

**A treatise on the nature and cure of gout : comprehending a general view of a morbid state of the digestive organs, and of regimen, with some observations on rheumatism / [Sir Charles Scudamore].**

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Scudamore, Charles, 1779-1849.  
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**Publication/Creation**

London, 1816.

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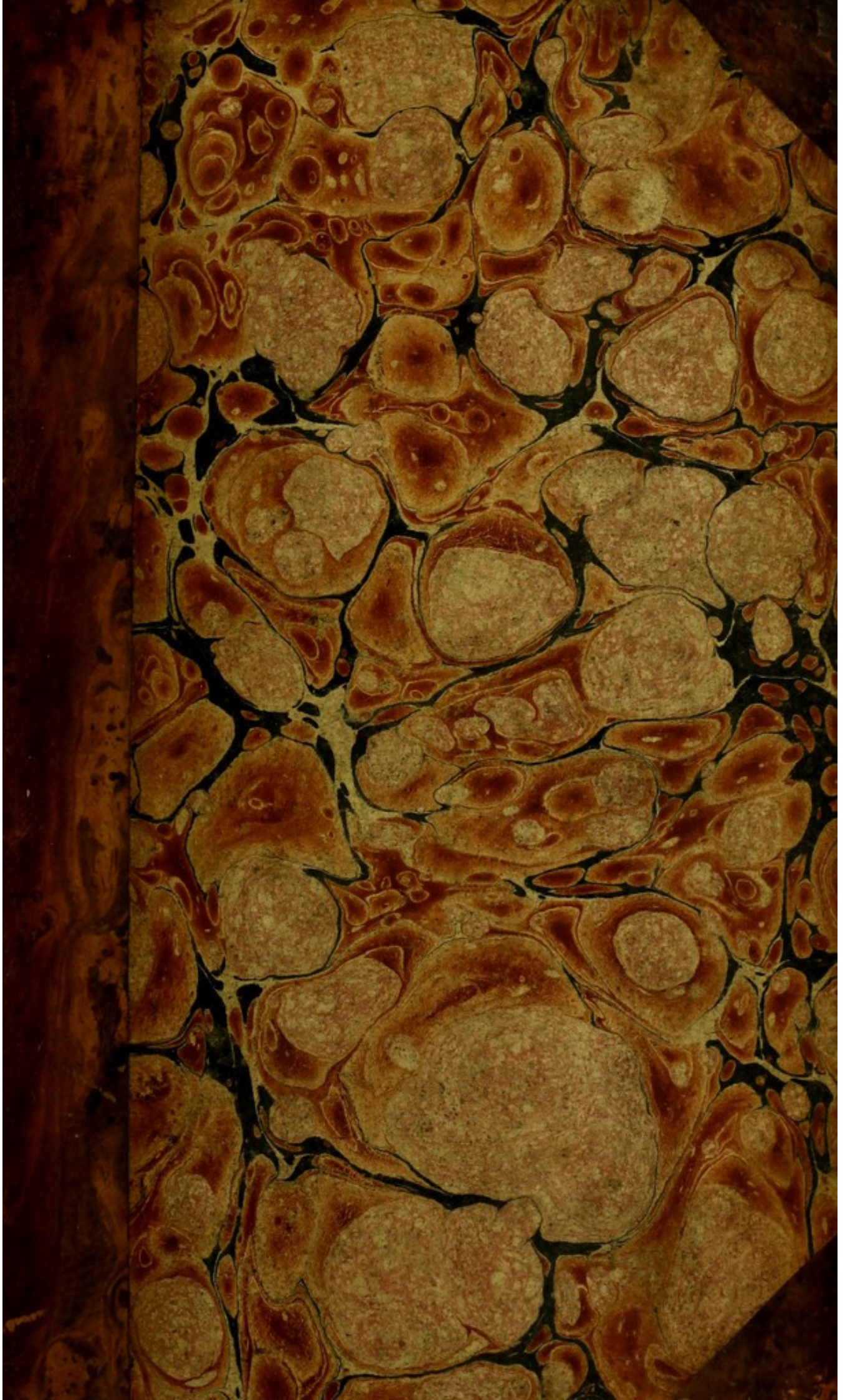
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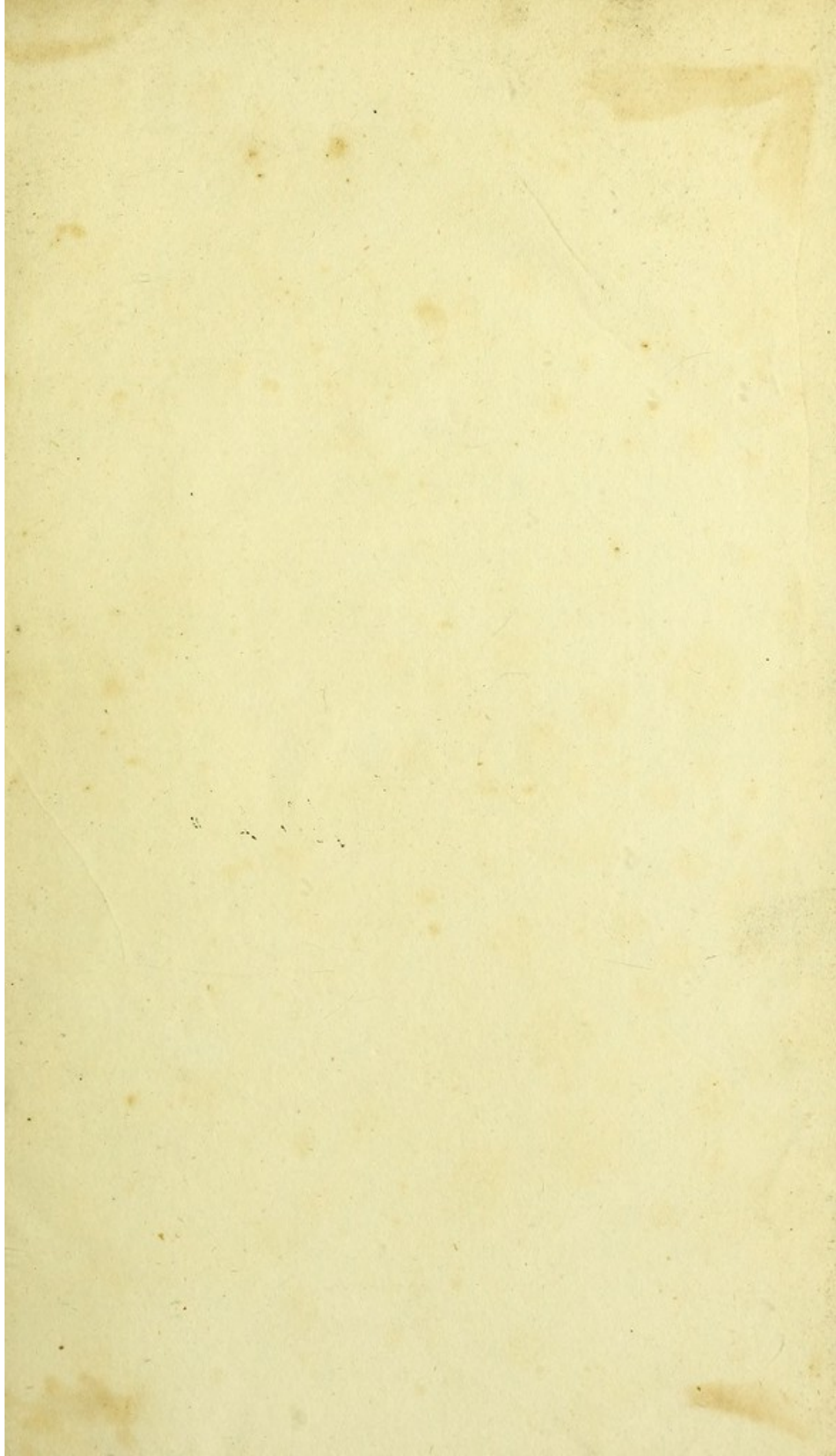


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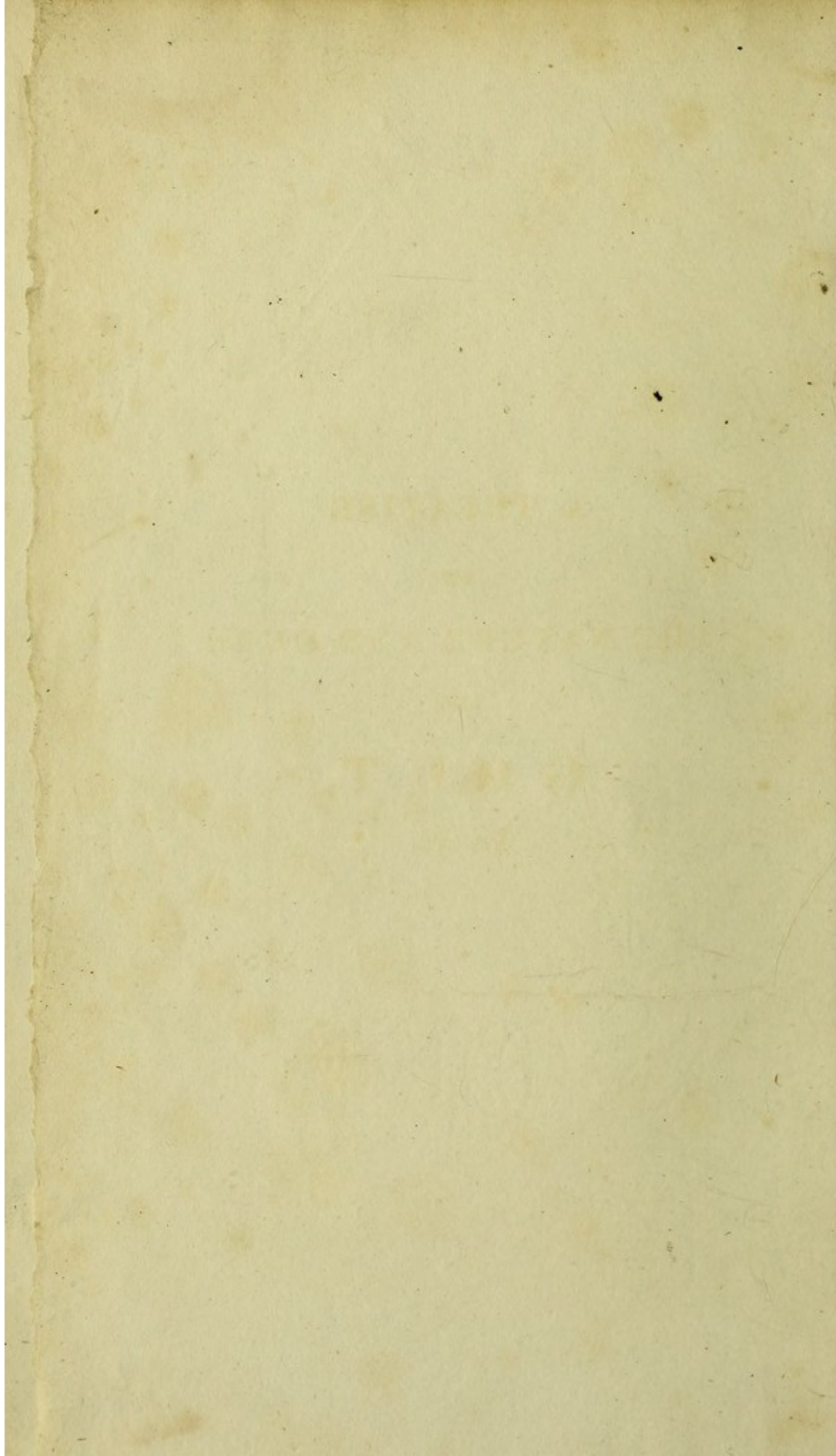
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**A TREATISE**  
ON  
**THE NATURE AND CURE**  
OF  
**G O U T,**  
&c. &c.

A TREATISE  
ON  
THE NATURE AND CURE  
OF  
GOUT  
By  
J. C. G.

---

D. N. SHURY, Printer, 7, Berwick Street, Soho, London.

A  
**TREATISE**  
ON  
THE NATURE AND CURE  
OF  
**G O U T,**  
COMPREHENDING  
A GENERAL VIEW  
OF  
*A Morbid State of the Digestive Organs ;*  
*AND OF REGIMEN :*  
WITH  
SOME OBSERVATIONS  
ON  
**R H E U M A T I S M.**

---

BY CHARLES SCUDAMORE, M.D.

*Member of the Royal College of Physicians,  
Of the Medical and Chirurgical Society of London, &c. &c.*

---

Principiis obsta ; sero medicina paratur,  
Cum mala per longas invaluere moras.

OVID.

---

London :

PRINTED FOR THE AUTHOR,

AND SOLD BY

LONGMAN, HURST, REES, ORME, and BROWN, Paternoster Row.

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1816.

TREATISE

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OF

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COMPREHENDING

A GENERAL VIEW

OF

A PROPER STATE OF THE DIGESTIVE ORGANS;

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ON

RHEUMATISM.

BY CHARLES SCUDAMORE, M.D.

Member of the Royal College of Physicians,

of the Medical and Chirurgical Society of London, &c.

Printed in London: by J. G. & J. S. Patten, at the  
Corner of St. Dunstons Church-yard, in Fleet-street.

London:

PRINTED FOR THE AUTHOR,

AND SOLD AT

Longman, Hurst, Black, Orme, and Brown, Paternoster Row.

1818.

TO

**MATTHEW BAILLIE, M.D.**

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,

F.R.S.L. & Ed. &c. &c. &c.



