modes of stimulating treatment.

The propriety of this proceeding is certainly as questionable, as its object is difficult of attainment; and it does not seem warranted by the amount of benefit, which Nature in her spontaneous production of a paroxysm occasionally confers. It is always hurtful, and sometimes hazardous, to excite a weakened circulation into strong action; and it cannot be denied that the active means which are thus injudiciously adopted to urge the gout, may produce, instead of it, an apoplexy. I apprehend that the true method of treatment, on the occasions to which I have alluded, consists in a regular and persevering attention to the chylopoetic functions,

both by means of medicine and regimen, according to the principles of which an account has already been offered.

The learned and experienced Dr. Heberden observes on this subject; "In complaints of a chronical nature, whatever suspicion there may be of gout, it would be no bad rule of practice, not to direct the waters of Bath, nor any other remedies which are supposed to give the gout, if they would be improper when the same complaints arise from other causes; but to content ourselves with putting the general health into the best state, by strengthening the appetite and digestion, and by relieving the urgent symptoms*."

The Bath waters, judiciously employed, are unquestionably a remedy of great value, in some states of the constitution consequent on gout. Authors† seem, however, very well agreed, that they should be forbidden when any inflammatory diathesis is present.

Dr. Parry informs me, "that the Bath waters, in no form whatever, are beneficial during the pa-

* Commentaries on the History and Cure of Diseases, p. 45.

† Dr. Gibbes, at the same time that he recommends the powers of the Bath water to relieve "the debilitated state in which patients are left after a severe fit of the gout," observes, that "when the gout is, as it is expressed, flying about a patient's constitution, the warm bath is highly dangerous. I have heard of very dismal consequences resulting from an imprudent use of the bath in such a state."—Treatise on the Bath Water, vol. ii. p. 34.

roxysms of gout, or in any inflammatory disposition which may exist in the interval."

In that dyspepsia of the gouty which is joined with a languid circulation and a great deficiency of nervous energy, and where neither organic congestion nor inflammatory tendency exists, these waters appear calculated to be eminently useful; and the praises of authors and of patients concur in justifying the reputation which they have acquired. The cheerful influence of such a watering place; the repose of mind which is gained by those who leave the cares of business behind; the improved regularity of all the habits; and the change of air itself, which is usually a remedy of no small power; and finally, the confidence of benefit with which the mind is inspired; concur in procuring the relief, and in effecting those cures which are attributed to the waters of Bath.

I have collected from patients many instructive reports of the effects of the Bath waters; and shall recite a brief abstract of those which are most interesting.

A gentleman, aged 41, whose constitution was much debilitated by frequent attacks of gout, and who possessed entirely the nervous temperament, suffering in the intervals of the paroxysm chronic pains and much weakness of limbs, pursued a course of the water both by its external and internal use for three months, in the summer season. The *hot bath* occasioned at the stomach both a remarkable sensation of weight and of coldness. The

Cross bath did not produce any such effect, but its continued use made him feel more weak and languid than usual; and he quitted Bath without having derived any ease to the limbs, or received any kind of improvement.

A gentleman aged 28, of robust appearance of constitution, in his second fit was attacked in the great toe of the left foot. Leeches were applied freely, with relief. In three days the right ankle was affected, and leeches were again used. The inflammation was scarcely in any degree relieved, and very quickly the right knee was seized. A large number of leeches was now applied to this knee, and with apparent advantage; but the left was as immediately attacked, and he describes that all the parts thus treated with leeches remained extremely weak and subject to chronic pains for nine months, at which period he went to Bath. There he bathed, and received also dry pumping (so called because in the use of it only one part of the body is wetted, whilst the rest is kept dry) on the weakest parts, for a course of thirteen weeks, at the same time regularly drinking the water. He returned completely cured.

A lady aged 54, of strong constitution, but of the nervous temperament, suffering chronic pains and weakness of limbs, and a spasmodic state of stomach from slight causes, entered on the usual course of the waters. From the unfavourable determination of blood to the head, and consequent confusion which it occasioned, its internal use was soon

discontinued. General immersion caused languor and increased weakness; but dry pumping, both on the stomach and on the weakened limbs, produced the best effects.

A gentleman aged 33, of the nervous temperament, and not of strong constitution, having often suffered severely both from gout and rheumatism, and being afflicted with the pains of chronic gout, which had been induced by exposure to cold after the use of the hot bath, went to Bath, and entered on the regular course, drinking two rummers a day, and bathing three times a week He pursued this plan about three months, omitting all medicine, except some ordinary pills to regulate the bowels. Previously to drinking the water, his urine had deposited a pink sediment very copiously; but after a few weeks he seldom noticed this appearance. He found his appetite and spirits much improved. With respect to the local effects of bathing, he described that on those days he had less stiffness and aching than usual; but the amendment was only transient. He used a temperature from 97° to 100°. He quitted Bath without having received the least material improvement.

When this gentleman came under my care, soon after this period, I found very manifest indications of an unhealthy state of liver, and adopted a plan of treatment accordingly. The ankles were thickened at the joint, and the integuments œdematous, and one knee was much enlarged from bursal distension. All the muscles of the lower

extremities were small, relaxed, and very weak. Extreme lameness with much awkwardness of gait was the consequence. I recommended the usual plan of salt water sponging to the whole limbs, stimulating liniment to the weakest parts, and night and morning a systematic method of friction, with speedy good results. The case is still in progress.

A gentleman aged 55, robust and plethoric, first attacked with gout at the age of 29 (the disposition not hereditary), suffered a severe paroxysm in the beginning of autumn, which was regularly and successfully treated. In September, being quite convalescent, he went to Bath, as it was his occasional custom to do. He favoured me with the following statement: "After the usual preparation by aperient medicine, I commenced the drinking of the water of the Cross bath, with one glass of the middling size before breakfast, and the same quantity before dinner. It agreed with me as usual on former occasions, always giving me an excellent appetite, and an extraordinary flow of spirits. At the end, however, of eight days, I began to feel the approach of gout very sensibly in the feet, and in short was quite lame. My physician considered that the water was too stimulating, and advised its discontinuance. I should remark that I was not sensible of any fever, and did not notice the usual discolouring of my tongue, nor the appearance of the pink sediment in my urine during this attack. After, however, the swelling of the ankles

had subsided, I was still distressed with flying pains about them and my feet. I was next recommended to try the effect of the King's bath, and not to think of the internal use of the water. I bathed in consequence every other day, and finding the plan agree, and that the pains in my feet sensibly diminished, I continued it regularly, five weeks, and the result was very satisfactory indeed."

3dly, I have to consider a chronic state of gout also arising out of repeated acute attacks, in which, local changes of structure have been produced in a great degree; the nervous system is highly sensible to the influence of external causes; but the state of the natural functions proceeds for the most part in a healthy course. I have in this description presumed that the energy of the constitution is retained in considerable vigour; and that the injury which the attacks of gout have produced, affects chiefly the limbs. With this form of chronic weakness rheumatism is often blended, and the patient is extremely suseeptible to every vicissitude of weather, and especially to wet, and to damp cold air.

Sometimes he rises seemingly strong and comfortable; but after a little exercise, especially if the weather be unfavourable, his joints become aching and almost disabled. The symptoms are very various in different cases. Some, by the exertion of a walk, dismiss the symptoms with which they rise

in the morning. One gentleman informs me, that on some occasions he goes to bed with such threatenings of gout, he expects a fit by the morning; and instead of this, he is so much relieved and alert, that he is able to hunt.

In the pains and frequent threatenings of inflammation, which, under these circumstances, continually occur, the combination of a narcotic and a sudorific appears particularly useful; and for this purpose, the compound powder of ipecacuanha, in small doses, twice or thrice in the twenty-four hours, often proves a valuable medicine, strict attention being at the same time paid to the proper action of the bowels and kidneys. In this form of the complaint, however, I must not lose sight of the great praise which is due to the combination of stramonium and lactucarium, from which I have repeatedly seen the best effects derived.

The improvement of the diseased and weakened limbs claims our particular attention.

It is in aggravated cases of the kind which I have now in view, that a system of tepid bathing will usually prove most useful; and that *Buxton* promises its greatest benefits.

So far as I can form a judgment on the subject, I should much prefer, as a remedy for certain states of chronic pain and weakness, the trial of Buxton to that of Bath; and this opinion concurs with the result of my whole experience, that a tepid temperature is always useful, and high temperature is generally injurious to gouty parts. I was

consulted by a gentleman crippled with gout and rheumatism, who, after fruitless trials of the hot bath, persevered for several months in the use of the vapour bath; but the limbs became weaker, and in no respect relieved. To him, morning sponging with tepid salt water, and diligent friction with a liniment moderately stimulating, have rendered great service.

From much experience I can confidently recommend this method of treatment, under circumstances of previous relaxing means, both as tonic and preservative in a high degree. Simple rubbing will usually prove sufficient, except where the energy of parts is very defective; and in that case, stimulating liniments will much assist the effect of friction.

In returning to the subject of Bath and Buxton, I shall offer the following quotation from Dr. Heberden, respecting Bath*:—

"I have not been able to observe any good in arthritic cases from the external use of these waters, either when the distemper was present, or in its absence: on the contrary, it has rather appeared to increase the weakness of the limbs; and sea-bathing has contributed far more to recover the strength of gouty persons; many of whom, in the intervals of their fits, have used it with safety and advantage."

That the employment of sea bathing by a gouty person may sometimes be made with great advan-

* Commentaries, p. 51.

tage, is a truth that may be at once admitted ; but I would restrain the prescription within very narrow limits. It appears to me that the plethoric state or tendency, which is so common to the gouty, should always be a point of careful consideration, in determining the propriety of using cold bathing. The circulation suddenly checked from the surface, may be unfavourably directed ; and in proportion as plethora, or local congestion, or immediate tendency to gout, may be existing, the interference of so strong an agent as cold immersion must abound with hazard. Also if the energy of the limbs be very deficient, the application of cold is not followed by sufficient re-action on the surface ; and pains, as of rheumatism, may be produced.

It is to be observed, that the temperature of the open hottest bath, at Bath, ranges from 108° to 100° ; of the Cross bath, from 98° to 94° ; and the temperature of the Buxton bath is stated to be 82°. Hence the efficacy of the two waters, as remedies in the circumstances in question, may be widely different. Some illustration of the power of the Buxton bath, in relieving a weakened and painful state of limbs induced by chronic gout, will not be uninteresting.

A gentleman, subject to rheumatism, was seized with gout in the great toe, only, in the first fit. In subsequent attacks, both toes and both ankles were affected. He had also sciatica on one side, and rheumatism in various parts, in connexion with the last paroxysm. All inflammation

being removed, but harassed with continual pains, and such weakness in the joints, that he had the apprehension of losing the use of his limbs, he made trial of the common warm bath. It did not afford relief, and served only to increase the debility of the limbs. In this state he went to Buxton, and bathed regularly for seven weeks, with the happy result of a perfect cure.

Another gentleman much crippled from chronic gout, and also affected with rheumatic pains, received a cure at Buxton in five weeks. He relates that he was not sensible of any material advantage, until about the fifteenth time of bathing.

A third patient had suffered severe gout in both feet, in the toes, insteps, and ankles. He had applied leeches freely to the inflamed parts, with only slight relief; and considers that they led to the very serious œdematous weakness which he suffered long afterwards. At a distant period from the paroxysm, he was unable to walk for more than a quarter of an hour, without producing swelling of the feet, and much fatigue and excessive aching. In this state he visited Buxton, and by regular bathing, in rather less than a month, his limbs received a cure.

In the way of external treatment, Dr. Saunders has stated his opinion, that it is the *temperature* alone which can fairly claim the praise of being a remedy. If this idea be as correct as it seems reasonable to suppose that it is, a domestic plunging bath, affording the convenience of heated water, would be valuable to the gouty patient;

and thus the imitation of Bath or Buxton, or the employment of any intermediate temperature according to the circumstanes of the case, would be in the possession of those whose affairs cannot permit their absence from home. I am aware that this suggestion may appear more plausible than practicable, from the great expence which is attached to the construction of such a bath, with the suitable arrangements for warming the apartment; but I offer the hint to the affluent.

It must be the patient's care to supply the many collateral advantages of the watering place, by a correct regulation of all his habits. The superiority which a spacious tepid bath affords over one that is confined, is obviously to be referred to the free motion, and the beneficial influence of exercise, which it permits during the immersion. It is, in my opinion, much to be regretted, that our sea-side watering places do not possess the convenience of a *plunging* tepid bath. In certain states of chronic rheumatism, and also of chronic gout, the invalid would, I conceive, derive still more benefit from the stimulus of the salt water with a proper temperature, than even from the Buxton bath, and would be spared the trouble of a distant journey.

Under the impracticable circumstances of procuring for my patient the advantages of a tepid plunging bath, I have on some occasions directed a shower bath, consisting of a saturated solution of salt, and raised to a proper temperature by the addition of hot water, to be allowed to fall on the

affected limbs; and the result has been always more or less satisfactory. In this plan I have insisted on subsequent friction being very freely employed, as an important adjunct of the treatment. I think it material to suggest, that we should view any mode of bathing which may be adopted as little more than external treatment, and as a valuable auxiliary only to internal means of management. I have seen some striking instances in which a course of bathing has alone been trusted, and the treatment of the internal organs having been neglected, either no material advantage has been procured, or a relapse has shortly followed. These observations are applicable to what I have found to result from the common warm bath, from Bath, and also from Buxton.

A lady entirely of the nervous temperament, after a severe paroxysm, made trial of a warm *sea* bath, with a view to improve the limbs. Her digestive organs were still disordered, for no proper treatment had been pursued. The bath produced so much sense of tightness in the chest, and uneasiness of breathing, that she could not continue its use. It appeared comfortable in its effects to the weakened limbs.

In those cases of chronic gout, in which, from neglect or *mal-treatment*, the flexor muscles of the limbs have so much overpowered the extensors, that a permanent contraction of the muscular fibres, with a rigid and contracted state of tendons, becomes the consequence; a distinct mode of treatment is rendered necessary.

When I reflect on the examples of miserable lameness, of youth rendered almost helpless, and the middle age of life made decrepid with infirmity, which have repeatedly come under my observation as the consequence of neglected or improper treatment of acute and chronic gout, I feel that I cannot too impressively recommend an attentive professional management of the paroxysm; or dwell too much on the importance of the method of practice, of which I am now about to speak, when such management has been neglected, and the consequences just described have been produced.

We find in some of these cases that the just antagonist action of the muscles is quite destroyed, and the patient, if able to walk without the help of crutches, moves at right angles with his arms and legs, awkwardly bending forwards to lessen the superincumbent weight on the knees and ankles. He also walks chiefly on the heels, and with the appearance of fear and uneasiness. The extensor muscles are found relaxed and small, the flexors also small, but rigid and contracted. The legs, and particularly the feet, are much affected with coldness, and the languid circulation in the extremities is often apparent from the blueish colour of the skin. The bursæ mucosæ in different situations are distended and tender, and occasionally are much enlarged. This happens chiefly at the ankle joint, around the knee joint, in the ham, and at the tuberosity of the os ischium. The ligaments are thickened and contracted, and very tender; and from these causes, according to the

degree in which they prevail, the lameness is general or partial; and according to its duration and other circumstances, is very tractable to attentive management, or admits only of some amelioration.

The usual modes of bathing, either warm or tepid, seldom afford any advantage, and in some instances appear productive of increased infirmity. It is indeed, in the rubbing process, which was first instituted by Mr. Grosvenor, of Oxford, that the only method of cure for these cases can possibly be found. It is in vain, as I have seen in three examples, that the powers of electricity are employed upon the languid limbs, or blisters, or any stimulants. I have the satisfaction of stating, that in five cases in which various other active means had been unsuccessfully tried, I have procured the most decisive advantages from instituting this treatment*. Two complete cures have been effected, and others are in progress. It will be readily imagined that much time and perseverance is required to give due effect to the treatment; and I must also add, that most commonly, in addition to it, internal means of treatment are indispensably required. The regular plan of friction will be found usefully assisted by morning sponging with tepid salt water; by rollers; and where extreme want of energy prevails, by the use of a liniment at night.

I am favoured with the following interesting

* In this metropolis there are persons properly instructed in this process; and who attend on very moderate terms of remuneration.

communication by Mr. Davis, who having received the early part of his professional education from Mr. Grosvenor, is highly competent to appreciate the value of the method of practice now under consideration.

" In May, 1815, A.B. came to town in consequence of having had the gout repeatedly during the last year and a half, in both knees and ankles, which had produced an enlargement and distention of the bursæ mucosæ of the knees, a contracted state of the flexor muscles of the limbs, a peculiar rigidity of their tendons, and an enlargement in one knee below the patella on each side, giving a *sensation* to the touch very much resembling that of cartilage. There was a great degree of weakness and stiffness of the ankle of that limb, with a considerable thickening about the tendo-achillis, at the point of its insertion into the heel.

" The patient, from having totally lost all power of moving the knee joints, was unable without the utmost difficulty to move about the room even with the aid of crutches.

" Manual friction was applied regularly for one hour and a half in the morning, and again for the same length of time in the afternoon, to the lower extremities, particularly from above the knees downwards. This produced a gradual improvement, and after the continuation of this plan during ten weeks, the weakened limbs acquired their usual tone and powers of motion; and the joints assumed nearly their natural appearance.

" Previously to the patient's having recourse to friction, he had drunk the Buxton waters, and used the warm sea bath for several weeks, without the smallest benefit.

" During the time the friction was applied, he had no return of gout; aud since that period, July, 1815, he has had only very slight attacks.

" He was first attacked with it at the end of the year 1813, and till that time had enjoyed robust health, and was possessed of great activity.

" The paroxysm, which chiefly led to the lameness in question, arose from his exposure to cold and moisture for several hours, after having been overheated by violent exertion.

" The acute stage of the disease lasted several weeks, during which time he was kept in bed, and subjected to the influence of stimulants, with his joints enveloped in flannel.

" On the abatement of the gouty inflammation, the joints of his lower extremities remained very weak, particularly the knees; and upon the least exposure to cold, or upon any irregularity in diet, there re-appeared some slight gouty inflammation, which in the end reduced the patient to the situation already described.

" Here then is a striking instance of the beneficial influence of friction, properly applied to parts of which the energy and action had been destroyed by the gouty inflammation. I say *properly* applied, because I have had reason to believe, that if the friction be used before the inflammation has sub-

sided, or if it be applied too violently, it brings back the gouty inflammation, instead of producing the salutary effects above mentioned."

In minor cases of complaint affecting the limbs as the consequence of gout, more partial and also more simple treatment will prove sufficient.

When the lower extremities are affected with œdema, or even when there is bursal distension only, the compression of a circular roller is of great service. The weakened veins, and also the tendinous, bursal, and ligamentous textures, receive useful support in this manner. The painful cramps which very commonly attend this state of relaxation, must chiefly be treated by internal means. They arise out of the morbid sensibility of the nervous system. Such local remedies, however, as communicate energy and strength, afford very considerable service.

When the bursal distensions are tender and painful, the application of soap plaster, spread on leather, is much to be recommended in addition to moderate bandage. In those gouty enlargements around the joints, which to the eye appear as the growth of bone and cartilage, but are really produced by the morbid changes of the ligamentous, bursal, and tendinous textures, and a distended cellular membrane, the use of blisters might appear to be indicated ; and they have been recommended by several authors*.

* Musgrave, &c. Dr. Rush speaks of the employment of blisters both in acute and chronic gout, with much approbation.

In one case, corresponding with the description which I have just stated, I made a full trial of this treatment; blistering the parts several times in succession. The result was much less favourable than the united means of sponging, friction, bandage, &c. employed in other cases; and it must be allowed, that the irritation of a painful remedy (in gout especially) should be avoided, when it cannot be compensated by considerable advantage from its other effects.

In the foregoing arrangement of my present complicated subject, I have entirely excluded those anomalous forms of sympathetic disorder, in which many slow and varying symptoms take place in persons who have never had any evidence of gout; and in whom, from suspicion alone, or loose analogy, and from a desire of removing the appearance of obscurity, by imposing a name, the appellation of gout has been given to the disease. Having before stated my objections on this head, I proceed to the detail of a few cases in further illustration of the theory and treatment of chronic gout.

CASE I.

M. P. aged 60, tall, robust, has a circular chest, is very corpulent,and a perfect example of the plethoric habit; of sangnineo-nervous temperament; irritable disposition; accustomed to all the luxuries of a life of indulgence; and with a full diet, uses only passive exercise, although he divides his residence between town and country. Gout unknown in his family. He was first seized

at the ball of the great toe, at the age of twenty-four. He has occasionally had feverish attacks, with sore throat; but gout has been almost his only disease. It has scarcely spared any part of the upper or lower limbs; and has produced such a weakness of ligaments, rigidity of tendons, distended bursæ, and thickened aponeurosis, that, in the feet especially, permanent tenderness and lameness are established. To some of his acute attacks, improperly treated, alarming œdema has succeeded; and harasing perspirations have worn the powers of the system, and seriously interrupted his convalescence.

In this gentleman, an acute fit, of late, seldom happens; but chronic symptoms, which now and then have a transient violence, return at no distant interval in the year; and, though inflicting less misery than formerly, considerably embitter the enjoyment of life.

I visited this gentleman in June 1814. The knee was the part most affected. There was much bursal swelling; the skin was tightly stretched, very tender to the touch, inflamed, but not discoloured. He had no ability of locomotion. The feet were a little swollen, and not wholly free from inflammation, and were troubled with shooting pains. He complained of lumbago; and stated that this attack, which had now been of some duration, was excited by exposure to cold. The skin was temperate; but the pulse was 100, with an irritable beat. The tongue was furred, a feverish thirst was present, and all relish for food

was lost. The urine was scanty, high coloured, and depositing much pink sediment; and the bowels were inert. He had taken occasional small doses of calomel, but without the addition of purgative medicine, so that no effectual benefit had been obtained.

The following draught was directed three times a day:

℞ Magnes. ℥ss.
Aquæ menthæ viridis ℥x.
Aceti colchici,
Syrupi aurantii āā ℥j. M.—Fiat haustus.

The lotion, p. 251, was applied constantly through the day; and at night the affected knee was covered with soap plaster. The diet was chiefly diluent for two days; but afterwards, solids and a little wine were permitted. The bowels became actively excited; the kidnies soon secreted abundantly; and, at the end of a week, he was so well recovered, that he undertook a distant journey with but little inconvenience.

With a view to the permanent health of this patient, a more attentive regimen was necessary than he would contemplate with satisfaction, or was willing to obey. He acknowledged his present cure with entire approbation, and promised to observe many good rules; which I fear, however, were only imperfectly followed. The secreting functions doubtless required watchful attention; and, as in every other instance of a plethoric habit, all the best means of prophylaxis were im-

periously demanded. I am unacquainted with any late particulars of this case; but I learnt that the gout did not soon return.

CASE II.

February 10*th*, 1815.—As an example of the chronic symptoms of gout connected with serious visceral derangement, the following detailed particulars appear to me instructive.

A. L. aged forty-nine; a publican; of the middle height; circular chest; very corpulent, with a bloated countenance; of sanguineous temperament; extremely plethoric; veins large and full, and, in one leg particularly, varicose, with some blotches in the skin; a very free liver both in eating and drinking; his liquors, porter, ale, and gin. Has had gravel occasionally, and is much subject to painful hæmorrhoids. His first attack was at the age of forty-two; and he remained exempted from a return for six years. During this period he did not attend to regimen; but states that he had a regular state of bowels, and very frequent hæmorrhoidal discharge. *Since*, both these circumstances have been much reversed. Gout unknown in his family. The second attack, twelve months ago, affected the same knee as before, and that part only. Six months since, the ball of the great toe in the right foot was severely attacked. In this last fit, first the right foot, then the left, and lastly the right foot again, after appearing to be recovering, have undergone severe gouty inflammation. The fit had been excited by

walking, insufficiently protected, on wet ground, and remaining many hours with damp stockings*.

Both feet are œdematous; the skin is yet slightly red; but this colour vanishes for some little time on pressure; and he is now rather troubled with aching than severe pain. He can with difficulty walk. He is occasionally threatened with a return of active inflammation, having throbbings and prickings in the parts: and cramps in the legs, which harassed him much at the commencement of the acute symptoms, are still troublesome.

The pulse is full, beats strongly, and in frequency 90. The skin is rather hot, and very dry; the tongue is much furred; appetite is lost; the bowels are irregular, but for the most part costive, with foul, blackish, and slimy fæces.

He complains of tenderness, on pressure, in the right hypochondrium, and at the epigastric region, and more especially just at the ensiform cartilage; but I do not discover any visceral enlargement. The urine is scanty, and immensely loaded with pink and mucous sediment. It reddens litmus paper; it contains an excess of urea; is not rendered turbid by nitric acid or heat; its specific gravity 1·028

* This patient does not remember to have had warning sensations of a fit; but on the contrary has usually gone to bed on the night of attack with the ordinary feelings of health. He states, however, that for some time previous to a fit, he has perceived an increase of abdominal corpulency; has had a costive state of bowels, and a deficient secretion of urine.

(see Experiment iii. p. 120). Four ounces afforded of phosphoric acid 9·2 grains.

In addition to this derangement of the natural functions, and morbid state of secretions, he has a violent cough with oppressed breathing, from which he has suffered many weeks. Expectoration is copious, but does not give relief. The chest is tight and painful, and has the sense of much weight. If he stoops, he is constantly seized with an alarming spasm across the diaphragm. On the evening which preceded this fit of gout (invading him in the night), in a paroxysm of coughing he fell on the floor, and for several minutes was insensible. He rejected from the stomach much acid and bilious matter, with relief. Now, on coughing, he frequently becomes black in the face. Each night he is distressed with night-mare and frightful dreams; and in the day is sensible of much fulness in the head, with occasional pain. A severe state of hypochondriasis is present.

In this case, every indication presented itself of an overloaded circulation; demanding active depletion. I shall offer a brief recital of the treatment which was adopted. No remedies had hitherto been used.

℥xvi of blood were taken from the arm. Two grains of calomel, the same of antimonial powder, and eight of colocynth extract, were directed each other night, and the draught p. 186, twice or thrice in the day, accordingly as the bowels should be affected. In the local treatment, I was contented

that each morning the skin should be well sponged with tepid salt water. The diet wholly unstimulating, and to consist of milk in any form, vegetables, and puddings.

Immediate relief was felt from the loss of blood, which was sizy and cupped; and evident advantage also followed the purgative and diuretic action of medicine. Three days after, all the signs of fulness being still urgent, the bleeding was repeated to the same extent as before; and, the cough being violent, a large blister was applied to the chest. The medicines before prescribed were continued till the end of ten days.

The gouty pains of inflammation quitted him within a few days; but œdematous weakness, occasional aching, and transient shootings, remained troublesome. The system having now been considerably relieved, I judged it right, with a view to the strengthening of the limbs, to employ a moderately stimulant liniment, friction and rollers, in addition to the morning custom of sponging.

The kidneys, which at first seemed sufficiently affected by the medicine, now required more excitement by means of stronger diuretics. Ten drops of the tincture of digitalis were added to the draught. In the pill, half a grain of extract of elaterium was substituted for the antimonial powder.

At the expiration of a fortnight much relief was obtained, but many symptoms also remained. The

oppression of the chest was sensibly lightened; but the fits of cough, although less frequent, were violent, and the head was full and uneasy. *Night-mare* was abated. ℥xiv of blood were removed by cupping at the neck. An opiate squill mixture was prescribed to be taken occasionally. The gums being rather sore, mercurial medicine was suspended. The action of the bowels and kidneys was continued by the effects of the draught twice a day, and by a pill containing two grains of digitalis, a quarter of a grain of elaterium, and half a grain of opium, each night. The appearance of the fæces improved, and the urine was now and then light and clear, and of lessened specific gravity; but occasionally also it returned nearly to its former state.

At the beginning of March, the patient's situation was materially improved. Appetite and the relish of food were fast returning. Sleep became for the most part tranquil and refreshing. Cough only occasionally urgent, and the breathing easy. The complexion was strikingly altered from a dark yellowish hue, to returning healthy clearness. Much amendment of spirits. The secretions were most favourably changed, but were not arrived at the just standard. Tenderness was still felt in a slight degree, at the epigastric region towards the right side. In reference to this, ℥ss. ungu. hydrarg. fort. was directed to be rubbed in upon the part, each night, until the gums should again become

just sensibly affected. An aperient bitter was prescribed twice a day. Light animal food with table beer was permitted each other day, in compliance with the urgent entreaty made for restorative diet. The limbs were at this time quite recovered.

In ten days the gums were a little tender, and the mercurial friction was again suspended, as also all other medicine. Air and exercise were advised each fine day.

In another week, the whole treatment was resumed.

At the middle of April, he was recovered, and had the look, together with the feelings, of cheerfulness and health.

I now made a comparative examination of the urine. It was of a light amber colour, without any other sediment than the usual mucous cloud. Its specific gravity 1·0168. (See Exp. iv. p. 120.) Four ounces afforded of phosphoric acid, 2·97 grains. The quantity of urea and uric acid was also lessened, and apparently in the same relative proportions as the phosphoric acid. The bowels were regular, and the fæces bore a healthy character.

I directed him daily exercise, with a regimen of careful moderation, and that he should strictly abstain from malt and spirituous liquors. He was permitted two or three glasses of sherry daily. The limbs were to be treated with salt water in the usual manner. Costiveness to be carefully obviated by the pill, p. 280; and upon any evidence of

vitiated secretion from the bowels or kidney, five grains of compound calomel pill to be taken at bed time.

In this very urgent case, the efforts of Nature in producing a fit of gout had not apparently relieved the system. At one juncture, apoplexy was strongly threatened; and for a considerable time, the evident congestion in the lungs was endangering a rupture of the vessels.

The tenderness at the hypochondriac and epigastric regions; the spasm of the diaphragm on stooping; the continual fulness of the hæmorrhoidal vessels; the dark alimentary secretions; were strong marks of obstructed liver, and of congestion in the circulation of the system of the vena portarum. From these united causes, the head was much affected, and the nervous system was seriously disturbed.

The comparison in the state of the secretions under the disease and at the return of health, and of the remarkable difference in the saline and animal principles of the urine, is worthy of attentive observation.

I saw this patient again, *Feb.* 1816. He reported that he had passed through the summer in perfect health, and entirely free from cough. He became tired after a few months of restraint of diet; and returned to the free indulgence of porter, and probably other liquor. At the return of winter, some cough again occurred. He had been free from all threatening of gout. His erroneous habits

were producing plethora. He complained of cough, occasional heat of stomach, and attendant headache. Doubtless without entire reformation of habits, his former symptoms will all return; and that establishment of health, which care and prudence might ensure, will be effectually prevented.

CASE III.

A Lady, aged 57, plethoric, but of the nervous temperament; has been subject to gout for eleven years past. About twelve years ago, she suffered continual uneasiness in the left side, which sometimes amounted "to a peculiar burning as if an abscess were forming." From the increased bulk of the part which she describes to have taken place in a short time, and the copious dejection of dark blood from the bowels, which occurred occasionally, my presumption is that the spleen was in a state of congestion and chronic inflammation. The stomach suffered by sympathy, but in addition to ordinary sickness, she sometimes rejected dark blood. She says, "that she received delightful relief from being cupped freely on the side." She has for many years past had hæmorrhoids attended with frequent and considerable hæmorrhage. Has been much subject to pain and confusion of the head, with excessive sense of weight. Often dyspeptic, and subject to depression of spirits. Has suffered gout in almost every part; and many of the attacks have been induced by very slight causes.