*DEAR SIR,*

*As a testimony of those sentiments of esteem and respect, which your professional and private character equally inspire, permit me the honour of inscribing to you the following pages.*

*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.**

*Holles Street, Cavendish Square.*

*July 8th, 1816.*

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Holles Street, Cavendish Square,  
July 25th, 1810.

## PREFACE.

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 opprobrium 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 admi-

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

nistered upon sound general principles ; are carefully adapted to the variations of every particular case 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 in-

fluenced 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."

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As well I am persuaded to pursue others I  
 shall follow the same method in the  
 present work, and shall endeavour to  
 give a full and accurate account of  
 the disease, and of its various  
 symptoms, and of the best  
 method of curing it.

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# A TREATISE,

&c. &c. &c.

## TREATISE ON GOUT, &c.

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The Reader is requested to correct a few typographical errors,  
and to make the following

*CORRIGENDA:*

- Page 46, line 19, *for 60 read 3*  
106, — 5, *for 1·0154 read 1·023*  
126, — 27, *for common read curious*

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 pollicis, certe pedum et manuum juncturis, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, vel aliarum internarum partium, affectionibus alternans.

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

“ *Var. 2<sup>da</sup>*. *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<sup>ia</sup>*. *Podagra (retrograda)* cum inflammatione artuum subito recedente, et ventriculi vel alius partis internæ, atonia mox insecuta.

“ *Var. 4<sup>ta</sup>*. *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 more frequently acquired where no hereditary reference can be traced, than where such influence does exist, this circumstance appears to be 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 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 in the majority of examples, the ball or first joint of the great toe, is the particular part affected. In the commencement of gout, this circumstance is most remarkable ; but even in a first attack, it very commonly 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, that my objection to the definition appears to me just. I may further add, that *Podagra*, which

Dr. Cullen\*, in imitation of Boerhaave, chose as the title of the disease, is really too limited in its expression for a definition.

*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

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

*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 of; 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 therefore appears to me to be an exceptionable statement as a general 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. 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 not 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 much 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 general example; and I am persuaded 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 consists 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, 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 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 probably 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 prin-

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

cipal 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 directed, with relation to 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 habit might exert.

Dr. Cullen has combated the doctrine of a morbid 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 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 con-

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

† *Cælius Aurelianus*, Lib. v. cap. 2.

‡ *De Rheumatismo et Pleuritide Dorsali. Paris, 1643.*

sidered 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, an 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, that the disease was caused by the dropping of some humour into the joints\*.

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

\* “Gutta dicitur, ex absurda veterum hypothesisi, qua ab humoris cujusdam stillicidio, in articulos facti, cum dolorem oriri putabant.” ---*Sauvages' Nosol. Method*, vol. ii. p. 19.

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 one species; the chronic as the other species; and the retrocedent as the variety. In an attempt to define the general characters of gout, I feel truly sensible of the difficulty of the task, and it is not without diffidence that I offer the following outline.

#### GOUT.

A constitutional disease, producing an external local inflammation of a specific kind; the susceptibility to it often depending on

\* 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.

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 thirty-five; 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, the hands, knees, and elbows, 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 marked by nocturnal exacerbations and morning remissions; much disposed to return at periodical intervals, and often ushered in by 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 readily changing situation spontaneously, or from slight causes ; terminating almost invariably without suppuration, and usually with 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 ; 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 give a notice of many days, or even longer, that the gout is at hand. Of these symptoms, as I have found them occur in different individuals, more or less associated with an attack of the disease, I may enumerate the following:

#### PREMONITORY SYMPTOMS.

Depression of spirits, with drowsiness and frequent yawning, night-mare, and restless sleep; heart-burn; 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, becoming turbid on standing; 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 the affected part ; much coldness of the legs and feet, and occasional general chilliness. Some complain of an excessive appetite for one or more days before the fit, but this is attended with occasional heart-burn and nausea. General lassitude with great nervousness, palpitation of heart\*, and internal flutterings. One patient for a day or two before his attack, has alternate chills and flushings, is extremely nervous, and 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.

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 are certain to take place.

In addition to the local precursory symptoms which have been mentioned, the following also occur. Unusual weakness and tenderness of

\* 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.

joints, 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 increased inability in the moving powers of the joints, generally precedes 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.

I should add, that for the most part, an old gout only, is visited by such local signs before the fit, as are above enumerated.

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.

Very lately, in a case of slight 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.

Morgagni mentions of himself, that he had suffered from an ophthalmia in each eye, without relief from the usual remedies. At length, a mild gout took place in one foot, doubtless solicited (though not expected, it being his first fit) by pediluvium and friction. 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 accuracy; 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 from the results of my own experience and careful observation.

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

† Dr. Hoffinan 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.

## OF THE SYMPTOMS OF A FIRST FIT.

Whether the premonitory symptoms have occurred, or 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 the inflamed part, appear unusually full. In a severe attack, there is scarcely any

\* 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 rise.

remission of the symptoms for two or three days, but more usually, they are suspended in the day, and return 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 the patient often thinks he has received a strain, or some kind of local injury, and treats it accordingly. 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.

In seventy-one examples under my own observation, I have made the following comparison of the parts affected in the first fit :

In the great toe of one foot only, forty-nine cases.

In the great toe of each foot, four.

In the toe and instep, two.

In the outer side of one foot, two.

In one ankle, two.

In each ankle, one.

In ankle and instep of one foot, one.

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

In instep of each foot, one.

In heel of one foot, one.

In each foot and hand, one.

In one toe and thumb, one.

In right knee, one.

In left knee, one.

In one hand at the back, one.

In one wrist, one.

In each hand at the back, one.

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

OF SUBSEQUENT ATTACKS, OF THE SECOND DEGREE  
OF SEVERITY.

The frequency of the returns of gout after the first fit, is in proportion to the constitutional tendency to 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 connection which the local symptoms are discovered to have with the general system, the constitutional nature of the disease becomes gradually more and more manifest.

#### OF AGGRAVATED RETURNS OF GOUT.

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. 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 winter which gives absolute

exemption from the disease. Summer alone is the period of tolerable security.

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. 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. 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 usual seats of the disease.

As in the early attacks of the gout, so in all its returns, the night is the most common time of its invasion, and the period of greatest suffering. In a few cases which form exceptions to this observation, it will happen that pain rages

\* 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.

most during the day, and night brings some soothing influence of sleep. 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 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 a scarlet hue, is diffused over a considerable extent of surface, and sometimes 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 strictured vessels, ceases to give the vivid blush of red, and changes to the different shades of purple.

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. The

\* Sydenham observes, " Sometimes the morbid matter is thrown upon the elbows, and occasions a whitish swelling al-

affected tendons, when carefully examined, have the appearance of being 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.

The disabled appearance of parts which have been long subject to the ravages of gouty inflammation, an appearance which is sometimes so strikingly 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

most 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 it subsides suddenly, at others it is continued.

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. 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 description 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,

\* Mr. Hunter remarks, “ The inflammation of the gout is very different from the adhesive and suppurative in its sensation.” On the blood, &c. p. 266.

in the strong language of some patients, even of boiling lead. The quantity of heat which is evolved from the inflamed surface is found by the thermometer to increase the temperature greatly 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 those sufferings which the disease inflicts.

In order to exemplify in a familiar and striking manner this particular point, I shall give 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. His pain is compared 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.

*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 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 millstone; to which are superadded distressing throbbings, with quiverings of tendons, and spasms of the muscles; and the skin feels as if girt with a strong ligature.

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

In slight attacks of the gout it often 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 *fœces* appear unusually foul and offensive, are dark in colour, and 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.

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. The sympathy between the mind and the body in this disease, is forcibly expressed in the words of Sydenham: "For every paroxysm may be as justly denominated a fit of anger, as a fit of the gout."

A general febrile action 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 these become relieved, in the morning. In the evening, and sometimes in the day, the patient complains of transient chills. 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 a hot skin, with the usual symptoms of pyrexia, are proportionably 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 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 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 gives rise to apoplexy, and paralytic affections; and very usually induces habitual cramps, and much nervous irritation and wandering pain.

A diseased condition of liver, proceeding even to a material change of structure, now and then 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, as I have already noticed, 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 kidneys 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 morbid 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 kidneys 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. 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 kidneys are often joined with the gout."

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 also become so much inspissated, as to constitute hard, solid

\* Ep. LVII.

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 become 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.

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; and, though more rarely, with ulcerations of the skin.

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

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

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.

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

\* Medical Communications, vol. i.

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 hands and feet, and the chalk-like matter is constantly secreted. I have met with many similar cases, in a slighter degree.

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 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 accu-

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

mulated about the joint in considerable quantity.

“ 30. The account omitted.”

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 more energetic application of several of the predisposing causes, 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 accu-

rate information on this subject I instituted the following comparison :

Of 77 patients, the number of those in whom the disease was

Hereditary from the father, was . . . . . 21

————— mother, . . . . . 5

————— father and mother, . . . 3

Of those whose grandfather only had gout, 3

————— grandmother only had gout, 1

————— aunt only in the family

had gout, . . . . . 1

Not known either on the father's or

mother's side, . . . . . 43

From this statement it appears, that the cases of acquired gout, in which no family reference could be traced, were to the rest, as 43 to 34 ; and in the examples contrasted with those immediately hereditary, as 43 to 29.

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."

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 organ-

ization 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*. Where the hereditary foundation does exist, gout is usually called into action by a much slighter degree of the remote causes, than in other instances; and it very seldom happens that a female has the gout, whose parents have been free from it; for the obvious reason, that in the female sex, the remote causes are, comparatively, but rarely and slightly applied.

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 marked. The author observes, "If it were true in all as

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

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 probably the reference in each case must 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. The disease is not the less hereditary in the legitimate meaning of the term, because the peculiarity 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 regard to 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.

*The adult age.*—The exemption of youth from the gout, is a striking character of the disease. 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, although I will not deny the probability of an 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."

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.

The following tabular view exhibits the period of the first attack in sixty-four cases:

Between twenty and twenty-five } years of age.....	} 6
twenty-five and thirty.....	17
thirty and thirty-five.....	14
thirty-five and forty.....	13
forty and forty-five.....	2
forty-five and fifty.....	6
fifty and fifty-five.....	2
fifty-five and sixty.....	60
sixty and sixty-five.....	1
	<hr/>
	64
	<hr/>

I have not seen an example of a first attack before twenty, nor 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

\* Commentaries, p. 33.

chest ; that they have large full veins, and loose solids. In relation to stature and bulk, I have made a comparison in one hundred and eighteen examples, the results of which are as follow :

	<i>Males.</i>	<i>Females.</i>
Tall and corpulent . . . . .	41	7
Short and corpulent . . . . .	12	3
Middle height & corpulent	19	2
Middle stature and bulk..	10	1
Tall and middle bulk. . . . .	6	0
Short and middle bulk. . . . .	9	0
Short and slight . . . . .	6	2
	<hr/>	<hr/>
	103	15
	<hr/>	<hr/>

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.

*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 are frequent and severe, loss of flesh 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 *cholericosanguine 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 language even of the present day. The notions of the ancients, together with their general opinions on disease, were obscured by the extreme doctrines of the humoral pathology. It would be certainly unjust not to allow, that these doctrines possess considerable force and truth; but the truth is mixed with fiction and wild hypothesis.

The term temperament, as an expression for the particular character and bias of the living actions, marked in the original stamp of the con-

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

stitution, is convenient in use, and forcible in meaning; but we should surely reject the many absurd epithets\* which are so often connected with it, in relation to the supposed morbid states of the blood and secreted fluids.

I would be tempted to propose a simple distinction into two kinds of temperament; *the sanguine*, 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

\* Hippocrates conceived that there were four humours in the body; blood, bile, black bile, and phlegm; and hence, according as one or other of these humours was considered to abound in an individual, he was said to be of a sanguineous, bilious, melancholic, or phlegmatic temperament.

*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 rendered so 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 pre-disposition? 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 to the former. But in addition to this circumstance, the superior delicacy of the female structure and habit, puts some restraint on the acquirement 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 also seldom acquired in the former, unless with the concurring influence of 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.

\* Hippocrates observes, Aph. xxix. sect. vi. *Gout seldom occurs in women, till after menstruation has ceased.* There is considerable truth in this assertion, but not to that extent which should entitle it to be considered as an aphorism.

*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 fortunes, and slender 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

\* In a similar spirit of moral reflection, the Poet happily expresses himself;

“O fortunatos nimium, sua si bona norint

“Agricolas!”—

*Georg. II. 458.*

often 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 stations 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 health of the brain, primarily, and 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 composition 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 foundations of a plethoric state; but in order

\* 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*.

† Dedicatory Epistle to Dr. Short.

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 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 experience. Champagne, 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 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 had 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."

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 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

\* Commentaries, 1255.

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, gout is rather frequent. In the abstract of diseases admitted at St. Thomas's Hospital, during ten years, under the care of Sir Gilbert Blane, in which the total number stated, is 3813, the proportion of cases of gout is 130\*.

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

\* Observations on the Comparative Prevalence, Mortality, and Treatment of different Diseases, &c. &c.—*Medical and Chirurgical Transactions*, vol. iv.

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 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 ever, the gout.

\* I am led to believe, from attentive observation, that *Diabetes* is considerably more frequent in Scotland than Eng-

*Indolence* powerfully assists the predisposition to gout. It promotes the tendency of full diet to produce plethora; and may, I think, be stated as causing a morbid accumulation of nervous excitability.

*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 probably be stated 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

laud; and that the opposite habits of the common people in the two countries, of which I have spoken, tend, in a sort of respective ratio, to produce gout with the one course of life, and diabetes or dropsy with the other.

with the gratifications 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 may have some 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 the greater number of the gouty, are with much justice characterised in the Greek and Latin epigrams just quoted.