At my first visit, I found this patient under

a severe attack of gout affecting both feet and both hands. It had been induced by accidental exposure on a foggy day in November, with the wind in the east. The affected parts were vividly red and much swollen. She complained of violent throbbing, and severe cutting and pricking sensations, and frequent cramps. Her looks were expressive of great anxiety and suffering. The complexion was jaundiced. The left side was tender to pressure, and there was evident visceral fulness. A troublesome cough was present, and the respiration was uneasy. Appetite was lost, and the stomach was much affected with flatus and with occasional sickness. The matter rejected, she described as either yellow or green; and that as one or the other prevailed, it was more sensibly bitter or acid. It was excessively slimy. I saw a portion which had so much the appearance of pus, that I was curious to give it attentive examination; and found it to be very concentrated mucus*. The urine most commonly deposited pink sediment, and the state of the bowels was such as also declared a morbid action of the liver.

In addition to the particulars already related, she mentioned that in the winter season, she usu-

* I used the ingenious method recommended by Dr. Young (Introduction to Medical Literature, p. 546), for the distinction of pus and mucus, of viewing the suspected fluid through pieces of plate glass before a candle; concluding it to be pus if a circle of coloured rays should appear, and vice versa. I have often resorted to this test with great satisfaction.

ally felt "as if she had rheumatic pains all over; and that the cramps and other uneasy feelings of her stomach and side were most troublesome when the limbs were the most comfortable; and the reverse, when gout was in the limbs." I learnt that to a degree of extraordinary idiosyncrasy, she would be affected to salivation with a small portion of mercurial medicine, if repeated thrice or even twice *at short intervals.* She was equally sensible to the power of opium on her nerves, and declared that she would rather endure any pain than take composing medicine.

I shall avoid the details of treatment in this case, which would be tedious; and confine myself to a general account. From the draught, p. 186, in regular use, an occasional pill of hydrarg. submur. et pulv. antimon., together with the free use of the lotion, the inflammatory symptoms were soon and most favourably removed. Pain and spasm were also controuled by pills of the stramonium extract and lactucarium, which did not prove in the least degree inconvenient to the nervous system. The side was relieved by blistering; and unless this had succeeded, the aid of cupping would have been added. After a period, with a view to strengthen the stomach, the draught, p. 262, in effervescence with lemon juice, and the pills there mentioned, were prescribed; but so repugnant was the system to tonics, that it could not be taken without some consequent heat and irritation more than once a day; and it was therefore conti-

nued only at noon; the pills or the colchicum draught being taken at night, and the mercurial pill about every fifth night. If repeated with more frequency, I had the proof that mercurial fever and irritation would ensue. The weakened limbs, when no longer affected with inflammatory tenderness, were treated with the morning sponging, diligent friction, and rollers, and a liniment occasionally, with the best effects. Ass's milk formed a part of the regimen. I have the pleasure to add, that at the end of two months, the patient was very favourably convalescent from all the symptoms; and acknowledged a state of radical improvement, and of acquired spirits, strength, and comfortable feelings, which she had not permitted herself to expect.

I shall conclude the general subject of chronic gout, by a brief discussion of the treatment

OF THE GOUTY CONCRETIONS.

These concretions, of which I have already made mention at p. 47, 114, 116, 145, and in cases i, ii, vi, xii, were described by the ancients as constituting the tophaceous* kind of gout. Sydenham, after all the preceding humoral pathologists, believed them to consist of indigested gouty matter

* A general term to express concretion, derived from the Hebrew.

thrown upon the joints, and changed into their peculiar state of hardness by the heat and pain of the joint. Van Swieten, on the same subject, speaks of this chalky matter as being formerly in a condition to circulate through the vessels, and views it as a deposit from the circulation. Believing the concretion to be of a real chalky nature, he mentions that it proves soluble in acids, and advises the muriatic in conjunction with the oil of turpentine as a solvent. It is truly curious, that from asserted experiment, he should recommend as a remedy, that acid, in which the uric compound would be the least soluble. He afterwards however remarks, that alkaline applications had been more generally employed; and he says also by himself, with much success. Such were the unsettled conclusions into which this eminent man was led by the ignorance of chemistry, which was universal at that day.

In the first deposit of the uric compound which constitutes these concretions, it may be much, if not altogether, in the power of remedy to obviate the inconveniences which neglect would certainly produce.

From the easy solubility of the uric acid in pure potash liquor, I was led to the employment of this medicine as an external application; and in three instances of recent deposit, it was so successful, that the concretion which had been visible under the skin, became gradually removed. I have directed it in dilution with equal parts of recently prepared

almond milk, to be applied by means of friction, two or three times in the day. Should this degree of strength irritate the skin, it may be more diluted; but I have usually found that it is borne in these proportions without inconvenience.

When the concretions have been of long standing, and are much indurated, their absorption is with difficulty excited, and perhaps cannot be accomplished.

Even this case however must not be abandoned. A patient who came under my care, had long suffered pain and occasional inflammation from enlarged bursæ mucosæ in each hand. Their extreme distension and hardness gave the appearance of large bony tumours. On examination, it was evident that the bursæ were filled with uric matter. The use of the alkaline liniment, in a short time, was so far efficacious in lessening the size of the tumors, that the tightened skin became relaxed, and the use of the fingers was much improved.

In a case, in which the concretion had partially forced itself from the cellular membrane and cutis through the cuticle, the application succeeded in causing the removal of the remaining deposit.

As foreign bodies, these concretions occasionally produce ulcerative irritation, and consequent sores; requiring surgical treatment*. Mr. Hunter remarks of them, "they leave the parts not easily

* See a Paper on this subject, by Mr. Moore.—Medical and Chirurgical Transactions, vol. i. p. 112.

excited to inflammation; the chalk shall remain for years without producing inflammation, and seldom produce it at all, but from quantity*."

In regard to the constitutional treatment in this peculiar disposition of the exhalant vessels, it seems to me very doubtful whether any medicines will be found to have a specific operation, as chemical agents; although I confess, that, in the practice which I am about to suggest, I hold this principle partly in view. The digestive functions of those persons, in whom this morbid process is going on, are usually weak and irregular; and they are much disposed to acidity of stomach. I believe in every instance in which I have seen these concretions, that the liver has been more or less diseased, and a corresponding treatment should therefore be pursued, when such indications are presented. In reference to the *vicarious* secretion of uric acid now under consideration (if I may adopt this hypothesis), the powers of magnesia in conjunction with liquor potassæ may with propriety receive a trial. The following formula may be offered:

℞ Magnes. gr. x. ad ʒi.
Mist. amygd. ʒxiv.
Liquor potass. ♏ xx. ad ʒi.
Syr. tolutani ʒi.—M.
Fiat haustus, bis quotidie sumendus.

* Mr. Brodie informs me, that he has succeeded in conquering this morbid action of the vessels, by the occasional application of the argentum intratum to the diseased open surface.

An intelligent gouty gentleman informs me, that many years ago, he was troubled with chalk-stones in several fingers; and that from one finger there was an occasional oozing of chalk-like matter. He adds, "that by means of a course of magnesia, taken in regular daily doses, all the chalk-stones gradually disappeared." Upon examination of the fingers, I find, at present, only a very slight trace of concretion in one of the bursæ. Patients are so often deceived in the belief of having *chalk-stones*, in consequence of the knotted state of their tendons, or the induration of the small bursæ mucosæ, that I cannot allow myself to receive the account of this cure with implicit confidence.

In cases of this description, a steady perseverance in any means which are adopted is quite essential. In three instances of concretions which were existing in connexion with very unhealthy functions of the liver, the mild alterative course of treatment which was adopted, had a decided influence in promoting the absorption of the uric matter; and from such little experience as I have had in this peculiar deviation from the ordinary course of gout, I can venture to affirm, that much good may be afforded by an attentive plan of medicine, and of regimen.

Sydenham, when treating on this part of the subject, makes the following observation, which, although not founded on correct pathology, deserves

considerate attention: "I have experienced in my own particular, that not only the generation of these concretions may be prevented by daily and long continued exercise, which duly distributes the gouty humours through the whole body, that otherwise attack a particular part; but it also dissolves old and indurated concretions, provided they do not come to such a degree, as to change the external skin into their substance."

OF RETROCEDENT GOUT.

When during the existence of gouty inflammation, either in its acute or chronic form, a sudden cessasion of the external action takes place, it sometimes happens that an internal organ becomes immediately and violently affected. When this event occurs in the height of a paroxysm, the symptoms are acute and run a rapid course; but when it arises in chronic gout, the symptoms are sometimes of slower progress. In either case, therefore, they bear a relation to the previous state of the system.

The retrocession of gout in the paroxysm, constituting the case of danger of which I am now speaking, is of rare occurrence, and probably never happens except from the patient's want of care, or some injudicious management.

The transference is most disposed to affect the stomach or intestines; or both in succession.

The symptoms which attack the stomach are exquisite pain and spasm, with vomiting. If the intestines be more distinctly affected, enteritis in its worst form is produced; and vomiting, which is an usual attendant, is more or less urgent, accordingly as the seat of disease is near or distant from the stomach. In either case the danger is press-

ing ; and unless relief be speedily rendered, *death* soon closes the scene.

If the transference take place to the brain, apoplexy is produced ; and, in all probability, proves of fatal termination.

Dr. Cullen observes under the head of retrocedent gout, that " sometimes the internal part is the heart, which gives occasion to a syncope ; sometimes it is the lungs, which are affected with asthma."

There is an apparent cause, why these organs should be less liable to be affected than the brain ; namely, the greater sympathy subsisting between it and gouty parts ; and more particularly from the great tendency of a determination of blood to the head, in those who have long been subject to gout ; and that the alimentary canal should most commonly become the seat of the retrocedent action, might be expected from the active sympathetic connexion so often subsisting between it and the extremities, during the phenomena of gouty inflammation.

With respect to the retrocession in question to the heart or lungs, I am not acquainted with any facts of its occurrence. In persons who are subject both to gout and asthma, the existence of either one or the other taking place with some degree of alternation, must not be considered as a fair example of retrocession ; according to the definition which I have given. In case of the lungs

becoming the part affected in repelled gout, I should expect that inflammation and not asthma (unless in an asthmatic person) would be the actual form of complaint.

A question of theory has sometimes been agitated, as to the propriety of the definition, *retrocession*. Mr. Hunter observes, "I should be inclined to suppose, that its effects on the brain or stomach are not similar to those on the extremity, or probably it does not advance so far in its effects to them; or it would certainly kill."

It appears to me an useless discussion in a practical point of view, to argue upon the identity of the phenomena, in these particular situations. We see that the certain event follows the certain antecedent; and hence I conceive that the established opinion of an occasional *transference* of inflammatory and spasmodic action from external to certain internal parts, in gout, is clearly enough made out; and that it is important in practice, as well as admissible in doctrine.

Dr. Cullen states two other affections, the one of the neck of the bladder, producing pain, strangury, and a catarrhus vesicæ; the other of the rectum, sometimes causing pain alone in that part, and sometimes by hæmorrhoidal swellings there. He adds, "In gouty persons, I have known such affections alternate with inflammatory affections of the joints: but whether to refer those affections to the retrocedent, or to the misplaced gout, I will not presume to determine."

In two patients, I have seen that chronic inflammation of the prostate gland has been so curiously modified by the gouty diathesis, that the surgeon has pronounced the gland to be affected with gout.

That gouty persons are remarkably subject to hæmorrhoidal affections, and an irritable state of the bladder and urethra, I have already admitted and explained; but in connexion with the paroxysm, I have only observed an occasional increase of sympathy in a high degree; in which case, I conceive that the terms, misplaced or retrocedent gout, as applied to such affections, express much more than is warranted by the phenomena.

I have observed that those gouty persons who are most disposed to be painfully affected with gravel, are also the most liable to spasmodic attacks of the diaphragm or abdominal muscles; and which the patient always describes as gout in the stomach. I have seen this occurrence chiefly happen in the absence of the paroxysm, and therefore should call it a spasmodic affection, or spasm mixed with inflammatory action, in the gouty constitution, but not retrocedent gout.

Upon these and other anomalous forms of complaint, which are partly inflammatory, and partly spasmodic in their nature, it seems both just and sufficient to consider, that a modification in the symptoms is produced by the influence of the gouty habit. Of this point, and of the nervous character of the gouty constitution or temperament,

having already treated at some length, I proceed to consider the remote causes in relation to the retrocession.

CAUSES.

The most frequent cause which produces retrocedent gout in its most genuine form, is sudden vicissitude of temperature applied to the body generally; or cold, more or less continued, offered to the affected parts.

Dr. Home, of Edinburgh, in his lectures, relates the case of a gentleman, who exposed himself to the influence of wet and cold, when the gout was slightly present in the feet; and on the same afternoon, enteritis followed, which in twelve hours proved fatal.

Dr. Parry informs me, "that in the same winter he has seen two instances of extravasation in the brain, from the removing of gout in the extremities, by immersing the feet affected in cold water."

A gentleman having a relapse of gout in the foot, in consequence of a strain, applied a cold lotion very freely, thinking that the inflammation being so produced might be of the common kind; but the pain was so much aggravated, and his general feelings were so unusual, that he was afraid of internal gout, and soon desisted from its use.

Another gentleman applied to the inflamed parts a cold lotion consisting of equal parts of

alcohol and liquor ammon. acet. with seeming relief to the inflammation; but at length he felt so alarming a spasm at the stomach, that he laid aside the remedy in fear.

An elderly gentleman, severely gouty, of the nervous temperament, on one occasion when both feet were much inflamed, applied laudanum, hartshorn, and spirit of turpentine. He says, "that he repelled the gouty action from the feet, and that his head became immediately affected, feeling as if a wooden wedge had been driven in between the bones, and was forcing off the crown of the head. In the course of a few hours the gout returned to the feet, and the head was at once relieved."

It is with much satisfaction I state, that in a subsequent severe paroxysm, this patient made free use of the evaporating lotion, p. 251, with perfect good effect.

Lately, I saw a gentleman, who, when slightly affected with gouty inflammation in his feet, walked on cold damp ground; and his stomach quickly became so severely pained, that but for timely remedy, the event would have been uncertain.

When cold is the hurtful agent, the internal symptoms which are produced are probably for the most part of an inflammatory nature. I have formed this opinion from such cases as have come under my own observation; and from the general information which I have collected.

The blood being checked from the surface, while the gouty diathesis is present, a preternatural de-

termination to some internal organ succeeds ; and inflammatory action arises, which is marked by the utmost intensity of symptoms, and a rapidity of course that is almost peculiar. If, however, the retrocession take place after the free employment of all the means which reduce inflammatory action, notwithstanding that cold may have been the exciting cause, the symptoms which arise will probably prove of a spasmodic nature. This appears to be illustrated in case x. at p. 316.

Phenomena, in part similar, appear to be produced by the occasional agency of certain stimuli, in suspending the external gouty action, as in the operation of hellebore ; or as seen in the effects sometimes produced by the *eau medicinale*. In cases of this description, however, the noxious cause being applied internally, there is some obvious difference in the beginning and progress of the symptoms. The increased determination of blood to the internal organ, is here the *first* event in the series of the diseased actions.

The influence of indigestible food produces one form of the disease ; but in this example I have seen that the pain, which is intensely severe, is dependant rather upon spasm, than upon active inflammatory action. Sickness is a certain attendant ; and I believe that the stomach, under the present cause, is always the entire seat of the disease.

It is important to observe that the character of the attack, as to inflammation or spasm, materially

depends on the temperament of the individual; and an investigation on this point should not be neglected.

Violent passions of the mind may possibly induce retrocedent gout; but I am not acquainted with any example of the fact.

DIAGNOSIS.

To attempt a practical distinction between the internal disease of which I am now treating, and similar forms of disease, where gout has not been present, or in persons not gouty, is probably both useless and improper; as it involves theoretical considerations of too delicate a nature to admit of satisfactory reasoning; while the treatment must be prompt and vigorous, and strictly adapted to the actual symptoms.

In order to possess a power of correct discrimination upon the question, whether the case shall be considered simply as one of spasm, or of spasm and inflammation mixed, or of pure inflammation; our minds should be thoroughly stored with sound principles of pathology. Useful conclusions may be derived from a reference to the exciting cause, on the principles which I have stated. In an attack purely spasmodic, the rigidly contracted state of the abdominal muscles, and the relief which is afforded by strong pressure, are very distinctive. When it is purely inflammatory, the tender state of parts to the slightest weight or pressure; the more regular

diffusion, yet greater fixedness of the pain; the sympathetic fever which is instantly produced; and indeed the very physiognomy of the patient in the comparative situations of attack, will, to the experienced practitioner, be a description of the nature of the disease. The state of the pulse, as whether small and indistinct, or full and oppressed, or in vigorous action in any way, will materially direct the judgment; and the state of the skin and features, whether cold and collapsed, or in contrary states, is a guidance of importance. Dr. Cullen and authors in general appear to have considered it as a settled axiom of practical doctrine, that debility and spasm, and not inflammatory action, seize the internal organ in the case of retrocedent gout.

A perfect conviction prevails in my mind, that inflammatory action is the more common occurrence, and that spasm alone is comparatively rare. The mixed action of spasm and inflammation may however be expected to happen still the most. In reference to inflammatory attacks, we see that many of the cases related by authors have evidently terminated in gangrene*.

* Morgagni, Ep. 57.—Rush's Inquiries and Observations, vol. v. p. 153.—According to these authorities, the *black vomit* occurred before death. In the Hunterian Museum there is a preparation (No. 52) of a gouty stomach thus described: "A specimen of a portion of the œsophagus and stomach of a person who died suddenly of the gout in his stomach. There was considerable inflammation, even in some places, to the extravasation of blood."

OF THE TREATMENT.

In conformity to the state of the fact which I have been now discussing, the means of practice are to be determined.

The life of our patient hangs on the discrimination which we exert. In every case of retrocedent gout, Dr. Cullen* has directed a treatment entirely stimulating; and probably the same doctrine is prevalent in the schools of medicine, and consequently in general practice.

It is to be admitted, that in some particular constitutions, or in certain nervous states of the constitution of any individual, simple *spasm*, either affecting the stomach or the diaphragm, of the most intense kind, is the instantaneous or speedy effect of some offending agent, accompanied with an abatement or cessation of the gouty inflammation in the extremities. In this case the patient feels some benefit from strong pressure applied to the stomach and abdomen; and the pulse is contracted. He almost instinctively flies to brandy, or hot brandy and water for relief; and in such an example as this, very probably with every advantage. In an urgent attack of this kind, the state

* Having spoken of strong wines joined with aromatics, and to be given warm, when the stomach and intestines are the seat of disease, he adds: "If these should not prove powerful enough, ardent spirits must be employed, and are to be given in a larger dose."

of the patient appears indeed truly alarming; and the most powerful remedies at hand are felt to be the only expedients to save life. I am acquainted with some striking instances of this kind, in which the stimulant practice carried to a free extent succeeded; but this description of pure spasm, in my opinion, forms the only exception to a very different general rule of practice, which I would propose in opposition to that laid down by Dr. Cullen.

If retrocession have been excited by indigestible food, the sickness which is present, and the appearance of the rejected matter, point out that the vomiting should be promoted. An emetic of ipecacuanha is well adapted for this purpose; and its operation is to be assisted by draughts of warm water in the usual manner. If the pain be thus relieved, the bowels should next be acted upon, and five or ten grains of calomel should be given as an immediate dose. As soon as the stomach can retain nauseous medicine, sulphate of magnesia, infusion of senna, and an aromatic tincture, will constitute an useful purgative. This is to be given every two hours in active doses, until a full effect is produced. If, however, violent pain should still continue, after the stomach has been cleared of its contents, tincture of opium, in a dose from sixty to one hundred drops, may be given without hesitation; it must be repeated also in free doses every ten or twenty minutes, until pain and spasm cease, or satisfactorily abate; and at the same time, purgatives which will have their effect de-

layed but not prevented by the opiate, must, on no account, be omitted. Pills of calomel, colocynth, and soap, constitute the form and kind most to be recommended; and the purgative mixture may follow their administration.

When the pain has ceased, and the circulating and nervous powers have so far recovered, that the *re-action* of the system produces its effects, we should be upon our guard, lest inflammation take the place of spasm, and insidiously prevail unseen and unrelieved.

When exposure to cold, or the influence of cold in any way, or violent stimuli, have been the exciting causes of injury, we have to expect that the disease will be inflammatory; and, accordingly, as the symptoms are marked and violent, sixteen, twenty, or thirty ounces of blood should be instantly taken from the arm; the quantity and repetition being adapted to the several indications and circumstances. The inflamed bowels must be treated, as in ordinary enteritis, with equal promptness and decision. The rules of practice, in relation to this point, are too well known to require being detailed. With regard to collateral treatment, however, something further may be offered. The attempt to solicit back the gout to the extremities (or, probably, in more correct language, to divert the diseased action from the vital organ by remote excitement) will be made with great propriety by sinapisms; or by topical warmth to the limbs; as by a stimulating fomentation; a pedi-

luvium of water, or of water containing mustard and salt; by warm covering and such means; but to the bowels themselves, as in the treatment of common enteritis, I am induced to prefer the use of a *tepid* application to one of a higher temperature. With this view upon the principle of evaporation, the lotion of camphor and alcohol (p.251) applied just tepid, or at that temperature which is felt to be the most comfortable, constantly and universally to the abdomen by means of folded cloths, may be the remedy adopted with advantage.

In cases of common enteritis, I have had decisive proof of the superiority of its effects over the ordinary method of hot fomentations.

In cases where the general powers of the circulation are weak, in connexion with visceral inflammation, ample cupping may be preferred to the more general detraction of blood.

In reference to the fact, that gouty persons, in the intervals of their fits, are sometimes seized with violent pain at the stomach, and spasm that seems to threaten life, the most powerful stimuli alone giving relief, I must remark, that such occurrences are not examples of *retrocession.*

A lady, possessing the true nervous temperament, just as she was convalescent from the paroxysm, imprudently exposed herself to the evening air, walking on damp ground. Soon after entering the house, she was seized with sudden and violent spasm of the diaphragm. She was free

from sickness, but breathed with exceeding difficulty. She thought "that she should have expired with the pain." She took hot brandy and water, and applied warmth to the feet, with speedy relief.

If apoplexy be the disease which succeeds to the retrocession of gout, copious bleeding, to the extent that the pulse permits, is the only remedy which can save the patient; and if no rupture of vessel have taken place, it will most probably be effectual. Cold water, or with still more effect a cold evaporating lotion, freely and constantly applied to the head by means of folded cloths; and warmth and stimulus to the feet, according to some of the methods already stated; form important aids of treatment. To speak of purgative means, and the general management, would be only to repeat the well-known rules of general practice, and to fatigue the attention of the reader.

Should the viscera of the thorax be affected, the usual principles are to be followed.

As an example of visceral inflammation supervening on the symptoms of chronic gout, and of the treatment which was successfully employed, I shall relate the following case:

CASE I.

J. G. aged fifty-eight, tall, robust, and corpulent; has a circular chest; is very plethoric; of a sanguineo-nervous temperament; of bilious complexion; of free habits both in eating and drink-

ing; formerly when he lived in families as butler, indulging in wine; but of late years in porter and spirits; not subject to other diseases; gout unknown in his family, although a numerous one. Has for many years suffered much from occasional cramps, both in the legs and the abdominal muscles; and sometimes, also, with spasm of the diaphragm. He became gouty at thirty-five. First, attacked in the great toe of one foot only; but since, in knees, hands, and elbows; and adds, that in the paroxysm, his head has sometimes been painful, even to delirium. Some fits warn him of their approach by unusual depression of spirits, and by uneasiness and increased weakness of the joints. Others make their invasion after midnight, when he has gone to bed in seeming health. Of late years has had a fit, both in autumn, and in January or February. States cold to be the usual exciting cause. The disease has become more and more severe in its progress.

In January last, was attacked in the feet successively, and in the hands afterwards. No crisis formed in this paroxysm. The symptoms, during the month preceding the attack now to be described, had been entirely chronic; the inflammation and pain also changing place frequently. Describes that there was much œdema in the feet, and above the ankles, and also in the hands; much numbness of parts, and coldness and heat sometimes alternating; spirits extremely depressed; appetite good; bowels irregular; the fæces foul

and slimy. Under these circumstances, his limbs being more free from complaint than usual, he exposed himself, unprotected, to a cold east wind and rain. I found him at night, on the 20th of March, 1815, complaining of severe pain at the stomach, with considerable difficulty of breathing; the right hypochondrium and epigastric region tender to pressure. He related, that for three or four previous days, he had been troubled with colic pains and a disordered state of bowels. On this day he had been costive. Urine scanty and high-coloured, depositing much pink sediment. The tongue much furred. Had been vomiting green acid matter, and was still sick. There was much abdominal fulness. The pulse 84, very full and strong; the veins generally much distended; the skin hot and dry. The complexion was considerably jaundiced, of a blackish yellow hue. He was immediately bled to ʒxvi. He took first an emetic of ipecacuanha; afterwards five grains of calomel; and a purgative draught of sulphate of magnesia, infusion and tincture of senna, every four hours. Thin gruel was ordered freely; and tea only in addition, with a little bread.

On the following day, 21st, much relief had been obtained. The blood had a thick buffy coat, with strongly contracted edges*. Much slimy

* A comparative examination of the properties of the blood, in the circumstances of health and disease, would be a task of exceeding difficulty upon a sufficient scale for useful conclusions. Its relative specific gravity would be an interesting fact

matter had been discharged from the stomach; and the fæces were dark and offensive. The skin remained hot, and the pulse was not abated in fulness or frequency. The bleeding was repeated to the same extent. The draught at p. 186, was directed every four or six hours; and the pills, according to the formula, p. 273, at bed-time.

On the 22d, reported that some pain had returned at the stomach on the preceding night, but less urgent. The draught continued.

On the 23d I found that he had passed a severe night. The pain, preceded by excessive coldness of the extremities, returned early in the evening, and got to its height about 2 A.M. No sickness, and the bowels freely open; now some discharge of fresh-secreted bile; but previously the appearance had been muddy, or sometimes as of yeast

to be ascertained, and this investigation is of easy accomplishment. I shall take a convenient opportunity to direct my attention to this point of inquiry. The appearance of the buffy coat (the fibrin) was referred by the ingenious Mr. Hewson to the slow coagulation of the blood; whence, the red particles having the greatest specific gravity separate from the fibrin, and fall to the bottom. In healthy blood, which coagulates quickly, they remain entangled. Whether or not, inflammatory blood (as it is called for the sake of distinction) contains more of fibrin than healthy blood possesses, is a question well deserving experimental inquiry. The firmness of the blood, and its contracted edges, when taken from a vessel by means of a lancet, under inflammatory disease, is still more instructive to the practitioner than the buffy coat simply. It indicates that the vessels are in strong action; and the blood sometimes appears as much drawn in, as if it were itself possessing a contractile living power.

and water. A deep inspiration was painful to the right hypochondrium; some cough was present; a severe sense of heat was felt at the stomach.

The pulse was yet full, but abated in its action. The bleeding was repeated; the medicines were continued; and to the pills a grain and a half of crude opium was added. A large blister was applied to the parts in pain.

On the evening of the 24th he was considerably mended. Had procured much sleep in the preceding night, and had been free from pain through the day. The pulse 80, calm and soft. The limbs warm, and the whole skin of comfortable temperature. The blister had acted with sensible advantage. The blood coagulated firmly, and was contracted; but less sizy than before. The secretions had been of variable appearance, but for the most part as already described. The draught was continued, and the pills, with the intermission of a night, were repeated. Some broth was added to the diet. Two days were passed in great amendment; and the slight pain which returned was at night, at the same time that he was formerly accustomed to feel the accession of gouty pain in the limbs. At this period the hands and feet were almost free from inflammation, but were swollen, tender, and weak.

On the 27th I found that he had experienced a severe relapse, at the usual time of the night (about 1, A.M.), without any apparent cause. Said, that the bowels had been "drawn into balls,"

with excessive pain. The fæces continued foul, and the urine now, still more copiously than before, deposited pink and mucous sediment. He bore pressure on the abdomen much better than formerly, but it still produced some pain. The day was passed in ease. The pulse being yet full, the bleeding was repeated to ℥xiv. The medicines were continued.

Now, as on the former occasions, he bore the bleeding well, and received sensible relief. The blood was still firm in its crassamentum, but less so than before, and was free from the buffy coat.

On the 29th his amendment was very satisfactory. No pain had returned. Pulse calm and soft, at 76; skin cool; tongue becoming clean; urine lighter in colour, and with little sediment; the fæces of improved appearance, but still unhealthy; he bore abdominal pressure without complaint. The complexion yet retained some of its jaundiced hue.

A draught of magnes. sulph. infus. rosæet tinct. calumb. was directed twice a day; and the compound calomel pill (five grains) every other night. Each night ʒij unguent. hydrarg. fort. to be rubbed upon the right side. The diet to be gradually and cautiously made more nutritive.

From this date he became steadily convalescent; and the secretions gradually returned to a healthy state. After the first week from its being adopted, the mercurial friction was employed only on alternate nights for about a fortnight, and then

relinquished. The mercurial pill was taken for a fortnight, as above mentioned. Then, increased attention was given to the weakened limbs; and a strict future regimen in every particular was enjoined. The bowels to be regulated by pills consisting of gum. gambog. pilul. hydrarg. pulv. aloes comp. et sapo. durus. I shall subjoin a statement of the comparative properties of the urine at different periods.

March 27th.—It copiously deposited pink and mucous sediment. Its specific gravity (see Exp. xix. p. 122), 1·0207. Four ounces afforded of phosphoric acid 4·1 grains.

In the middle of April the urine was light, transparent, and free from all sediment, except the mucous cloud of health; its specific gravity 1·0087.

In February, 1816, the health appearing almost established, but the digestive functions still occasionally disturbed, I made the comparative examination of the urine (see Exp. xx). It was of an orange colour, with much mucous cloud, and an abundant deposition of uric crystals; of specific gravity 1·014. Four ounces afforded of phosphoric acid 2·1 grains.

In a review of this case, we observe a plethoric state of the system existing, to which a long course of gout had brought no effectual relief; a vitiated condition of the secretions become exasperated and confirmed; and then, under exposure to cold, visceral inflammation, chiefly affecting the liver, was produced. From the pain occasionally extending

itself to the stomach and intestines, we may infer that the inflammation was chiefly peritoneal. The intervals of ease occurring almost regularly in the day; and the exacerbations at the usual time of night, when the pain of gout always most affected him; form an example of the modifying influence of the gouty diathesis over internal chronic inflammation—producing a case, which may, with apparent propriety, be denominated chronic retrocedent gout.

I did not see this patient in the interval of April 1815 and February 1816. At this last date his countenance had a clearer and more healthy appearance than before. He reported that he had for the most part enjoyed comfortable health, during the above period; and had been free from gout.

I may add the following short case, which instructively represents the nature of a spasmodic affection of the stomach, in immediate connexion with obscure gout in the feet; and so alternating, that it seems to come under the head of chronic retrocedent gout.

CASE II.

A gentleman, aged 54; slight; with small vessels; of the nervous temperament; was first attacked with acquired gout at 29; has suffered many bilious attacks, and from his complexion bears the stamp of having an unhealthy state of liver. He is sensible of pain when pressure is applied to the right hypochondrium. Exposure to a cold wind, or the act of

standing on a damp pavement, very quickly produces pain of the stomach. Has been subject to feel pains in the stomach in alternation with pain in the ankles and feet. For the last fortnight he has been much indisposed in this manner. He goes to bed at nine, and falls into a comfortable sleep. About twelve or one, has for the last fortnight very regularly awoke with violent pain in the epigastric region, shooting up the sternum, accompanied by spasms, urgent flatulence and heartburn. No difficulty of breathing. The pain relieved by pressure. It remains four hours; and, being then at its acme, gradually declines; and towards morning, ease and sleep return. One night he discharged much bilious matter from his stomach. Lately has had slight gnawing pain in the ankle and tarsal bones of one foot, and two nights ago, "much twinging pain in the ball of the great toe." Yesterday he took an active purgative, and to day makes the following report:

"I went to bed at my usual time, and awoke about twelve with some pain in the right ankle, and a sense of heat, throbbing and stiffness, about the ball of the great toe, but without any affection of the stomach, except a little heartburn. The symptoms continued about two hours. I then fell asleep, and rested well. This morning I do not find either pain, discolouration, or weakness in the parts so recently affected."

The treatment of this case evidently consists in the employment of means to restore the health of

the digestive organs, by suitable medicine and regimen.

Of cases of apoplexy occurring in the paroxysm, and successfully treated, I shall state concisely two examples :

CASE I.

J. M. aged 60, robust, of sanguineous temperament, corpulent, and very plethoric ; has suffered gout severely, at short intervals, for ten years past. Had been under the paroxysm about a week, one foot being much inflamed and painful, and the other about to be affected. He had kept the parts wrapped in flannel, and had not restrained himself in diet, from an idea that the gout should be *encouraged* in the feet. He had also allowed the bowels to be costive.

In the morning, while in the act of stooping to adjust his dress, he fell upon the floor in a fit of apoplexy of alarming violence. Instant relief was at hand. Twenty ounces of blood were taken from the arm, by a large orifice, and active purgative treatment was adopted and continued Every bad symptom was quickly removed, and no paralysis followed. The gout continued in a mild form only. The ordinary treatment of the constitution, as in apoplexy unconnected with gout, was steadily continued with complete success.

CASE II.

F. L. aged 63, of very similar make and constitution to the foregoing. Gouty during the last twenty years. Had been gradually increasing in corpulence ; and used of late only passive exercise. The bowels were costive ; and the secretion of urine, though irregular, was for the most part very deficient. The gout was severely affecting one foot. It had been nursed in flannel. As in the former case, the diet was indulgent. Soon after dinner he was seized with apoplexy. Blood was freely taken from the arm ; a stimulant injection was administered ; a large dose of calomel (10 grains) was given as soon as it could be forced down, followed by sulphate of magnesia with infusion of senna, &c. in repeated doses. In four hours, although the bowels had been freely emptied, and depletion had been abundant, the pulse was strong and throbbing, and the head was painful and confused. Twelve ounces of blood were then taken from the jugular vein ; a cooling lotion was freely and constantly applied to the head ; the purgative treatment was pursued ; and the diet was restrained to the slightest degree of nourishment. Gout confined itself to the foot, and continued, with moderate symptoms, for a short time. The patient recovered without any unfavourable consequence. In these cases, the disease of the brain could not be considered an act of gouty retrocession ; for the inflam-

mation in the extremities was not suspended at the moment of attack, and became abated only from the active depletion which was adopted.

It should rather be stated, that the mismanagement of the patient had induced a plethoric state of vessels, too predominant for any effort of Nature to afford relief by the gouty action; and aggravated also in the determination of blood to the brain, by error of diet; by the influence of heat in clothing; and by neglect of the alimentary canal.

In bringing the present Treatise to a conclusion, I deem it necessary, *briefly*, to make a more particular reference than I have yet done, to the principal constitutional diseases, to which gout and the habits of the gouty may be considered as pre-disposing.

A few persons, as I have before stated, pass through a long life, suffering periodical visitations of the gout, and never incurring any other disease; until at length, the natural infirmities of years, aggravated by the effects of gout, emaciate and wear out the frame.

I knew well a gentleman advanced to a great age, who, during forty years of his life, was not on any one occasion absent from his office of business, which was situated five miles distant from his residence and daily required his attention, upon any other account than the gout, to which he was subject at regular periods.

Another gentleman, now aged 86, states that

he has not been subject to any other disorder than the gout.

These examples of the gouty life protracted to a great age are comparatively rare; and may be said to appear only in the chosen few, who, in strength of constitution, were formed for remarkable longevity.

Many of those who neglect the proper management of gout, die prematurely* ; and others, who reach a considerable age, are afflicted with perpetual discomfort and frequent misery.

The occasional occurrence of *apoplexy*† among gouty patients, is a familiar fact; and to which either immediate death, or paralysis, for the most part succeeds. It is also a truth which deserves to be stated, that some gouty persons, advancing in years, lose the disposition to their former attacks of gout, apparently in the same proportion that they acquire a tendency to apoplexy. The individuals whom I have seen to exemplify this statement, have

* Dr. Sutton, in commenting upon the prevalent notion that gout rather tends to lengthen than abridge the duration of life, observes, that those, whose pecuniary interests are concerned in this particular, make a different estimate, and by which, "those subject to the gout are placed under the predicament of paying a greater premium for the insurance of life, than those who have never suffered from the disease."

† Dr. Heberden forcibly remarks, "It can hardly be reckoned one of the disadvantages of the gout, that after destroying all the comforts of living, by this weight of misery, or by bringing on a palsy or apoplexy, it immaturely extinguishes the powers of life."

possessed more of the sanguineous than the mixed temperament, with great plethora of vessels; and have been robust and corpulent. Their habits growing more and more sedentary, and their indulgences in living not being diminished, the liver becomes obstructed; the action of the bowels and of the kidneys is not adequate to the excess of ingesta, and of the chyle that is assimilated; whence, a redundancy of blood in the system, and an interruption of the healthy balance of circulation, follow as the consequence. It appears to me as a further reason why the gout does not occur as formerly, that these elderly persons are seldom exposed to the most active of all the exciting causes, wet and cold. In the temperament and structure just described, the apoplexy which occurs, is, for the most part, and especially unless prompt assistance be rendered, immediately fatal in its event. In the mixed temperament with less fulness of habit, the attack is probably more commonly followed by paralysis; or, sometimes, by the agreeable consequences of perfectly successful treatment.

Obstruction of the liver; jaundice; cholera morbus; dyspepsia; hæmorrhoids; constitute the chief assemblage of the morbid states of the digestive organs, to which gouty persons have the strongest tendency.

Asthma occasionally supervenes on gout; and the invalid has only short intervals from one or the

other disease ; a respite which he owes principally to the less variable weather of the summer season. It sometimes happens that an asthma, which has chiefly been depending on a faulty state of the chylopoetic viscera, becomes suspended for a long time ; or, in more favourable cases, is even removed by the occurrence of gout taking place as a new disease in the constitution.

Hydrothorax is an occasional result of that complicated state of visceral disease, to which the gouty constitution predisposes. A few, whose lungs are unhealthy, and whose excesses in living are great, die before middle life with all the symptoms of consumption.

Ascites, arising out of the errors of diseased liver or spleen, or of each viscus in conjunction, sometimes happens, as a remote sequel to gout.

Gravel occasionally takes place in gouty persons, but for the most part it is the disease of their early life before the invasion of the gout ; and *stone in the bladder*, although (as in Sydenham) it now and then unites its tortures with the gout, is, according to my observation, as I have stated at p. 45, of rare occurrence.

Erysipelas attacks some gouty persons, and sometimes seems to represent, or come in the stead of, the expected fit. It has appeared to me that

gouty women are more disposed than gouty men to this additional disease.

Erythema and *Urticaria* may be mentioned among the incidental complaints of gouty persons. I have seen an instance of each of these complaints, shortly preceding the paroxysm; and, doubtless, arising from a faulty state of the stomach and bowels.

The occasional union of *rheumatism* with gout has already engaged our attention.

Cramps, although a symptom only of a morbid condition of the nervous system, and usually depending on an unhealthy state of the chylopoetic viscera, is with some gouty persons so urgent a suffering, as to form the leading feature of disease which most engages their attention.

The most important of the diseases, which I have here enumerated, must receive their pathological explanation, from the two-fold cause of an over-loaded circulation with partial debility of vessels. Accordingly, as one viscus is more weak than another, partly from original structure, and partly from the frequent interruption of its healthy functions, will the consequent seat and nature of the supervening disease become. Whether it happen, that some one particular organ acquires, from obstruction and weakness, a state of congestion

which renders it incapable of performing its former share in the general circulation; or, whether by the peculiar action of stimuli, an accidental determination of blood takes place to a particular part; the balance of circulation is destroyed, and, from either cause, similar effects may be produced. Thus, apoplexy, in a plethoric person, may arise out of the effects of a continued obstruction of the circulation of the liver; or it may be produced in a more sudden manner by the excessive stimulus of intoxicating liquors acting on the brain. When the picture which is here drawn (and it is one that is rather softened, than too closely copied from life), added to that of the sufferings which gout directly inflicts, is well considered, it seems surprising that the idea which many gouty persons fondly entertain, that a paroxysm is an indication of health and strength of constitution rather than an actual disease, should ever have been cherished.

Let them, ere it be too late, change their destructive habits of indulgence; and instead of reposing a mistaken confidence in the palliative powers of the *eau medicinale*, or even trusting to the supposed curative influence of a fit of gout; let them adopt, with virtuous resolution, a true *prophylactic regimen*.

In connexion with the present general view of my subject, I shall offer a slight discussion on the practical principles which are applicable to the *acute* diseases under which gouty persons, in com-

mon with others, may labour; and lastly, the treatment of apoplexy incidentally occurring to the gouty, when wholly free from gout, is to be considered.

The prejudice which has for so many years existed against the propriety and even safety of general bleeding in gouty cases, whatever the incidental disease might be, although for the last very few years it has certainly been on the decline, appears to me to be yet in considerable force; operating on the public at large, as well as influencing in some degree the medical profession.

Dr. Cullen, however, who does not make the least mention of blood-letting as a remedy in any of the forms of retrocedent gout, which he has stated, allows of this practice in the phlegmasiæ, which, occurring in a gouty person, he calls misplaced gout; and thus expresses himself: "In this case, the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same parts*."

Dr. Heberden† speaks of general bleeding with caution and some distrust, in the accidental diseases of a gouty person, lest the gout should be at hand; but he grants this exception, "that it will be far more hazardous to neglect bleeding in an inflammatory distemper, than to take away blood in the gout."

* Par. 583. † Commentaries, p. 45.

In the fourth volume of the Medical Transactions of the College of Physicians, Dr. Haygarth states an interesting case, which he considered to be *carditis arthritica*, and relates that in consultation he proposed this question: "Is it necessary and safe to take some blood from a vein, even though the gout be the cause of this inflammation? If there were no such suspicion, the violence of the disorder would require large and repeated venesections."

I offer this quotation, as a strong proof of the sentiment which prevails against the use of the lancet in the inflammatory diseases of the gouty.

The recommendation expressed by Dr. Cullen, and just now quoted, may be held as the true axiom of practice; and the facts indeed in support of it appear to my observation so familiar and evident, that much illustration of the argument need not be added.

I visited an elderly gouty gentleman suffering from an inflammation of the kidneys. Bleeding from the arm to a free extent was one of the means of treatment, and was attended with the best success.

A gouty man, of plethoric habit and sanguineous temperament, was seized with inflammation of the lungs, which had been induced by exposure to wet and cold, when on horseback. Repeated venesection, in concurrence with the usual general treatment, was employed with the same favourable re-

sults as would happen in a similar disease of one not gouty.

A gentleman, more than seventy years of age, who had been afflicted with gout through the greater part of his life, was labouring under severe cough, much pain of the head, excess of vascular action, and evident plethora. No symptoms of gout were even threatening. He had an insurmountable objection to the remedy of bleeding. In a short time, hemorrhage from the nose took place, which was almost alarmingly profuse; but the system became effectually relieved, though with too much expense of the strength of the constitution.

In this case, a definite quantity of blood abstracted at a timely period by art, and in co-operation with the use of medicine, might have proved equally successful in its effects, and would have been much less debilitating than the spontaneous hemorrhagic action of the vessels. Nature seldom or never errs in her intentions; but the measure of her performance does not seem always just. So in spontaneous hemorrhage. The process in its beginning may have been necessary, and proves salutary; but its uncontrolled continuance might be destructive.

When I considered the subject of general bleeding under the head of remedies in the paroxysm, I stated, that if the inflammatory diathesis were

strong and permanent (a full strong pulse with a continued hot skin), and no contra-indication presenting, the remedy of venesection should not be delayed; but otherwise, a sufficient dependance might be placed on the derivation produced from the circulation by purgatives and diuretics.

When a local inflammation of any kind is set up in an external part, the use of general bleeding is more optional, than where an inflammatory action of the heart and arteries prevails alone; or, than in the case of an internal inflammation; because we know that the determination of blood to the inflamed external part, is to a certain extent a relief to the general circulation, and does not endanger the destruction of the whole machine; but if the inflammatory diathesis of the system be violent; or inflammation exist in an internal organ; venesection should be practised without restraint from those fears which belong only to false pathology. Whether the patient be gouty or not, the same principles of treatment must be exercised; or life itself may fall the sacrifice.

The importance of accommodating our practice to existing circumstances, and to real indications, is still more manifest in the case of a constitutional tendency to apoplexy occurring in the gouty, unconnected with the paroxysm. This subject, then, is now to be discussed.

A gouty person should take early notice of sudden increase of corpulency, whether it be general, or more partially confined to the abdomen; and, in

proportion as his structure favours plethora and congestion in the vessels of the brain, should this attention be paid. Also a consequent regulation of regimen, both as to diet and exercise and the hours of rest, should be adopted. A daily action of the bowels is a point of attention of the greatest magnitude; and a due secretion of the kidneys is also never to be overlooked. I shall not repeat the arguments which I have already advanced in this volume, upon the high importance of this function to the health of the system.

Among other symptoms of serious warning, may be mentioned, pain of the head with a sense of fulness, confused vision and giddiness; excessive drowsiness in the day, and dulness of the faculties with severe hypochondriasm; and in the night, profound sleep with deep and slow inspirations in the breathing, frightful dreams, and night-mare. The dyspepsia, which is attendant upon these symptoms, should be treated by purgatives and correctives; and every species of tonic should be delayed, till a correct balance of the circulation, and a healthy condition of the several secretions are restored.

In proportion as a marked determination of the blood to the head appears in excess, under the general circumstances which have been stated, the propriety of cupping at the neck will be pointed out; or, if an inflammatory diathesis of the system be also present, general bleeding will deserve the preference; but in cases of this description of the

fullest amount of symptoms, undoubtedly both local and general abstraction of blood will be required.

I shall relate a few examples, which have come immediately under my own observation, illustrative of these different positions:

A gentleman, aged forty-five, of plethoric habit and sanguineo-nervous temperament, who had suffered repeatedly from gout during seven years; at the accustomed season of the year, and at the usual time of the invasion of the fit, was awoke about two in the morning with dreadful night-mare, and all the horrors of suffocation; and these symptoms recurred two or three times. He was cured by the free employment of purgatives and diuretics; by restraint of diet, and by general regimen; and no gout occurred.

A tall robust man, aged sixty-four, of full habit and sanguineous temperament, who had been gouty since the age of thirty, but for a year past had been free from attack, had become very plethoric from indulgence. After dinner, when sitting in his chair, he suddenly felt an extraordinary sense of coldness and numbness, from the head downward on one side, and had not the power to rise. He was immediately cupped to a free extent; and the bowels being also sufficiently acted upon, every unpleasant symptom vanished in a few hours.

A gouty man, aged seventy-one, robust, corpulent, and of the mixed temperament, free from gout for three or four years past, was lately seized, under

great indulgences in living, with a slight apoplectic fit, which was followed by a considerable degree of hemiplegia. The faculties of the mind were much weakened. In this case, there was an evident obstruction of the liver, and the several secretions were extremely vitiated. The bowels were obstinately torpid. So much inflammatory diathesis was present, that general bleeding was at first employed. The excitement and correction of the functions of the liver, alimentary canal, and kidneys, constituted the regular treatment; but in addition to these means, although the diet was abstemious, occasional cupping was required. The patient recovered, and no paralysis remained.

A corpulent man, aged fifty-three, plethoric, and rather of the sanguineous than the mixed temperament, had been subject to gout several years, and had suffered a severe paroxysm about two months since. It had been left entirely to its own course, no treatment having been adopted. He had never intermitted his full habits of living. After having complained, during the day, of much pain in the head; and a very slight distortion appearing in the muscles of the face (yet, not seeking medical advice); as he was stooping to undress himself in preparing for bed, he fell down in a fit, and expired.

The last case to which I shall refer, was a seizure of apoplexy in a gentleman between sixty and seventy years of age. For many years he had been a severe martyr to gout; but latterly it occurred

only in the chronic form. Under the united influence of a diet too full with relation to other circumstances, of a torpid state of bowels, and of habits entirely sedentary, this attack of apoplexy suddenly took place, and with a violence which threatened to be instantly fatal. Blood was copiously taken from a large orifice; and the usual general treatment was pursued with perfect success.

In these cases, the prognostic of permanent recovery is favourable, in proportion as paralytic symptoms disappear; as tranquillity and comfortable feelings return; as the sleep is less profound and more refreshing; as the faculties become clear; and the pulse recovers its regularity. So long as the pulse remains variable and intermitting, we may be assured that the functions of the brain are yet unsettled. Our judgment is further governed by the state of the secretions, and by the obedient action of the bowels. If assistance be fortunately at hand, and blood be freely drawn, while no rupture of vessel has yet taken place, success is very probable. The half-erect posture, while in bed, instead of one that is quite recumbent, should be observed; and the free application of an evaporating lotion to the head forms a valuable auxiliary to the general means of treatment. A cool state of the apartment is an additional point of attention of much importance.

A prophylactic regimen for the remainder of life, and a strict regulation of the bowels, must be insisted upon as indispensable to justify the ex-

pectation of future safety. Tight clothing should be avoided, and especially a tight neckcloth. Such persons as are corpulent and plethoric, cannot too much observe a rule to avoid stooping; and they should be careful not to turn the head suddenly, without turning the body at the same time. The washing of the head every morning with cold water, by means of a coarse towel, is a practice of very great utility; and it may be repeated at any time, with equal advantage, when the head is painful, in these cases of local determination of blood. Hot rooms must be shunned, as being highly injurious; and calmness of spirits, and serenity of temper, are comprised amongst the most important sources of security. By the united care of mind and body, according to the rules of the physician, any threatening of apoplexy may be turned into a lesson of safety: but those who relapse into error, must experience those melancholy consequences, which are too well known to require a further description.

A TABLE of the *Analytical* Method of investigating a Case of Gout, and the general history of the Disease, adopted by the Author in forming the present Treatise.

1. The age; sex, &c.?	2. General structure; bulk; skin; complexion; family resemblance?	3. Habit; temperament; general points of constitution; idiosyncrasy?	4. Place of abode; climate; to what other diseases subject?	5. Station of life; employment?	6. Habits of living?	7. Gout in family, and in what degree of relationship?	8. At what age first attacked, and in what part?
9. In what parts subsequently, and in what order? Different parts together, or in succession?	10. At what part of the twenty-four hours, in general?	11. Time of year, and periodical?	12. General causes, predisposing and exciting?	13. What the premonitory symptoms?	14. What relation has the violence of the attack to the particular predisposing and exciting cause?	15. Which the most painful part?	16. Most pain day or night, and at what periods?
17. Local sensations in the height of the paroxysm.	18. Local appearances, and characters; temperature of the inflamed part contrasted with other parts. Desquamation as the inflammation goes off?	19. General symptoms, as to pulse, skin, tongue, action and state of bowels, kidneys, kind of secretions, &c.	20. State of the mind? what nervous symptoms?	21. Irritable urethra? cramps? and in what muscles?	22. What the usual treatment, and with what results?	23. Gout ever retrocedent; to and from what part; and what the exciting cause?	24. What the longest and shortest duration of a paroxysm?
25. Longest and shortest interval between the paroxysms?	26. What change of organization produced in the parts affected in the paroxysms?	27. Does the gout increase or lessen in progress, as to the severity or duration of the paroxysm?	28. What tendency has a violent paroxysm been found to have in prolonging the subsequent interval?	29. On what diseases has gout supervened? and the contrary?	30. Has the patient considered his constitution benefited or injured by gout; and how does this fact appear?	31. To what other diseases has gout predisposed?	32. Particular practical opinions of various authors noticed and examined.

SOME

GENERAL CONSIDERATIONS

ON

MORBID STATES of the DIGESTIVE ORGANS;

WITH

PRACTICAL OBSERVATIONS ON GRAVEL.

When we consider the importance of the functions which each of the digestive organs respectively performs, from the first step of the process to the last in the office of nutrition; and how constantly we exceed our natural wants, and commit every sort of indiscretion in our daily habits of diet; it cannot, on the least reflection, be matter of surprise that some disorder of function should be a frequent consequence. So much indeed are the derangements of the digestive organs connected with all chronic diseases, that if a division of them were to be founded on the most successful mode of treatment, the labours of the Nosologist would be reduced within a small compass. The confidence in specific remedies for particular diseases is gradually dying away, as sound science advances; and of late years, true philosophy has begun to sway the practice of medicine, in making careful experiment and rational induction the basis of our

theory, instead of vague hypothesis and popular prejudice.

The important consideration which is due to the state of the digestive organs in the treatment of various diseases of serious magnitude, is exemplified in the most interesting manner by Dr. Hamilton and Mr. Abernethy, in their respective publications on the subject; and the original views which they introduced must, I conceive, be ranked amongst the greatest improvements which the art of practical medicine has received. We no longer superficially allow of the application of tonics and nervous medicines for a weakened stomach and its attendant nervous sympathies, or for nervous forms of complaint; but we make it our care strictly to investigate the causes of such debility. Obstructions may exist below the stomach, and Nature may prudently have denied an appetite, when the powers of digestion are oppressed and interrupted. The nervous sympathies which attend these derangements are now justly regarded as secondary forms of complaint, and are often found to yield, as by a charm, to the removal of the primary causes of irritation. The general doctrines of disease having thus received a legitimate improvement, it might be imagined that the consequent practice of medicine in individual diseases, and anomalous cases, would become equally clear and defined. Some improvement, however, in the laying down of our principles appears to me to be yet wanting. Rules of exact treatment, it is true, can only

belong to experience, and do not admit of graphical delineation; but I cannot help believing that the principle of analysis upon which I have founded the preceding Treatise, may also be brought into useful application on my present subject. A great difference of opinion appears to prevail both as to the particular viscus most commonly affected, and also as to the ratio medendi. By some, whatever organ or organs in the series may be affected, calomel is administered with the same freedom and frequency as the most simple purgative in the materia medica; and, doubtless, serious and irreparable mischief is often inflicted on the constitution by the abuse of this powerful agent.

Even simplicity, which to a certain extent belongs equally to philosophy and truth, may be carried too far, and lead us too much into a principle of generalisation. Dr. Hamilton's peculiar practice appears to consist in the continued employment of purgative medicines, so that vitiated accumulation in the alimentary canal is prevented by the constant excretions which take place; and healthy action becomes excited by the total change of function which is thus effected. This, and not merely the effect of the removal of any particular accumulation, appears to be the necessary explanation of the mode of cure. In the space of time occupied in the treatment, the quantity of accumulation at any one time is multiplied again and again, in the ratio of total effect which is produced by the purgative plan.

Mr. Abernethy's method of treatment seems to be founded on the belief that simple error of secretion in the course of the alimentary canal, but in the liver more particularly, is the cause of the symptoms; and that this is to be obviated by means of treatment which tend rather to sooth and correct, than to act with any considerable degree of activity in promoting excretion. In the one case, a dose of calomel in combination with a purgative is chosen as the remedy; in the other, a milder oxide of mercury, and in a small dose, so as professedly not to produce any very sensible operation; and the action of the bowels is to be gently assisted by some very mild aperient.

The diseases treated of by these different authors are certainly very different in character. Dr. Hamilton brings under consideration a variety of important diseases, acute and chronic, successfully treated by purgative medicines. Mr. Abernethy has, in a most ingenious and philosophical Essay, treated of those general derangements of the system, which have appeared to owe their origin and support to a faulty state of the digestive organs, and are almost non-descript in their exact character. As it is well known, he was led into his examination of the subject, by finding in his practice as a surgeon, that local diseases often became evidently aggravated and extremely untractable from the disordered condition of the constitution. The practice of these eminent authors, as just observed, relates to diseases of a different class; but it also

differs considerably, as it appears to me, in principle. For the sake of distinction, I shall call the respective methods, alterative, and purgative.

I am not prepared to enter upon the arduous task of pointing out all the respective indications, which may call for one or the other mode of practice; but I conceive that an arrangement of this sort is susceptible of some useful rules, and these I shall briefly attempt to offer. Not only is our principle of treatment to be varied in correspondence with the individual morbid diathesis; accordingly as the stomach, the liver, the spleen, the kidneys, a particular part or the whole of the alimentary canal may be affected, and whether separately or together; and further, according to the kind and degree of symptoms, the modifying influence of difference of constitution, and the nature of the constitutional disease under which the patient may accidentally labour; but also, the particular remedy chosen from the same class of medicines must be adapted to the particular intention, or set of intentions, which we wish to fulfil. This indeed, is an extensive subject, and would demand a volume rather than a few pages for its discussion.

When gout is the tendency of the constitution, in connexion with a morbid state of the digestive functions, as I have already stated, diuretic purgatives taken in moderate yet regular doses, together with the mild alterative use of mercury, usually constitute the most efficacious treatment; because in addition to a faulty condition of secreting func-

tions, there is a strong disposition to repletion and plethora, which is to be guarded against. Also where the gouty disposition does not exist, if apoplexy or severe inflammatory erysipelas be the threatening disease; or if our patient be corpulent and of a full habit, and is affected with anomalous symptoms bordering on paralytic tendency; the same united principle of treatment is to be kept in view.

The modification of practice, according to the particular organ affected, is now to be considered.

When the stomach is the most affected part, as indicated by the symptoms described at p. 83, very decided relief will in many cases be afforded by an emetic of ipecacuanha; and the prompt removal of the offending contents of the stomach will often afford more immediate and decided advantage, than the continued use of a mere corrective. If mercury be administered otherwise than as a purgative, it is admissible only in very small doses, and precisely according to the rules of Mr. Abernethy. If, even with such doses, the fur of the tongue increase, the saliva become more viscid, and fœtor of the breath take place, it should be immediately abandoned. Eructations, or flatus of the stomach, constitute the most distressing symptom of dyspepsia, and are the immediate effect of fermentation in the stomach, which arises from the incompetence of its powers to produce the first changes in the food after mastication. The use of tonics is certainly indicated, but they must be

managed with great caution. Strong bitters irritate and disagree. The neutral carbonate of ammonia alone, in warm water or any medicated vehicle, or with the addition of lemon juice so as to be taken in a state of effervescence, is an useful remedy. If this salt however be too stimulating, the carbonate of soda should be preferred. Care should be taken not to produce nausea by any kind of medicine; and the bowels should be regulated by pills rather than by any liquid aperient. The wasted state of body and debility which are consequent to urgent dyspepsia must be treated cautiously with respect to purgatives, which, if improperly employed, carry off too much of the chyle which is but scantily prepared. Thus saline purgatives, which operate on the whole tract of the alimentary canal, are less suitable than purgatives of slow solution in the form of pills. For this reason I am persuaded that many dyspeptic persons are injured by a course, and especially if long continued, of Cheltenham water. For the state of stomach now under consideration, proper preparation being made, and in the fit season of the year, a course of the pure chalybeate water of Tunbridge Wells exerts the most beneficial effects*.

* I may take the present occasion to observe, that in a very wet summer, as for example, in that of 1816, the impregnation of this spring is very much weakened, although it endeavours to make up in quantity of supply in a given time, what it wants in actual strength. Thus, in the beginning of November 1815, after an unusually dry summer, the spring yielded only one quart in a minute. In October 1816, after a singularly wet season, the supply in a minute was no less than three gallons and a half. Its

Again and again have I seen the dyspeptic invalid receive renovated powers from the use of this water, when proper regimen has also been observed.

When the symptoms correspond with the description at p. 85, the stomach is only secondarily affected by the indigestion which prevails in the alimentary canal, and mostly in the duodenum. It is to be kept in view, that in this case the appetite is not deficient; and that the patient takes every day an excess of food, in proportion to the energy of the digestive and assimilating process. Here, I apprehend, we should blend the practice of Dr. Hamilton and Mr. Abernethy. It is advantageous to stimulate the bowels occasionally to full action by a mercurial purgative; and even with the alterative doses of a mercurial preparation, it often succeeds better to join with them a small portion of some purgative medicine, as the pulvis alöes compositus et pulvis rhei, with sapo durus, than to administer them separately; because it is our particular object to stimulate the bowels rather than to favour mercurial absorption. A draught, in conjunction with either description of pill, as mentioned at p. 262, or that suggested by Mr. Abernethy, with the infusions of senna and

impregnation was proportionably weakened. I find, that by comparing the effect of re-agents with the water, both as to the time and degree in which they act, with the results from the same re-agents at the time when I made my analysis, I can form a very good conclusion of the strength of the water at any particular time. This is convenient, as pointing out whether or not some pharmaceutical preparation of steel should be added to the use of the water.

of gentian and some aromatic tincture, will be found advantageous; and particularly when acidity and flatus prevail.

In the case to which I have alluded at p. 90, I found the treatment which I have just now described, after due perseverance, and with the union of exact regimen, perfectly successful. Nervous medicines, as intended to apply to the state of hypochondriasis, from which the patient suffered in a most distressing degree; and steel tonics with Peruvian bark directed in reference to the debility and languor of the stomach and the whole system, which also prevailed; had been previously tried for many weeks. From such injudicious practice, slight palliation only, by means of the volatile stimulants, was afforded; and an aggravation and confirmation of all the symptoms had resulted from the misapplied tonics.

In the treatment of the symptoms enumerated at p. 93, we are to consider that the liver itself is the chief seat of disease. It is obstructed, and perhaps affected with some degree of chronic inflammation. Here then we find that a mercurial course of medicine, with the moderate but daily action of some purgative, properly adapted to the particular case, proves of the most manifest advantage. In many cases, and particularly when we can distinguish the seat of disease, either from the tenderness of the part on pressure, or from any enlargement, the use of mercury, principally by inunction on the affected part, will be found more efficacious than its internal use alone. The warm

bath is an excellent auxiliary. Even in this form of disease, I am persuaded that we should avoid the severe employment of mercury, which, so administered, rather does mischief as a poison, than renders benefit as a supposed specific. When much pain prevails in either hypochondrium, the use of blisters, and sometimes also of cupping, should precede the inunction; and mercurial purgatives should be freely administered. In slighter degrees of uneasiness in the side, the emplast. ammon. cum hydrarg. may afford considerable service.