*A morbid state of the digestive organs.*—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 chylo-poetic 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

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

"Λυσιμελες Βακχος, και λυσιμελες Αφροδιτης,  
Γενναται θυγάτηρ, λυσιμελες Ποδαγρα."

From member-dissolving Bacchus, and member-dissolving Venus, was produced a daughter, the member-dissolving Gout.

And in the same sense runs the Latin verse:

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

fluids." This is 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 development of gout takes place. In a first fit of gout, and often 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 chylication; 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 exciting cause to 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. 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 excessive 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, and altogether different from the slimy accumulation before mentioned. This habitual mucous

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

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, "the colour of the alvine excretions in a disordered state of the viscera is various. Sometimes they appear to consist of the residue of 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

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

healthy action. 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. 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.

With reference to the morbid state of the functions of the alimentary canal just considered, the urine also is an abundant source of information, when attentively examined. The quantity secreted is usually scanty, or even when in natural proportion, is much concentrated. That portion which is passed the first in the morning, should be the particular example for medical observation and examination. A copious deposition of pink or brick-coloured sediment, together with an excessive quantity of mucus, is a frequent appearance; or uric crystals (commonly called gravel), with mucus; or

the phosphates mixed with the urates, or separate; or mucus chiefly, with scarcely any other matter in the sediment, also occur. The colour of the morbid urine is various, and modified by different causes; but whether more or less deep, it is found, under these circumstances, much increased in specific gravity beyond the natural standard of health. This, from my experiments, which have been very numerous, I should state from 1010 to 1015\*. In the morbid urine to which I have referred, I have found the density sometimes increased to 1035 and 1040 and very commonly to 1025 to 1030. Its natural acid character almost universally remains, 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

\* 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.

cause the apprehension, that a calculus obstructs the passage, or that a stricture exists.

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 intestinal 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

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

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. 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.

From the connexion by structure which exists between the diaphragm and abdominal viscera, and the liver especially, the respiration is very commonly imperfect, and is even difficult and painful on occasions of increased action,

\* 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.

when a morbid condition of the parts which have been described, 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.

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

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. The pulsation in the epigastric region, which is often felt in an alarming degree by dyspeptic persons\*, is seldom, according to my observation, complained of by those who are disposed to acute gout, and probably appertains rather to those who have an unhealthy and obstructed state of mesenteric glands, are badly nourished, and have a morbid sensibility of nerve in a high degree. It is occasionally found in those who have been weakened by frequent

\* 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.

attacks of gout, have lost their flesh, and now have the disease only in its chronic form.

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 very strongly prevails. Under such circumstances the connexion of the functions of the brain with those of the digestive organs, is particularly exemplified.

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."

Under a morbid state of the digestive functions, 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 pulse at the wrist seldom carries any corresponding indication of this derangement of functions, but the circulation is by no means equally performed under particular excitement of diet ; and in proportion as the temperament is sanguine, 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.

The *piles*, attended with 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.

In entering into this wide field of important matter, I fear I may have departed too much from the subject more immediately before me, to which I now return.

*Variable climate*, may justly be considered as a predisposing cause of gout; and to this may be added, 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.

Another, also, 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; and 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 gouty in inferior life, who cannot afford to excite a fit by wine, produce the effect with strong malt liquor 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.

*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, colour-

\* This fluid appears to be composed of the peculiar acid matter generated in a morbid condition of the stomach, toge-

less. In proportion 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,

ther with bile and mucus. The green colour may be referred to the change produced in the bile by the acid matter. What the nature of this acid is, seems questionable. An artificial admixture of acetic acid and bile in any proportion, does not produce the green colour; but it is readily effected with diluted muriatic acid and bile.

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. 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. Hence we often find, that a small dose of alkali, with a few drops of tincture of opium, proves a ready palliative for this troublesome symptom.

sometimes occur as the short precursors of a paroxysm.

*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. Cold, whether applied locally or generally, acts most powerfully when conjoined with wet, but 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 organ, or most morbid part of structure, is consequently produced. The secre-

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

tions 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.* — Sprains, 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, 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.

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 sprained, but only common inflammation followed.

The pressure of too tight a shoe, and more especially if the patient walk much under such

irritation, will occasionally induce gouty inflammation.

I may add, that any of these modes of local injury, 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 relapse of gout immediately followed.

*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

\* 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.

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 therefore more irritable. In the fit itself, the irritability of disposition is almost proverbial with every author.

I may here repeat the observation of Sydenham, "that every paroxysm may be as justly denominated a fit of anger, as a fit of the gout."

#### THE PROXIMATE CAUSE.

This subject of inquiry 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. Ingenious speculation has been profusely substituted in place of real evidence; and various opinions built upon hypothesis (that is upon conjecture without proof, or 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 morbid 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, but rare instances of the external uric formations, already noticed; from the presence either of pink or lateritious sediment, or the reddish crystals (commonly called *gravel*), 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, became red on being exposed to the perspiration of a part affected with the inflammation of gout†." Dr. Wollaston also 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 employment of magnesia in gravel, and also in gout§.

\* 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.

§ Ibid. 1810, Part I.

In respect to *chalk-stones*, 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*.

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

A knowledge of the composition of these sediments being materially connected with the practice of medicine, I shall offer a detailed consideration of 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.

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. Nitromuriate 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 is delayed, if applied to the liquor when cold.

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

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 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,

\* The rose hue which is obtained either from crystals or the the pink sediment, is heightened to a beautiful carmin<sup>e</sup> 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 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, 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.

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.

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 so-

\* 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.

luble 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, or deep brick-coloured sediment. It has no effervescence with muriatic acid, nor does it affect vegetable colours. Heated before the blow-pipe or in the crucible, it kindles, blackens, emits pungent fumes, among which, the odour of prussic acid is perceptible, and consumes to a greyish ash, which forms about a tenth of the original matter. This ash reddens turmeric paper, and dissolves with effervescence in muriatic acid, it having been converted into a carbonate by combustion. Ammonia added to this solution, causes a white granular precipitate. Oxalate of ammonia produces a white precipitate. A portion of the ash being exposed to the atmosphere, soon shews signs of deliquescence. Hence it seems to follow, that the pink sediment is a mixture of a peculiar combination of uric acid and some animal matter, on which the colour may be considered to depend, with the usual phosphates of the urine. I have constantly found, that the sediment which is of the deepest pink colour, affords the least residue on being burnt, and

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

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 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 yielded no 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, combines with it, and prevents 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

\* This mucus partly intermixes with the coloured sediment,

the contrary, such urine as deposits the crystals, is almost free from such mucus.

Dr. Prout, who had the goodness to repeat my experiments on these substances, has favoured me with the following observation in connexion with the foregoing details: "The pink sediment appears to be a combination of uric acid with some animal matter, which last has the property of being soluble in acids. Hence the precipitation of the uric acid, on the addition of muriatic or any other acid, to the solution of the pink sediment in water, as before stated. 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."

Returning now to the question of an excess of uric acid secreted by the kidneys, as indicated

and in part forms a stratum above it. I have referred this excess of mucus to the irritating quality of such urine of high specific gravity, which, from the preternatural abundance of its saline principles, it may be conceived, stimulates the mucous coat of the bladder to increased secretion. The whole sediment in question, uric, mucous, &c. adds but little to the specific gravity of the urine. I selected an example in which this sediment was remarkably abundant, and found that, before filtration, its specific gravity at 60° was 1.0342, after, 1.0332. Urine of this description is quite transparent when passed from the bladder, and the sediment which it deposits on cooling, may be redissolved by heat.

by the deposition of the crystals, or the pink or lateritious sediment, and its relation already mentioned to the proximate cause of gout, I have to observe, 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 prin-

ciples 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

\* 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.

to the test of careful experiment; and the results of this investigation, I now offer in the following summary statement:

#### EXPERIMENT I.

J. W. under a paroxysm of gout. The urine of orange colour, without any other sediment than a small portion of minute uric crystals (*gravel*), and slight mucous cloud; specific gravity 1.016. Four ounces gave, on the addition of nitrate of lead, a precipitate weighing 22 grains, of which 13.7 were phosphate of lead, containing of *phosphoric acid*, 2.88 grains.

#### EXPERIMENT II.

Ditto, two months after the entire restoration of health. Urine of straw colour, and free from sediment; specific gravity 1.0199. Four ounces gave of nitrate of lead precipitate 18.4 grains; phosphate of lead, 4.6; *phosphoric acid*, .96.

#### EXPERIMENT III.

A. L. under the paroxysm. Urine of deep orange colour, copiously depositing pink sedi-

ment and mucus ; specific gravity 1·028. Four ounces gave of nitrate of lead precipitate, 66·2 grains ; phosphate of lead, 43·7 ; *phosphoric acid*, 9·2.

#### EXPERIMENT IV.

Ditto, two months after the return of health. Urine of amber colour, and free from sediment ; specific gravity 1·0168. Four ounces gave of nitrate of lead precipitate, 26·3 grains ; phosphate of lead, 14·1 ; *phosphoric acid*, 2·97.

#### EXPERIMENT V.

J. C. under the paroxysm. Urine of amber colour, with usual mucous cloud, and no other sediment (this urine was precipitated by nitric acid, see CASE II.) ; specific gravity 1·014. Four ounces gave of nitrate of lead precipitate, 28·8 grains ; phosphate of lead, 4·8 ; *phosphoric acid*, 1·02.

#### EXPERIMENT VI.

Ditto, three months after the return of health. Urine of amber colour, and free from sediment ; transparency not affected by nitric

acid; specific gravity 1·0137. Four ounces gave of nitrate of lead precipitate, 16·2 grains; phosphate of lead, 4·3; *phosphoric acid*, ·91.

#### EXPERIMENT VII.

C. M. under a paroxysm. Urine of deep orange colour, depositing copiously pink sediment and mucus; specific gravity 1·020. Four ounces gave of nitrate of lead precipitate, 50·5; phosphate of lead, 20·2; *phosphoric acid*, 4·3.

#### EXPERIMENT VIII.

Ditto, ten weeks after the return of health. Urine of light amber colour, and free from sediment; specific gravity 1·0107. Four ounces gave of nitrate of lead precipitate, 23·4 grains; phosphate of lead, 7; *phosphoric acid*, 1·47.

#### EXPERIMENT IX.

E. P. under the paroxysm. Urine of deep orange colour, very copiously depositing pink sediment and mucus; specific gravity 1·029. Four ounces gave of nitrate of lead precipitate,

71·5 grains ; phosphate of lead, 30·4 ; *phosphoric acid*, 6·41.

EXPERIMENT X.

Ditto, ten weeks after the return of health. Urine of orange colour, with uric crystals and mucous cloud ; specific gravity 1·0191. Four ounces gave of nitrate of lead precipitate, 40 grains ; phosphate of lead, 19·2 ; *phosphoric acid*, 4·05.

EXPERIMENT XI.

W. W. (see CASE I.), May 3d, free from complaint. Urine of amber colour, precipitating a mucous cloud and some uric crystals ; specific gravity 1·0094. Four ounces gave of nitrate of lead precipitate, 13·8 grains ; phosphate of lead, 3·8 ; *phosphoric acid*, ·8.

EXPERIMENT XII.

Ditto, May 5th, under very severe acute gout, contracted from exposure to wet and cold on the night of the 3d. Urine of deep orange colour, copiously depositing lateritious sediment and mucus ; specific gravity 1·0201 Four ounces gave

of nitrate of lead precipitate, 55·2 grains ; phosphate of lead, 25·4 ; *phosphoric acid*, 5·36.

#### EXPERIMENT XIII.

Ditto, May 10th, still suffering from gout severely. In the interval, from the 5th to yesterday, I had not attended him, as he was using a quack medicine. Last evening began purgative diuretic medicines, which acted freely. Urine of this morning, of amber colour, with considerable mucus, and a trace only of the pink sediment ; specific gravity 1·0039. Four ounces gave of nitrate of lead precipitate, 30 grains ; phosphate of lead, 15 ; *phosphoric acid*, 3·17.

#### EXPERIMENT XIV.

Ditto, May 11th, very ill last evening ; but obtained relief from the free employment of opium. Urine of deep orange colour, with dirty brick-coloured sediment, and much mucus ; specific gravity 1·024. Four ounces gave of nitrate of lead precipitate, 46 grains ; phosphate of lead, 18·4 ; *phosphoric acid*, 3·88.

## EXPERIMENT XV.

Ditto, May 12th, much better; continuing under the active influence of purgative diuretic medicine. Urine of amber colour, with the mucous cloud of health, but no other sediment; specific gravity 1.012. Four ounces gave of nitrate of lead precipitate, 24 grains; phosphate of lead, 4.8; *phosphoric acid*, 1.02.

## EXPERIMENT XVI.

Ditto, May 13th, going on most favourably; urine of similar appearance to that of yesterday, with the addition of some minute uric crystals; specific gravity 1.0105. Four ounces gave of nitrate of lead precipitate, 28 grains; phosphate of lead, 7; *phosphoric acid*, 1.47.

## EXPERIMENT XVII.

Ditto, May 14th, some return of inflammation and pain last night; freely under the action of the same medicines; urine abundant, of a light straw colour, with minute uric crystals, and more of mucus than yesterday; specific gravity 1.0106. Four ounces gave of nitrate of

lead precipitate, 32·8 grains ; phosphate of lead, 16·4 ; *phosphoric acid*, 3·47.

I discontinued the examination for the present.

On May 16th, the urine of healthy appearance ; specific gravity 1·0085.

#### EXPERIMENT XVIII.

Ditto, July 4th. For some time past quite restored to health, under ordinary full diet. Urine of amber colour, with the mucous cloud of health ; specific gravity 1·0172. Four ounces gave of nitrate of lead precipitate, 26·8 grains ; phosphate of lead, 13·3 ; *phosphoric acid*, 2·8.

#### EXPERIMENT XIX.

J. G., under inflammatory affection of the liver, &c. in connexion with gout, (see CASE XII.). Urine of deep orange colour, copiously depositing pink sediment and mucus ; specific gravity 1·0207. Four ounces gave of nitrate of lead precipitate, 57·6 grains ; phosphate of lead, 19·5 ; *phosphoric acid*, 4·1.

## EXPERIMENT XX.

Ditto, eleven months after the former period, looks in general good health, and is quite free from gout; but the digestive functions are not yet correct: urine of orange colour, with much mucous cloud, and depositing uric crystals abundantly; specific gravity 1.014. Four ounces gave of nitrate of lead precipitate, 20.4; phosphate of lead, 10; *phosphoric acid*, 2.1.

## EXPERIMENT XXI.

J. W. aged 45, under the paroxysm; urine of deep orange colour, depositing both pink sediment and uric crystals, and much mucus. Four ounces gave of nitrate of lead precipitate, 42.5 grains; phosphate of lead, 16.1; *phosphoric acid*, 3.4.

No subsequent opportunity of comparative examination.

## EXPERIMENT XXII.

J. M. aged 38, under the paroxysm; urine of amber colour, depositing some pink sediment and mucus. Four ounces gave of nitrate of

lead precipitate, 35·6 grains ; phosphate of lead, 10·6 ; *phosphoric acid*, 2·24.

No subsequent opportunity of comparative examination.

EXPERIMENT XXIII.

T. A. aged 37, in strong health, of free habits, not subject either to gout or rheumatism ; urine of amber colour ; specific gravity 1·0113. Four ounces gave of nitrate of lead precipitate, 25 grains ; phosphate of lead, 13 ; *phosphoric acid*, 2·75.

EXPERIMENT XXIV.

L. S. aged 37, in strong health, of sanguine temperament, of moderate habits, and not subject to gout or rheumatism ; urine of amber colour ; specific gravity 1·0183. Four ounces gave of nitrate of lead precipitate, 40·8 grains ; phosphate of lead, 20·5 ; *phosphoric acid*, 4·33.

EXPERIMENT XXV.

A. J. aged 24, in good health, of free habits, subject to violent acute rheumatism ; urine of

amber colour; specific gravity 1.0173. Four ounces gave of nitrate of lead precipitate, 17.4 grains; phosphate of lead, 5.6; *phosphoric acid*, 1.18.

#### EXPERIMENT XXVI.

E. J. aged 19, in strong health, of free habits, subject to tonsillary inflammation, but not to other diseases; urine of orange colour; specific gravity 1.0217. Four ounces gave of nitrate of lead precipitate, 49.2 grains; phosphate of lead, 20.4; *phosphoric acid*, 4.31.

#### EXPERIMENT XXVII.

H. T. aged 48, of moderate habits, not subject to gout; suffering under chronic hepatitis and morbid alimentary secretions; urine of orange colour, much loaded with pink sediment and mucus; specific gravity 1.0334. Four ounces gave of nitrate of lead precipitate, 49.2 grains; phosphate of lead, 22.8; *phosphoric acid*, 4.82.

#### EXPERIMENT XXVIII.

Ditto, two or three months after, when much

improved in health by a course of medicine ; urine of amber colour, and free from sediment ; specific gravity 1·018. Four ounces gave of nitrate of lead precipitate, 37·2 grains ; phosphate of lead, 13 ; *phosphoric acid*, 2·75.

EXPERIMENT XXIX.

J. T. aged 34, a strong man under severe continued fever ; urine of deep orange colour, copiously depositing bright pink sediment and mucus ; specific gravity 1·025. Four ounces gave of nitrate of lead precipitate, 32 grains ; phosphate of lead, 18·5 ; *phosphoric acid*, 3·9.

EXPERIMENT XXX.

Ditto, six months after, in perfect health, and of moderate habits, but very plethoric, and of sanguineous temperament ; urine of amber colour, free from sediment ; specific gravity — Four ounces gave of nitrate of lead precipitate, 48 grains ; phosphate of lead, 24 ; *phosphoric acid*, 5·07.

EXPERIMENT XXXI.

S. P. aged 39, a robust man, of free habits,

plethoric, of sanguineo-nervous temperament; under acute hepatitis; urine copiously depositing pink sediment and mucus; specific gravity 1.023. Four ounces gave of nitrate of lead precipitate, 38.4 grains; phosphate of lead, 24; *phosphoric acid*, 5.07.

#### EXPERIMENT XXXII.

Ditto, three months after, says that he feels, for the most part, in health and spirits; but evidently the liver is not quite healthy in its functions; has resumed free habits of living; urine of light orange colour, depositing some pink sediment and mucus; specific gravity 1.0245. Four ounces gave of nitrate of lead precipitate, 40 grains; phosphate of lead, 28; *phosphoric acid*, 5.92.

#### EXPERIMENT XXXIII.

J. B. aged 13, robust, and not of unhealthy appearance; the bowels constipated, with much spasmodic pain, and nephritic irritation; urine of amber colour, depositing the phosphates, and also holding in solution the ammoniaco-magnesian phosphate, and the phosphate of lime, although

it vividly reddens litmus\* ; specific gravity 1.018. Four ounces gave of nitrate of lead precipitate, 36.6 grains ; phosphate of lead, 17.7 ; *phosphoric acid*, 3.75.

\* Since this example, which first struck my notice as appearing an extraordinary circumstance, I have met with four additional instances precisely similar. In each, litmus paper was as much reddened as in healthy urine. The sediment on examination was found to consist chiefly of the ammoniaco-magnesian phosphate, but also in part of phosphate of lime ; and in each case, these compounds were also found more or less abundant in solution. These results appear to be entirely at variance with the general theory on this subject, and militate against the chemical practice of giving acids as a certain remedy, when the phosphates appear deposited in the urine. I suspect that the statements of the urine being alkaline, when the urine bears this character of sediment, may sometimes have been made rather from theoretical conclusion, than from experiment. This deposition may be distinguished at once to the eye, by the absence of colouring animal matter, and its consequent whiteness. Like the uric sediment, it is accompanied by much mucus. It is a fact worthy of notice, that urine of this description, is turbid at the moment that it is passed from the bladder, whereas the urine giving the uric sediment (pink or lateritious) as already mentioned, is transparent, and deposits only on cooling. In regard to the treatment in these cases of phosphate sediments, I can assert, that I have been perfectly successful in acting upon the principle, that this function of the kidney is here, as well as where the urates are deposited, entirely dependant on a disordered state of the digestive functions. In the boy, whose urine was the subject of Experiment xxxiii, purgative medicines and afterwards alteratives and tonics were employed. For the relief of spasmodic pain which prevailed much in that case, the

## EXPERIMENT XXXIV.

L. S.\* aged 23, robust, under acute rheumatism ; urine of orange colour, with slight pink and mucous sediment. Four ounces gave of nitrate of lead precipitate, 29·2 grains ; phosphate of lead, 5·1 ; *phosphoric acid*, 1·07.

No subsequent opportunity of comparative examination.

## EXPERIMENT XXXV.

L. M. aged 4. The general functions disordered ; a large belly, with distension and hardness ; narrow chest ; cough ; irregular fever and debility ; urine of amber colour, depositing lateritious sediment and mucus ; specific gravity 1·0263. Four ounces gave of nitrate of lead precipitate, 51·2 grains ; phosphate of lead, 23·5 ; *phosphoric acid*, 4·96.

warm bath was used with great advantage. I think it probable, that examples of this description of urine will be found to occur most among young children, or below the adult age.

\* With this exception, all the patients were *males*.

## EXPERIMENT XXXVI.

H. B. aged 42; of laborious employment; under continued fever; urine of orange colour, depositing pink sediment and mucus; specific gravity 1.0154. Four ounces gave of nitrate of lead precipitate, 44.8.

## EXPERIMENT XXXVII.

Ditto, two months after the restoration of health; urine of straw colour; specific gravity 1.0154. Four ounces gave of nitrate of lead precipitate, 24.6 grains.



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 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 employed may appear improperly complicated ; but I was led to adopt 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 quantity 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 a very faithful judgment may be formed, of the state of the important function which the kidneys are performing.

That the reader may have an opportunity of more conveniently forming his conclusions from these experiments, and of considering the view of the subject which I have attempted to lay before him, I shall offer a tabular abstract of the whole:

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Nit. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.	
I.	J. W. gout.....	1.016	22	13.7	2.88
II.	Ditto in health, and two months after recovery.....	1.0199	18.4	4.6	.96
III.	A. L. gout.....	1.028	66.2	43.7	9.2
IV.	Ditto in health, and two months after recovery.....	1.0168	26.3	14.1	2.97
V.	J. C. gout..	1.014	28.8	4.8	1.02
VI.	Ditto in health, and three months after recovery.....	1.0137	16.2	4.3	.91
VII.	C. M. gout.....	1.020	50.5	20.2	4.3
VIII.	Ditto in health, ten weeks after recovery.....	1.0107	23.4	7	1.47
IX.	E. P. gout.....	1.029	71.5	30.4	6.41
X.	Ditto in health, ten weeks after recovery.....	1.0191	40	19.2	4.05
XI.	W. W. gout, one day before the attack.....	1.0096	13.8	3.8	.8
XII.	Second morning after.....	1.0201	55.2	25.4	5.36
XIII.	Seventh day of gout.....	1.0099	30	15	3.17
XIV.	Eighth.....	1.0242	46	18.4	3.88

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Nit. of lead.		Ph. of lead.		Ph. acid.	
		Grains.	Grains.	Grains.	Grains.	Grains.	Grains.
xv.	Ninth day of gout.....	1.012	24	4.8	1.02		
xvi.	Tenth.....	1.0105	28	7	1.47		
xvii.	Eleventh.....	1.0106	32.8	16.4	3.47		
	Twelfth.....	1.0085					
xviii.	In health, about two months after recovery.....	1.0172	26.8	13.3	2.8		
xix.	J. G. hepatitis, with gouty diathesis.....	1.0207	57.6	19.5	4.1		
xx.	Ditto in health, many months after recovery.....	1.014	20.4	10	2.1		
xxi.	J. W. gout.....	omitted	42.5	16.1	3.4		
	No opportunity of comparison.						
xxii.	J. M. gout.....	omitted	35.6	10.6	2.24		
	No opportunity of comparison.						
xxiii.	T. A. in health, not subject to gout or rheumatism.....	1.0113	25	13	2.75		
xxiv.	L. S. in health, not subject to gout or rheumatism.....	1.0183	40.8	20.5	4.33		
xxv.	A. J. in health, subject to acute rheumatism.....	1.0173	17.4	5.6	1.18		

FROM FOUR OUNCES OF URINE.

EXP.	Sp. gravity.	Nit. of lead. Grains.	Ph. of lead. Grains.	Ph. acid. Grains.	
xxvi.	E. J. in health, not subject to gout or rheumatism, but plethoric and liable to tonsillary inflammation.....	1.0217	49.2	20.4	4.31
xxvii.	H. T. chronic hepatitis.....	1.0334	49.2	22.8	4.82
xxviii.	Ditto when in improved health.....	1.018	37.2	13	2.75
xxix.	J. T. continued fever.....	1.025	32	18.5	3.9
xxx.	Ditto many months after in full health.....		48	24	5.07
xxxi.	S. P. acute hepatitis.....	1.023	38.4	24	5.07
xxxii.	Ditto, feeling in general health, two months after; but certainly not free from hepatic affection.....	1.0245	40	28	5.92
xxxiii.	J. B. nephritis.....	1.018	36.6	17.7	3.75
xxxiv.	L. S. acute rheumatism.....	omitted	29.2	5.1	1.07
xxxv.	L. M. tabes mesenterica.....	1.0263	51.2	23.5	4.96
xxxvi.	H. C. continued fever.....	1.023	44.8	omitted	omitted
xxxvii.	Ditto in health, two months after recovery.....	1.0154	26.6	ditto	ditto

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

With respect to the position of Berthollet, it is manifest that in the urine of persons under a paroxysm of gout, the proportion of 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

\* In all my experiments, I used the temperature 60° of Fahr. I found the following variation 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.

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

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 constitut-

ing 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 kidneys 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 the nearest 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, 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

\* 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.

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 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 consider 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†."

\* Tracts on Gout, &c. by Thos. Sutton, M.D. &c.

† p. 220.

This pathology, although useful in the practice to which it directly leads, appears to me not only gratuitous 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 “ exemplifications 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 a 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

\* p. 428.      † Ibid.      ‡ Ibid.

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 particular predisposition of his constitution.

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 constitute a clear arrangement in theory, and a solid basis in practice.

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

RATIO SYMPTOMATUM, OR THE THEORY OF THE SYMPTOMS.

OF great affinity to the last question, and nearly allied also in difficulty, is the present subject of consideration. 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\*.

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

\* 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.

a degree highly varicose. *Piles* 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.

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 invasion.

I know a gentleman, about thirty years of age, whose case appears to me to afford an illustration of the present 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, and his strength is vigorous; and gout has not yet befallen him; but when the period arrives that his vessels lose their tone, 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 determination 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 kidneys.

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. 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 apparently 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.

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

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 secreting functions of the alimentary canal in general, and of the kidneys in particular.

In proportion as the constitutional susceptibility to gout is stronger or weaker, whether founded in hereditary predisposition, or derived 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 been already 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 pure or mixed nervous temperament of the gouty, induces frequent and severe hypochondriasis, in connection 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 disposition to return at certain intervals (a character by no means so strongly marked in any of the other phlegmasiæ) further 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 sprain or contusion in a gouty person, sometimes produces only common inflammation; 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 dis-

posed 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 only is produced, I should infer the absence of the constitutional 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 inflammation. Peculiar texture may be viewed as the chief source of the distinctive phenomena; and in the example of a mucous and a serous membrane, it offers a satisfactory explanation. But this consideration alone 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. This argument, indeed, might be much extended in application to other kinds of inflammation.