In considering the question of the particular viscus which has been the primary seat of complaint, when a complicated case of disorder affecting the digestive organs and the nervous system comes before us, I am induced to believe that we too much overlook the influence of the brain, and often fail in our treatment from confining our attention to the remote effects of disease. With whatever integrity the brain may be acting as an instrument of thought, its physical functions (if I may be allowed the distinction) may be so disordered as to become the important source of serious secondary complaint. It is an organ, not only subject to physical causes of injury and disturbance, in common with the other viscera; but is, also, under the peculiar immediate influence of all our passions and emotions. It is highly probable, therefore, as a matter of theory, that the state of the circulation of the brain, and the condition of its nervous powers, should be frequently thrown into disorder, and have a powerful primary influ-

ence on the healthy action of the digestive organs. So far as the direct application of physical remedies to this organ is in our power, we can only resort to those means of treatment which either increase or lessen the quantity of its blood, or which tend to make its circulation equal and regular. Much indeed is to be accomplished through the medium of the mind; and in this species of advice, the physician must at once become the philosopher and the philanthropist.

In the case of a severe injury of the head, we see immediately the important connexion which subsists between the brain and the digestive organs. They are thrown into disorder, and such is the series of the diseased actions, that they reflect their morbid influence upon the brain; and thus a mutual kind of disease becomes established. This is the point of treatment which Mr. Abernethy has so much and so usefully considered; but whether in the just importance he has assigned to the management of the digestive functions, in cases of local injury, he may not have recommended too exclusive a treatment, is a doubt which I myself am disposed to entertain.

In many most apposite and striking instances of disturbed action of the stomach, the liver, and the bowels, I have not succeeded in my treatment by purgatives and alteratives, until the brain itself has been relieved from a state of congestion, and which had been rather obscurely shewn by the symptoms. Even in those cases in which an ob-

structed state of the liver is the real cause of a morbid determination of the blood to the brain, at the same time that our radical treatment consists in removing such obstruction, it is important to give immediate relief to the vessels of the brain by the abstraction of blood. It must be our care to discriminate between the nervous symptoms which arise from opposite causes. Head-ache, vertigo, tinnitus aurium, pulsation, and a want of mental energy, may proceed either from an excess or a deficiency of blood in the vessels of the brain ; and depletion or stimulus must form our consequent principle of practice.

Sydenham, in describing the influence of the state of the mind on the functions of the animal œconomy, observes,

" The patient must likewise use his utmost endeavour to keep his mind easy ; for all disquieting passions, if they once become immoderate, greatly dissolve the texture of the spirits, which are the instruments of digestion, and so of course increase the *gout.*"

With respect now to the excreting function of the kidneys, if it be allowed, as the truth indeed requires, that it is a material agent in the process of healthy assimilation, it must follow that considerable importance belongs to a medical acquaintance with the various morbid changes which the urine undergoes ; and that we should carefully study the true indications which its external characters present. The relative connexion which subsists between the digestive organs and the kidneys is of a

very curious kind ; and it seems surprising that the particular state of the one should so quickly influence the other, when we consider that the blood, which goes to the kidneys for the purpose of secretion, has first to pass in part the round of circulation. Also, as the office of the kidney is entirely excrementitious, how does it render this service to the whole of the circulating blood, when, in the first round of the circulation after the absorption of the chyle, it can only have acted on a very small part of the arterial blood of the system ? I am disposed to conceive that several rounds of circulation take place before a perfect admixture of blood is effected ; and that in this way only the kidneys have the opportunity of performing their salutary action on the whole blood of the system. If a person be bled from the arm shortly after dinner, the serum is entirely milky, as I have often witnessed ; and hence I derive a support to my argument.

In my previous discussion of the subject of the urine, I have dwelt at length on the nature of the pink and brick-dust sediment, and I shall now make reference to the observations which will be found at p. 97, 131, 158, &c.

In a congested state of the vena portarum system, I have always found in the urine an excess of urea, and of all the other principles ; and can affirm that whenever the pink or lateritious sediment appears copiously deposited, it may be taken as a fair presumptive proof of this fact ; and may be viewed as a correct indication for the use of diuretic pur-

gatives, and of a corrective plan of medicine and regimen. Also it will be found in this case, that tonics can seldom be employed without disadvantage. When such sediment is copious and long continued, the conclusion follows which I have mentioned at p. 141 ; and the treatment just recommended must be pursued with great perseverance.

If the sediment consist of the earthy phosphates, as indicated by the distinctions described at p. 162, 165, and 166, it usually happens that supporting methods of treatment are required in conjunction with the purgative and corrective ; for I have constantly observed that the patient, under such circumstances, is suffering in some measure from debility and nervous irritation ; and, that in the course of a paroxysm of gout, or of chronic inflammation of the liver unconnected with gout, the state of the nervous system gives rise to these symptoms more or less remarkably, whenever the composition of the sediment changes from the urates to the phosphates.

It is sometimes thought to be of importance, that we should be able to determine with accuracy whether the urine of a person under a disease, or disordered action of the liver, is containing bile ; and also to form some estimate of its proportions. I therefore instituted some experiments, with a view to compare the delicacy of the muriatic acid as a test with that, very commonly chosen, of a linen rag. The following were the results.

Healthy recent bile added to healthy urine in the proportion of one part to 30, by muriatic acid was immediately rendered slightly green, and this effect was distinct in two or three minutes. After some time it became grass green.

With bile and urine, one part to sixty, and muriatic acid, the green hue appeared distinct after two or three minutes.

When the proportions were of bile and urine, one part to one hundred and twenty, the green colour was not very distinguishable until after twenty-four hours.

Bile and water, one part to one hundred and twenty, instantly yielded the green hue to muriatic acid.

The proportions even being one to two hundred and forty, the change was apparent after long standing.

By means of the linen rag, the yellow stain distinctive of bile, was only just distinguishable when the proportion of bile to urine was one to sixty.

Some urine of a jaundiced person, which in a short time produced with muriatic acid a light grass green, did not communicate any yellow stain to linen after being steeped for several hours.

I have lastly to notice an opinion suggested by Mr. Rose*, referred to by Dr. Henry of Manchester as being a curious discovery, and supported by

* See Thomson's Annals of Philosophy, June 1815.

him with an additional example*, that in hepatitis, the urine is devoid of its usual and very important constituent, *urea*. In the case of my gouty patient mentioned at p. 297, the urine was almost destitute of urea†; and as I have stated at p. 299, the same fact appeared in six other examples, in all of which, however, the urine was also albuminous, and uric acid was equally deficient with urea. In these cases the stomach was weak, and the digestive powers were impaired; but I could not pronounce the disease to be hepatitis.

* See Thomson's Annals of Philosophy, November, 1815.

† The method which I used was to concentrate the urine very considerably, and then, having filtered it, to add to respective portions, nitric acid, and a saturated solution of oxalic acid. The pearly crystals, which, when urea is present in much quantity, appear almost instantly and form indeed an unequivocal evidence, are well known. The oxalic acid acts more slowly; and if the urea be in minute proportion, requires about twenty-four hours for its decided effect. The precipitate consists of small transparent crystals, which, as they are viewed without being washed, appear reddish in colour. They are easily distinguished from the white pulverulent precipitate of lime and magnesia, which immediately falls down with this re-agent. From some comparative experiments, I have found this to be a test of still greater delicacy to detect urea, than the nitric acid; and I have also Dr. Prout's authority for the fact. The method by the distillation of the urine to procure carbonate of ammonia as the evidence of urea, and this product put to the test by its powers of decomposing muriate of lime, originally suggested by Vauquelin, and adopted as the most delicate by Dr. Henry, appears to me rather questionable. Will not other animal principles in the urine furnish carbonate of ammonia at the temperature of boiling water?

In six very clear cases of hepatitis, however, I have not only detected urea by means of nitric acid, and oxalic acid, but have also in each of these examples found a great *excess* of this principle. I am compelled, therefore, to believe that the cases of Mr. Rose and Dr. Henry ought rather to be held as exceptions from the general rule, than to be chosen as the ground of so strong a conclusion as they have formed.

In the medical management of all the forms of complaint which I have considered, the strictest rules of regimen must be observed; and without which, the skill of the physician will be abortive. I shall endeavour to include all these considerations under my head of prophylactic regimen. A modification of practice in the treatment of the derangements of the digestive organs, which is of great importance, arises from the combination which they form with other states of disease, and which may be either of a primary or secondary nature.

Abundant examples of such blended states of complaint will be found in the authors, to whom I have just alluded. I shall confine myself to some slight illustration; and probably I cannot choose any one more striking than the example of an irritable state of lungs, appearing in the form of troublesome cough, uneasy respiration easily quickened by slight causes, and accompanied with tenderness of the chest or occasional pain of the side; which we sometimes see connected with more or

less in number of the symptoms related from p. 83 to 87. Sometimes the patient makes the whole reference of the uneasy sensations which are felt, to the chest; and great care is required in our diagnosis. The epigastric region is usually affected with marked tenderness to pressure in these cases. The furred appearance of the tongue; the dyspeptic symptoms and peculiar state of the secretions; the absence of regular hectic and wasting; will be strong grounds of discrimination. Under such circumstances it is, that when our patient at first appears threatened with the quick and melancholy progress of *consumption,* the whole disease, after a patient course of treatment, will often happily yield to the co-operative plan of alteratives, mild tonics, and soothing sedatives, with such topical treatment as the case suggests. In urgent cases of this kind the patient is said to have been cured of consumption; but the lungs have been only secondarily and sympathetically affected.

When a scrophulous diathesis is mingled with the disordered digestive functions, it is incumbent upon us to use mercurial medicine with the utmost circumspection. If carelessly employed, it will operate as a most injurious poison; readily causing ptyalism, fætor of the breath, universal disposition to glandular enlargement, general debility, and an aggravation of the dyspeptic symptoms. If we employ mercury in such cases of peculiar constitution, we are almost restricted to its use, merely as an occasional purgative. In some in-

stances of this kind I have procured material advantage to the stomach and to the system at large, from the use of *chlorine* as an internal medicine. I have given it in the form of a saturated aqueous solution* twice a day, in the dose of half a drachm, gradually increased to two drachms, in union with some simple vehicle. A drachm of the solution, a drachm of tinct. cinchon. compos. and a wine glass of water, has been the most usual dose and form in which I have directed it. I have administered it also in dyspepsia, and in the debility of the digestive organs which sometimes is consequent to an active course of mercurial medicine; and certainly with great good effect in most cases, and without injury in any. The stomach very readily accommodates itself to the medicine, and indeed it has not produced sickness or nausea except in two instances, in which the stomach was evidently in a previously disordered state. The patient usually experiences a sense of exhilaration and improved energy from its use. It commonly acts as a diuretic, but does not appear to influence the bowels, unless they are in a morbid condition, in which case I have found it to be purgative. I flatter myself with the hope that this medicine†

* Prepared by Mr. Garden, operative and general Chemist, No. 372, Oxford-street. It should be carefully kept secured from the air and light, to prevent its decomposition. I always direct that the vial may be covered over with dark paper.

† Dr. Willan (on Cutaneous Diseases at p. 360) speaks of the use of this medicine in the early stage of scarlatina anginosa, in

may be found a most useful auxiliary in the cure of *scrophula;* and from the good effects which I have already had occasion to witness, I can venture to recommend it to the notice of the profession as worthy of trial in this deplorable species of complaint; which so much sets at defiance all ordinary means of treatment.

To such general observations on this interesting subject, I must now confine myself; but before its conclusion, I cannot refrain from taking a brief notice of the method of treatment by the nitro-muriatic acid bath or ablution, lately introduced to our attention by Dr. Scott. Such is the difficulty of ascertaining the true character and value of any new remedy, that the investigation of its merits cannot be too general; and the communications of every practitioner, which are offered with care and candour, are entitled to be received as useful. In a science so obscure and difficult as that of practical medicine, both doctrines and remedies must pass the full ordeal of time and opposition, before they should be admitted as substantial, or dismissed as useless. It is under such impressions

favourable terms. He describes the dose as half a drachm for an adult, and for children ten or twelve drops. I have not found it necessary to administer it in such small doses. He points out the care required to prevent the decomposition of the chlorine; and quotes from Mr. Allen the following test for its state of purity. "When litmus paper is plunged into the true oxymuriatic acid, it is deprived of colour; but if common muriatic be present, the paper will instantly receive a red tinge, and thus ascertains that the preparation is unfit for medical use."

that I proceed to the examination of the present very popular remedy.

The earliest statements on the subject by Dr. Scott which I have seen, appeared in the second number of the Journal of Science and the Arts. At p. 202, he observes, "When in India, I was most anxious to discover a substitute for the mercurial calces, less injurious and equally efficacious; and I have not been entirely without success. I knew that the nitric acid acts most readily on the resinous matter of the bile, and I was in hopes that I might communicate such an acidulous state to the living body as should produce the effects that I desired." He states, that through the medium of the stomach the operation of this acid, if given to the wished-for extent, had proved injurious, and that from its absorption by the skin some important effects had arisen. In the conclusion of the paper, he again speaks of the good results of charging the body with some of the mineral acids, or their elements, by means of the skin.

In Part III. of Mr. Charles Bell's Surgical Observations, Dr. Scott has annexed some remarks; among which I find the following: "I am not now convinced that a particle of acid enters the system. The effects I suspect arise from chlorine alone." It is evident that the author himself has no fixed position as to the rationale of the remedy; and it might easily be shewn that the views which I have quoted, are not very tenable. The facts, however, respecting the remedy, and not the theory, are the

points most worthy of discussion, and to which I shall proceed.

I may first remark, that we have seldom any difficulty in the internal administration either of the acids, or of chlorine. A question then naturally arises, is this apparently inefficacious mode of applying a medicine, which we can with facility use internally, really attended with any superior effects? and what is the nature and amount of such effects? Does the remedy really possess an active power;—and is it worthy of confidence, either by itself, or as an auxiliary to other treatment?

Of the effects of any remedy of mysterious agency, the sentiments of the patient must be received with great distrust. He usually lends his faith to its power from a prepossession in its favour; and the influence of a mental impression frequently stands in the place of a positive and palpable effect. Of this truth, in the history of a thousand boasted medicines, of the metallic tractors, and of animal magnetism, we have abundant illustration.

I have made trial of this remedy, both by immersion of the feet, and by ablution of the whole of the lower extremities, in several cases which appeared to me the most favourably adapted to produce all the good effects of which it should be capable. The proportions I employed were one drachm of each acid to a quart of water sufficiently warm.

One lady, suffering from dyspepsia and deficient secretion of bile, but easily influenced by mercurial

medicine, in having the action of the liver increased; of very irritable constitution, and with a thin and delicate texture of skin; sponged the legs and thighs very diligently for ten nights, but no apparent effect of any kind was produced.

A gentleman, whose liver had been diseased when in India, and who has frequently since suffered manifest derangement of this organ, such as degrees of jaundice, some pain and tenderness in the right hypochondrium, and a vitiated condition of the several secretions; when under the influence of such complaint in its most chronic form, gave trial to this treatment, and pursued it very steadily every night for five weeks. He was not sensible of the least influence from it, either on the bowels or kidneys. He thought that shortly after commencing its use, the uneasiness of his side was increased; but at the expiration of the period, he could not trace any positive effects, or consider that he had derived from it any advantage. He acknowledges with full approbation the decided good effects of a plan of medicine, consisting of purgatives and the mild alterative use of mercury, which he has since pursued.

A lady of the most irritable constitution, highly susceptible to very gentle doses of mercurial medicine, or indeed to the agency of any active remedies, immersed her feet for ten nights, without the least apparent operation, except that the coldness of feet, to which she was much subject, was

comfortably removed during the period of its employment.

Another lady, whose liver was evidently enlarged and in a state of bilious congestion, always readily and beneficially acted upon by mercurial purgatives, immersed the feet and sponged the limbs for twelve nights; but, with the exception that it warmed the extremities very comfortably, it did not appear to produce any effect; and she found it necessary, as usual, to resort to her usual medicine to excite the bowels.

Lastly, I made trial of the remedy on myself, being at the time, as it is in common language expressed, slightly bilious. I found it produce in the extremities an agreeable sensation of warmth; and this was the more perceptible, as I habitually suffer inconvenience in this respect. Slight pricking irritation also followed. I continued the ablution six nights. Beyond this local action I could not trace any effect, and since, the occasional coldness of the extremities has returned. I examined the specific gravity of my urine, and also its general characters every morning, and could not detect in it any variation from the ordinary state; comparing the results with former examinations. Neither the action of the bowels, my appetite, nor my internal sensations, were in any degree affected.

It appeared to me, therefore, that it acted principally as a stimulating lotion, which by its penetrating qualities might excite the vessels of the

skin to increased action; and as dyspeptic persons, and those who suffer from defect or irregularity of the bilious secretion, are usually affected with coldness of the extremities, I conceived this might be a mode in which it would do service. I have understood that its influence on the sentient extremities of the nerves has been compared to that of galvanism, and that such might be the modus operandi. This idea is ingenious, and seems entitled to some consideration.

From the close sympathy existing between the skin and the alimentary canal, we can readily believe that some individuals who have a thin skin, and who possess this sympathy in an exquisite degree, will find the action of the bowels suddenly excited by the free application of acid matter to the skin, and especially when they are in a state prone to be disordered. In this way the excretions of the liver, in common with the general action produced, would be increased; but such reasoning differs very much from that of assigning to the remedy the direct, and as it were specific, power of acting upon the liver. Dr. Scott observes (Bell's Reports, p. 363), "With people disposed to bile, it is necessary to keep the bowels very open during the use of the bath; for one of its effects, as I have said, and on which much of its beneficial tendency depends, is to produce a flow of bile into the intestinal canal." In opposition to my unsuccessful experience with this remedy, I hear repeatedly, from very respectable authority, the praises of its extraordinary powers. I

cannot therefore presume to deny that the remedy may sometimes be one of considerable efficacy, although I have with every careful search after truth endeavoured in vain to procure useful effects from it. I admit that my experience with it has not been extensive, and therefore do not offer it as conclusive. I cannot help at the same time remarking, that when this remedy is brought forward in apparent opposition to the usual method of practice by mercury, we should proceed very carefully in our estimate of its powers; and it would be matter of regret that an active agent in medicine, and one which with *proper* use is really successful, should fall into unmerited odium from the inferior if not unworthy pretensions of the remedy now in question, which is certainly one very troublesome in its application, both as to the mode of its employment, and the time required, as stated by the author, for its use.

Mr. Bell, with much panegyric "on the obvious constitutional effects arising from this bath," as he conceives, in ordinary disorders of the constitution, has offered an account of its use "in certain obscure cases of syphilis," which appears to me highly deserving of investigation. Introducing the subject, he speaks of this description of patient as being "half-poisoned with mercury," and still suffering from his disorder or its sequelæ; and under such circumstances he appears to offer the present treatment chiefly as a substitute for a well-regulated course of mercury, or for sarsaparilla, milk diet, and country air. In referring to the

operation of the remedy, he says, "We have seen salivation and sore gums produced in two instances." On reading this statement, the idea occurred to me, that, when the acid liquor is freely and repeatedly applied to the skin of a patient whose system is already highly charged with mercury, a chemical action would be produced on the surface; and hence, a new and active combination of the acid and vapourised metal might be supposed to result. If this view be just, it would afford an explanation of the modus operandi of this agent in such cases; so that it might on many occasions be an eligible method of administering a saline preparation of mercury without inconvenience to the stomach and bowels; and the hint which I now give might be acted upon with improvements. As far as the application of the bath is concerned, I would in any case advise the application of it for about five or ten minutes, twice or thrice a day, so as thoroughly to saturate the skin; in preference to the tedious period of half an hour, or an hour, which Dr. Scott recommends.

The following opportunity lately presented itself to me of putting the idea, which I have just now stated, to the test.

A young man, who had been pursuing a regular mercurial course, with the effect of removing his primary symptoms, applied to me with a cutaneous eruption, which appeared to be the syphilitic psoriasis. His gum was very sore and foul, his tongue was furred, and the salivary glands were in con-

siderable action. I directed such means as I judged the most calculated to restore the natural appearance of the gum. In about a week, this change being sufficiently accomplished, and when the silver watch which he wore was still entirely tarnished, I directed the acid bath and sponging night and morning for ten minutes. At his next visit, three days after, the gums were very much swollen, of a luxuriant red, and the salivation was considerable. He was much better both in his feelings, and in appearance. Pursuing the treatment, the eruption died away, leaving the skin scaly. After about eight days of the bath, the gum began to mend, although the acid remedy was still continued. No increased effect took place either on the kidneys, or the bowels, in this case.

ON THE

THEORY AND TREATMENT

OF

GRAVEL.

From p. 99 to 102, and at p. 163, 165, &c. I have considered the subject of gravel with reference to its external characters and chemical composition; and it now remains that I should offer some practical observations on the rationale and treatment of this distressing complaint.

With respect to a large proportion of gouty persons, as I have before mentioned, it is a curious fact, that in the history which they give of their constitution, they state that before the invasion of the gout, they were remarkably subject to the gravel; but that since the gout has supervened, they have been only slightly affected with that disorder. Many of my gouty patients relate that they suffered in a very severe manner at an early period of life from the gravel. The gout becoming their disease, the urine for the most part ceases to furnish the crystallized sediment which we denominate the gravel; but abundantly supplies that which is pulverulent in its form, and of the pink or brick-dust colour in appearance. The explanation of this curious fact, is, in my opinion, to be sought for in the

altered state of the sanguiferous system. I have already stated at p. 163, that the two sediments agree very much in chemical composition, and have suggested the idea that the excess of animal matter and mucus, which accompanies the pink and lateritious deposit, prevents the uric acid from assuming a crystalline form; for in however abundant a quantity this kind of sediment may be found, it is nevertheless completely soluble in the urine at its natural temperature in the bladder; even though a much larger proportion of uric acid may in this manner be secreted, than in the urine which deposits crystals. Dr. Prout remarks on this point; "This appears to be a wise provision of Nature; for if the uric acid were secreted in a pure state so abundantly, as the animal œconomy under certain circumstances seems to require, it would not be held in solution in the urine." This comparison of the change of constitution in the gouty patient is exactly in point, in considering the pathology of gravel.

That the one disease should apparently pass into the other at different periods of life, agrees with the general idea that gout and gravel have a very close connexion; and most authors who have written upon the one disease have also treated of the other. The analogy has been further supported by the well-known fact, that the uric acid is invariably the chief constituent of the gouty calculi, and very commonly of the urinary; and because it enters equally into the composition of the red

gravel, as it is called, and of the coloured sediments already mentioned. Notwithstanding these close links of connexion, however, we must see an important difference in the doctrine which is due to the two diseases. The prevailing theory on the subject represents that gravel is a disease arising from an excessive secretion of uric acid; but, as I have mentioned at p. 117, the appearance of the crystals is not to be received as a proof of such a fact; although this conclusion is certainly just, in the case of a considerable deposit of the pink or lateritious sediment. In the example of the crystallized deposit, I conceive that a new combination of the uric acid takes place, rather than an increase of its proportions; and my grounds for this conclusion I have already stated. The influence of an excess of acid matter in the alimentary canal, appears to be the true exciting cause of this change of action in the kidney; or in other words, of that new arrangement of the elements of the urine, out of which the crystals called the gravel are produced. The class of persons therefore most liable to this disease are such as live chiefly on vegetable food in its different forms, and have that species of indigestion produced which is accompanied with the acetous fermentation. Those, on the contrary, who habitually take a great excess of animal food, together with stimulating liquors, produce not only acid matter in the alimentary canal as a consequence of the faulty digestion, but also gradually induce an excess of supply to the circulating sys-

tem beyond the power of healthy assimilation, and beyond the wants of healthy nutrition. In the former case, nutrition is deficient, and the body assumes the appearance of a want of adequate supply; but the gouty patient is exactly under the opposite circumstances, and bears, in his external characters, the stamp of repletion more or less strongly marked.

In the case of gout, the vessels, being surcharged with chyle, impose upon the kidney an increased exertion to excrete a part of that excess which cannot be properly assimilated; and thus, as it seems to me, not only is that disturbance in the natural balance of the elements of this secretion produced, which causes a separation of the uric acid from its usual combinations, but a considerable quantity of animal matter is also excreted, constituting the united product, namely, the pink or lateritious sediment; and hence my theory will appear to explain why gouty persons cease to have so determined a form of gravel as they had in their youth.

Nature, ever wise in her intentions, in all these morbid affections of the digestive organs, whether coming under the denomination of gravel, or gout, or indigestion, or bilious complaint, appears to employ the kidney for a beneficial purpose,—to counteract the bad effects of the imperfect digestive process in the alimentary canal. That in the case of gravel, the salutary effort of the kidney to carry off unassimilated matter should give rise to

another kind of disease, does but add one to many other instances in the actions of the animal œconomy under disease, in which we see that the effort of restoration is sometimes itself productive of a minor disease.

Of the very marked distinction which is due to the pathology of the two diseases, gravel and gout, I shall subjoin the following interesting illustration.

My friend, Mr. Travers, one of the surgeons of St. Thomas's Hospital, having noticed that several patients suffering from stone had lately been admitted into the hospital, from the district of country between Tunbridge Wells and Lewes in Sussex; and hearing that others had been the subject of operation in the county, or were still labouring under the malady; availed himself of a favourable opportunity of making some local inquiry into the facts; and I had the pleasure to accompany him. We learned from an intelligent surgeon of Uckfield (whose name I do not remember), that the gravel was prevalent among the poor in his neighbourhood, and that stone was of no uncommon occurrence. The class of persons, to whom the disease was said to be confined, lived almost wholly on vegetable food, and upon the stimulus of gin and hard beer. They were of course the labourers of the country, and were represented to be meagre in appearance, sallow looking, and by no means strong men. I examined a specimen of the domestic water of the village, which was common

to the springs, and found it to be of remarkable purity; its specific gravity at 60° was only 1·0020.

I contrast therefore this account of the habits and appearance of a person suffering from gravel, with the representation which I have given of the gouty patient at p. 136 and afterwards; and an obvious inference follows from the statement.

Authors* upon gravel have confidently stated, that the urine which deposits the crystallised, or the pulverulent and coloured sediments (pink or lateritious), is preternaturally acid. So strongly indeed does Mr. Forbes entertain this opinion, that he speaks of an influx of acid matter† from the alimentary

* See, particularly, Forbes upon Gravel and upon Gout; and an Experimental Inquiry into the Nature of Gouty and Gravelly Concretions, by Thomas Egan, M.D. F.R.S.; Nicholson's Journal, vol. xvi.

† He also carries on the idea to the belief that such acid, taken into the circulation from the primæ viæ, detaches the uric acid from the circulating blood, and causes the gout by depositing the uric precipitate on tendons and ligaments, thereby exciting that inflammation (see p. 98, 99, &c. of his Treatise, second edition) which constitutes the gout. Hence one false hypothesis is built upon another; for no proof is offered of the presence of uric acid in the circulating blood. Afterwards this author observes (p. 93), "The acid that occasions the precipitation may sometimes be phosphoric acid, of which the quantity is preternaturally increased; but more frequently it appears to be a strange acid introduced into the alimentary canal."

I may take this opportunity to mention, that, in conjunction with Dr. Prout, I examined a flannel vest, which in different parts, from being long worn, was deeply reddened by animal matter,

canal; and both these authors evidently consider, that the crystallised deposition from the urine is exactly analogous to the effect produced by the direct addition of any acid to healthy urine. Their experiments in proof of this opinion of increased acidity of the urine are however very fallacious, and do not prove more than is offered by the usual specimens of urine of high specific gravity, obtained from persons in health, not depositing the gravelly crystals. These observations are also to be taken in connexion with what I have said at p. 117. Whether the urine of persons who suffer gravel, be, *cæteris paribus*, more acid than that of persons in full health bearing a high specific gravity, cannot be determined without a series of careful comparative experiments. In the mean time, while I admit that the generation of acid matter in the primæ viæ is really the exciting cause of this peculiar action of the kidney, I deny the conclusion, that (as in the artificial experiment with urine and an acid) the crystallised precipitate in the disease called the gravel, is simply a deposit of uric acid.

having the same appearance as that of the pink or lateritious sediment; expecting that if the skin did secrete uric acid, it would be found under these circumstances. The coloured portions of the flannel were steeped in a dilute solution of pure potash, the liquor was filtered, and muriatic acid was added; but no uric precipitate followed. I do not, however, offer this as a conclusive experiment on the subject. Respecting the question of a predominance of the phosphoric acid, I have already offered my details.

The same improvements in chemistry, which, a few years ago, led to the accurate knowledge of the composition of the urinary calculi, also became the foundation of a new method of practice in the treatment both of the stone and the gravel. Previously to this*, although the urinary concretions had long been an object of notice with the chemists, and Scheele had discovered the existence of uric acid in the urine, the treatment of them was conducted upon one uniform principle of belief, that alkaline remedies would be capable of acting as solvents for calculi in general. The analysis which chemistry has within the last twenty years afforded, became the natural step to new and improved views in practice.

Mr. Brande, in "A Letter on the Differences in the Structure of the Calculi, which arise from their being formed in different Parts of the Urinary Passages; and on the Effects that are produced in them by the internal Use of solvent Medicines†,"

* Dr. Murray, in the fourth volume of his System of Chemistry, third edition, p. 590, has the following interesting observation:—"It is but justice to remark, that Dr. Wollaston's dissertation was published in the Philosophical Transactions, two years before the memoir of Fourcroy and Vauquelin was read before the French National Institute; and although the experiments of Pearson, published in the Philosophical Transactions the year after Wollaston's, are referred to in that memoir, no notice is taken of those of the latter chemist; yet they anticipate nearly every thing which the French chemists have announced as their discoveries on this subject."

† See Phil. Trans. for 1808, Part II.

has added several interesting facts to our knowledge; although I cannot help suspecting that the particular situation of the calculous concretion is dependant on accidental causes, and cannot be chosen as the proper ground of classification, either for the arrangement of the chemist, or for the guidance of the practical physician.

In the different situations of the urinary organs we find every species of calculus, and so indiscriminately blended, that the distinction in question seems to me wholly unsupported, and can only be well introduced as auxiliary matter of information.

Mr. Brande, in speaking of the earthy phosphates, remarks, "I am induced to believe that the last-mentioned substances, although the production of the kidneys, and held in solution*, are never met with in a separate state till the urine has been at rest, and therefore calculi from the kidneys are never composed of the phosphates."

Whatever may be the particular situation in which the calculus is found, it is clear that we must make reference first to the action of the kidney, and further, in the series of the causes, to the state of the alimentary canal. The immediate cause of the calculous sediment or concretion is the altered action of the kidney, by which the elements of its secretion become disturbed from the healthy balance, and undergo new and confused arrangements.

* I have pointed out, at p. 165, that the suspended phosphates are not soluble in the urine, even at its natural temperature.

The bladder is evidently the mere receptacle of the urinous precipitates, and cannot be in any other manner concerned in the present theory of the disease; although, I am quite aware, that it does take the chief share in producing that concretion of the respective matters, which we call the stone.

The comparative rarity of calculi composed of the uric acid and animal matter, as ascertained by Mr. Brande*, is quite in agreement with the fact which I have stated, of the complete solubility of the pink and lateritious sediments in the urine at its natural temperature (see p. 98); and we may conceive, that without a very favourable nucleus a concretion of this kind would never take place†. Hence again the reason of the infrequent occurrence of the stone among gouty persons.

The distinctions in the composition of calculi, afforded by the researches of the chemists, were

* "The following is a statement of the composition of the different calculi found in the bladder which I have examined:—

16 were composed of uric acid.
45 ——— uric acid, with a small relative proportion of the phosphates.
66 ——— the phosphates, with a relatively small proportion of uric acid.
12 ——— the phosphates entirely.
5 ——— uric acid, with the phosphates and nuclei of oxalate of lime.
6 ——— chiefly of oxalate of lime."

150. Phil. Trans. 1808, Part II.

† See account of the calculus, p. 164.

very naturally hailed with satisfaction by the physician, who was taught to believe that the solvents, which acted in an evident manner upon the calculi out of the bladder, would very probably dissolve them, even in the bladder of the living subject. Such was the view at first conceived ; but the impracticability of using solvents as internal medicines of sufficient strength soon appeared ; and an attempt, which was more particularly followed up by Fourcroy and Vauquelin, was made, of injecting solvents into the bladder. This, however, for the most obvious reasons, was a practice that could not be pursued without producing effects from irritation, more than sufficient to counterbalance any chemical result.

It was next the adopted theory, that although the power of medicine could not be confided in to the extent of procuring the solution of the stone in the bladder of the living subject, the principles of chemistry would still allow of very important application, for the purpose of counteracting the further formation of a calculus ; and alkalies and acids were as before administered, although upon a different principle, according to the nature of the urinous sediment ; and from which, the judgment of the composition of the calculus should be deduced.

Mr. Brande, in a second paper*, has stated some interesting experiments and instructive facts on the medicinal effect of magnesia as contrasted

* Phil. Trans. 1810, Part I.

with that of the alkalies; the preference of the former medicine as a remedy having been suggested by Sir Everard Home, on the grounds, that a neutralising substance which was possessing the least solubility would remain the longest in the stomach, and counteract "the formation of uric acid;" and that this was a more eligible practice than the fruitless attempts towards its solution when in a state of concretion.

The ingenuity of the idea was confirmed by experiment, as to the superior success of the remedy. A gouty person was also much relieved by its use, and hence, from that period, the employment of magnesia by persons subject either to gout or the red gravel has been in very general use.

Alkalies and acids, however, have still been cherished as remedies for the respective indications of a calculus consisting of the uric acid, and the earthy phosphates; and indeed Mr. Brande, in each paper, has, in concurrence with the general doctrine, advised the use of acids in cases of the last description.

It is now important to examine, what are the just pretensions of chemistry in relation to the practice of medicine, in complaints so important to humanity, as the stone and the gravel; and first I shall discuss the treatment of the uric acid calculus.

I have already stated very fully the idea which I have been led to entertain of the cause of the formation of gravel; and consistently with my experiments and conclusions, I cannot admit the

propriety of the hypothesis which I have quoted, that by the effects of magnesia the formation of uric acid is prevented; and I should rather state, that by the influence of remedies on the alimentary canal itself, the kidney is favourably influenced in its secreting functions, so that the separation of the uric acid from its ordinary state of combination no longer takes place. This appears to me a distinction of some importance, as I shall presently endeavour to shew; but even if no distinctions in practice did follow from this difference of theory, the views of science demand that we should be accurate in our principles.

Further than this, I do not entirely admit the claims which are allowed to magnesia as a remedy in the morbid affections in question, and contend,—

1st. That although some advantage is afforded to the alimentary canal by its power of neutralising acid matter, yet that its chief superiority over the alkalies depends on its purgative qualities; so much more easy is it to arrest the morbid process of indigestion, by a medicine which removes the cause, than by one which merely has the effect of temporary correction.

2dly. I condemn any unlimited confidence in this medicine, as being in most cases of complaint a very inadequate remedy for the disease which is existing. The gravel and the gout are, as it were, but the symptoms of the morbid actions of other parts; and such primary disease, and true cause, is to be found in the digestive organs. But the gravel

has a deeper foundation than the mere production of acid matter in the alimentary canal. In these cases we must look with vigilance to the state of the stomach, of the liver, and of the bowels, and of all the stages of digestive assimilation, in connexion with the wrong functions of the kidney, in a manner less superficial than the rule of placing all our dependance on magnesia, or upon any alkaline medicine whatever, seems to imply. We shall learn that these remedies are useful and even important as auxiliary parts of treatment, but that they do not deserve any higher character, or stronger dependance.

The administration of acids, and especially the muriatic, in the case of the earthy phosphates appearing in the sediment of the urine, is still recommended by recent authors in general, on the chemical principle of specifically counteracting such a secretion. As it would appear from the ordinary theory, that the principle which holds the earthy phosphates in solution is an excess of phosphoric acid, it seemed to follow that in the event of a solid deposition consisting of the phosphates, the free acid was lost, and the urine must consequently become alkaline. The reasoning of Berzelius which I have quoted at p. 119, demonstrates very clearly the fallacy of this doctrine; and I have now arrived at the end of an extensive examination of specimens of urine depositing the phosphates, and also holding them in solution, yet still having the power of reddening litmus in the usual manner. I have also ex-

amined the urine of patients pursuing a course of the liquor potassæ in the quantity of two or three drachms a day, and of others under a long course of magnesia, or the fixed or carbonated alkalies, and have not found a single exception to this fact. I suspect, therefore, that the opposite statements have often been made from hypothesis only; and for the sake of correspondence with the supposed theory to which I have just now referred.

We read in books, of the skilful delicacy which is required to administer the alkalies and acids in calculous complaints, lest the happy balance of affinities should be destroyed by such inaccuracy; and that from the want of a necessary knowledge or attention, we should add to the one or other species of disease, accordingly as our corresponding medicine should be misapplied.

That the mineral and vegetable acids will influence the state of the digestive organs very differently from the alkalies or alkaline earths, is a truism which I cannot wish to dispute; but the propriety of their administration on the chemical principles already stated I must entirely deny. Also, if we had it in our power to controul the action of the kidney with such facility, our judicious intention would be frustrated from the circumstance, that the urinous sediments, and calculous concretions, are for the most part of a mixed nature in their composition.

It certainly happens, according to my experience, that when the gravelly deposit consists of

the earthy phosphates, and which may be safely presumed when colouring matter is absent, that instead of the plethora of the habit and the state of vessels bordering upon inflammatory action, which usually accompany the deposition of the uric coloured sediments, more or less of debility, joined with a morbid sensibility of the nervous system, commonly prevails ; and hence, the mineral acids which act as tonics to the stomach, will often be found useful. To point out once more the error of expecting to produce a chemical change in the state of the urine by medicines either alkaline or acid, as they are usually administered in any plan of treatment laid down, I may first refer to the experiments of Mr. Brande, in which, he made trial of very large doses of the alkalies, and was led to judge in that experiment which is most in point, that the effect of the alkali in becoming predominant in the urine " was at its maximum, probably in less than a quarter of an hour after it had been taken into the stomach ; and in less than two hours, the whole of the alkali had passed off." I have already related the results of my own experience in general practice with alkaline medicine, in regard to the present question.

Berzelius says, " it is often impossible to diminish the acid of the urine by the use of alkali, in those who suffer from an excess of uric acid ; and I have myself tried in vain the effect of acids in neutralising or acidulating an alkaline urine. A middle aged man was laid up with the gout: his urine was foul and alkaline, holding the earthy

phosphates suspended in an undissolved state. I gave him the sulphuric acid without any change; and afterwards the phosphoric, without any effect, until its dose was so much increased that it became laxative: the urine then became acid, and deposited uric acid as long as the laxative effect continued, but no longer, although the dose of the acid remained unaltered.

"Lastly. I tried the acetic acid, and with as little success*."

Having now pursued this theoretical discussion to a sufficient length, I arrive at a conclusion, which I have verified in numerous cases, that in proportion as our means of treatment, in the calculous affections of the kidneys, are most favorably adapted to restore the healthy state of the digestive organs, they are in the same ratio of effect, calculated to correct and remove any errors in the secreting action of the kidney itself.

A careful scientific observation of the sediments of the urine is important in a two-fold point of view. It is the surest ground which we can take for the anticipation and prevention of that calamitous disease the stone; and it likewise offers a valuable source of information, by enabling us to discriminate the particular morbid states of the digestive organs, and the relative condition of the sanguiferous and nervous systems.

When the urinous precipitate is of the uric acid description, we find in association with it such a

* View of Animal Chemistry, p. 107.

prevalence of acid matter in the alimentary canal, that the use of the alkalies, and the alkaline earth magnesia, becomes of important service as auxiliary medicine; but when we reflect on the fundamental truth, that the gravel in its determined forms, no less than the gout, is a disease created by long continued errors of diet, it must at once appear demonstrated, that a more radical method of treatment is required, than such medicines alone can accomplish. The cure is to be found in the judicious employment of purgatives, alteratives, and corrective tonics; and above all, in the just regulation of every part of the general regimen.

In addition to the description which I have already given of the class of persons most liable to gravel, I may observe, that in adults, the uric crystals (red gravel) prevail with the greatest frequency; and in children, the sediment, in which the phosphates abound or alone exist, commonly called white sand, is the common occurrence: but both in adults and in children, we meet with the two species of crystallized precipitate mixed*; and this is a still more frequent circumstance, when the sediment is pulverulent.

* In the analysis of a compound calculus, which I have lately had occasion to examine, I found the following formula successful for the separation of the phosphates of lime and magnesia.

a Boil the mixed salt with three or four times its weight of carbonate of potash in solution; filter the fluid, and wash the insoluble matter by repeated affusions of distilled water.

b Dissolve the residue which was left in the last process (carbonates of lime and magnesia) in diluted nitric, or muriatic acid,

The question of selecting the use of the mineral acids, when the crystallized sediment is consisting distinctly of the phosphates, is now briefly to be considered.

In several cases of this description, the most exactly adapted to my purpose, I made trial first of alkalies and acids, separately, and precisely according to the chemical theory, but with no permanent good effect; and in some instances, with the disadvantage of causing painful irritation by means of the acids. Certainly I did not disturb the uniformity of the chemical state, which is so much talked of, and substitute the deposition of the urates for that of the earthy phosphates. Nature herself is often capricious in producing this change, but it is very little amenable to the influence of art.

and decompose the solution by adding neutral carbonate of ammonia in excess, whence is produced a precipitation of the carbonate of lime.

c To the fluid from which the carbonate of lime has been separated, add a concentrated solution of phosphate of soda. The precipitate which now falls down, and which may be collected upon a filter, is the triple ammoniaco magnesian phosphate; from the quantity of which, as well as of the carbonate of lime, the relative proportions of the two salts may be deduced.

d To determine the proportion of phosphoric acid, if desired, let the fluid which was left in the first process (a), be neutralised by the careful addition of nitric acid, so as only just to saturate the excess of alkali; and to the neutral solution add a solution of nitrate of lead, until a further addition ceases to produce a precipitate. The phosphate of lead thus obtained, when edulcorated upon a filter, dried and weighed, will serve to indicate the quantity of phosphoric acid contained in the salts.

I next prescribed occasional purgatives, and as a daily plan of medicine, a combination of carbonate of soda, magnesia*, and sulphate of magnesia, to be taken in any simple vehicle, with the addition of lemon juice, so as to make it an effervescent draught. Together with this draught, I directed a mild mercurial oxide, in the alterative dose, with rhubarb and soap, and also enjoined a strict plan of diet and regimen. I thus perfectly succeeded in effecting a permanent change in the action of the kidney; and in due time, directing the use of stomachic tonics, the health became entirely restored.

When inflammation has been excited in the kidneys, the ureters, or the bladder, by means of the calculous crystals acting as irritating foreign bodies, the usual means of treatment as for the phlegmasiæ in general, are for the most part to be employed. If the inflammatory diathesis prevail, bleeding must not be neglected. The warm bath is a remedy of unequivocal propriety, and often affords very prompt and material relief. Purgatives are of indispensable importance; and the use of calomel and antimonial powder, with a portion of the colocynth extract, jalap, or rhubarb, in conjunction with a saline purgative, usually insures the best effects. Respecting opiates, I think it necessary to make a few observations. The spas-

* When the urinous sediment consists of the phosphates, we find that acid matter produced by indigestion equally abounds in the alimentary canal, as when the urates are deposited. This is at least true as a general statement.

modic nature of the pain which attends the nephritic attack, would seem, on the principles on which I have before advocated the use of opium, to demand and justify its free administration; but some exceptions in the present case of suffering are to be pointed out. It is our object to promote the secreting action of the kidney; to dilute the urine, and so to increase its actual quantity by the influence of the mildest soothing drinks, very freely taken, that it will at the same time be less stimulating to the passages under inflammatory irritation, and by actual distension of them produce the effect of dislodging and carrying off the minute calculous concretions. Experience shews us that the effect of opium very usually tends to keep the secreting function of the kidney, when it is under inflammatory irritation, in further restraint, even although it be used in combination with purgatives. It is therefore a medicine which, upon this general principle, is to be avoided in its internal use, in this disease; and we shall often find it more advantageous to administer it in the way of injection into the bowels. This practice should be pursued with very great freedom in the dose. In conclusion, however, I must be permitted to observe, that if such intense and sudden pain, as sometimes afflicts the patient, call for our relief, we shall find that we cannot withhold the prompt and ample exhibition of opium; and which, administered on the principles I have stated at p. 224 and 225, even with all the general objections just now stated,

will hold its sure dominion over the present most immediate evil, the pain of the attack.

When the nephritic symptoms assume the chronic form, similar modes of treatment are to be pursued, with that moderation, however, which the milder disease invariably allows.

OF PROPHYLACTIC REGIMEN.

I HAVE to consider the present very interesting subject, in the following several points of view; namely, as it relates to the gout; to gravel; and to the morbid states of the digestive organs in general.

The means of preventing the return of gout, are in general more easily pointed out than practised; so great is the force of established habits, and so irresistible is the love of indulgence. In truth, however, it does not appear to me that gouty persons should be bound down to any rules of living which can be considered painful, provided they exercise a little philosophy; or that they should be obliged to use any care, which a slight perseverance may not render agreeable.

The discussion of the present important consideration may be divided into what relates to the general management; the diet; and the occasional use of medicine.

I may first observe that the views of *prophy-*

laxis are both prospective and retrospective; and those who may be led to expect the gout by inheritance, cannot too early be taught to pay the most careful regard to their constitution; nor too surely confirm the best habits by long practice.

When the disease has made its invasion, the permanent cure rests indeed with the patient alone; and if he be wisely his own physician, before its tyranny be established, future prevention will be almost certainly at his command.

I know no rule more important to be mentioned, than that the patient, who finds out by sad experience his weakest points of attack, and the peculiar influence of particular remote causes, should guard himself against them with a nurse's eye, and with corresponding care. Thus some, from exposure to wet and cold, incur either certain gout or rheumatism; while others, although very gouty subjects, escape such trial with impunity. I have met with two gouty persons in particular, who can actually remain in wet clothes without any consequent injury; but if they commit any remarkable excess at the table, an attack of gout almost with certainty follows. Such extreme instances are rare; but there is good ground for the general assertion, that every gouty patient is rather more susceptible to some one remote cause than another; and although he cannot be too much a practical philosopher in his whole conduct, he should be scrupulously vigilant against the enemy in his most vulnerable quarter.

When the residence is a matter of convenient choice, a gravelly soil on a middling level, and protected from the north and the east wind should be selected for the purpose. A situation which is damp and cold, or even damp and warm, is much to be condemned. For those who are not yet rendered delicate and enervated by the long influence of the disease, I would be disposed to prefer the bracing quality of a cold dry climate, to the relaxing powers of one that is hot. It must at the same time be stated, that those who are tender feel enjoyment only in summer months, and some even obtain exemption from their gout by removing to a hot climate. Van Swieten, Haller, and other authors relate some instances of extraordinary cure produced by such emigration. I have met with some gouty persons, who found themselves free from the disease during their residence in the East Indies, where business had taken them, although their habits were not more moderate than before. This seems to admit of explanation, from the profuse perspirations which regularly occur in such situations, and which obviously counteract the plethoric state of habit. For this reason chiefly, I presume it is, that the gout does not often make its first invasion in a hot climate, even with those who live freely. We also find that some robust persons of a sanguineous temperament, who are not subject to gout, in returning from a hot climate in which they enjoyed their health, to the variable

one of this country, acquire an inflammatory disposition of vessels; and the explanation of the fact has already been offered.

Further, I may mention, that the benefit of equal temperature is most sensibly felt by gouty person s Thus I have known of some who have quitted this country for India, with a gouty and rheumatic state of pain and infirmity afflicting them upon their embarkation and afterwards, but no sooner have they arrived in a warm latitude, than ease has returned; and gradually their natural recovery has taken place.

When we consider that vicissitude of temperature, or in other words, wet and cold, is the most frequent of all the exciting causes of gout, it is incumbent on us to consider the best means of lessening the susceptibility of the body to the impression produced by such causes. During eight months of the year in this climate, the utility of wearing flannel next to the skin, is too well known to require comment; and whether it should be discontinued in the warmer four months, must always be a matter of careful consideration. Every gouty patient should keep in mind, the infinite importance of preserving the feet *always* dry, and comfortably warm; but while this caution is observed, the debilitating influence of *hot covering* should be studiously avoided. Upon the employment of cold sea bathing as a remedy to strengthen the frame, I can only recommend a general rule of caution, it being a very doubtful measure for a

gouty subject; and the cold fresh water bath should always be considered as inadmissible. The temperate bath of the Buxton temperature (82°) will be found most advantageous, both to strengthen the constitution and the limbs.

From well established experience, I can confidently advise, as equally safe and useful, the following daily practice; on which, indeed, although I have already spoken, I shall now dwell more at length. Sponge every morning the whole of the feet, between the toes, all around the ankle joints (and the knee joints also, if they have been the seat of the complaint), with salt water, or water in which salt is dissolved to the point of saturation*; care being taken, that the *chill* of the fluid be always just removed by the addition of a sufficient proportion of boiling water.

The skin being wiped perfectly dry, diligent hand rubbing (the best kind of flesh brush) should be employed for as long a time as is convenient; and should invariably be continued, until a sensible glow of the skin is produced. In the whole process, one part should be finished before another is begun, lest evaporation should take place from the

* The most convenient method which I can recommend, is, that a large covered vessel should be kept in the chamber, containing bay salt and water; and it is only necessary to notice, that the salt is always in excess; which may be concluded when any appears at the bottom undissolved. It is merely necessary to take out a clear portion as may be wanted for use from time to time; to mix with it as much of hot water as is requisite to produce the tepid temperature; and use it as already directed.

moistened surface in an unfavourable degree. It will sometimes be objected that such daily attention is too troublesome and tedious, and that the benefit which it is likely to produce, is not worth the purchase. Such observations rest on the same weak basis, as those which apply to general care in regimen; and spring only from want of exertion, and the misapplication of time. The comfort of this cleanly custom is very great, and the assistance which it affords to the weakened parts and to the proper functions of the skin, is of such importance, that I am persuaded its auxiliary power in the *prophylaxis* of gout is not inconsiderable. The numerous communications which I have received on this point are quite decisive in its favour. The subsequent friction* of the parts possesses the obvious advantages of increasing the superficial circulation, and exciting the absorption of such deposits as previous inflammation has produced, either in the moving textures or in the cellular membrane. In proportion as the energy and strength of the limbs is preserved, the patient not only obtains the power of using regular exercise, but also fortifies the parts very usefully against future disease. By familiarizing the

* Sir William Temple, in speaking of the benefit of friction, strongly observes, "No man need have the gout who can keep a slave."

"Desault cite un exemple connu à Bordeaux, d'un vieillard centenaire, qui trente ans avant sa mort s'étoit garanti et guéri de la goutte, à laquelle il étoit fort sujet auparavant, en se faisant brosser et frotter chaque jour, soir et matin, avec un main garnie d'une mitaine de laine."—Barthez, tom. i. 194.

surface to the moderately cool temperature which I have mentioned, the susceptibility even of the whole body to atmospherical changes is in a considerable degree lessened.

With a further view to this latter important object, I recommend the patient to wash the whole head every morning, by means of a coarse towel dipped in water perfectly cold ; using afterwards dry friction with the towel for a sufficient time. I have abundantly witnessed the advantages of this custom, without knowing a single instance of inconvenience resulting from it.

The powerful effect of *indolence*, in assisting the first invasion and all the returns of gout, brings us to reflect on the great value of regular exercise among the remedies of prevention. It is the injudicious practice of some persons, to mix indolence with exertion, by being inactive at home during the greater part of the week, and taking excessive exercise on occasional days. I know some gouty sportsmen who exemplify this statement very strongly, in performing even feats of riding at particular periods, but are sedentary in their general way of occupation. In this manner a state of exhaustion rather than wholesome fatigue is produced ; and when by accidental excess in walking, more particularly, the weakened joints are thus *over-exerted*, the intended benefit is sometimes converted into an exciting cause of a paroxysm.

Horse and foot exercise should each be used

as answering different intentions. These means of health, so useful to all persons, are of particular importance to the gouty, with whom repletion is so great a part of their disease.

Sydenham expresses himself very forcibly in these words, after speaking of horse exercise: "And indeed I have often thought if a person was possessed of as effectual a remedy as exercise is, in this and most *chronic* diseases, and had the art likewise of concealing it, he might easily raise a considerable fortune."

The shaking exercise of riding on horseback appears well calculated to quicken the mesenteric circulation; to increase the gravitation of the contents of the alimentary canal; and to urge the peristaltic motion. It is a familiar fact, that active exercise of this kind is a speedy remedy for a fit of the *piles*, when unattended with inflammation.

Those persons, and especially the elderly, who have a weak and languid circulation in the extremities, should be attentive when using horse exercise in the cold season of the year, to clothe their limbs with great care.

The additional advantages of walking exercise are made apparent, in the consequent improvement of strength and motion afforded to the lower limbs.

Such as are crippled, and disqualified from the modes of exercise already mentioned, should daily take an airing in a carriage; but it is only some

real necessity of this kind*, or the obstacle of bad weather, that should give it more than occasional preference. Those who court indulgence must not expect exemption from the gout. In some instances of martyrdom from the disease†, a sudden adversity has proved a piece of good fortune! Even the influence of bad habits of living is exceedingly counteracted by active exercise and labour. The gout very rarely visits the poor man's cottage.

Many examples might be quoted, illustrating how effectually the predisposition to gout has been restrained, by taking a timely warning, and adopting an active course of life, with every observance of careful habits.

The superior advantage of the fresh air of the country over the *murky* atmosphere of the metropolis, is on all occasions sensibly felt by the invalid; and is no less calculated to preserve than to restore health. The gouty citizens of London should be studious to unite daily exercise in the country, with their less salutary pursuits in town.

The hours of rest and of rising deserve an attention of which the gouty class of society are too often unmindful; but their error consists rather in

* On the useful influence of various modes of gestation, and the reasons for which carriage exercise is sometimes to be preferred, see Dr. Wollaston's interesting Essay, Phil. Trans. 1810, Part I.

† Van Swieten's Commentaries, § 1255, and Hoffman's Rat. Syst. Med. vol. v. 518.

taking too much repose than too little. Neither more nor less than eight hours in bed, I should offer as the best general rule; and that the pillow should be sought before twelve, and quitted before eight.

In how great a degree, health of mind belongs to health of body, I need not argue. The union of these blessings was the poet's warmest prayer:

"Orandum est, ut sit mens sana in corpore sano."

The physical rules of health belong also to the moral code; and serenity and cheerfulness come as uninvited guests, where health presides.

As far as concerns the intellectual faculties, it must be stated that very sedentary habits of application, and long continued intense thinking, are highly unfavourable with relation to the gout. I am acquainted with a gouty gentleman, who was formerly a London accomptant; and he relates, that his severest fits were always induced by occasional excess of application to his business. Some who have retired from the occupations of the town to a country life, have lost their gout with a total change of situation and habits; and all receive benefit by such a removal. The rational and active exercise of the faculties is as much to be recommended as that of the body; and the proper rule consists only in avoiding excess of study. Sydenham, in the prefatory epistle to his Treatise, declares, "that his immoderate application to his work occasioned the severest fit of gout which he

ever had ;" and apologises for having confined himself at the time to the subjects of gout and dropsy ; adding, " that the gout constantly returned, as often as he attempted to go on with the work."

I come now to consider the most favourable system of diet.

As in the acquired disposition to gout, excess in diet is the indispensable remote cause, and even in the hereditary disposition, is more or less the necessary antecedent to its developement, it follows, that this part of my subject is of the highest importance to be considered. It appears to me, that a general rule of abstinence has been too much insisted upon, for the gouty ; and that little is often performed, because too much is required. I am disposed to contend that the security of the gouty does not, except in particular cases, require their being restrained from such a portion of the good things of the table, as affords the truest enjoyment. With regard to the solid articles of food, it may be said, in general terms, that the choice should be of such as agree best with the individual. *Quod sapit, nutrit,* is an axiom of much truth, yet its use requires limitation. An exact rule of diet for general application can scarcely be offered ; for in some idiosyncrasies, the most wholesome food proves the most injurious. Dr. Spurzheim informs me, that his coadjutor, Dr. Gall, cannot ever partake of *mutton* in whatever manner it may be dressed, without immediately suffering irritation in his stomach in a most severe degree ; and the same effect

has with certainty followed, when the dish has been purposely disguised by his friends.

I might mention many other extraordinary instances of individual peculiarity, with respect to those simple articles which agree so well with persons in general. The succeeding observations have a general application to the health of invalids to whom attentive regimen is necessary, whatever their chronic disease may be.

When the *kind* of diet is wisely chosen, according to the lessons of individulal experience, the next and most material rule of caution, is the *quantity* of food which is habitually taken. An accidental indigestion from some particular article of food may often cure itself; but the consequences of habitual error in quantity are of a much more permanent nature.

The advantage of dining at an hour not later than four in the day, is very well known; but with this salutary custom, the rules of fashionable life are wholly at variance. When the hour of dining is early, any intermediate nourishment from breakfast may be avoided; but in the opposite circumstances some refreshment should be taken; rather however upon the principle of preventing that exhaustion of the stomach, which arises from a long continued absence of stimulus, than as affording a greater supply of nourishment. For a strong gouty person of full habit, some bread or biscuit with an orange or roasted apple, or any kind of baked fruit,

will be very suitable; with water or rennet whey as the beverage.

One whose avocations are fatiguing, and his powers unequal, must be permitted a more supporting method. An egg lightly boiled, with bread, and wine and water; or calves' feet jellies, with bread or biscuit; or a little well-seasoned plain soup, may in this case be recommended to the patient's choice. It may be laid down as a general position, that meat should be eaten only once a day. It may be optional whether the breakfast shall consist of tea, or bread and milk, or light cocoa or chocolate; but coffee at this meal has appeared to me objectionable, as it is rather a heating stimulant, and not so good a diluent as tea. Butter in moderation, good in quality, and which has not been much heated, is quite allowable.

A few observations in detail upon the dinner meal may not be unacceptable to the reader, in connexion with this part of my subject.

By the gouty patient, and also by those not gouty, whose digestive functions are improperly performed *below the stomach* (that is in the duodenum, where the assimilating process may be considered to be most actively carried on), the chief error is committed, as before observed, in the *quantity* of food at dinner; and one great incitement to this excess, is the variety of articles which cookery presents to the palate, in its most tempting forms. Under these circumstances, not only is food taken

in quantities much greater than corresponds to the natural appetite, but an excessive excitement is given to the stomach by the varied nature of the stimuli; and which must sooner or later lead to debility of that organ. With respect to gouty persons, I believe there are few examples in which we do not hear of what is called "a good stomach," in the early part of life. Simplicity of diet, indeed, consists principally in the small *number* of the articles to be eaten at the same meal. By the virtuous observance of this rule, the appetite will seldom urge the taking of more than what is useful; and the stomach will be sufficiently spared, both in its secreting and muscular functions. Also the subsequent process of assimilation will be more easily and perfectly performed in all its stages; and unhealthy corpulency, and a radical disposition to the true plethoric state, will be obviated. I would offer as the best rule, that only one kind of meat should be partaken of at the same meal; but I would not prohibit fish as a preliminary part of that meal, if desired by the patient as a gratification. A little soup, also, may without impropriety be occasionally first taken, in addition to what I have mentioned; but I must observe, that such as are remarkably plethoric should generally make a point of avoiding nutritive soups; and every one who has any regard for his stomach, and considers its consequent distension from indulgence in this bulky nourishment, should be sparing in its use. A proportion of some well boiled vegetable is as

useful as it is agreeable. Most kinds of pudding may be eaten with propriety; but baked pastry, to the butter of which excessive heat has been applied; and also confectionary in most of its forms, should be entirely avoided. A little old cheese, good in quality, seems to assist digestion. It is a material point that the dinner meal should be deliberate, and the food well masticated.

Thus far, then, as to the quantity of the chief meal of the day; in addition to which, the other meals should only be considered as accessory refreshments. How much is the picture, which I here offer, reversed by the practice of the majority; and more especially by the indulgencies of the votaries of fashionable life! In those, whose breakfast, and nunchion, and dinner, and sometimes even supper, consist of animal food, with corresponding liquors having more or less of heating stimulus, must it not follow, that the gout or some other disease will be induced? It will occur indeed as an effort of Nature to interrupt the destructive process, and accomplish the reduction of the system by means of pain, and the effects consequent on pain.

Those who disobey all rules of temperance, can neither receive nor deserve a cure from the physician.

With regard to the particular kinds of food, and modes of cookery, which may be considered as the most wholesome, a few further observations will, I

hope, be found sufficient. To expatiate at length on this subject would require a separate treatise.

Experience seems to shew that of the flesh of all the larger animals used as food, *mutton* is the most easy of digestion; and particularly when roasted. Veal however appears to have its texture more favourably prepared for the action of the stomach by boiling*. It may be stated to be the least digestible of the meats in general; and this fact is referable to a principle which I think may be laid down, that animals, such as sheep and game, which are allowed to range in fields, acquire much muscle and little fat in proportion, while the reverse of this takes place in stall-fed cattle, which are much covered with cellular texture and fat, instead of the more useful qualities of muscular fibre. When the animal is not too aged, it is the muscular fibre that affords the best stimulus to the stomach, and the most favourable material for digestion. Pork, in most of its forms, appears, with the invalid, to be a meat of difficult, or uncertain, digestion; and, whenever eaten, its

* It appears to me, that the skin and cellular part of meat are more favourably prepared for the agency of the gastric juice (to express myself familiarly, are rendered more fit for digestion) by the influence of the boiling process; but on the contrary, that muscular parts are rendered comparatively more loose in their texture by means of roasting. As illustrations of the probability of this reasoning, I may mention the articles, calf's foot, and veal, to exemplify the first position; and the second is instanced by the superior tenderness of beef moderately roasted, over that which has long been submitted to the boiling process.

skin and fat should be avoided. I learn, however, from good authority, that pork broth (quite freed from fat) agrees remarkably well with very weak stomachs.

Among fish*, salmon, from its fatty nature must be considered as unwholesome, in whatever way it may be dressed; and the most objectionable, next to salmon, is mackarel. Shell fish, although agreeing well with some persons whose stomach is not healthy, should rather be placed in the list of things forbidden†. But it must be said of oysters, and especially when boiled (the beard always being removed), that they suit a weak di-

* The herring would appear to deserve particular praise, as a meal for the gouty. Dr. Clerk (Edinb. Med. and Phys. Ess. vol. iii. p. 462) relates a case, in which the eating of salted herrings, every kind of drink to relieve the thirst being carefully avoided, very readily cured the paroxysm. If we reason upon this case, we must apparently refer the success to the stimulant or other properties of the muriate of soda; but as a remedy in gout, it appears to me as little worthy of recommendation, as it is certainly disagreeable in its sensible effects.