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 occasional union of gout and gravel in the same individual, has been generally noticed; but an analogy between the two diseases has been too much insisted upon. That each disease is intimately connected with a disordered state of digestive functions, is a fact which our experience constantly demonstrates; but in the most material points of pathology, as depending on the sanguiferous system, an essential distinction can be shewn. In gravel, an excess of acid in the alimentary canal appears to be indispensably the active remote cause which produces the complaint; and this disease does not require for its introduction, the various accessory circumstances, of which I have treated, that give rise to gout.

The uric acid constituting the chief ingredient in the composition of gouty calculi, and frequently also belonging to the urinary, seems to have led more particularly to the analogy in question. 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 vessels.

With regard to the common 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 theorists 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 very much the greater proportion of gouty persons 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 kidneys, 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 two 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 one example has occurred under my observation, or within my knowledge\*. In that instance (see CASE II.) the result was curiously modified by an attendant secretion of uric acid of soda†.

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

† I may here take occasion to notice, that, in every example of gout concretion which I have examined, uric acid and soda have appeared 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,

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 case which I have related, 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 suppurative in its sensation;" and further, "local inflammations depending on the constitution seldom or ever suppurate."

This last observation is probably 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 is soon diminished by the effusion which in certain parts takes place abundantly, into the cellular membrane ; and at the same time, the circulation is in some 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 that 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 is immediately 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 angle which he feels as the hottest part, and describes to be "in a strong burning heat," is  $97^{\circ}$ ; two inches above, where he feels comfortable warmth,  $94\cdot5$ ; at the external angle of the other foot, which is a little affected with gout, but is not, he says, "half so hot as the other,"  $96^{\circ}$ . Temperature in the axilla,  $99^{\circ}$ .

#### 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  $84^{\circ}$ ; at the same

part in the other toe, which is free from complaint, and feeling comfortably warm,  $83^{\circ}$ .

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,  $94^{\circ}$ ; same situation in the fore finger of the other hand, which is free from complaint,  $70\cdot5$ ; palm of gouty hand,  $93\cdot5$ ; palm of sound hand,  $81\cdot7$ ; the last joint of the affected fore-finger,  $94^{\circ}$ ; axilla in each arm,  $96\cdot5$ ; under the tongue,  $99^{\circ}$ . He remarks that each part of the fore finger at  $94^{\circ}$  feels very much hotter than the palm of the same hand at  $93\cdot5$ .

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,  $87\cdot5$ ; the same part of the other hand, which he describes as comfortably warm,  $75\cdot5$ ; 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,  $75\cdot5$ ; 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,  $63^{\circ}$ ; of the back of the hand, where he feels most heat,  $86^{\circ}$ ; over the radial artery of this hand, where he has no unusual sense of heat,  $91^{\circ}$ ; at the back of the other hand, which is perfectly free from inflammation,  $74^{\circ}$ ; 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,  $95^{\circ}$ ; at the same part in the other hand, which is free from complaint,  $93^{\circ}$ ; and over the radial artery of this hand,  $94$ . His left foot is much swollen,

\* 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.

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,  $96^{\circ}$ ; at the same part in the other foot, which is free from complaint,  $93^{\circ}$ ; just beneath the ensiform cartilage,  $95.5$ .

#### EXPERIMENT VII.

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,  $92^{\circ}$ ; at the same part in the other hand, which is free from complaint, and comfortably warm,  $85^{\circ}$ .

#### EXPERIMENT VIII.

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,  $97^{\circ}$ ; at the

same part of the sound hand, the skin of which she feels as temperate,  $93^{\circ}$ .

EXPERIMENT IX.

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,  $83^{\circ}$ ; at the same part in the other hand, which has just been exposed to cold, uncovered,  $66^{\circ}$ . Palm of the affected hand,  $88^{\circ}$ ; palm of the other hand,  $69^{\circ}$ .

EXPERIMENT X.

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 of scalding water. Temperature at the hottest part,  $94^{\circ}$ ; of the same part in the other hand, which she feels pleasantly warm,  $93^{\circ}$ .

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 x, it is shewn, that, as in 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.

\* 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  $64^{\circ}$ , I have not noticed the exact degree.

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

DIAGNOSIS, OR THE DISCRIMINATION OF THE  
DISEASE 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 affected 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 following 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. 27), 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 turgescient 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, with 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. All these symptoms, 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. Our opinion 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*, is the only one which can 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 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, is 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. Cruikshank remarks\*,

\* Rollo on Diabetes, p. 449.

“ 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. I have already remarked, 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

\* 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 suspect, at least, a faulty state of the functions of the liver ; and if the sediment

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 to mention, among the favourable signs, the visceral organs being sound in structure, and not materially disturbed in their functions ; 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

continue to take place for months, the inference, that some alteration of structure must have followed such continued derangement of actions, would present itself.

\* 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 ex-

quick transference from one part to another; or if it be fugitive, not fixing severely on new parts.

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, and with exquisite sensibility of the whole nervous system.

#### TREATMENT OF GOUT GENERALLY CONSIDERED.

THE prohibitions 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 humoral pathology, which at that time pervaded the

isting in nature." Except in two instances I have not been able to learn 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. 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.

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 morbid 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 still 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 *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; 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 progress 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.

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

#### THE TREATMENT OF THE PRÆMONITORY 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 advantageously employed. Any tendency to hæmorrhoidal 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 sulphat 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*\*,

\* A medical gentleman who has had severe fits of gout, informs me that he has often taken warning from these symp-

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 bitter aperients, constitute an efficacious mode of treatment. Alkaline medicine has its advantage, but renders little service 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\* ; 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

toms ; 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.

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 consideration, 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. 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. The quantity to be abstracted, and the repetition of the venesection, must be adapted to the urgency of the general inflammatory action, and 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 think, 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 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

\* Letters, &c.

† Rush's Medical Inqu. and Obs. vol. v.

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 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 favorably as a mild laxative.

*Cathartics and Diuretics.*—On the choice and free employment of purgative and diuretic medicine, the successful treatment of the pa-

\* Med. Observ. and Inq. vol. vi. art. 20.

roxysm 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 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—to excite 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

\* Tracts on Gout, &c.

of Nature's efforts to remove redundant matter by the action of the kidneys—an action, the existence of which I think myself entitled to infer from my experiments—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 kidneys, are stimulated to increased action at the same time. With this view, probably, some have employed elaterium; and lately it has been advised in combination with opium. But for myself, from reflecting on the uncertain operation of elaterium, and its injurious violence occasionally, even in small doses, I conclude, that unless in a sluggish state of bowels, which is also joined with anasarcaous swelling in the extremities, its active nature should be rather dreaded, than chosen as a 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 am able, 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, according to the degree of vitiation which the bilious and other matters from the bowels appear to possess. A combined and continued action upon the bowels and kidneys is conveniently effected by the following draught, administered with such intervals, as that from four to six evacuations in the twenty-four hours may be produced, so long as the indications presently to be mentioned continue.

℞ Magnesiæ ʒj.  
 Sulphatis Magnes. ʒj. ad ʒij.  
 Aquæ Menthæ viridis ʒx.  
 Aceti Colchici ʒj. ad ʒiss.  
 Syrupi Croci ʒj.—M. Fiat haustus,  
 quartis, sextis, vel octavis horis sumendus, prout  
 alvus soluta fuerit.

This treatment should be actively pursued 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.

In two or three instances of particular idiosyncrasy, it has appeared to me that the colchicum, even thus mildly exhibited, was too acrid in its operation to be continued, for it caused distressing heat in the bowels. I have to add, however, 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. This preparation of colchicum, joined with direct purgatives, has never disappointed me in its effect, either to *assist* the other ingredients in the production of watery evacuation from the bowels, or to increase the discharge of urine abundantly, or both. I may also 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 very disagreeable to the palate.

I apprehend that few 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.

\* 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*.

*Mercurial Preparations.* — The administration of mercury during the paroxysm, and more especially in the interval, appears to have been recommended 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. 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, it has produced, 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.

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

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.

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 produced 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 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, it proved rather

\* Medical Botany, p. 276.

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

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

† In a Latin translation of a very old Greek MS. upon the gout, written by Demetrius Pepagomenus, and first given

as an ingredient in medicines for the gout ; but doubtless its powers have lately been much over-rated.

Upon the *Eau medicinale* itself, I shall offer my observations more at length.

Of the composition of this medicine, I have no satisfactory conjecture to offer ; but I do not give credit to any of the supposed discoveries of it. I evaporated almost to dryness, at a temperature not exceeding 60°, a bottle of the genuine medicine ; and compared its sensible properties with those of the before mentioned preparations of bellebore and laudanum, of the tincture of colchicum, and of the tincture of the hedge hyssop. The phenomena which appeared, were in each substance distinctly different\*, and according to my observation also, each of these medicines

in 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 ; scammoniae pulcherrimae sextans. Ex iis fiant pilulae ; denturque pro viribus, materiae copia, et natura ejus medicamenta, quod datur et tempore.”

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

\* After the first evaporation, I added distilled water to the mass, and re-evaporated ; performing this process twice,

varies equally in its action upon the stomach and general system.

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 advocates among those who are lovers of quackery, or 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,

so as to prevent any fallacious inference which might arise from the difference of menstrua in the several preparations. The following were the results:

*Eau medicinale.* — Colour and consistence similar to the extract of poppy: taste, slightly bitter, and much resembling the extract of henbane: smell, perfectly distinct from that of opium, and very similar to the common treacle-lozenge: soon deliquesces after being dried.

Mixture of *hellebore* and *laudanum*. — Colour and consistence similar to the eau medicinale: tastes strongly and smells slightly of opium: soon deliquesces after being dried.

*Tincture of Colchicum.* — Colour, light brown: taste, slightly but distinctly bitter, and entirely different from that of the eau medicinale: smell, that of gum resin of guaiacum: soon deliquesces after being dried.

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

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 of peculiar idiosyncrasy, which came under my observation, the patient reported that he had taken several bottles (procured from the *dépôt*) within a few weeks, and yet from the free use of the medicine no sensible influence was produced. On the other hand, the capriciousness of its operation 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

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

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 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 observations, of the injurious tendencies of the eau medicinale in gout. One of his patients almost fell a victim 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.

In conclusion of this subject, it may be affirmed, 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 modification from 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

\* Treatise on Gout, p. 175.

very strongly by Dr. Tavares\*, a Portuguese physician, as possessing the power of cutting short the paroxysm, and rendering its return 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 entertain 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

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

† *Med. Observations and Inquiries*, vol. vi.

as an alterative, has always appeared to me very useful. I consider 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 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, I think, with great propriety, a watery solution\* of opium; and occasionally also an anodyne elixir, the formula† of which is complicated, and constitutes, I think, 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 will either aggravate or relieve all 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 seldom admitting of deviation, any inflammatory diathesis, and a constipated state of bowels, should be removed previously to the administration of opium.

In an ordinary state of 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. 155) at regular intervals, conjointly with the opiate at bed-time in adequate doses; so that by the united effect of each remedy,

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

† *Ib.* 155.

‡ First Lines, Par. 570.

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 kidneys, I have not found the observation of Dr. Cullen, just now quoted, to be confirmed; but I have often experienced, that if the purgative or the narcotic be trusted to, singly, a re-action of the circulation, and violent return of pain, will take 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 this medicine to succeed best in its crude state, and when 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

\* Tracts, &c. p. 216.

† I am well persuaded from abundant experience, that opium, in its crude state, is the most advantageous form in which it can be freely administered. In all the pharmaceutical methods of purifying it, the heat which is employed, however carefully it be applied, tends more or less to injure its useful properties.

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.

In occasional idiosyncracies, we know that opium in any dose or form disagrees, and produces intolerable effects; aggravating nervous irritation, so that even the relief from pain is an advantage too dearly purchased. In such instances, it is incumbent on us to make trial of the weaker narcotics; and of these, I have found henbane most deserving of reliance.

It is sometimes an important advantage attendant on the use of this medicine, that with its sedative powers, it does not, like opium, tend to restrain the natural action of the bowels; but it must also be confessed, that in severe pain, it is on opium alone that much dependance can be placed.

The *humulus lupulus* has been strongly recommended \* as a remedy in the paroxysm: and in those constitutions with which other sedatives do not agree, this medicine may deserve employment. In two trials which I have myself made of it, giving it with the freedom directed by the author, I could obtain only a slight palliative effect. Its active virtues in any case appear to me very questionable.

*Diet.*—It is in this important particular most generally that the greatest errors are committed

\* Freake on the Use of the Humulus Lupulus in Gout.

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 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. 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 drink, rennet-whey is equally agreeable and useful. 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 (with an exception relative to the state of *excessive* pain) daily exercise in a carriage, even in the beginning of a fit. 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 stiffness and debility are counteracted by moderate and early efforts.

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.

Dr. Small walked abroad as soon as the inflammatory action had ceased; and expresses his opinion, “that nine in ten of gouty crip-

\* Commentaries, § 1261.

ples 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.

Except under extreme circumstances, it may be said, that 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.

*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

\* Med. Obs. and Inqu. vol. vi. p. 200.

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, 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 be-

\* Upon the Influence of the Passions on the Disorders of the Body.

comes a valuable desideratum, to establish a settled mode of treatment, which may at once be safe and effectual. This view of my subject I shall now endeavour to offer, in the following arrangement of the chief topical remedies which are in use at the present day ; or such at least as are not wholly discarded.

*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 rather injurious than useful.

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 a hazardous practice; 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. 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. 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 *τραγοποδαγζα* of Lucian.