† It must be kept in view, that the present very critical observations relate only to the management of the digestive organs, when in a weakened and disordered state of function: and it is important also to observe, that the conclusions which I have now ventured to offer upon diet, have been derived from the reports of dyspeptic persons; among which class of invalids, I have sought every convenient opportunity of obtaining information on these points. In connexion with the present subject, the experiments which were performed by Mr. Astley Cooper, and are detailed at the end of this section, will be found interesting; and particularly deserving the attention of the physiologist.

gestion in general remarkably well; and of their very nutritious quality, I need not speak. With regard to vegetables, all such as are in season, and well boiled, may be esteemed as useful as they are agreeable; but I should recommend that when the stomach is weak, only one kind should be taken at the same meal. Dressed onions usually agree well with gouty stomachs. Of raw vegetables, those which are stimulant, as the horse-radish, mustard, &c. are alone proper; and I may here take occasion to remark, that a moderate portion of the stimulus of pepper and mustard, when relished with the article eaten, is advisable, under the circumstances of languid digestion; but certainly, the habitual free use of condiments should be guarded against: they are not necessary to a healthy stomach. Salt is a stimulus which we may be said naturally to require in union with food; yet it should be taken in moderation on account of the thirst which it excites, and the distension of the stomach and bowels consequent upon an excess of fluid. Vinegar should never be taken but sparingly. New pickles are much to be condemned; but such as are old and well-seasoned, often agree remarkably well, even with a faulty stomach. Yet, in the list of things that are proper, they are not the articles which deserve to be particularly chosen.

Before concluding, I must observe of bread, that those persons who are subject to habitual costiveness, will find great advantage in shunning the

astringent white bread of the baker, and in taking brown bread made with flour from which the coarsest part of the bran only has been removed. I am acquainted with many examples in proof of the utility of attending to this apparently trifling change in the plan of diet.

I proceed now to treat of the *fluids* of the table, with relation to the prophylactic management.

I have already dwelt at some length on the comparative influence of different fermented liquors (p. 72); and return now to the position, that, with respect to the gout, the quality and quantity of what is drunk is of still more importance than of what is eaten: but on this head, also, I have no restrictions to propose which are inconsistent with the true enjoyment of social life. As a general statement of the question, I would contend, that a small portion of wine after dinner is as useful and innocent for a gouty person as for any other. Those who are of a sanguineous temperament, and are much disposed to the inflammatory plethoric state, would be wise in shunning all fermented liquor, and adhering to the safe beverage of water; but on the other hand, I am convinced that I offer a concession on the side of truth, in stating, that the gouty, for the most part, acquire, by that course of living which has brought on the disease, such a state of stomach as concurs with the influence of their temperament, in rendering

the moderate use of wine both useful and necessary*. It produces a comfortable feeling; and its beneficial effects, when it is used within the strict rules of propriety, are felt throughout the whole frame. I am disposed to consider, that taking less than three glasses is an unnecessary forbearance; and that taking more than six is the beginning of excess and injury. In determining the exact quantity most favourable to the individual patient, I may observe, that a truly careful attention to his own feelings would, for the most part, be a sufficient guide; the object being this, that the wine should produce a feeling of comfort, without any sensible heating excitement.

* I feel it important to explain my sentiments on this point without ambiguity. On reviewing the above doctrine, I am convinced of its correctness. It should be considered, that the particulars with regard to diet, which constitute a very material part of medical treatment, must be modified in relation to particular individuals, in the same way as medicine; exercise; or any other class of remedies. Every general rule of regimen must, in each separate instance, be varied in some of its circumstances. Such gouty persons, for instance, who are yet young and full of vigour, would wisely fulfil the object of prevention, by confining their beverage to water. The second class, whose strength has been impaired by the disease, may with benefit employ wine, under the limitations which I have expressed. The third class, whose constitution is become infirm and nervous from long and repeated attacks, *require* the cordial power of a little good wine; and with all other correct management, united with such cautious indulgence, will, I am persuaded, improve the tone of their stomach and the energies of their general health, without aggravating the predisposition to gout.

Some very interesting cases have come under my observation, in which, not only an abstinence from wine and every kind of fermented liquor has been steadily pursued for a great length of time, but even animal food has been entirely avoided. One gentleman, of remarkable fulness of habit, of considerable vigour of constitution, and its powers not yet impaired by age, being afflicted with gout in an extraordinary degree, first made the trial of a restrained diet, by taking animal food only every other day, and table beer as his most indulgent drink. The gout still returned, and with but little abatement in its usual severity. He resumed, therefore, his former habits, which were very social. The gout became more and more virulent, and at length, quite in despair, he resolved to confine himself entirely to a milk and vegetable diet; and with strict philosophy pursued his plan for sixteen months. Some striking advantages followed, which it is interesting to mention. He lost the pain and giddiness of the head with which he had been severely troubled; the bowels became regular; and the secretions, which had long been in the most vitiated state, assumed a most improved and simple character. The gout still returned, but with slight attacks only of inflammation and pain. At length, however, the nervous system refused to accommodate itself to this entire loss of its accustomed stimuli. Although no violent fit of gout took place, some chronic symptoms occurred, and with them a considerable depression

of spirits. The limbs were slightly œdematous, and on every unfavourable change of weather, they became painful as if from rheumatism. Under such circumstances I advised a change of plan, and that he should enjoy the usual comforts of the table, according to a regulated plan of careful moderation, and indeed of gradual introduction of such a change. At the same time, I instituted an alterative course of treatment by medicine, and the method which I have before described for the improvement of the limbs. Such decided good effects resulted, that while he acquired a great improvement in his strength and spirits, his disposition to gout more and more decreased, as the system became influenced by the medical treatment. A little wine of the best quality entered into his altered plan of living; but from his constitutional plethora and inflammatory tendency, much circumspection was required on this point.

Several cases similar to this, which was so truly interesting, have come before me, illustrating the general axiom which I have advanced, that wine under certain restrictions, must be advised, rather than forbidden to the gouty patient. That a suspension, for a time, of nutritive diet and of the use of wine is capable, in many instances, of affording material benefit to the constitution, I am well convinced. Indeed, in some cases of long established visceral obstruction and vitiated state of the alimentary secretions, both in gouty persons, and in

others, I have found the happiest consequences to follow from the temporary adoption of a milk and vegetable diet, in conjunction with a course of medicine; but such a plan has been provisional only, and with reference to existing disease; and is entirely to be distinguished from the regimen of a severe abstinence for life.

To resume my subject, I may state, that in the choice of the particular kind of wine a little latitude may be allowed, provided it be *old and of the best quality.* I have met with some gouty persons, who feel both comfort and advantage from good claret, and are heated and inconvenienced by a much smaller quantity of good port. Setting aside the idiosyncrasy of particular individuals*, it appears to me that good old port is very well suited to the stomach of a gouty man; and that sherry, when old and genuine, is more favourable to him than madeira; it being, as I think, the least acescent. I am induced to form this conclusion, from a few trials which I have made with good specimens of each wine, as to the comparative proportion of an alkali which they have required, in order to be rendered neutral. I do not, however, consider that my experiments have been sufficiently numerous, to establish an *aphorism* on this point. The general rule of avoiding all light acescent wines, and also such

* I know a lady who is invariably rendered immediately ill by the smallest quantity of port wine, although she drinks white wine with benefit. Her symptoms are an hysteric difficulty of breathing, extreme general nervousness, and head-ache.

as are *new*, whatever the vintage may be; and sub-acid liquors, as cider and perry; is a caution so familiar to the gouty, that I need only advert to it in this general manner.

During dinner, *water*, for the purpose of dilution, is the true beverage of health. If any wine be taken at the same time with the food, it should be in very sparing quantity.

Against strong *malt liquors*, the objections are very numerous. Ale and porter, from their superior nutritive properties, being much more conducive to plethora than wine, must have a strong influence in inducing and increasing the predisposition to gout; and in the dietetic plan of those who take wine, the use of these liquors should not be permitted. Small beer of good quality, and free from all acidity; or, in the technical expression, not in any degree *hard*, is a wholesome beverage; and, although less salutary than water, it need not be denied, except to the corpulent and plethoric; and provided it be taken only in careful moderation, and that dyspepsia is not present.

*Spirits**, however diluted, should be shunned

* Although good wine contains so large a proportion of alcohol, as to amount generally to one-fourth, according to the experiments of Mr. Brande (Phil. Trans. 1811, Part II.); yet the spirit is in such a state of combination with several peculiar principles, that its influence on the stomach, when thus combined, is very different from that of raw spirits, mixed or unmixed; and more especially, in proportion as the wine has received its improvements from age, are its stimulating properties favourable, and less likely to be injurious.

as a certain enemy; and therefore never taken, except under the prescription of the physician, in order to answer some particular intention.

In directing my consideration to the most proper regimen for persons afflicted with gravel, I may make useful reference to my narrative at p. 455. The patient should be instructed to avoid all those causes which tend in any degree to produce acid fermentation in the stomach and alimentary canal. Thus, *hard* malt liquors, and especially of the stronger kind; cider; perry; spirits in every form; a diet too much vegetable to allow to the powers of the stomach and the general system the natural support which is required; are the causes of injury chiefly to be avoided. The labourer upon whom the disease most frequently falls, must assist his strength with such malt liquor only as is entirely free from acidity; and good porter appears to be the most useful. The affluent patient should confine himself to the moderate use of pure wine; shunning all the kinds which predominate in acid. When medical treatment is required, the use of ass's milk is much to be recommended.

Another point, in particular connexion with the present subject, now presents itself.

In every age of the world, and in every medical writing upon regimen and diet, the qualities of water have been a favourite and just object of consideration. Nature does, indeed, present an astonishing diversity in the composition of her springs derived from the strata through which they flow.

The beautiful and important chemistry which is thus going on in the inmost recesses of the earth, and which furnishes to man both for his uses in health, and for his occasion in sickness, the most salutary beverage, and often the most valuable medicine, is one of the innumerable wonders of the creation, which must raise our admiration and our gratitude to the supreme Author of every good!

The kinds of water which are chosen for our domestic use, are such as are the most grateful to the palate, and are divided into the *hard* and *soft.* This distinction has been deduced from the difficulty or facility, with which the respective kind forms an admixture with soap. If difficult, the inference follows that much saline matter is contained; which, attracting the alkali from the soap, leaves the oil detached and forming flakes or curds with the water. If, on the contrary, an easy *lather,* as it is called, take place, it indicates that the saline matter can be present only in small proportion; and the water, being free from other substances, is then denominated pure. The kind of water denominated hard has always been regarded as unfriendly to health, and as specifically injurious to persons afflicted with gravel and stone. Many probably imagine, that the earthy salts which it contains assist in making up the mass of the calculous concretion. If we view the composition of water according to the general doctrine, it is curious to consider, that the only ingredients which it is found to contain of difficult solu-

bility, are such as are seldom or never found in urinous concretions; namely, the sulphate and the carbonate of lime*. Unless, therefore, they undergo decomposition in the alimentary canal, or in the circulation, this cannot be a mode in which they would become injurious. In the more rational theory, however, of the natural composition of water, as Dr. Murray has with so much originality and useful ingenuity suggested, the arrangement of the constituent elements appears, in the majority of cases, to be wholly different from that which is commonly conceived. According to the views of this chemist, the almost insoluble salts in question, the carbonate and the sulphate of lime, do not actually exist in the proportions which are usually stated, if at all; but on the contrary, their acids arrange themselves with other bases, so as to produce the salts which are soluble; and hence the hardest waters cannot be supposed to possess the unwholesome qualities so freely assigned to them. It is not indeed probable that Nature would present to the hand of man, a fluid, at the same time grateful to his palate, and necessary to his wants, but injurious in its properties to his health.

* Mr. Howship, in his "Practical Observations on the Diseases of the Urinary Organs," gives the following account of a very large renal calculus, which was in structure "compact and earthy, in consistence resembling bird lime, and of a pale yellowish grey colour." "By analysis, Mr. Brande found this matter to consist of carbonate of lime, mingled with an extremely tenacious animal matter. He observed, that it was the first instance he had ever known of the kidney secreting the carbonate of lime."

I disbelieve the general conclusions which are entertained of the hardness of water, as the cause of gravel and stone; and doubt not, that the true and principal explanation will always be found in the patient's unfavourable mode of living as to regimen and diet; and in the use of liquors much less innocent than the water of the district, which so commonly receives the whole reproach.

Notwithstanding these remarks, I do, however, freely admit that a water which is the most free from foreign ingredients, approaching to the state of *distilled*, is the most favourable diluent with our food; the best solvent in the digestive process; and better calculated to counteract indigestion, than a water which is strongly impregnated with the earthy salts, whatever their state of combination may be. In this manner, then, I accommodate my reasoning to the facts which occasionally appear, that persons, who suffer much from gravel, are extremely sensible to the influence of particular waters which they drink; and invariably declare that they suffer inconvenience from the use of those which are hard. If this be true, the explanation, as I conceive, must be founded entirely on the sympathy before explained between the digestive organs and the kidneys; and whence, whatever most conduces to the healthy process of digestion, harmonises with the general feelings of the patient, and promotes every healthy function.

With respect to the use of medicine in the pro-

phylactic treatment of gout, we are to be directed chiefly by the state of the action of the bowels and of the kidneys. Costiveness should always be attentively obviated; and for this purpose, as well as on account of some useful influence it may have in exciting secretion both in the alimentary canal and in the kidneys, I can from experience recommend the pill prepared according to the following formula:

℞ Gum. gambog. gr. j.
Pilul. hydrarg. gr. v.
Pulv. alöes compos. gr. v. ad x.
Saponis duri gr. ij.
Decoct. alöes compos. q. s. fiant pilulæ iii. vel iv.
hora somni sumendæ, alvo astricta, vel pro re nata.

The following is a pill of more simple composition, and adapted to familiar use in a still greater degree; viz. a dose of five or ten grains of the pulvis alöes compositus, half a grain or a grain of pulvis antimonialis, with a grain or two of soap (to obviate the hardness of the pill, when kept in quantity for use), formed into two or three pills with the decoctum alöes compositum. For those who are corpulent, or readily disposed to become plethoric, I should add to the dose half a grain or a grain of gum. gambog. that a greater diuretic effect may be produced.

It was the theory of the humoral pathologists, that in gout, as in several other diseases, the blood should occasionally be subjected to a regu-

lar course of purification, by means of vegetable medicines, consisting of various and opposite qualities, intended to modify each other, so as to harmonise into one general purpose. Thus, Sydenham advised an electuary composed of thirty-one ingredients. He adds to his observations for its use; "But care must be had to make choice of such simples as are most agreeable to the patient's palate, because it must be continued a long time, namely, for the most part of his life." He also recommended a dietetic decoction, consisting chiefly of sarsaparilla, which he desired to be begun immediately on the going off of the fit, and to be continued in the intervals, "during the remainder of life."

The occasional employment of the corrective vegetable diluent, the compound decoction of sarsaparilla of our Pharmacopœia, in conjunction with the alterative use of *Plummer*'s pill, may be useful in that state of stomach which is accompanied with much itching of the skin, and occasional irritable eruption; but either as a daily beverage in the manner here mentioned, or as an important remedy, it does not seem entitled to serious consideration.

Alkaline medicine has been often recommended in the gout upon chemical principles, in reference to the theory of uric acid being the proximate cause of the disease. Dr. Wollaston, in describing the composition of gouty concretions, concludes his

paper* as follows: "The knowledge of this compound may lead to a further trial of the alkalies, which have been observed by Dr. Cullen to be apparently efficacious in preventing the returns of this disease (First Lines, par. 558); and may induce us, when correcting the acidity to which gouty persons are frequently subject, to employ the fixed alkalies, which are either of them capable of dissolving gouty matter, in preference to the earths (termed absorbent) which can have no such beneficial effect."

At p. 461, I have mentioned the grounds on which the use of magnesia has been preferred to the alkalies, as a remedy in *gravel* when the uric acid is supposed to be secreted in excess. The practice has been extended also to the treatment of gout. Mr. Brande, in the paper before quoted (Phil. Trans. 1810), relates the case of a gentleman who had attempted the use of the alkalies with much disagreement to his stomach, and next resorted to magnesia. Having pursued the plan for some time, he was considerably relieved from the appearances of uric acid and mucus in the urine; and the author concludes with stating; "It is also deserving of remark, that there has not been the slightest symptom of gout from the time of the last attack, which is more than a year back; a longer interval of ease than this patient has experienced for the last six years."

* Phil. Trans. 1797, p. 387.

Doubtless, this favourable report of the effects of magnesia has had a very chief influence in encouraging its habitual employment, both among persons subject to gout and gravel.

On the theory of the operation of alkaline medicine upon the excess of uric acid which may prevail in cases of gravel, as we find it stated, I have already very fully offered my sentiments; and it remains that I should briefly discuss the practical question of the prophylactic powers of this class of remedies with respect to the gout.

A gentleman, severely afflicted with gout, informs me, that in the space of two years he took thirteen pounds of subcarbonate of soda, with the hope of successfully preventing the accession of the disease. He was led to the use of this medicine, in part from the urgent feeling of heart-burn and other symptoms of dyspepsia; and in part, from a strong confidence in its prophylactic powers. The result was, that he found a slight palliation of his dyspeptic symptoms; but his fits of gout were scarcely influenced by this treatment, either as to frequency or degree. He has evidently long suffered from an unhealthy state of liver, and is now receiving benefit from the appropriate medical treatment which has lately been adopted.

In case x, at p. 315, I have mentioned the temporary advantage procured by the continued use of magnesia; and I am in possession of a copious list of cases in which gouty persons have given to this medicine a full trial, and with a

zealous confidence in its powers. So long as it has acted as a purgative, it has proved more or less useful to every patient; and many, in the advantage which they have for a time derived, have begun to hail it as a panacea for all their ills. Others have questioned its good effects, from the uncertainty of its operation on the bowels; some have found it both inert and to disagree; and in no case, in which I have investigated its effects, has it appeared to produce any very permanent improvement.

From a watchful observation of this remedy in gout, I have been led to the decided conviction, that its only useful agency has been in its conjoint action as an ant-acid and a purgative; and that in no other way, than by such influence on the stomach and alimentary canal, can I consider that it has any claims to our regard.

It is at the best, therefore, in most cases, only a palliative treatment; and carries with it the serious evil, that the practitioner and the patient may be proceeding with an inefficacious or even hurtful remedy, in a case which is demanding some radical means of medical treatment, and the best regulations of diet and regimen.

The habitual employment of magnesia is further liable to an objection of considerable importance, which has lately been brought to light. In the Journal of Science and the Arts, No. 11, Mr. Everard Brande has related two very striking and instructive cases, in which, the long continued use

of magnesia was productive of a concretion of this earth with the mucus of the bowels, in an immense quantity ; and which, in the case wherein the details are stated, gave rise to many of the worst symptoms attendant on an obstruction of the intestinal canal. They were removed only by active purgatives, which expelled the concreted matter.

In the second case it is stated, that " not only large quantities of a concretion of a similar description were voided, but, upon examination after death, which took place perhaps six months after any magnesia had been taken, a collection, supposed to be from four to six pounds, was found embedded in the head of the colon, which was of course much distended."

Dr. Whytt relates an instance of the remarkable effects of *lime water* in procuring entire exemption from the returns of gout, which before had been frequent and severe*.

The patient took it in large quantity, so that its purgative operation was considerable. It is evident from the narration, that its chief effect depended on its operating in this manner. Sir Gilbert Blane, in making remarks on the effects of the pure fixed alkalies and of lime water, in several complaints, states, in reference to the *gout*, " that in some cases they seemed to protract the intervals of this disease, while in others my expectations

* Edinburgh Med. and Phys. Ess. vol. iii. p. 459.

were entirely disappointed." The occasional use of soda water, to an extent that does not produce uneasy distention of the stomach, will be attended with good effects to the gouty, as well as to any other dyspeptic invalid.

In final conclusion of this part of my subject, I have to state, that in my own experience, I prefer in the class of alkaline medicines, magnesia either pure or carbonated, and the neutral carbonates of soda or ammonia; but in the use of the former medicine, I never prescribe it as a separate remedy; and most commonly direct either of the latter articles as one only among other ingredients. Also I join with any of these substances which I may employ, the use of some purgative and alterative medicines, on which I can place a certain dependance; regarding the alkaline agents as useful chiefly from their neutralising power, and in that manner as being auxiliary to the plan of cure.

With a view to the prevention of a plethoric state of the vessels, and of the consequent introduction of a paroxysm, some have resorted to general bleeding at particular seasons. I have met with instances in which the taking away blood for another disorder, in a gouty person, has received the credit, and perhaps deservedly, of remarkably postponing the subsequent attacks. It should be considered, however, that what is good as a remedy is bad as a habit. The prevention of excess of blood, by suitable abstinence and exercise, is the

only legitimate method of counteracting the plethoric state. On the idea of lessening the quantity of circulating blood in some degree, and of establishing a drain for supposed morbific matter, issues have had their advocates. This treatment appears much too local to act upon the constitution for the prevention of gout. It is a positive and disagreeable inconvenience; and without a clear indication for its employment, and with different views from those which I have now stated, may justly be superseded by other and less objectionable means.

Upon principles of practice founded on the doctrine of debility, *tonics* have been often employed as a remedy for the prevention of gout.

Of the *Portland powder*, once a favourite, but now an obsolete remedy, little need be said, except in reference to some general reasoning which it suggests. Its composition * resembled the annalia medicamina of Cælius Aurelianus, and other gout antidotes of the ancients. Dr. Heberden spoke of its effects with some approbation. Dr. Cadogan censured it severely; remarking, that "he had observed between fifty and sixty of its advocates, some his patients, some his acquaintance

* For an interesting essay on the subject, see "An Inquiry into the Origin of the Gout Powder." By John Clephane, M.D. Med. Obs. and Inqu. vol. i.

or neighbours, who were apparently cured by it for a little while; but in less than six years time, *omnes ad internecionem cæsi*, they all died to a man*." A stimulant bitter, as this was, taken for many months in succession in daily doses, would have the effect of exciting the appetite beyond the powers of digestion and healthy assimilation; and hence it might indirectly lead to occasional apoplexy, which it was accused of doing. In the employment of tonics during the interval of gouty paroxysms with a view to prevention, we should bear in mind, that the gouty require correction rather than excitement of the digestive organs: and this is to be effected by a regulation of the secretions, and of the action of the bowels, by means of occasional medicine; and by attentive regimen.

I have already spoken of chalybeate tonics under circumstances of debility; but I am not disposed to admit of their propriety as *prophylactic* in the time of health. A chalybeate water, so useful to the constitution in many instances, is seldom admissible in the gouty habit; in which the vessels are easily stimulated to unhealthy action: and indeed I am well acquainted with some instances, in which, this agreeable remedy, resorted to by the patient on the general principles of giving strength to the constitution, has in a short time brought on a gouty attack.

* Cadogan on the Gout, &c. p. 79.

Upon a review of the whole of the present subject, we arrive at the conclusion, that the prevention of gout consists rather in doing little, than much, by the employment of medicine; unless, from the faulty state of the constitution, the use of medicine be really required: and that, in the same way as in regard to all other diseases, the cardinal rules of preserving health are founded on temperance and exercise; on the choice of all those means which are found by the individual to invigorate the system; and the shunning of whatever injures and enfeebles it.

THE EXPERIMENTS ON DIGESTION,

Referred to at page 488.

By the obliging friendship of Mr. Astley Cooper, I am enabled to offer his statement of a series of experiments which he performed upon dogs, with a view to ascertain the comparative solvent power of the gastric juice upon different articles of food, and to derive any useful conclusions which they might afford, for the dietetic management of the human stomach, when in a weak state of digestive power. These experiments were related in the lectures which Mr. Cooper delivered at the Royal College of Surgeons, three years ago; but they have been published only in this Treatise.

In the conducting of these experiments, every practicable uniformity of method was observed. The substances were cut to a determinate form, and weighed. They were then forced into the animal's throat. A given time having elapsed, the dog was killed; and the substances, not yet dissolved by the action of the gastric juice, being again weighed, their loss, and consequently their degree of *digestibility* as food, under the healthy action of the stomach of the dog*, was estimated. Raw food, and the lean parts only of meat, were given, except when the contrary is expressed.

EXPERIMENT I.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Pork	long and narrow	100 parts	1 hour	10
Mutton	———	———	——	9
Veal	———	———	——	4
Beef	———	———	——	0

EXPERIMENT II.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Mutton	long and narrow	100 parts	2 hours	46
Beef	———	———	——	34
Veal	———	———	——	31
Pork	———	———	——	20

* Approaching nearly in structure to the stomach of the human subject.

EXPERIMENT III.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Pork	long and narrow	100 parts	3 hours	98
Mutton	———	———	———	87
Beef	———	———	———	37
Veal	———	———	———	46

EXPERIMENT IV.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Pork	long and narrow	100 parts	4 hours	100
Mutton	———	———	———	94
Beef	———	———	———	75
Veal	———	———	———	69

It is probable that the digestion of the dog with regard to pork, differs from that of the human subject; as, when the human stomach is at all weakened, the order of digestion in these meats appears to be,

1 Mutton 3 Veal
2 Beef 4 Pork

Something also may be attributed to the absence of *fat* in the above experiments; and more especially the fat of pork.

EXPERIMENT V.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Cheese	square	100 parts	4 hours	76
Mutton	———	———	———	65
Pork	———	———	———	36
Veal	———	———	———	15
Beef	———	———	———	11

EXPERIMENT VI.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Beef	long and narrow	100 parts	2 hours	0
Rabbit	———	———	——	0
Cod fish	———	———	——	74

Hence it apppears that fish is easily digested*.

EXPERIMENT VII.

Kind of food.	Form.	Quantity.	Loss by digestion.
Cheese	long and narrow	100 parts	29
Fat	———	———	70

EXPERIMENT VIII.

To the same dog, beef and a portion of raw potatoe were given, of each, 100 parts.

	Loss by digestion.
Beef - -	100
Potatoe - -	43

The skin in contact with the potatoe was not acted upon. Under the skin the potatoe was dissolved, but the gastric juice had not reached its centre. Where the skin was separated, it was dissolved.

* In the Edinburgh Medical and Surgical Journal, No. XLIX, the Reviewer (by whose flattering approbation of my Treatise, I cannot otherwise than be much gratified) observes, in commenting on these experiments, that "it may admit of a question, whether quick solution in the stomach be a proof of *easy* digestion." This objection is ingenious, but I conceive not valid; and I am disposed to contend, that, *cæteris paribus*, we are entitled to the inference, that solid articles of food are digestible in the stomach in proportion to their degree of ready solubility. It is true that these experiments relate only to the digestive powers of the dog, and of that animal in health; but they are nevertheless instructive.

In the dog, according to the following experiments, roast veal is more difficult of digestion than boiled.

EXPERIMENT IX.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Roast veal	long and narrow	100 parts	——	7
Boiled ditto	——	——	——	30

EXPERIMENT X.

Kind of food.	Form.	Quantity.	Animal killed.	Loss by digestion.
Roast veal	long and narrow	100 parts	——	2
Boiled ditto	——	——	——	31

The following materials were next the subject of trial.

EXPERIMENT XI.

Material.	Quantity.	Animal killed.	Loss by digestion.
Muscle	100 parts.	4 hours	36
Skin	——	——	22
Cartilage	——	——	21
Tendon	——	——	6
Bone	——	——	5
Fat	——	——	100

The appearances produced were these:—In the muscle, a separation of the fibres by gradual solution of the connecting media first took place; and afterwards, the fibres themselves became broken down into very minute portions.

The skin, upon its under surface, was broken down; but upon its upper surface was not altered.

The cartilage was apparently worm eaten.

The tendon was reduced to a pulpy gelatinous substance.

Further experiment on the digestion of bone.

EXPERIMENT XII.

		Animal killed.	Loss by digestion.
Thigh bone	100 parts	3 hours	8
Ditto	———	6½ hours	30
Scapula	———	6 hours	100

In the human subject the stomach is capable of acting upon bone, of which fact, the following case is an example.

On Monday the 28th of March, a little girl, nearly four years of age, accidentally swallowed a *domino*, which passed the bowels in rather more than three days. The medical attendant (Mr. Maiden, of Stratford) observing that it was much smaller in size than the other dominos of which it had been one in the set, was induced to weigh it, and found that its weight was only 34 gr. while that of the others was 56 gr.; so that it had lost by digestion 22 gr. The surfaces of the domino, which, when swallowed, were hollow and blackened as usual, were found prominent like little buttons.

ON

RHEUMATISM.

PREVIOUSLY to the short Treatise which I am about to offer on the present important and interesting subject, I must beg the indulgent attention of my readers to a few explanatory observations.

In the concluding part of my preface to the first edition of this work, I professedly attempted to give a general outline only of the nature and cure of Rheumatism; and reserved the practical consideration of the chronic species of the disease, "entirely as matter for a future volume." Less than a year having elapsed, when the favourable reception of my book demanded another edition, I reflected that I should discharge my duty better to the public, and, as I conceive, also more effectually sustain the little credit which I had already acquired, by applying myself diligently to improve and enlarge my first volume, rather than to hurry to the press, prematurely, a *second*, which I could not, under such limits of time, have the opportunity to execute in any degree to my own satisfaction.

Such, therefore, is my apology for the brevity with which I am still to handle my Treatise on Rheumatism; but I may be allowed to add, that it

will be my continued study to improve my practical opportunities to the purposes of the closet, in the best manner that my humble abilities permit; and it will be my hope and my ambition to offer on some future occasion, a more extended Treatise upon Rheumatism, so as to fill up many of the empty spaces of my design, which the present performance will leave.

Of the general application of the term *Arthritis*, which was in use with the ancients to express every kind of disease affecting the joints, I have before made mention; and at the same time that this want of nosological distinction forbids any precise confidence in their practical authority on the subjects of gout and rheumatism, it proves the slow advances of medical science. The confounding together of gout and rheumatism, as one disease, demonstrates to my mind a remarkable inaccuracy of observation; for although they produce occasionally some local symptoms in common, we see that in a genuine example of each disease, both constitutionally and locally, the most obvious difference of characters is presented. Sydenham himself observes of rheumatism, "This disease, when unattended with fever, is frequently mistaken for the gout, although it differs essentially therefrom, as will easily appear to those who are thoroughly acquainted with both diseases; and hence it is, perhaps, that physical authors have not mentioned it; unless indeed we esteem it a new disease." Ballonius in a treatise "De Rheumatismo et Pleuritide

dorsali*," appears to have had the merit of first treating of rheumatism as a separate disease. He relates that it had previously been confounded with catarrhus and arthritis. He bestowed upon it the name of rheumatismus, deriving its etymology and expression from ῥευμα, a defluxion; and still preserving a full belief in the doctrines of the humoral pathology, as the following account will shew.

He considered the pain of rheumatism to be produced by the acrimonious qualities of the impure blood, passing off to the skin through the muscles and nerves as a *depuratory* process. Gout, he remarks, is a disease of a certain part, and periodical; rheumatism, of the whole body, and uncertain in its time of coming. He thought, however, that without much care in the habits of life, rheumatism would certainly lead to the gout. Attributing the disease to a corrupted state of the blood, he considered venesection as the only fit method of evacuation according to the usual principles of humoral practice, which require the offending humour to be evacuated by its appropriate and respective channel. He affirmed that all medicines taken by the mouth were hurtful, and served to increase both the pain and inflammation.

Dr. Cullen has defined rheumatism according to the following translation:—*A disease from an external and often an evident cause; pyrexia;*

* Paris, 1642.

pain about the joints following the course of the muscles, fixing upon the knees and larger joints in preference to those of the feet or hands, increased by external heat. He next establishes the division into two species, the *acute* and *chronic;* the presence of pyrexia serving to mark the former state of the disease; and its absence, the latter. I shall speak of these forms, both jointly and separately.