*Warmth.*—The various contrivances of warm

\* See his Works, vol. iii.

covering to the affected part, for the purpose of producing perspiration, or in the strict language of humoral pathology, *to invite the deposition and discharge of the morbid matter*, although apparently indicated by the prudence of ages, seems to be the worst part of the ancient practice. Combed wool, or socks and bootkins, have been favourite modes of fulfilling this plan of treatment\*. *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. 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* is inadmissible while any

\* Gardiner on the Gout.

inflammation remains ; and I have even seen the inflammation re-produced by its employment very remarkably, where no hazard of such an occurrence had appeared to exist.

Also when the cleanliness and softening of the skin of the surrounding parts, together with that immediately affected, is desired during the paroxysm, it has appeared to me that 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.

*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 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.

*Of other modes of evaporation.*—The practice of Dr. Kinglake (for so it may be designated, although originally derived from Hippocrates\*,

\* Aph. xxv. sect. 5.

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 sometimes 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. 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 favourable 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, which gouty inflammation so certainly produces.

I have now the satisfaction to state, that in about forty cases, I have made trial of the following lotion, with the best success :

℞ Alcoholis ℥viii.

Misturæ camphoræ ℥xvi. M.—Fiat lotio, modice tepefacta ab additione pauli aquæ calidæ, et partibus affectis constanter adhibeatur.

The evaporation which the alcohol alone would occasion, is advantageously restrained by this dilution ; and the addition of a sufficient quantity of very hot water, is for the purpose of producing a temperature, just agreeably lukewarm, and furnishes a prompt and convenient method of employing the lotion, on the principles on which I recommend its adoption. If it be applied either hot or cold, the intention of the remedy is 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 several folds, and the slightest and coolest covering only should be

superincumbent. The effects of this lotion, when it has been attentively employed, have been invariably favourable, and more or less efficacious in every case. 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.

With respect to the use of this lotion 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. In our successful treatment of the local inflammation, we do much to preserve 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, and in no case 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. 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 seldom requires attention beyond 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 much 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 in the weakened limbs.

It often 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 a pill, with the decoction of the same and a little soap.

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. It more commonly happens, according to my observation, that in gouty persons, *corrective* tonic medicine is more required than tonic astringents ; and as a formula which I have found particularly successful, I may mention the following :

℞ Calumbæ radicis concisæ ℥i  
 Cascarillæ corticis contusi ℥ii  
 Rhei radicis concisi ℥i ad ℥ii  
 Cardamomi seminum contrit. ℥ss  
 Aquæ ferventis octarium dimidium.

Macera per horas duas, et cola.

℞ Hujus infusi ℥xi ad ℥xv  
 Tincturæ aurantii ℥i  
 Sodæ carbonatis gr. x ad gr. xv.—M.

Fiat haustus, bis quotidie sumendus.

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 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 formula of restorative medicine, it would be both tedious and superfluous now to enlarge.

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

\* 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.

a gentleman, who pursued unnecessarily very low living, after 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 indulgence would produce, we should on the other equally guard against incurring a state of inanition and debility, by an extreme restraint of regimen.

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 restoration of health. As the present subject 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 effect of warmth and relaxing treatment, and may be prevented by correct management; but present care cannot always

repair the evil of former error ; and it becomes sometimes a difficult task to invigorate the enfeebled limbs.

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 illy tolerates 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, is perhaps allowable ; 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 ; made more or less exciting, as the individual case may require.

℞ Tinct. lyttæ ꝑss.

Linim. camph. compos.

—— saponis compos. āā ꝑss. 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, ple-

\* I have preferred to state a few of the cases considerably in detail, rather than to offer a numerous list described with more brevity.

thoric habit, and irritable disposition. He is occasionally nephritic, and once, a few years ago, suffered very severely with retention of urine and severe spasms. He is frequently of late years dyspeptic; his tongue is always more or less furred; and his nose and face exhibit the *gutta rosacea*\* in a great degree. With such exceptions, has never had any other disease than gout. Gout 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

\* *Acne rosacea*.—Bateman.

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 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 sprain 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 affected. 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 Christ-

mas (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 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 feet and hands.

Intending to make this patient the subject of some comparative examinations, in regard to the secreting action of the kidneys, I examined his urine on the 3d of May, 1815, when he was not complaining. Having already detailed the particulars of this investigation (p. 95, &c.) 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 procured 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 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, 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. antim. gr. ij.

Ext. colocynth comp. gr. x.

Saponis duri, gr. iij.—M. fiant pilulæ iij.

statim sumendæ.

℞ Magnes. ꝑiv.

Sulph. magnes. ꝑvj.

Aquæ menthæ viridis, ꝑv.

Aceti colchici,

Syrupi croci āā ꝑss. M.—Hujus misturæ

capiat partem quartam, 6tis vel 8vis horis,

prout alvus soluta fuerit.

\* 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.

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. 185; 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 sp. gr. 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:

R 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 11th, 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 per-

spiration, 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 12th.*—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 interval 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. Stools less heating, but still foul and of yellowish-green colour ; no præternatural 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 13th.*—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 14th.*—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 the least tenderness.

*Tuesday 16th.*—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  $\text{zj}$  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 vegetable, 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.

\* I have invariably found, that the first urine of the

*Sunday, May 21.*—Has daily improved in health; appetite good, and digestion comfortable; tongue has still a whitish fur, but it lessens. Walks with much more strength; ancles swell a little after exercise, but the swelling is on 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 the 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, 2nd 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 entirely 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.

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. aloes compos. ʒj.

Pulv. antimon. gr. v.

Saponis duri gr. x.

Decoct. aloes comp. 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. 193\*, 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.

\* See also under the head of Prophylactic Regimen.

*July 4th.*—He assures me that he has pursued 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.

#### CASE II.

*April 1815.*—W. C. aged 38, a plumber and glazier, short in stature, a circular chest, thin, but, according to his statement, 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 drank 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 ; some-

times 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 lightly 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.

\* See Appendix to the Case, p. 218.

† See Exp. p. 132.

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 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 .02 gr. (see Experiment v. p. 93). In the treatment of the case, the pills of calomel, colocyath, &c. (p. 154) containing of calomel three grains, with two of antimonial powder, were directed immediately; the draught (p. 155) 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, 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 continued 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. 93). 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

\* My friend Dr. John Davy was present, and obligingly joined in the experiments.

the blow pipe it decrepitates slightly like albumen, emitting an ammoniacal odour, and burning with flame. When urged with the flame, 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 urat of soda, on being treated in the usual manner with nitric acid, it exhibited distinctly the rose hue.

*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.

### CASE III.

J. W. aged 42; of small stature, chest circular; thin; of nervous temperament; of active habits, walking much daily; has habitually drank 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. 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 præmonitory 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  $180^{\circ}$ ; and gave a very dense whitish precipitate with nitric acid\*. I prescribed the purgative pills and draught 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

\* 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 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.

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 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

\* Dr. Wells, in the paper to which I have already referred, read to the Society June 1811, has considered the

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 copious flaky precipitate. Two doses of the pills, with calomel, colocynth, &c. and the daily employment of the draught (p.155), soon restored the health of the patient, and in a few days even, the urine when examined, was found to possess every healthy character.

subject of serous urine in a truly elaborate manner, and has presented an extensive series of examples.—Mr. Cruikshank, 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.

## 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. 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 nervo-sanguineous 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 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.

My friend Dr. Prout examined at my request 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 digression, 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 remarks 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* distur-

bance. 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 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 cases, in addition to those which I have offered, might rather fatigue than interest the reader, I shall content myself with offering a concise account of some examples, in which a relapse shortly followed the recovery from a paroxysm; 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 nervo-sanguineous 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. 200), and with daily doses of the draught (p. 155), at night tranquillizing him with the pill (p. 170). 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. 190), and regulated diet and exercise, were pursued until the secreting functions were made 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. 208); 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 acci-

dental 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 sanguineo-nervous 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 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 headache: 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 repeated. I saw him first on the 6th, the second day of his attack; and on the 16th he was 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. 208) ; 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 sanguineo-nervous 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 different situations had been seized in the following

\* 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.

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 langour. 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. 170) to be taken as pain or restlessness should require. The bowels were freely acted upon by the draught (p. 155), 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; though the total quantity of this medicine was not much increased.

On the 17th, 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 continued. 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. 190), twice daily. The local management described on the 8th, was again adopted; but the liniment (p. 194) 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. 208; and to be rigidly 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 was 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.

\* 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.

## OF PROPHYLACTIC REGIMEN.

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 subject 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 *prophylaxis* 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.

When the choice of residence is within his power, 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.

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, of 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, in the proportion of a table spoonful of salt to a pint of water; care being taken, that the *chill* of the fluid be always just removed by the addition of a sufficient proportion of warm 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 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

\* In the summer season, the water which has been in the apartment through the night, will usually be sufficiently moderate in regard to coldness.

cleanly custom is very great, and the assistance which it affords 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 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 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

\* 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 froter chaque jour, soir et matin, avec un main garnie d'une mitaine de laine."—Barther, tom. i. 194.

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. In this manner a state of exhaustion rather than wholesome fatigue is produced ; and when 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.

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

\* 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. Tran. 1810. Part I.

† Van Swieten's Commentaries, § 1255. and Hoffman's Rat. Syst. Med. vol. v. 518.

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 more stagnant 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 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 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 of its development, 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 with some idiosyncracies, the most wholesome food is 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.

When the *kind* of diet is wisely chosen, according to the lessons of individual 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 should be avoided; but in the opposite circumstances some refreshment should be taken; rather however upon the principle of preventing the exhaustion of the stomach, which might arise from 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 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. Butter in moderation, good in quality, and which has not been much heated, is quite allowable.

A few observations on the dinner meal, may not be unacceptable to the general 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 this must sooner or later lead to debility of the 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 precept, 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 may, without impropriety, be occasionally first taken, in addition to what I have mentioned; but it should be stated 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 well boiled vegetables 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 its usual 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 great meal of the day, in relation 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 skin and fat should be avoided. I learn, however, from good authority, that pork broth (quite free from fat) agrees remarkably well with very weak stomachs.

\* 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.

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 digestion in general remarkably well; and of their very nutritious quality, I need not speak. With regard to

\* 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.

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 horseradish, 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 shun-

ning the astringent white bread of the baker, and in taking brown bread made with flour from which the coarse bran has not 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. 55); and return now to the position, that, with respect to the gout, the quality and quantity of what is drank 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. In determining the exact quantity most favourable to the patient, a careful attention to his own feelings will 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 strong, would wisely fulfil the object of prevention, by confining their beverage to water. The second class, whose vigour has been impaired by the disease, may with *propriety* 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.

In the choice of the particular kind of wine, the patient may be allowed a little range, 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 ascendent. 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, 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 ascendent wines, and also such 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.

\* 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 headache.

During dinner, *water*, for the purpose of dilution, is the true beverage of health. Any wine taken at the same time with the food, 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 moderation.

*Spirits*\*, however diluted, should be shunned as a certain enemy; and therefore never taken,

\* 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.

except under the prescription of the physician, in order to answer some particular intention.

With respect to the employment of medicine for the purpose of prophylaxis, we are to be directed chiefly by the state of the actions 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 :

R Gum. gambog. gr. j.  
 Pilul. hydrarg. gr. v.  
 Pulv. aloës compos. gr. v. ad x.  
 Saponis duri gr. ij.  
 Decoct. aloës 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 aloes 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 aloes compositum. This combination constitutes an excellent remedy, as I have found from ample opportunity of observation. The pro-

phylactic employment of general medicine, comprises some indications which do not amount to the character of præmonitory symptoms of a paroxysm; and this branch of my subject is still to be considered. Sydenham advised the use of a dietetic decoction, consisting chiefly of sarsaparilla, which he desired to be begun immediately after the going off of the fit, and "to be continued both in the fit and intervals *during the remainder of life.*"

The occasional employment of this nutritive vegetable diluent, in conjunction with the slight 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, or as a very active medicine, it does not seem entitled to serious consideration.

Alkaline medicine has been often recommended upon the principle of its acting chemically; and certainly, for fulfilling the intention of neutralizing acidity, it is very usefully given; and even forms an important part of a course of treatment for the dyspeptic stomach. If, however, acidity be constantly prevailing, the inference should be, that more than slight derangement of functions exists, and that it requires a practice of correspondent activity.

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 an unhealthy state of liver, and is now receiving benefit from the appropriate medical treatment which has lately been adopted.

An interesting account of the superior effect of *Magnesia* to that produced by the alkalies, on a gentleman subject to gout, has been related by Mr. Brande\*. The patient, it is stated, having pursued the plan for some time, was considerably relieved from the appearances of uric acid and mucus in the urine ; and had not the slightest symptom of gout from the time of the last attack, which was more than a year back—a longer interval of ease than he had experienced for the preceding six years.

That magnesia is much to be preferred to the active alkalies in the treatment of symptoms connected with gout, many trials have fully con-

\* Philosophical Transactions, 1810. Part I.

vinced me ; but the grounds of such a preference appear to me deserving of further discussion.

From a watchful observation of its effects in my treatment of gout, I have been taught to conclude, that its primary agency has been conjointly as an antacid and purgative; and that in no other way than *secondarily* has any effect on the urine been produced. Nor has it appeared to me deserving of dependance beyond that of being an useful auxiliary to more active and comprehensive means.

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 were entirely disappointed." The occasional use of soda water, to an extent that does not produce uneasy distension of the stomach, will be attended with good effects to

\* Edinburgh Med. and Phys. Ess. vol. iii. p. 459.

the gouty, as well as to any other dyspeptic invalid.