SEAT OF RHEUMATISM.

In defining the seat of rheumatism, a less general mode of description than that adopted by Dr. Cullen appears to me required.

The fibrous textures of the body may be stated as the true seat of rheumatism; and most commonly the tendinous structure is the part affected*. The general expression, "of the joints," is very indefinite. It comprises some parts of structure, which may fairly be questioned as being the legitimate seat of this disease; for example, capsular ligament, and cartilage. It is probable that these parts become more frequently affected with in-

* In the review of my observations, with which I was honoured in the Annals of Medicine and Surgery, Sept. 1816, I find an interesting quotation from a Thesis upon Inflammation, which is stated to have been published by Dr. Elliotson, some years ago. In this I have the pleasure to see a remarkable coincidence with my own opinions, as to the usual seat of rheumatism.

flammation in persons who are subject to rheumatism; but it appears to me a more fixed and deep-seated affection, than constitutes the peculiar character of rheumatic action. The ligaments which are most susceptible to rheumatism, are rather those which are subservient to the joint, as accessary, than as immediate connexions; and those which belong to muscles and tendons. The ligaments of the vertebræ, which are most external, are sometimes affected, and occasionally in a separate and distinct manner. The sheaths of tendons, the aponeuroses or fasciæ (tendons expanded on a wide surface), and the bursæ mucosæ, are parts of structure much more commonly affected than ligament. Whether or not, in a muscle, each constituent part be primarily affected with this inflammation; or, whether it be confined to the tendinous portions, is a question not easy to be determined. The latter conclusion seems the most probable. The pain, which in some states of rheumatism is felt only upon the action of a muscle, may be explained on the presumption that it is propagated from the tendinous insertions along the course of the fibres; or, that the aponeurosis being affected, it is put upon the stretch, and causes the pain and tenderness which are felt upon motion; giving to the patient's sensations the idea that the fleshy part of the muscle is the seat of complaint.

Dr. Carmichael Smith, in his useful and very

original paper* on inflammation, defines the acute rheumatism, "an inflammation of the muscular fibres." This is evidently too limited a view of the subject, if not erroneous. From frequent careful examination, by pressure, of the whole course of a muscle, when its functions have been affected by severe rheumatism, the inference has in general clearly presented itself to me, that the internal fibrous structure has not been the seat of complaint. In reference also to the fugitive character of rheumatic inflammation, the immediate subsequent recovery of muscular action, and the permanent nature of the symptoms which appears to mark a diseased state of the fibres of a muscle, in such distinct cases as have come under my observation, I am principally led to the conclusion, that any inflammatory process from rheumatism, which may occasionally take place in the muscular fibre, is a remote consequence only, and not a primary character of the disease. If the muscular fibres were really the common seat of inflammation in rheumatism, there would surely be the attendant phenomena of swelling and tenderness in the substance of the muscle, much more distinctly than we find to take place; and might we not expect, as a common consequence, more or less of thickening of the fibres, in correspondence with the effects

* Of the different kinds or species of inflammation, and of the causes to which these differences may be ascribed.—*Medical Communications*, vol. ii.

of increased determination of the blood, which are invariably manifested in other parts? The reverse of this very commonly happens in rheumatism with respect to the muscles; but we may always discover an increase of bulk in the tendinous and bursal structure.

When the muscles remain permanently weak after a rheumatic attack, and often waste in size, the phenomena admit of sufficient explanation from the morbid and impaired state of the associated tendinous and bursal structure, and the consequent disuse of the muscles.

It would seem, from the soreness which the patient sometimes describes as if fixed in the bone itself, that the *periosteum* is occasionally the seat of rheumatism.

The nerves themselves, we know, are sometimes separately affected. Of this form of the disease, the *ischias nervosa*, as it has been called, is the clearest example. To determine whether the filaments of the nerve itself, or whether its covering texture, is the primary and legitimate seat of the disease, is a problem of some difficulty; but the former conclusion appears the most probable. I am strengthened in this opinion, from considering the sudden and *electrical*-like shootings of pain, which, I know from my own experience, often affect the branches of nerves when under rheumatism*, even in the incipient state of the complaint.

* In respect to my present observations on the textures which

Serous membranes are liable to disordered action as a consequence of rheumatic inflammation affecting the contiguous fibrous texture. As a rare occurrence, the dura mater appears to become the seat of inflammation under acute rheumatism, and its contiguous serous membrane, the tunica arachnoides, becomes excited to increased action. I remember an instance of this kind, in which the symptoms were those of effusion, and the event was quickly fatal. It was under circumstances of previous quick transference of the inflammation of the limbs from one part to another; but the inflammation of the limbs did not cease with this new action of the brain. The patient was a young lady of delicate constitution, aged fifteen.

The pericardium also sometimes becomes the seat of similar morbid action, which I conceive is secondary, and induced by the inflammation which is affecting some part of the tendinous structure of the heart. Happily such an occurrence is very rare in acute rheumatism. I have seen one very clear example of this occurrence, in a man aged twenty-four. In this case, also, the inflammation in the limbs had been quickly wandering, but did not become suspended by the internal affection. After many distressing symptoms, which had the duration of about four-

may be the seat of rheumatism, it must be allowed as an apology for the conjectural manner in which I have treated the subject, that opportunities of ascertaining the morbid anatomy of the disease cannot easily be obtained.

teen days, the patient died. On dissection, recent layers of coagulated lymph were found lining the greater part of the pericardium, and also appeared partially on the surface of the heart. The pericardium was thickened, and contained ℥x of muddy serum*.

The diaphragm is occasionally affected in acute rheumatism, and is a severe modification of the disease. It appears to occur in proportion to the acuteness and violence of the attack, united with its disposition of quick transference from one situation to another.

THE SYMPTOMS.

Rheumatism, in its acute form, is distinguished by a great uniformity of symptoms. As attendant upon an inflammatory attack, and constituting what is commonly denominated the rheumatic fever, they are those which usher in the phlegmasiæ in general; and the most remarkable I shall now enumerate.

* This case is to be distinguished from the more chronic disease of the heart itself, which has been described, and illustrated with many interesting examples, by Sir David Dundas, in the first volume of the Medical and Chirurgical Transactions. In all these cases, the disease is represented as having succeeded one or more attacks of rheumatic fever. Of seven cases which proved fatal, six were inspected; and in all, the heart was uniformly found to be enlarged. I should rather be disposed to consider the general rheumatism of the constitution to be a predisposing cause of this disease of the heart, than to pronounce it rheumatism of the organ.

The attack is first announced by cold chills, succeed by flushings of the face and partial heats; a sudden repugnance to food; general lassitude; and depression of spirits. There is more or less of universal soreness and aching of the body; and the local evidences, which characterise the nature of the disease, appear in the course of twenty-four hours, more or less unequivocally marked. At first the lower limbs are usually chosen by the disease as the situation of the attack; and in general, the ankles and the knees become at once, or in very quick succession, affected. Upon examination of the limbs, we find, at the immediate onset of the attack, what is commonly called a swollen state of the parts. But this description is too indefinite. The increase of bulk does not as in gout, and as in common inflammation, arise from sudden increased effusion into the cellular membrane; but from an inflammatory distension of the bursæ mucosæ, and of the sheaths of the tendons. Soon, in most situations, the blood becomes more determined to the surface, and a vivid redness of skin, arising from the presence of arterial blood in the extreme capillary vessels, appears. Sometimes, however, the redness appears only in very small patches; or, is even altogether absent. This last circumstance is most to be observed when the bursal structure is alone affected. The patient is fixed almost immoveably by pain. Except in cases of the utmost urgency, he feels occasional ease when he is perfectly at rest, and a sense of heat and aching

in the parts, rather than of severe pain ; but on those attempts to move, which an excessive state of restlessness makes involuntary, or which may be required, such agony is produced in the effort from the propagation of pain along the whole course of the muscles, that the intense sufferings of the disease are at once pourtrayed.

A sympathetic fever of the inflammatory type quickly becomes established, and is indicated by a full and quickened pulse ; a burning heat of skin ; a fur upon the tongue, at first white, but which quickly becomes a thick and brownish coat ; excessive thirst ; a costive state of the bowels ; a scanty secretion of urine, which is rendered very deep in colour, and cloudy without a distinct sediment. With these symptoms, also pain of the head, and a ready tendency to delirium, appear.

It is the very character of rheumatic inflammation quickly to change its seat, and the abatement of inflammation and pain in one part does but prepare the way to the same symptoms in some new situation. This transference or alternation sometimes takes place with surprising rapidity. The smaller toes and fingers are the parts the least liable to this inflammation ; but in a severe attack, scarcely any part of the tendinous and ligamentous structure is spared. The upper limbs become next affected ; although I should add, the order of attack is chiefly to be referred to the particular manner of exposure which the body has accidentally received.

The pain produced by acute rheumatism is

described as that, which, it is conceived, would arise from the gnawing of the part by a dog. A sense of burning heat, some throbbing, and pricking and shooting, are also felt; and if the diaphragm, or the tendinous portions of the intercostal muscles, or of any of the muscles of the chest, be affected, spasms of severe intensity also take place.

Irregular pyrexia is joined with irregular perspirations, which take place as an apparent effort of Nature to give relief. These discharges from the skin are seldom productive of advantage, and very commonly serve only to increase debility. The anxious physiognomy of a patient under a fit of rheumatism marks the severity of the disease; and, together with this language of the features, there may be observed a peculiar relaxation of the skin of the face, which is pale and flushed alternately, and for the most part bedewed with a greasy kind of moisture. In the same manner as in the gout, the pain is often alleviated in proportion as the inflammation appears external with redness on the surface. The most intense state of suffering is in the affection of the deep-seated parts, and before the blood is propelled into the cutaneous vessels.

The duration of an attack depends chiefly on the medical management which is adopted; according to which also, chiefly, it is favourably removed, or degenerates into the chronic form. Its critical termination is very commonly accom-

panied by a deposition of the lateritious sediment in the urine; or by a gentle diarrhœa; or by a general moderate perspiration.—These indications, and actions of crisis, also happen either separately or in conjunction.

SEQUELÆ.

The sequelæ, or occasional consequences of acute rheumatism, are most remarkably seen in a permanent change of structure and function in the textures which have been affected with active inflammation, and are left in the state of chronic rheumatism. The bursæ mucosæ and the sheaths of the tendons are in this case the most common seats of complaint, appearing distended and much thickened, in the manner which has been before mentioned (p. 45) as consequential also to gouty inflammation.

It sometimes happens that a very troublesome disease of the bursæ remains, proving of difficult treatment. The appearance is chiefly that of exceeding distension, so that it seems like a bag of fluid. It is occasionally tender and painful, sometimes also joined with slight redness of skin, but for the most part does not give sensible distress to the patient, except upon the attempts of motion, or ordinary exertion of the parts.

Of inflammation of the pericardium, and of the dura mater, as occasional occurrences in acute rheumatism, I have already spoken.

The debility which ensues after a long course of acute rheumatism, occasionally introduces some other constitutional disease, according to the particular tendency of the individual. Thus, consumption may follow; chorea sancti viti; intermittent fever; &c. The consequences which I now mention, I have myself witnessed.

PREDISPOSING CAUSES.

The existence of *hereditary structure* may be assumed as an occasional predisposing cause of rheumatism; but it is obvious that the inference can be drawn only from general reasoning, and not from demonstration. We certainly see instances in which the disposition to rheumatism is strongly prevalent in the same family. Although a similarity of habits in regard to clothing, temperature of apartments, exposure, &c. may very reasonably be viewed as the chief source of the agreement in question, we should not, I conceive, exclude similarity of structure from its share in the explanation of the fact.

Age, bodily structure, &c. The early years of infancy are exempted both from the acute and chronic rheumatism, and old age from the acute; but from ten years of age to fifty, it appears that persons of all structure, temperament, and habits, become almost indiscriminately affected. A period

earlier than the twelfth year, or later than the fiftieth, although not exempted from acute rheumatism, rarely affords examples of it. From each form of the disease, very fat persons are the most protected; and vice versa, thin persons, and such as have a delicate thin skin, are to each the most liable. After the age of fifty, rheumatism most commonly appears in its chronic form.

Dr. Cullen has stated that persons of the sanguineous temperament are the most disposed to acute rheumatism, and of the propriety of this opinion I am well convinced; but nevertheless, the observation just now mentioned as a general position, is founded in truth.

Whatever causes induce debility, either general or partial, in the tendinous, ligamentous, or nervous structure, become predisposing to chronic rheumatism. Thus, a continued fever, in the general weakness which it produces, is sometimes an introductory source: and to this may be added the relaxation of the system and of the surface of the body, occasioned by the free employment of mercury. A strain or contusion occasionally lays the foundation of partial rheumatism, either in the acute or chronic form, but most commonly the latter.

An unhealthy state of the digestive functions deranging the nervous system, and producing irritation and debility, becomes the ground-work on which the disease sometimes establishes itself.

Either sex is indiscriminately liable to rheumatism; but in an extensive comparison, it has appeared to me, that men constitute the largest proportion; and, as it would seem, on account of their being most exposed to wet and cold.

The *season of year* is a predisposing cause, more or less active according to the degree of moisture and variable temperature which is prevailing. Authors have all concurred in fixing upon autumn as the most frequent season of rheumatism; for then, the apparel of summer is still worn rather carelessly, or with doubt as to the change required; and the weather of summer and winter constantly intermixes. In connexion with this remote cause, it is manifest, that habits of effeminacy very powerfully predispose the body to rheumatism. Warm apartments, and great warmth of clothing both by day and night, come under this head.

Excess, or irregularity in diet, is not to be accused as a remote cause, otherwise than in this general manner;—that if the individual have a constitutional tendency to rheumatism, it will be brought into action by a disturbance of the digestive functions; a diseased irritability of the system being thus induced.

Excessive perspiration, however produced, disposing the body to the injurious influence of ex-

posure to a damp and cold atmosphere, may be added as a very active predisposing cause.

EXCITING CAUSE.

The influence of *variable temperature*, either generally or partially applied; and either through the medium of wet, of cold air alone, or of both conjoined, appears to me the only *exciting* cause of rheumatism. In proportion to the previous debility of the body wholly, or of particular textures in part, will its effect be produced. In every climate the disease is found; but it occurs chiefly according to the degree of effeminacy in the customs of the inhabitants, and the variableness of temperature which prevails.

PROXIMATE CAUSE.

An inquiry concerning the predisposition to rheumatism which exists in the constitution of some individuals, rather than to any other disease, involves the intricate question of proximate cause. Upon this point I shall be contented to say a few words. In reference to any of the phlegmasiæ, it may reasonably be assumed, that the particular texture, or part of texture, which becomes the seat of disease, under a general and common cause of injury, such as cold, is less strong in its organisa-

tion, and, consequently, less equal to maintain healthy functions than other parts. In this local difference of powers, the predisposition to one or another of the phlegmasiæ may be stated to exist. In the most healthy person we cannot suppose that each separate texture is equally strong with the rest; for however this might be supposed to be the case at birth, the various circumstances to which we are exposed, both of a partial and general nature, will forbid its continuance. The sensible difference of structure in a part possessing strength sufficient for the performance of healthy functions, and in one that falls short of this condition, cannot be demonstrated *à priori*. Even in parts which have been deranged in function, the evidence does not always appear to us in the inspection of structure after death; and yet the general conclusion in question is not the less to be derived. We constantly see, in the ill consequences of exposure to wet and cold, that the weakest part of the body, unless it should have been protected by provident attention, is the most visited by the disease which follows.

It appears to me that rheumatism in its *primary* character is rather a local than a constitutional disease. The fact, that some persons are constitutionally predisposed to it, is not at variance with the present position. The internal functions of the body are not necessarily first affected. The pyrexia which arises, as connected with the inflammation of the affected textures, is truly sympa-

thetic. I would say that it is a disease of certain textures not demanding a specific state of constitution. The invasion of the disease has not, apparently, like gout, any necessary and essential dependance on the previous condition of the chylopoetic viscera, or on the healthy equal balance of the circulation. The predisposition which may exist in any individual is certainly increased by a derangement of digestive functions; or by any other error of constitution. It is in consequence of being involved with various states of constitution, that rheumatism is to be considered as a constitutional disease, rather than on account of its own legitimate and original character. In a true comprehensive pathology, no disease can be pronounced so local as to be entirely independant of the constitution. It is only in a dead machine, that a part of the structure may be injured without affecting the use and convenience of the whole. The intimate connexion which all local diseases possess with the constitution, is an important part of pathology, and has been ably illustrated by Mr. Abernethy. It will be seen that it is in the analytical view of the subject only, that I consider rheumatism, in its primary character, a local disease. In gout, the affection of the constitution is the antecedent, and that of the external parts is the consequence;—and this is the essential part of the pathology of gout: but in rheumatism, this order of the disease is reversed; as relates to the irritation and derangement which belong to the constitution.

The influence which is again reflected to the affected parts from the constitution, according to the particular condition in which it may be, is equally seen in inflammation produced by mechanical injury, as in rheumatism.

Rheumatism, like gout, affects those textures which are scarcely susceptible of the suppurative process from inflammation ; but when the diseased textures are of the synovial kind, as the sheaths of tendons and the bursæ mucosæ, an increased secretion is produced, which, together with the preternatural fulness of the surrounding blood vessels, causes more or less of distension and swelling. Whether the inflammation of rheumatism be truly common inflammation, but differing in the symptoms which arise, both on account of the nature of the textures which it affects, and the general mode of operation in the agent, *cold*, in some way applied, producing the disease ; or whether it be one distinctly *sui generis ;* is a question which may be thought to admit of some argument. The remarkable manner in which rheumatic inflammation quickly transfers itself from one part to another, is an obvious ground of distinction from the phenomena of inflammation of similar textures, produced by mechanical injury.

From a careful review of the whole subject, I am therefore induced to define rheumatism, *A peculiar species of inflammation, affecting parts which have a fibrous texture, and most frequently the synovial membranes ; producing much sympathetic*

irritation in the constitution, and fever of the inflammatory type.

RATIO SYMPTOMATUM.

The explanation of the peculiar phenomena of rheumatic inflammation is chiefly derived from the nature of the textures which it affects; and any difference of external characters, which it assumes in its different modifications of occurrence, is to be traced chiefly to the particular texture affected by the disease. The locomotive organisation of the body comprehends so many distinct parts which are exercising similar kinds of function, that under the general inflammatory diathesis of the system, one part will scarcely be affected by rheumatism without other parts participating. Hence the shifting and continuous nature of acute rheumatism; its spreading suddenly from one texture to another in the same limb; or transferring itself with equal rapidity to another part of the body; observing usually the general law of affecting some branch of the muscular or articular structure. This propagation of pain and inflammation is found to take place most remarkably in tendinous parts; and in the ligamentous texture next in degree.

The most fixed locality of symptoms appears in the bursæ. This order of the phenomena also prevails in chronic rheumatism; with the exception, that in this latter species of the disease, some

distinct nerve, or branches of nerves, are frequently the part affected.

DIAGNOSIS.

The discrimination of rheumatism from gout has already been pointed out at length; and as this part of the subject relates to *acute* rheumatism, it appears to me all that need be stated.

OF THE TREATMENT.

I shall take a cursory view of the principal remedies which are in use, in the treatment of acute rheumatism.

General bleeding is a remedy of great importance in this disease, but requiring very careful management. A degeneracy into chronic symptoms is in no way so readily introduced as by an intemperate employment of the lancet. If the diaphragm or intercostal muscles be affected in the course of the disease, so that the respiration is performed with extreme difficulty and pain; or if any internal viscus be seized with inflammation, while the system is under the influence of acute rheumatism; a prompt detraction of blood is indispensable: and its repetition also will be suggested by the usual principles of practice. If one of strong muscular fibre and of sanguineous temperament be

seized with acute rheumatism in full health, bleeding at the commencement of the attack is a measure of the utmost necessity and value; and the propriety of its repetition will be clearly indicated, both by the good effects which it may have produced, and by the urgency of the subsequent symptoms. When its employment is proper, its controul over the violence of the disease is more immediate and effectual, than that of any other remedy. It should be exercised with great circumspection in persons of languid constitution, in whom the circulation is excited rather by pain and general irritation, than by the true inflammatory diathesis.

Sydenham, in his first Essay upon Rheumatism, advocates the propriety of bleeding as the chief remedy which should be employed in the cure. He advised it on the grounds of believing the disease to be inflammatory, "as indicated by the resemblance of the blood which is taken away in pleurisy;" and from his fondness for the humoral doctrines. He speaks of febrile and morbific matter derived to the limbs and causing the symptoms. In a subsequent short treatise "of the epidemic diseases, from the year 1675 to 1680," he regrets the practice of taking away blood so freely as he had before recommended; and in a case in which he made a comparison of his modes of treatment, concludes with stating his change of opinion, according to the following translation:

"I ordered the patient to live upon whey only for four days, after which I allowed him white

bread, besides the whey, for his common food, namely, once a day, instead of a dinner, till he was recovered. Contented with this slender diet, he persisted in it eighteen days; only towards the latter end I permitted him to eat white bread also at supper. He drank a gallon of whey every day, which afforded him sufficient nourishment. At the end of this term, when the symptoms were gone off, and he got abroad, I allowed him to eat flesh, as boiled chicken and other food of easy digestion; but every third day he lived upon whey, only, till at length he recovered; and by this method escaped the inconveniences I mentioned above, which had been very troublesome ten years before, when frequently repeated bleeding was used by my order for his cure." On a subsequent occasion, however, Sydenham still appears to shew his partiality to the practice of bleeding.

Sir John Pringle, in his account of the diseases of the army in several campaigns, represents the frequency of acute rheumatism, and his successful treatment by repeated bleedings. He says, "that when the rheumatism was attended with an inflammatory swelling of the joints, sweating was improper, and the cure was only to be obtained by repeated and almost daily bleedings, till the patient was without fever, and the pains were either entirely removed, or became easier. And in this course we may proceed the more boldly, as those that are subject to the distemper are generally in the vigour of life, and are either plethoric, or at

least able to bear great evacuations. Add, that frequent bleedings weaken the body perhaps less in this disease than in any other*."

Dr. Cullen considered blood-letting "to be the chief remedy of acute rheumatism (par. 463)." He remarks, "The blood ought to be drawn in large quantity, and the bleeding is to be repeated in proportion to the frequency, fulness, and hardness of the pulse, and to the violence of the pain. For the most part, large and repeated bleedings during the first days of the disease, seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set, for very profuse bleedings occasion a slow recovery; and if not absolutely effectual, are ready to produce a chronic rheumatism."

Even Dr. Haygarth, who wrote on the subject of rheumatism, as he states, "for the principal purpose of recommending the Peruvian bark in preference to all other remedies," mentions bleeding as one of the evacuating remedies occasionally necessary to be premised.

The best practical authorities therefore, we see, have sanctioned the use of general bleeding in this disease; but we observe at the same time the doubts which they have thrown on the practice, as forming a general principle of treatment.

I have already concisely stated my own view of

* See page 182.

the question; and shall conclude with expressing, that if the case require this remedy, it is very important to use it early in the disease; and that even under very urgent symptoms, unless indeed affecting some internal parts of structure, we should scrupulously hesitate in its repetition, whenever we see that relief is not in any degree afforded by the first copious depletion.

Emetics.—Dr. Haygarth states, that it was his usual practice in acute rheumatism, as a preliminary to the use of the bark, "to give either the antimonial powder or tartarised antimony, generally the former, till the stomach and bowels are sufficiently cleansed." Emetics administered at the commencement of the attack are useful on the same principle, that in the first formation of a febrile disease of every description, the action of vomiting, by its influence on the circulating system, and by the complete relaxation of the skin which it produces, moderates the force of the symptoms which are forming; and it further renders material service as an evacuant. If the patient be seized in consequence of exposure, shortly after some convivial occasion, on which he has indulged in improper diet, the present remedy should not, on any account, be neglected. The use of an emetic, if at all employed, should obviously, for the reasons I have stated, be the first remedy of our choice, when bleeding is not required; and otherwise, the second.

Cathartics.—The advantage of making a detraction from the general circulation, by the channel of the alimentary canal, is no less remarkable in rheumatism, than in every other inflammatory disease. In proportion as we pursue this practice upon a continued principle from day to day, do we obtain its good effects in acute rheumatism: the circulation becomes moderated; the inflammatory diathesis subdued; and the aborbent system is excited to increased action. Hence, we powerfully promote the removal of those excessive secretions of the synovial membranes, which have been already described as causing the distension and impeding the motion of the affected parts. A saline purgative, administered in small doses, and at repeated intervals, is the most advantageous. The action of the kidneys becomes excited, and the cure by this means assisted. Calomel in occasional doses, for the purpose of purgative operation, is unquestionably a valuable remedy in the acute rheumatism; but if employed with such frequency as to produce mercurial fever, its effects appear to me always sooner or later injurious. In very numerous instances in which I have witnessed the result of a combination of calomel, antimony, and opium, when given in repeated doses at short intervals, however favourable its operation at the time of its employment may have been, it has appeared to increase the susceptibility of the patient to relapse.

To fulfil the views just stated, we may choose, according to circumstances, the use of a saline

purgative in conjunction with our sedative, at short and regular intervals; or, having prescribed calomel and the antimonial powder, with or without the colocynth extract, at bed time, we may administer a liquid purgative in the morning early, and equally observe due and regular intervals in the use of our other medicines both by day and night.

Sudorifics.—The sudorific plan of treatment not unfrequently disappoints our expectations, so as to aggravate rather than relieve the symptoms. Even when most successful, it is attended with the ill effects of producing much debility, and increasing the sensibility of the surface; so that, for a considerable time, almost any degree of exposure is hazardous. A moderate relaxation of the skin is free from this objection; and the employment of antimony in conjunction with calomel and purgatives; or of antimony or ipecacuanha with opium in moderate doses so as to produce a favourable determination to the surface, is entitled to our fullest regard.

According to the distinct division of the purgative and fever medicines, as just now suggested, a draught containing the nitrate of potash, camphor julep, a portion of either the vegetable or volatile alkali neutralised, accordingly as a sudorific of mild or stimulating properties may be required, and some tartarised antimonial wine, usually proves very useful; but whether the juice of fresh lemons, or acetous acid be employed, I

would advise its use in effervescence, and in a free dose; and thus, some syrup being added, we procure both an active and agreeable medicine.

Sedatives. — From the free administration of opium, when at the same time correctly fulfilling all other indications, I have invariably derived the most satisfactory results. In the recommendation of this important medicine, I think it necessary to dwell upon the necessity of a due attention to the action of the bowels, the kidneys, and the skin, as essential to the advantages which it is capable of affording. Also, I must not lose sight of the objection of the inflammatory diathesis, which sometimes prevails so strongly, that its previous reduction or abatement is indispensable to the employment of opium in any form. When, however, the inflammatory diathesis is slight, and more especially when the increased action of the heart and arteries arises chiefly from the irritation of pain, we should consider that the use of opium, guarded, I again say, by the influence of other medicines, is our most sovereign remedy.

The pulvis ipecacuanhæ compos. is a preparation very much deserving our choice; but on comparing my experience, I am most induced to recommend the use of crude opium with the pulvis antimonialis, in the proportions expressed at p. 225. In directing so small a proportion of the antimonial powder, it is to be considered that the attention to the action of the skin, which the use of this medi-

cine indicates, is to be more particularly considered in the prescription of the fluid formulæ.

Finally, I have to observe of the use of opium, that, under correct indications for its employment, no further guidance is required for the freedom of its dose, than the urgency of pain ; this being the symptom for which alone we have recourse to the powers of this friendly agent.

Peruvian Bark.—I have allotted a separate discussion for the virtues of this medicine as a remedy in acute rheumatism, from the remarkable credit which it has acquired with some physicians. It is a curious circumstance, however, that Sydenham places the free use of the Peruvian bark as one of the causes which predispose to that species of rheumatism, which he designates the *scorbutic.* On reading his account of its symptoms, however, I am impressed with the idea, that the pains which he describes as attendant on the disease, were sympathetic only from a morbid state of the digestive organs ; in the production of which, a free use of Peruvian bark might certainly be concerned, as tending to induce visceral obstruction.

Dr. Haygarth, to whom I just now referred, after stating that he first made trial of the Peruvian bark on the authority of Dr. John Fothergill, and next taking notice that Dr. Saunders had for many years recommended it both in his lectures and publications, proceeds with the following recital. " To sum up the whole in a few words. After the

stomach and bowels have been sufficiently cleansed by antimony, I have, for many years, begun to order the powder of the Peruvian bark in doses of gr. v, x, or xv, every two, three, or four hours ; and if this quantity has a salutary effect, it was gradually increased to gr. xx, xxx, or xl, with sedulous attention never to add more than what perfectly agrees. It has generally been taken in milk, mint water, or the decoction of bark." He mentions a few exceptions to his success, which otherwise was very uniform. He declares that " the pains, swellings, sweats, and other symptoms of inflammatory fever, manifestly and speedily abate ; and gradually cease, till health is perfectly restored." He further observes, " Another circumstance merits great attention. When the rheumatic fever has been treated by bleeding, leeches, sudorifics, &c. it is well known that pains of the diseased joints and muscles often afflict the patient for many months, or even years. In my Clinical Reports I find no instance of this kind, and have reason to think that bark entirely prevents this cause of the chronic rheumatism, as a consequence of the inflammatory fever."

His concluding panegyric is very strong : " Except mercury in the syphilis, there are few or perhaps no examples, where a remedy can produce such speedy relief and perfect recovery in so formidable a disease. For many years I have been thoroughly convinced, that the Peruvian bark has a much more powerful effect in the rheumatic than

in any other fever ; and that it does not even cure an ague so certainly and so quickly*."

On reading this statement, who would not imagine that a specific cure for the acute rheumatism was here discovered? Experience however shews, in this as in many other instances, the extreme difficulty of collecting such sure evidences in medicine, that certain rules of practice may be laid down. I have repeatedly followed the authority which I have quoted, in administering the bark in the first stage of the acute rheumatism, its use having been premised by due evacuations ; but I do not remember more than one case, in which I found it successful. A priori, we could not expect it to be a medicine otherwise than injurious, when a sympathetic inflammatory fever is present; and all the secretions, except that of the skin, which is irregular, are more or less impeded.

I should venture to state from such experience as I have had, that the Peruvian bark, either administered as Dr. Haygarth directs, or in decoction with tincture and sulphuric acid, is often a very suitable and valuable medicine to be employed when the convalescence begins ; namely, when the fur of the tongue is fast contracting its edges, and has an appearance of detaching itself; when the urine is of light specific gravity ; the state of the bowels is natural ; the skin is relaxed ; and simple debility prevails; but that under the opposite circumstances

* A Clinical History of Diseases, &c. p. 89.

it will, I fear, disappoint our hopes of its asserted specific powers.

Regimen and diet. It is the usual practice in the management of this disease to place the patient between blankets, or to cover him with the warmest clothing. It is true that it forms a part of the treatment by sudorifics, and may appear essential to it; but also whatever medicines may be administered, this heating regimen is not only too much used by the patient and the nurse, but even by the prescription of the physician. There is no conclusion of which I am more convinced, than that this is a very erroneous proceeding. I have on several occasions directed the patient to be gradually removed from this *hot-bed* of perspiration, and placed him between well-aired sheets, using only the lightest covering with which he could feel comfortable. I have also kept the chamber freely but cautiously ventilated; adding at the same time the comfort of a good fire, as the season of the year the most frequently giving rise to this disease certainly requires. I have been delighted with the expressions of relief which the patient has always acknowledged upon this change; and I am well convinced, that the method of evaporation by the skin, as arising from forced perspiration, is in most instances only calculated to increase the inflammation and pain; to prolong the disease; increase debility; and above all to induce the continuance of the disease in its chronic form.