The difficulty of changing the properties of the urine by the direct chemical agency of medicine (unless in a transient manner, as will presently be noticed), has been mentioned by Berzelius, who says, "It is often impossible to diminish the acid of the urine by the use of alkali, in those that suffer from an excess of uric acid; and I have myself tried in vain the effect of acids in neutralizing 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 with as little success." I have in repeated instances examined the urine, from day to day, of persons under a course of alkaline medicine; but on no occasion have I found it fail to redden litmus, more or less. A gentleman, now under my care, has been for some time pursuing a course

\* View of Animal Chemistry, p. 107.

of alkaline medicine ; and for the last fortnight has taken a drachm of liquor potassæ twice a day. In each of my examinations, I have found litmus paper reddened by his urine in the usual manner. Mr. Brande, indeed, in his valuable paper just now quoted, represents, that the chemical influence of the alkalies upon the urine, requires a large dose of the medicine employed, to indicate the effect ; that it soon reaches its maximum ; and is very transient. My experience fully convinces me, that, in proportion as our means of treatment are best adapted to the correction of a faulty state of the digestive functions, they are in the same ratio calculated to amend any wrong process in the secreting action of the kidney ; and I can only view the use of the alkalies and alkaline earths as auxiliary medicines. Yet in this character, I grant, they are important.

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 pre-

vention 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 morbid matter, issues have had their advocates. This treatment appears to me much too local to act upon the constitution in gout. It is a certain 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 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; re-

\* For an interesting essay on the subject see "An Enquiry into the Origin of the Gout Powder." By John Clephanè, M.D. Med. Obs. and Inqu. vol. i.

marking, that " he had observed between fifty and sixty of its advocates, some his patients, some his acquaintance 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 of 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 a *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.

\* 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: and that, in the same way as in regard to all other diseases, the cardinal rules of preserving the 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.

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*THE EXPERIMENTS ON DIGESTION,*

*Referred to at page 257.*

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 two years ago, but they have not before been published.

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,

Mutton

Beef

Veal

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 appears 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 dis-

solved, but the gastric juice had not reached its centre. Where the skin was separated, it was dissolved.

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 given to the same dog.

## 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.

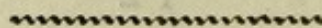
### Further experiment on the digestion of bone.

#### EXPERIMENT XI.

		Animal killed.	Loss by digestion.
Thigh bone	100 parts	3 hours	8
Ditto	————	6 $\frac{1}{2}$ 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.



## OF CHRONIC GOUT.

THIS species of gout, according to the characters which I have offered for distinguishing it (p. 17), 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 indefinitely 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 in-

flammation, 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 inflamed 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\*. 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. The bursæ and the sheaths of tendons are much more the seats of

\* 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."

complaint in the chronic, 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. 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 alternately. Oppression after an incautious meal, and flatulent distension, attend the gouty dyspepsia in an urgent degree; and to this may be added *heartburn*; or, in some individuals, a coldness at the stomach of a peculiar nature and intensity: fugitive spasms affect the muscles of the abdomen, or ribs; or cramps occur, which are of more distressing continuance.

In those 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.

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 chronic cough is not unusual; and in some cases it is of a primary nature; but often it is truly sympathetic, and depending on the faulty state of the digestive organs. 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 applicable 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 adopted.

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 disease 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. Nature, in a short time, usually 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, however, 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, almost always 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.

The *eau medicinale* has been the fruitful source of many cases of chronic gout; by en-

feebling the nervous system ; and occasioning, along 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 produce flying pains, and inflammatory action, of a slight and transient kind.

#### DIAGNOSIS.

THE distinction of chronic gout from *chronic rheumatism*, is seldom very difficult, when all the circumstances, both general and local, are carefully considered. Rheumatism, not preceded by the acute form, occurs much more frequently than 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

\* Dr. Haygarth, in his *Clinical History of Diseases*, mentions, " that out of 470 cases of rheumatism, only 170 had the rheumatic fever."

natural functions are much more deranged in chronic gout, than in chronic rheumatism, and invariably so, I think, when the disease originally fixes itself as chronic gout; but when the occurrence is subsequent, the phenomena are in this respect sometimes different\*. The structure, constitution, and temperament of the patient; his age, and his habit 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 a variety of circumstances, 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

\* I lately saw a gentleman who has been subject to *acute* gout many years, and has suffered severely with some *chronic* symptoms, since his last fit; but his appetite and digestion are regular.

† Edinburgh Phys. and Lit. Essays, vol. iii. p. 442.

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 solitary in its situation.

The circumstance of rheumatism affecting tendons at their insertions, the aponeuroses of muscles, ligaments, and branches of nerves, more commonly than any other parts of structure, and consequently not producing in these situations any 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

\* 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.

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 phenomena are very similar. Under each disease the bursal membrane becomes distended to a great 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 see gout and rheumatism occasionally existing in *different parts* of the body at the same time.

The peculiar affection called "Nodosity of the Joints," is distinguished from the varieties of chronic gout, *by most* of the following characters assigned to that disease by Dr. Haygarth\* : — *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 two cases of this disease which lately came under my observation, the bone-like hardness of the affected parts appeared alone sufficient to constitute the distinction ; but general and careful investigation into all the circumstances of the case, should never be omitted.

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 the mind : and it may be added, that the syphilitic characters presented to the eye, and to manual examination, are in general

\* Clinical History of the Nodosity of the Joints.

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.

1. That original languor of constitution, 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 medicine\*, 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 both unnecessary and injurious. Five or seven grains of *Dover's powder*, or half a grain or three quarters of a grain of crude opium, with a grain of antimonial powder, at bed-time, will be more soothing and useful than larger doses. With some persons, the *black drop*, a very concentrated preparation of opium (obtained from a solution in the acetic acid, it is said), agrees re-

\* Under these circumstances an occasional dose of calomel at bed-time, and the draught, p. 155, twice in the day, may be the medicines advantageously chosen.

markably well ; and certainly in some instances, I have found its effects particularly satisfactory. It is more stimulating than the other preparations which I have mentioned ; but it does not nauseate the stomach. When heat of surface is present, I should not make choice of this medicine ; but in the opposite circumstances, I have sometimes given it a preference. With a few individuals of particular idiosyncrasy, henbane may be given with greater advantage than opium ; or, a trial may be made of the *humulus lupulus*.

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.

A draught, according to the following formula, given once or twice a day, is found to stimulate the bowels sufficiently, and to correct acidity at the same time :

R Tinct. benz. comp. ℥j.  
 Vitell. ov. q. s.  
 Magnes. ℥j.  
 Aquæ cinnamom. ℥x.  
 Syr. aurant. ℥j. M.—Fiat haustus, semel  
 vel bis quotidie sumendus, prout alvus soluta fuerit.

Should this draught prove heating to the stomach, the following may be substituted :

R Sulph. magnes. ℥j.  
 Infus. rosæ ℥xii.  
 Tinct. card. comp. ℥iiss.      M.—Fiat  
 haustus, bis quotidie sumendus.

If acidity and defective appetite prevail, the draught, p. 190 ; or the following, may be chosen :

R Magnes. ℥j.  
 Infus. gent. comp. ℥j.  
 Tinct. calumb. ℥j.  
 Aquæ menth. piper. ℥ss.      M.—Fiat  
 haustus, bis quotidie sumendus.

In conjunction with either of these last-mentioned medicines, the compound aloetic pill p. 208 should be administered at bed-time, if the draughts alone insufficiently excite the bowels. The occasional employment of the compound calomel pill, or of the pilula hydrargyri, as may be preferred by the practitioner in the individual case, in a dose of four or five grains each other night (according to the practice inculcated by Mr. Abernethy), will constitute a material part of the course of medicine here recommended.

Simple tonics should be avoided until the

secretions are rendered permanently healthy; and in this case, languor and debility alone remaining; ammonia joined with cascarilla; or the ammoniated tincture of iron in warm water, with or without the addition of tincture of columbo; the use of the compound aloetic pill being included; are medicines deserving of choice.

The regimen, in every particular, must be carefully regulated according to individual circumstances: 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 take 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 draught p. 155, regularly repeated twice a day, and the compound calomel pill each other night, usually prove very successful in answering this intention of continued evacuation. When 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 in common use. This is rather 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, in-
- “ stead of rum.”

practice now mentioned has been sufficiently pursued, a tonic mode of treatment will follow in the order of succession. In some instances of remarkable 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; but the symptoms are considerably 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 this state; and that universal languor and debility, with which the weakest inflammation alone is found con-

nected, the practice must also be modified accordingly.

In this last case, it may be stated, that although the use of stimulant medicines is indicated, and usually commands a preference, the purgative and corrective intentions must equally be fulfilled, to a given extent. 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 privations of function with a threatening of general paralysis, it has been a common prac-

tice to invite a fit of the gout by various modes of stimulating treatment.

The propriety of this proceeding appears to be 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 often 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 paroxysms 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, 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 influ-

\* 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.

ence of such a watering place ; the repose of mind to 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.

3dly, 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 considered 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 susceptible to every vicissitude of weather, and especially to wet, and to damp cold air.

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 ipeca-

euanha in small doses, twice or thrice in the twenty-four hours; or the henbane extract in conjunction with antimonial powder, deserve our choice. I need not add that any other indications, which are presented, must be obeyed, and that all the habits are to be strictly regulated.

The improvement of the diseased and weakened limbs claims our particular attention.

It is probably in the present case, that a system of tepid bathing will usually prove most useful; and that *Buxton* promises its greatest benefits.

As far as I can form a conclusion from the occasional report of patients, I should much prefer, with the view at present under consideration, 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 always 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.

In returning to the subject of Bath and Buxton, I shall offer the following quotation from Heberden† :—“ 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 advantage, 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 ten-

\* Simple friction will be sufficient, except where the energy of parts is very defective ; and in that case, stimulating liniments will much assist the effect of friction.

† Commentaries, p. 51.

dency to gout, may be existing, the interference of so strong an agent as cold immersion must abound with hazard.

It is to be observed, that the temperature of the open hottest bath, at Bath, ranges from  $108^{\circ}$  to  $100^{\circ}$ ; of the Cross bath, from  $98^{\circ}$  to  $94^{\circ}$ ; and the temperature of the Buxton bath is stated to be  $82^{\circ}$ . Hence the efficacy of the two waters, as remedies in the circumstances in question, may be widely different. In the use of either water 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 circumstances of the case, would be in the possession of those whose affairs cannot permit their absence from home.

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.

The more immediate treatment of the weakened parts, requires some further discussion.

The morning plan of sponging, and friction with the hand or flesh brush, must be a point of regular observance.

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. Without offering any details respecting this, I shall think it sufficient to observe, that the peculiar process of rubbing, &c. which was first introduced by Mr. Grosvenor of Oxford, and is so celebrated, constitutes the only remedial method which can reasonably promise success\*. I am acquainted with some very fortunate examples of the result of this practice, in which the previous lameness had appeared so fixed as almost to defy relief.

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

\* In this metropolis, there are persons well instructed in this process; and who attend on very moderate terms of remuneration.

the tendinous, bursal, and ligamentous textures, receive useful support in this manner.

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\*.

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.

I have entirely excluded from the foregoing arrangement, those anomalous forms of sympathetic disorder, in which many slow and varying

\* Musgrave, &c. Dr. Rush speaks of the employment of blisters both in acute and chronic gout, with much approbation.

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 my present subject.

#### CASE X.

M. P. aged 60, tall, robust, circular chest, very corpulent, and a perfect example of the plethoric habit; of sanguineo-nervous temperament; irritable disposition; accustomed to all the luxuries of a life of indulgence; and with a full diet, using 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 esta-

lished. To some of his acute attacks, improperly treated, alarming œdema has succeeded; and harassing 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, sufficiently 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 :

R Magnes. ℥ss.

Aquæ menthæ viridis ℥x.

Aceti colchici,

Syrupi aurantii ā ā ℥j.

M.—Fiat

haustus.

The lotion p. 185 was applied constantly through the day ; and at night the skin 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 kidneys soon secreted abundantly ; and, at the end of a week, he was so well recovered, that he undertook a distant journey with 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 but 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 imperiously demanded. I am unacquainted with any late particulars of this case ; but I learnt that the gout did not soon return.

## CASE XI.

*February 10th, 1815.*—As an example of the chronic symptoms of gout, connected with serious visceral derangement, the following detailed particulars will, I hope, prove acceptable.

A. L. aged forty-nine; a publican; of the middle height; circular chest; very corpulent, and 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 regular 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 hypochondriac and epigastric regions, and more especially just at the ensiform cartilage; but I do not discover any visceral enlargement. The urine is scanty, and immensely

\* 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.

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 (see Experiment iii, p. 93). 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 medical treatment 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. 155, 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 sisy 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 suf-

ficiently 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.  $\text{ʒxiv}$  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,  $\zeta$ 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 was permitted each other day, and a draught of table beer, in obedience to 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 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. 93.) Four ounces afforded of phosphoric acid;

2·97 grains. The quantity of urea and uric acid 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, and a regimen of careful moderation; 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. 208; 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 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 head-ache. 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.



I shall conclude the general subject of chronic gout, by a brief discussion of the treatment

#### OF THE GOUTY CONCRETIONS.

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, 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 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 tumours, 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 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. Particular indications in the individual case are therefore to be met by corresponding treatment; but in reference to the *vicarious* secretion

\* See a Paper on this subject, by Mr. Moore.—Medical and Chirurgical Transactions, vol. i. p. 112.

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. gr. xx. ad ʒi.  
 Syr. tolutani ʒi.—M.

Fiat haustus, bis quotidie sumendus.

An intelligent gouty gentleman informs me, that many years ago, he was troubled with chalk-stone 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*, 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. I have now some patients under treatment, whose concretions have been of long standing; but I shall withhold any narrative concerning them, until I have obtained

some further result, than has yet arisen ; and the event of which may perhaps decide the value of this particular practice.

Sydenham makes the following observation, which, although not founded on correct pathology, deserves 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.”

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## OF RETROCEDENT GOUT.

WHEN during the existence of gouty inflammation, either in its acute or chronic form, a sudden cessation 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 occurs 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 probably to the stomach or intestines; or to both in succession.

The symptoms which affect the stomach are exquisite pain and spasm, with vomiting. If the intestines be more distinctly affected, en-

teritis in its worst form is produced, and the vomiting is probably more or less urgent, according to the seat of disease is near or distant from the stomach. In either case the danger is pressing; and unless relief be speedily rendered, *death* soon closes the scene.

If the transference take place to the brain, apoplexy is produced; and, as far as I can learn, 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 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 unacquainted 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 a 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 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."

That gouty persons are remarkably subject to hæmorrhoidal affections, and to 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. 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."

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 always 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 determination 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.

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.

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. The state of the pulse, whether it be 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 inflammation is the more common occurrence, and that spasm alone is very rare. Many of the cases related by authors have evidently terminated in gangrene\*.

#### 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 treat-

\* 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."

† Having spoken of strong wines joined with aromatics, and to be given warm, when the stomach and intestines are

ment 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 hot brandy and water for relief; and in such an example as this, very probably with every advantage. I lately became acquainted with a striking instance 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

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."

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. 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, in the case which I have stated, violent pain should still continue, after the stomach has been cleared of its contents, tincture of opium, in a dose from forty to eighty drops, may be given without hesitation ; and the purgative treatment may be adopted at the same time ; the effects of which will only be delayed, but not prevented, by the opiate.

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 sympathy, and 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, ac-

ording 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 stimulating fomentation ; a pediluvium 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 free application of a cool temperature rather than of heat. With this view upon the principle of evaporation, the lotion of camphor and alcohol (p. 185), applied just tepid, constantly and universally to the abdomen by means of folded cloths, may be the remedy adopted with advantage.

In cases where the general powers of the circulation are weak, in connection with local

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*.

If apoplexy be the disease, which succeed 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 probably be effectual. Cold water 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, the following case may prove acceptable.

## CASE XII.

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 drinking; 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 ancles, 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 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

\* 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 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, I believe, not determined. The firmness of the blood, and its contracted edges, when taken from a vessel 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.

as before, p. 155, was directed every four or six hours ; and the pills, according to the formula p. 200, 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 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 sizzly 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 stools 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  $\bar{z}$ xiv. The medicines were continued.

Now, as on the former occasions, he bore the

\* Although, as I formerly remarked, this preternatural secretion of uric acid and other principles (an inference to be drawn when the pink or lateritious sediment is very abundant) is a salutary process; it must be viewed as a *sign* of disease, and indicating some error of function in the digestive and assimilating organs.

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; bore abdominal pressure without complaint. The complexion yet retained some of its jaundiced hue.

A draught of magnes. sulph. infus. rosæ and tinct. calomb. was directed twice a day; and the compound calomel pill (five grains) each other night. Each night  $\mathfrak{ij}$  unguent. hydrarg. fort. to be rubbed into 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 the pills, p. 263.

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. 98) 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 orange colour, with much mucous cloud, and an abundant deposition of uric chrystals; 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, 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, is 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 he was looking much more clear and healthy than formerly; and reported that he had for the most part enjoyed comfortable health, during the whole mentioned period; and had been free from gout.

Of cases of apoplexy occurring in the paroxysm, and successfully treated, I shall state concisely the following examples:

#### CASE XIII.

J. M. aged sixty, 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 pursued a moderate course. The ordinary treatment of the constitution, as in apoplexy unconnected with gout, was steadily continued with complete success.

#### CASE XIV.

F. L. aged sixty-three, 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; an evaporant 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, only in a mild form, 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 inflammation 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 relief from Nature's effort in 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, wear out the frame.

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 succeed. It is also a truth which

\* 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."

is deserving 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 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.

*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, 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, occasionally happens, as a remote sequel to gout.

*Gravel* is a frequent indisposition with many gouty persons; but *stone in the bladder*, although (as in Sydenham) it now and then unites its tortures with the gout, is, according to my observation, 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, more than gouty men, are liable to this additional disease.

The occasional union of rheumatism with gout has already engaged our attention.

Most of the diseases which I have here enumerated, must receive their pathological explanation, in the two-fold cause of an overloaded circulation, with partial debility of vessels. Accordingly, as one viscus is weaker 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 happens 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 from 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 melancholy 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 connection 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 common 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 persons, whatever

their 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 cases 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.”

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

\* Par. 583.

† Commentaries, p. 45.

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 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 under 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 results 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 abdo-

men ; 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 circulation, and a healthy condition of the several secretions, are restored.

In proportion as a marked determination of 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 the inflammatory diathesis of

the system be also present, general bleeding will deserve the preference.

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 repeated gout during seven years ; at the same season of the year, and at the usual time of the invasion of the gout, about two in the morning, was awoke with dreadful nightmare, and all the horrors of suffocation ; and these symptoms recurred two or three times. He was cured by the free employment of purgatives, 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 largely cupped ; and the bowels being also freely unloaded, 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 of the head, and a very slight distortion appearing in the muscles of the face, yet, not consulting medical advice, as he was stooping to undress himself in preparing for bed, he fell 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 full 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; 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 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, instead of one that is quite recumbent, while in bed, and the free application of a cold evaporating lotion to the head, form powerful auxiliaries 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 expectation 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 not to stoop; 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. Initials of the name. 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. Description 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?	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 opinions of various authors, noticed and examined.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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A list of the names of the persons who have been appointed to the various offices of the Government of the Province of Ontario, from the year 1841 to the present time.

SOME

OBSERVATIONS

ON

RHEUMATISM.

2003

OBSERVATIONS

OF

RHEUMATISM.

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UPON the important and interesting subject of RHEUMATISM, I purpose only, at the present moment, to attempt the sketch of a brief and general outline.

I have before mentioned\* that *Ballonius* 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 attributed the disease to a corrupted state of the blood; and considered venesection as the only fit method of evacuation, according to the usual principles of the humoral pathology, which require the offending humour to be evacuated by its appropriate and respective channel. He affirmed, that medicines taken by the mouth were hurtful, and served to increase both the pain and inflammation. He bestowed the name of *rheumatismus* on the disease, connecting

\* In my former reference to this author, I stated, on the authority of *Ploucquet*, the date of the Treatise to be 1643. I have since procured the opportunity of reading this work, intitled "De Rheumatismo et Pleuritide dorsali," and find it to have been published at Paris in 1642.

its expression with that of *ρευμα*, a defluxion\*. Hence, therefore, arose the etymology of rheumatism.

Dr. Cullen has defined rheumatism according to the following translation:—*A disease from an external and often an evident cause; pyrexia; 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

\* Ballonius 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 says, is a disease of a certain part, and periodical—Rheumatism, of the whole body, and uncertain in its time of coming: but he thought that without much care in the habits of life, rheumatism would certainly lead to the gout.

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 inflammation, 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 accessory, 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 is primarily affected with this inflammation; or, whether it is confined to the tendinous portions, is a question not easily 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

\* Of the different kinds or species of inflammation, and of the causes to which these differences may be ascribed.—*Medical Communications*, vol. ii.

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 increased determination of 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.

Serous membranes are not exempted from rheumatism. As a rare occurrence, the dura mater appears to become the seat of inflammation under acute rheumatism. 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 in 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, on a few occasions, becomes the seat of similar inflammatory action, in connexion with acute rheumatism. I have seen one very clear example of this occurrence,

\* In respect to my present observations on the textures which 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 be easily obtained.

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 a duration of about fourteen days, the patient died. On dissection, recent layers of coagulable 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 3x 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 great uniformity of symptoms. They

\* 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 the 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 pre-disposing cause of this disease of the heart, than to pronounce it rheumatism of the organ.

are too well known to require a detailed description. 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 accompanied by an increase 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. 38) as consequential also to gouty inflammation.

Of inflammation of the pericardium, and of the dura mater, as an occasional occurrence 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 think, exclude similarity of structure, from its share in the explanation of the fact.

*Age, structure, &c.* The early years of infancy are exempted 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.

*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.

*An unhealthy state of the digestive functions* deranging the nervous system, and producing irritation and debility, becomes the groundwork 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 both 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. 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 exposure 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 the cold air alone, or of this in conjunction with moisture ; 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 organisation, 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 a 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.

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 is truly sympathetic. 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, like gout, any necessary and essential dependance on the previous condition of the chylipoetic viscera, or on the balance of circulation. The predisposition which may exist in any individual is certainly increased by a derangement of digestive functions, or any other error of constitution. It is in consequence of being involved with various states of constitution, that rheumatism is to be considered 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 symptoms which are distinctly belonging to the inflammation.

The influence which is again reflected to the affected parts from the constitution, according to the states 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 inflamma-

tion, but differing in phenomena, 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.*

#### 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, one part will scarcely be affected with 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 species of the disease, some distinct branches of nerve are frequently the parts affected.

#### DIAGNOSIS.

THE discrimination of rheumatism from gout has already been pointed out at length ; and as this part of the subject relates to the *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 powerfully promoted 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 importance; and the propriety of its repetition will be clearly indicated, both by the good effects which it has 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 adopted 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.

*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 absorbent 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 impeded 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, it has appeared to increase the susceptibility of the patient to relapse.

*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 effect 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 or ipecacuanha in small doses, and in conjunction with opium and saline purgatives, is very useful.

*Sedatives.*—From the free administration of crude opium, when at the same time fulfilling other indications, I have invariably derived the most satisfactory results. In reference to the treatment now detailed, the following formulæ may be suggested:

℞ Potass. subcarbon. gr. xv.  
 Succ. limonum ꝑss.  
 Potass. nitratis gr. x. ad xx.  
 Infus. sennæ ꝑii. ad ꝑvi.  
 Syr. aurant. ꝑi.  
 Liquor antimon. tart. ꝑx. ad xx.  
 Aquæ menthæ viridis ꝑss.—M.

Fiat haustus 4tis vel 6tis horis sumendus.

A small portion of sulphate of magnesia may be substituted for the nitre, if that salt disagree ; or, if the draught require to be made more purgative. From two to four grains of hydrargyri submurias, and one or two grains of pulvis antimonialis, will be given at bed time twice or thrice a week with advantage ; the draughts being employed through the day. Together with the employment of this purgative plan, the patient should be furnished with the following pills :

℞ Pulv. opii crudi gr. xvi.  
 — Antimonialis gr. xii. ad xxiv.  
 Conf. rosæ canin. q. s. M.—Fiat massa in pilulas xxiv. dividenda, quarum æger capiat i. vel ii. dolore urgente ; et repetantur pro re nata.

When the inflammatory diathesis is slight ; and more especially when the fever which is present arises chiefly from the irritation of pain ; the employment of the opiate combination above-mentioned, in union with the purgative treatment, should not be delayed ; but if inflammatory action strongly predominate, or a costive

state of bowels exist, such objections should be removed before any opium be administered. Finally, under correct circumstances for its employment, no further guidance is required for the freedom of its dose, than the urgency of pain which it is given to relieve.

#### 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 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), fully forbid the application of direct cold, as a mode of evaporation. 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 principle now in view. Lastly, I have to mention, with earnest recommendation, the constant employment of the tepid evaporating lotion (p. 185) 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 already 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.

The period of convalescence being arrived, bark with sulphuric acid is the medicine usually administered with most advantage.

The *prophylactic* management consists chiefly in lessening the susceptibility of the surface of the body 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 are much less uniform 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 principal 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. The patient indeed usually feels pain only upon motion. The general definition of rheumatism which I have offered, may perhaps appear inconsistent with the phenomena of this variety of rheumatism in the nerve; and especially in those circumstances when the limb is affected with

coldness and almost paralytic weakness. This, however, may be stated rather as the *sequela*, than as the native character of the disease. In the commencement of rheumatism severely affecting a nerve, some indications of inflammatory action are more or less manifest. When either of the other textures which have been mentioned, is the seat of chronic rheumatism, the tenderness of parts to pressure, and the occasional redness on the surface, sufficiently mark that some inflammation is present. The propriety of the definition may therefore be altogether maintained, distinguishing the degree of chronic rheumatism further, if desired, by the terms active or passive state of inflammation, as either state may exist.

What has already been said on the subject of *remote causes*, as connected with acute rheumatism, may be applied to the chronic.

#### THE DIAGNOSIS

is a question to be considered separately, and more at length.

Of the discrimination of chronic rheumatism from chronic gout, and of the separate characters of the disease called nodosity of the joints, I have formerly spoken.

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 *sypilitic* cause is not also present. Two very severe cases of this last description, not long since, came under my observation; in which, the pains had, for the most part, the character of chronic rheumatism. Although mercury had been previously employed to a great extent, a further and steady perseverance in its use appeared to be required; and, by means of it, after many

months, the cure in each instance was effected. It usually happens that some characteristic symptoms are associated with chronic syphilitic pains; which, in connexion with the history of the case and its treatment, conduct the practitioner to a correct judgment.

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 pains which receive the convenient denomination of nervous.

The separation of character between lumbago and nephritis, I conceive to be too clearly marked, to require particular discussion.

#### TREATMENT.

ON this head, I shall for the present refrain from all further observation; and mention only, in conclusion, the principles of classification on which I purpose to prosecute my inquiry.

In order to accomplish the design of a more extended *analysis* of rheumatism, both theoretical and practical, it appears to me, that in the investigation of every case of the disease, either in its acute or chronic form, I may with advantage direct my attention to the following sources of a modification of the symptoms; and of the 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 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; particular residence.

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 with fidelity 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.

1st. The age; general structure; original  
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 2dly. The acquired state of constitution from  
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