The diet should, invariably, be of the lightest kind, and chiefly consist of light diluents. The whey, so justly praised by Sydenham, as all the support required in the most acute stage, with tea, thin gruel, and the grateful addition of subacid fruits, as oranges and grapes when in season, include all that need be directed. Boerhaave, we are told, when he laboured under the most exquisite tortures of the rheumatism, supported himself entirely on milk whey for twelve days. When the symptoms subside, it is of infinite importance that the return to solid animal food be very gradual; and it ought not to be permitted while any degree of inflammatory tendency remains. I have seen all the symptoms reproduced by a premature meal, consisting even of chicken: but a light broth, fever being entirely absent, does not carry with it this hazard.

OF LOCAL TREATMENT.

In co-operation with these constitutional remedies, I have now to consider the question of local external treatment. Upon similar principles of practice to those which we exercise in treating common inflammation, when it affects the textures which are not fibrous, as glands, cellular membrane, skin, &c. I contend that the abatement of local inflammation in rheumatism, by judicious means of evaporation, is an object of great importance, and of rational intention.

The easy spontaneous transference of rheumatic inflammation from one part to another; and the fact, that sometimes this transference suddenly takes place to internal parts (the diaphragm more especially), entirely forbids the application of direct cold, as a mode of lowering the inflammatory action by its sedative powers. Against the practice of evaporation by means of excessive perspiration, I have already advanced my objection. The middle line of treatment offers itself to our choice, as a method free from the obvious disadvantages which are attendant on the employment either of extreme heat or extreme cold. A moderately cool air of the apartment, and an equality of its temperature as much as can be produced; cool or tepid drink; as light covering of the bed as is consistent with the comfortable feelings of the patient in regard to warmth; are means which comprehend a great part of the treatment now in view. Lastly, I have to mention, with earnest recommendation, the constant employment of the tepid evaporating lotion (p. 251) to the inflamed parts, precisely according to the method before described. The good effects of this remedy, judiciously conducted, are often truly surprising. But it is to be understood, that, as with respect to gout, so in rheumatism, local evaporation is to be considered only as an auxiliary to the general treatment. In this character, I repeat, it is a valuable remedy; and when employed as a subordinate agent to the constitutional remedies al-

ready described, it is, according to my experience, equally safe and useful. In proportion as rheumatic inflammation is local, we are made sensible of the beneficial activity of the evaporating treatment. When the inflammation wanders quickly from one part to another, almost eluding our pursuit, we must rely more confidently on constitutional means; and make our local treatment, accordingly, both more subservient and considerate.

In some cases of severe acute rheumatism in which the inflammation has affected equally the upper and lower limbs; and in other cases, in which the acute inflammation has been only partial, I have seen the best effects produced by means of this lotion. One lady, who had found any attempt to move her limbs attended with the greatest agony, in a few hours after its free application, was enabled to walk a little about the room.

Another patient, a very delicate female, suffering much torture from the inflammation affecting her knee, which had been produced by a partial exposure to cold, so much extolled the effects of the lotion, that she thought it had sufficient power to accomplish her cure.

The Convalescence.—The use of a bark tonic, conjoined with any of the mineral acids, but usually the sulphuric as the most favourable, is at this period, in most cases, of unquestionable propriety, and is usually attended with the best effects.

The stiffness, aching, and debility, of the limbs

which follow the acute state of pain and inflammation, yield only to active exercise and friction. I have often directed the patient, when convalescent from acute rheumatism, to overcome his seeming incapacity by strenuous exertion, and to walk several miles in the day; beginning of course with moderate attempts. The best results have followed; and, when the season of the year or weather allow this remedial method, it cannot be too strictly enjoined; so that particular contra-indications do not forbid its practice.

The Prophylaxis. — When we reflect on the cause which alone excites this disease, and that some accidental or constitutional relaxation of a part or of the whole of the body is the most frequent state of predisposition, on which it makes its invasion, we must at once be convinced how much the prophylactic management consists in the use of those means which may invigorate the frame, and lessen its susceptibility to the impressions of variable atmosphere. With a view to this important point, I advise that every morning the patient should wash his head and neck, by means of a coarse towel, with cold water; and sponge the feet, also, every morning, with water just freed from any unpleasant *chill* by the addition of warm water. I have seen abundant proof of the preservative influence of this method, steadily pursued. One gentleman, who a few years ago was affected with rheumatism on every occasion of exposure to

a moist atmosphere, or a cold east wind, assures me, that since an attention to this plan, which he adopted at my persuasion, he can bear very free exposure with impunity. I could enumerate many other instances illustrative of the value of the practice. Sea bathing, or, for some individuals, even the cold bath, during the summer season, is a prophylactic remedy of great value. In the general plan of effecting a hardihood of constitution, small heated rooms, the habit of a *warm bed*, and similar indulgences, must be avoided. In this precarious climate, the useful rule of flannel to the skin during the greater part of the year, and for persons who are delicate and very susceptible *unremittingly* through the year, is too well known to require particular injunction.

OF CHRONIC RHEUMATISM.

The symptoms of chronic rheumatism have a much less definite and evident character than those of the acute. It is only in this species of the disease, that we find the nerves separately affected. This distinction is most frequently exemplified in the rheumatism of the sciatic nerve. Any other princi-

pal nerve and its branches may be affected in the same manner. In correspondence with this state of complaint, the spasmodic and painful action of the muscles, to which the branches of the affected nerve are distributed, is to be remarked. It usually happens indeed that pain is felt only upon motion. This circumstance is most remarkable when the nerves of the lower limbs are affected. The patient very frequently will be able to walk for a short distance without inconvenience, but either gradually or suddenly he is seized with pain and lameness, and anxiously seeks to terminate his difficult exertion by rest. In a recent attack of this kind, it often happens that the nerve is affected with inflammatory action; in which case, the pain continues with but little intermission, and is of the piercing, shooting kind. This is sometimes attended with a soreness of the parts to pressure, which is chiefly to be distinguished in the track of the nerve which is principally affected. In a more chronic or passive form of the complaint, notwithstanding the intensity of occasional pain, and various mixed sensations of pricking, burning, and numbness, the muscles and integuments allow of the strongest pressure without inconvenience, unless indeed it be made upon the immediately affected branch or branches of the nerve. In cases of long standing, the symptoms are such as indicate all absence of inflammation, and put on only the marks of relaxation. In this example, the limb is readily sensible to the variations of atmosphere; is occasionally affected with

much coldness; invariably suffers an accession of pain from over-exertion; the muscles are deficient in their natural firmness and size; and the limb in this condition exercises an active sympathy with any disorder of the digestive organs, whether accidental or continued; and is even powerfully influenced by causes which affect the mind alone.

If chronic rheumatism affect the bursal, tendinous, or ligamentous textures, we find that two distinct states of inflammation may exist, although general sympathetic fever may not be present; namely, the active and passive: the locality and slighter degree of the disease still distinguishing it from the constitutional attack which we designate the rheumatic fever, already considered. The external characters which appear, are very characteristic of the particular texture which is affected. In some instances, we see in the same individual case, the bursal, ligamentous, and tendinous textures, all under the influence of the disease; but in others, the affection of one part only is remarkably distinct. When the deep-seated ligaments are the seat of complaint, no external morbid character is apparent; but the indications of the disease when the superficial ligaments are affected, may usually be detected by manual examination; and those which appertain to the bursæ and tendons, are rendered clear by the evident increased distension, and by the tenderness of the parts produced on pressure. The muscular aponeurosis and periosteum, also, when affected with rheuma-

tism, become more or less sore to the touch. In that common form of complaint, familiarly termed the *stiff-neck*, we have an example of tendinous and aponeurotic rheumatism; and also of the active state of inflammation appearing distinctly as a local complaint.

The synovial membranes of the joints appear to be liable to rheumatic inflammation; or, probably, I should give a more correct statement by saying, that certain individuals possessing the rheumatic diathesis are susceptible to an inflammation of the synovial membranes of the joints, from exposure to wet and cold. It is not a common occurrence, and, I believe, happens only in those individuals who have a specific predisposition in these textures to be so affected. I conceive, that in most of the cases of this description, the constitution may be possessing a scrophulous tendency. Mr Brodie, in his very instructive "Pathological Researches, respecting the diseases of the joints*," has referred to rheumatism as one of the causes which induce inflammation of the synovial membrane. He speaks of the disease as sometimes acute, but more frequently as assuming the chronic form; "that it takes place from various causes, but in most instances from the application of cold, which explains why it is more liable to occur in the superficial joints, such as the knee and ankle, than in the hip and shoulder, which are

* Medico-Chirurgical Transactions, vol. iv.

defended by a thick mass of soft substance, from the influence of the external temperature."

SEQUELÆ.

I have already stated that chronic rheumatism itself is a frequent consequence of the acute, and have defined the usual characters of this state of the complaint; but we have also to consider that chronic rheumatism often originates as a distinct form of the disease, and is not only, as its name (from χρονος time) implies, most tedious in the duration of the sufferings which it produces, but further leads to very important changes of structure in the particular textures which it affects. I shall for the present attempt only a brief sketch of the morbid anatomy of chronic rheumatism; but it is undoubtedly a subject very much demanding further and accurate investigation.

The consequences of the disease, which are most obvious in the living subject, appear in the bursæ, tendons, and muscles. In very debilitated persons, the bursæ are often enlarged and soft, appearing like bags of thick jelly. For the most part, however, they are hard and unyielding; and the smaller ones, especially, much indurated. The tendons are thickened and knotty, as before described. The muscles are wasted, and either flaccid or hardened, with a thickened state of the aponeurotic covering. The ligaments undergo remarkable

changes, becoming thickened and rigid; and from their consequent loss of elasticity, produce great lameness. The occasional diseased action of synovial membranes has already been mentioned; but I have to add, that, without the distinct marks of preceding inflammation, a jelly-like effusion into the joint is occasionally found as a sequel of the rheumatic action. It is highly probable that the nerves suffer, from rheumatism, some change of structure, either in the sheaths which inclose their filaments, or in the filaments themselves; but the opportunity of proving this conjecture is equally rare and difficult. The conclusion may be presumed from the loss of nervous power almost amounting to paralysis, which occasionally affects rheumatic limbs.

Mr. Stanley, of St. Bartholomew's Hospital, has favoured me with an interesting account of a dissection of the joints of a man apparently between forty and fifty years of age, in which the following very remarkable appearances were found. He was unacquainted with the history of the case; and therefore I cannot offer the statement as an example of the consequences of rheumatism; but the narrative is too curious to be omitted.

"The articular cartilages in almost every situation exhibited a perfectly white surface, such as would be produced by a very thin layer of plaister of Paris spread over them. In some of the joints, a small quantity of the white substance was found in a fluid state within the capsules, which circum-

stance rendered it probable that the white matter had been in every joint originally deposited loosely within its cavity, and that, mixing with the synovia, it had become smeared over the cartilages, giving to them a white covering. Almost all the joints were thus affected; those of the extremities in the greatest degree. Even the articular cartilages belonging to the extreme joints of the fingers and toes were perfectly white. Around some of the joints of the toes, the same kind of deposition had taken place into the cellular substance, externally to the joint. By chemical analysis, the white matter was shewn to be carbonate of lime. Specimens of the joints are preserved in the museum of the hospital."

What has already been observed on the subject of the *remote causes*, as connected with acute rheumatism, may be applied to the chronic.

THE DIAGNOSIS.

This question is to be considered separately and at some length.

Of the discrimination of chronic rheumatism from chronic gout; and of the distinguishing characters of that disease, which has been called by Dr. Haygarth, nodosity of the joints, I have formerly spoken.

Rheumatism affecting the lumbar muscles, called lumbago, is distinguished from nephritis, by

the evident increase of pain in the loins, in the motions of the body, and more especially in moving from the horizontal posture; and further, by the absence of the distinct nephritic symptoms, which are well known. The rheumatic affection of the tendinous fibres and aponeurotic covering of the muscles immediately contiguous to the kidneys, is less easily discriminated; because the local uneasiness produced is in a great measure common to each complaint. I have always found that this species of rheumatism is increased by the heat of the bed. The locality of the affection; and the absence of those symptoms which point out distinct irritation of the kidneys, as pain in the course of the crural nerve with some attendant sympathies; and of the calculous sediment in the urine, will guide us in this diagnosis.

A pain between the scapulæ, or of the shoulder at the head of the joint, is sometimes confounded with rheumatism, when really proceeding from the influence of disordered digestive functions. The ambiguity will be removed by careful investigation of the state of the several secretions; by the appearances of the tongue; and by the character of such dyspeptic symptoms as may be present.

As depending on a morbid state of the digestive organs, and consequent general irritation, we see that wandering muscular pains, or even transient pains affecting other textures, are occasionally described as rheumatic, which should rather be considered as the pains of sympathy; and in the

investigation of such cases, the observations just now made are also applicable.

Rheumatic pains, which are produced by the employment of mercury without sufficient caution with regard to exposure, are of very common occurrence, and are readily traced ; but a perplexity often arises in determining whether a *syphilitic* cause be not also present. It usually happens, however, that some characteristic symptoms, which become very clearly instructive upon investigating the history of the case, are associated with chronic pains of the present description. The periosteum of certain bones, as the os frontis, or tibia, or ulna, is in these cases almost with certainty affected with extreme tenderness on pressure. Very commonly, also, there is more or less of periosteal thickening, and especially at the middle of the anterior angle of the tibia, called the *shin.* I have already at p. 338, mentioned some other points of discrimination.

Those irregular pains and spasms, which attend the commencement of a disease in some part of the vertebral column, claim a very careful distinction from chronic rheumatism ; and I may also add, from those pains which receive the more *convenient* denomination of nervous.

Some painful affections of the nerves and the connected muscles occur, which, without attention, may be confounded with rheumatism. This difficulty will only occur, when the nerves belonging to muscles, either in the upper or lower extremities,

are the parts affected. In such cases, it commonly happens that the influence of cold has not been the exciting cause ; which, as I have stated, is, invariably, the parent of rheumatism. In the present form of complaint, we shall also find that the functions of some one or more of the principal constitutional organs have been previously much deranged ; and that the painful state of nerves and muscles is sympathetic.

TREATMENT.

In my theoretical and practical *analysis* of rheumatism, I have laid down the following principles of classification in the investigation of each individual case ; endeavouring to ascertain by such a method, the various sources of a modification of the symptoms, and of the appropriate treatment consequently required.

1st. The age ; general structure ; original temperament and constitution.

2dly. The acquired state of constitution from habits of living, in regard to diet ; clothing ; hardihood ; or effeminacy ; and modes of exercise.

3dly. The mode in which the exciting cause has been applied ; the nature of any injurious remote causes ; the accidental state of the constitution from any other disease ; and especially the influence of a morbid state of the digestive organs.

4thly. The particular part of structure affected ;

whether as being ligament; aponeurosis; tendon; bursa; nerve; periosteum; or other texture; and the morbid state of its organisation.

5thly. Climate; season of the year; locality of residence.

To detail the diversity of treatment, which has been proposed by the regular part of the profession for the relief of chronic rheumatism; and to enumerate the very names of the boasted remedies of the empirics, would itself form no inconsiderable history of medicine. This disease we may believe to have been almost co-eval with man; and to have been the occasional consequence of exposure to atmospherical changes, in the rudest states of society. If, therefore, the experience of ages cannot offer us any certain means of remedy for the evil, it is at least a proof how much remains to be accomplished in this inquiry. We find, it is true, in authors, various medicines recommended as specifically suited for rheumatism; and the patient often undergoes such routine of treatment on true empirical principles.

It will, perhaps, be said, that chronic rheumatism is a specific disease, affecting all individuals alike in a general manner; and subservient therefore to plain and uniform principles of treatment. Now it appears to me, that no two cases can admit of the same treatment; and that on the contrary, according to various causes of modification, it must differ more or less in some important point.

The first, second, and fifth heads of remote influence are the most simple grounds of observation. The third is in part attended with much obscurity; but embraces such important points, that without giving them a full consideration in every case, we are not entitled to the expectation of a successful result.

The fourth head comprehends causes of peculiar symptoms and of relative treatment, which, I conceive, deserve much more attention than they usually receive.

In the brief consideration of my subject, which I purpose now to offer, I shall first discuss the treatment of the rheumatism of the nerves.

If the patient be seized in a sudden manner after exposure to cold, and symptoms arise which indicate that the nerve is in a state of inflammatory action, those means which are suited to the reduction of inflammation are to be employed with more or less activity. But it is usually required that the abstraction of blood should be made as contiguously as possible to the part affected. For example, in a newly formed sciatica attended with local indications of inflammatory action and with sympathetic fever, cupping at the hip, and blisters afterwards applied, will, in conjunction with purgatives and other suitable medicines, produce the best effects.

If, however, the disease have been gradually produced; or from the peculiar temperament of the individual and his state of constitution, passive

symptoms only appear, and the healthy functions of the nerve seem disturbed without inflammatory action, we have to consider whether we shall select the use of medicines which stimulate, or of those which act as sedatives. For this guidance, we must investigate the state of the constitution; and seeing that the affected nerve (for I select it as the most remarkable and by way of example) is a part of the brain and nervous system, we must observe its state of function, not merely as the seat of disease, but as a material index of general information. What are the causes which most produce the paroxysm of pain, and in what degree do they act? Is the action of the nerve much influenced by the mind? by diet? or by bodily exertion? What is the state of the digestive organs, as indicated by the various symptoms which I have so often mentioned? Is general debility, or universal muscular relaxation present? Do these causes exist more or less in conjunction? Or, do all the functions of health proceed regularly, leaving the rheumatic nerve alone in fault? Of what duration has the complaint been?

It is of great importance that effective treatment should be adopted in the commencement of a case of this kind, and steadily pursued; for a neglected rheumatism of the nerves constitutes one of the most difficult chronic cases in medical practice.

The stimulant method of treatment comprehends the use of electricity; rubefacient embro-

cations; irritating plasters; the application of heat through the medium of dry substances, as salt inclosed in flannel; local vapour; the use of the fleshbrush, or strong hand-rubbing; and violent exercise: with the internal employment of gum guaiacum; bark; æther, the sulphuric or acetic; the volatile alkali; turpentine; and a few other exciting medicines.

The sedative method includes the local abstraction of blood; the use of the warm bath; the Buxton waters; soothing fomentations; local moderate warmth, as by flannel; opiate liniments and plasters; bodily rest; and internally, narcotic medicines; gentle sudorifics; agreeable employment of the mind.

Blisters and issues constitute a mixed treatment; as, on the one hand, raising irritation on the surface; and, on the other, diminishing the circulation of the part by the discharge which is produced. Heat, also, in whatever way applied, so as to produce perspiration, becomes a remedy of two-fold character; exciting, by its peculiar stimulus to the vessels; and relaxing and reducing action, by the active process of evaporation which belongs to this forced action on the surface. When stimulant treatment has been required, I have often found advantage from electricity; and the following case is an interesting example of the success of this powerful agent. The patient was a young man of twenty-two years of age, and of a strong and healthy appearance. I shall offer the narrative of the case in his own words:

" In the spring of 1816, I experienced an attack of rheumatism in the left arm, which had been affected the preceding autumn. It was then cured by the application of brown paper, which in one night removed it. I made the same experiment on this occasion, but without success. My next remedy was a very stimulating embrocation, which I applied by means of strong friction night and morning. At first I derived from it some slight benefit; but, in a short time, the pain returned with increased severity. A large blister was then laid upon the parts, but without success. The pain had now become excessive, and prevented my sleep. The affected arm became flabby and smaller than the other, yet it was scarcely sore to the touch; differing in this respect from a former attack, when I could hardly bear the smallest pressure. The pain was a constant aching. At last it began to extend to the knees, and came on in spasms; so violent, that, when in bed, I was obliged to put on my dressing gown and lie on the outside. After a little exposure, it would then cease. At this time I took several internal medicines, and confined myself to the house; but without any apparent good effect. The attack lasted about three months; during which period, I had but little sleep. I usually went to bed at eleven or twelve, and awoke in great pain about two, and could not afterwards procure any sleep. I passed the time in reading upon the bed, as it was impossible to endure the violent pain which the warmth of the clothes occasioned.

" As the disease appeared to be confined to the nerves, electricity was next advised. This operation produced great pain and violent perspiration. After the first application, the pain on that day increased ; on the following one it was moderated ; and daily diminished, until I was perfectly restored. It must be observed, that on all occasions I had been advised to wear flannel, but had incautiously discontinued its use. I resumed, however, this covering to my skin soon after the attack which has been described. Twelve months have elapsed since my cure by electricity, and I have been entirely free from rheumatic sensation."

The alterative plan of treatment embraces that course of remedies, both in medicine, and in diet and the general regimen, which has already been laid down in this treatise ; but to the medicines before described, I may add the use of the liquor arsenicalis, as being sometimes a powerful remedy in certain states of chronic rheumatism.

As a rubefacient application, I have found most advantage from a liniment according to the formula p. 267, increasing the proportion of tinctura lyttæ, and sometimes also adding a portion of liquor ammoniæ.

In a few instances, I have seen advantage derived from the volatile tincture of guaiacum ; but I have for the most part found this a heating and prejudicial medicine. The effects of bark have appeared to me more favourable.

In the third volume of the Medico-Chirurgical

Transactions, Dr. Marcet has communicated a very interesting account of the cure of sciatica by means of excessive exercise in walking, when the patient was warmly clothed in flannel.

The ingenious author of the case, who was himself the patient, relates, as follows, of the commencement of the process:

"With the utmost difficulty I proceeded half a mile; and the pain I suffered contributed not a little to the effect of the exercise in promoting perspiration. I returned home in a profuse sweat, rubbed myself dry before a fire, and went to bed. In about an hour I got up, found myself very much fatigued, but in other respects not worse. Forty-eight hours after this, I repeated the same kind of exercise, and found that I could walk a mile with as much ease, as I had walked half that distance on the first day. My general sensations were the same as before; but, as the fatigue diminished, I thought I could perceive an amendment in my rheumatic pains. Two days afterwards I took my third walk, proceeding as before; and after it I had a better night, less interrupted by pain than any I had enjoyed for eighteen months. From that moment I looked forward with confidence to a cure, and I have not been disappointed Every succeeding walk has diminished my sufferings; and I may safely say, that after the sixth, I was as free from pain as I had ever been in my life."

This patient had previously made trial of "a course of calomel, taking from two to three grains

of it, with a certain quantity of opium, every twenty-four hours, during six weeks; seconding its efforts with frequent blistering." He adds, "I have applied as many as three blisters at a time, from my hip to my foot, and renewed them as soon as the skin was sufficiently healed to allow a fresh application. By other medical advice, since that period, I have tried bathing in warm sea water, in artificial sulphureous waters, the same as those which had afforded me relief in Paris, and in the Bath waters. I have also used the dry pump there, vapour baths, and heated air, friction, cupping, leeches, and electricity. I have taken internally nitric acid, James's powders, guaiacum, nitre, cicuta, hyoscyamus, and the eau medicinale; bark, and finally arsenic, but all to no purpose. Were I to state in general terms the effect of all these, I should say that cicuta, hyoscyamus, and the eau medicinale, procured me temporary relief; and that bathing of whatever kind usually made me worse. In short, I had nearly exhausted the materia medica, and I had no hope left but in a more favourable climate."

Of his particular method he gives the following description: "I usually proceed to my sweating walks in the following manner. Next to my skin I wear stockings, drawers, and a shirt, all of fleecy hosiery. Over these I put one, two, or three pair of flannel drawers; one, two, or three flannel waistcoats; and round my hips and loins I gird six yards of thick flannel; making, besides the drawers and waist-

coats, eight thicknesses of flannel on the chief seat of pain, and the origin of the sciatic nerve. Over all this I wear warm pantaloons and a great coat. When I have walked one or two miles, more or less according to the heat of the day, I am generally in a profuse perspiration. I return home, take off my wet clothes, have a couple of changes of well aired flannel, and then lie down upon a bed not warmed. I use no means to excite further perspiration after the muscular action is over; but, on the contrary, rather incline to check it as speedily as I can, taking particular care however to avoid catching cold.

"I do not perceive that the quantity I perspire, has any influence on the efficacy of the remedy. I imagine that a violent action produced in the general system is the chief cause of its salutary effect. In consequence of this opinion, I cease the exercise the moment that a very increased action is well established. This is fully produced with the above quantity of clothing in moderately warm weather, by walking from one to two miles. For patients who are very much disabled, the quantity of clothing might be increased, and the distance diminished. When the excitement is well established, I find my pulse rise to between 90 and 100, and it is full and strong." Notwithstanding the apparent simplicity of this method of practice, and its remarkable success in this case, I must observe, that it is too active a plan of treatment to be indiscriminately employed; and, indeed, should never be resorted to without medical sanction.

When a rheumatism of the nerves prevails in a general manner over the body, the Buxton waters sometimes produce the best effects.

In this state of constitution, the use of horse exercise, freely and regularly taken, proves of the utmost service.

If this form of rheumatism, or I may now say once for all, if any form of rheumatism be depending upon a morbid state of the digestive organs, every kind of treatment must be held secondary and subordinate to that which may be adapted to the removal of such fundamental cause of irritation. Among soothing medicines, I can offer very favourable testimony of the combination of stramonium and lactucarium. In some instances of recent attack, in which wandering nervous pains have been mixed with lumbago, its effects have been surprisingly successful.

In a few cases, even of long standing, I have experienced much satisfaction from this remedy.—A lady who had for two years suffered severe and almost constant pain in the nerves of one arm, producing the mixed sensations "of gnawing and shooting, heat and cold alternately, sometimes peculiar feelings of pricking as if from hot needles, and a weakened and almost disabled use of the limb," received a cure from the last-mentioned medicines, and the free use of the stimulant liniment, with tinctura lyttæ, &c. In some cases, however, both of wandering and fixed rheumatism, this treatment has entirely disappointed my expec-

tations; and a more active plan of remedy has been required.

I was myself once the subject of a chronic rheumatism, which chiefly affected the nerves of the lower limbs; producing, with the usual peculiar sensations, occasional spasms and cramps of distressing severity. I had made trial of a long course of remedies, especially of the bark in substance, with free doses of hemlock; and had used warm sea bathing for six weeks, without the smallest advantage. At last, I obtained a cure from taking a moderate dose, twice or three times a day, of the pulvis ipecac. compos. with the addition of sufficient of the potassæ sulph. to affect the bowels; uniting with this medicine a generous plan of diet, and a determination, whatever consequent pain might be produced, to persevere in taking abundant exercise both on foot and on horseback.

In some cases of long standing sciatica, I have known very great benefit derived from the use of dry pumping, as it is practised at Bath.

In the worst chronic states of local rheumatism of the nerves, I have seen the cure obtained, or very material relief afforded, by the successive application of blisters.

When chronic rheumatism affects the superficial ligaments, the free use of the evaporating lotion (p. 251) is very efficacious in removing the passive inflammation which prevails; and in restoring the ease and comfortable motion of the parts.

When the affection is deep seated, the treat-

ment is often difficult and tedious. Accordingly, as the complaint has been of long or short duration, we are chiefly guided in the choice of the stimulant, the sedative, or the united method of treatment.

When the bursæ and tendons are the seat of complaint, and the disease is recent, constitutional treatment is our chief dependance; but, in this case, we shall derive much auxiliary advantage from the evaporating lotion. Leeches have been much recommended by authors; but my experience has led me to prefer the method of stimulant evaporation. If the affection of these textures, namely, the bursæ, the tendons, and ligaments, have been of long standing; and in which case, the muscles themselves have a strong secondary participation in the disease, becoming small, flaccid, and inefficient, the rubbing process mentioned at p. 360, and the use of rollers, constitute the only efficient practice with which I am acquainted.

Any inflammatory state of the synovial membranes, which puts on the character of rheumatism, must be treated by the most active means which are found to remove the inflammation of deep seated parts of important organisation. Most cases, however, of this particular description fall rather within the province of the surgeon, than of the physician.

Rheumatism, which has been produced by imprudent exposure to cold during the use of mercury, becomes, when in its worst form, a severe

and tedious complaint. I have, in every case of this kind, seen that all the ordinary methods of treatment are of no avail; or, afford only palliative and very temporary relief: but I have invariably had the satisfaction of witnessing the cure to be effected by resuming a well-conducted mercurial course. Dr. Bardsley, in his valuable and very instructive Reports, adds his testimony to this important practical fact. This author, in summing up his general conclusions respecting rheumatism, observes, "The cure of chronic rheumatism, even its most severe and protracted form, is not to be despaired of, provided vigorous and active remedies be duly administered."

Except in the above-mentioned example of rheumatism; and also, in cases in which I have had reason to suspect a syphilitic cause of the pains, I have not been induced to prescribe mercurial treatment to the extent of salivation.

Lastly, I shall offer a few remarks on the treatment of lumbago; and of rheumatism affecting the aponeurotic covering of the muscles situated on the back, or in other parts. In a recent attack of lumbago, occasional purgatives with calomel, antimony, and colocynth, in conjunction with the neutral salts; the free employment of crude opium with antimony or ipecacuanha; and the use of the warm bath; usually command the cure: and for the most part the latter remedy is not required. If the disease have been of long standing, it is usually more or less blended with sciatica, and presents a case of difficult

management. I have seldom seen that warm bathing has afforded any relief. Dr. Bardsley speaks in high terms of the local vapour of hot water, which he directs to be applied by means of pipes connected with a boiler; "so as only to permit the vapour to strike upon the affected part at some distance from its aperture." He also recommends a stimulating liniment to be rubbed in upon the part during the application of the vapour. He says, in speaking of the treatment, "By this its stimulating effects were heightened, pain was abated, and the cure much accelerated." This author thinks favourably of the powers of electricity in this form of the complaint; and I have myself witnessed its very excellent effects. It deserves very great dependance when under the management of a skilful operator. I am compelled, however, to add, that on two occasions, where much benefit might have been expected, I have been disappointed in the event. I am much satisfied with the auxiliary effects of the stimulating embrocation before mentioned, containing a large proportion of tinctura lyttæ, when it is not convenient to resort to electricity. According to the state of the constitution, purgatives, alteratives, sedatives, and tonics, must be separately or conjunctively administered; and horse exercise, when exposure is not improper, and, when *practicable*, must not be neglected. I can, from my own personal experience, speak with confidence of its very useful effects. I must add to this recommendation that the affected parts must be well

protected by warm clothing. A flannel roller firmly rolled around the body; and, when sciatica is united with lumbago, carried on down the limb; often lends a very material aid to the cure.

When the aponeurosis of the muscles of the back, or in any other situation, is affected, the complaint is connected with some recent exposure to cold; and the means of treatment which restore the free action of the skin; which remove any inflammatory state of diathesis; and which soothe the nervous system; will certainly be found effectual.

I must here bring to a conclusion this imperfect and limited view of my subject; indulging the hope that I may be enabled to prosecute successfully my inquiry, on the just principles of analytical investigation.

On the value of systematic arrangement, I need not expatiate. By establishing our diagnosis on the basis of anatomy and physiology, we lay the foundation of greater certainty in our inquiries; and by observing, carefully and without prejudice, each distinct appearance in diseases which is presented to our view; we gradually acquire those philosophical principles of pathology, which tend to distinguish the art of the Physician from the pretensions of the Empiric.

FINIS.

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