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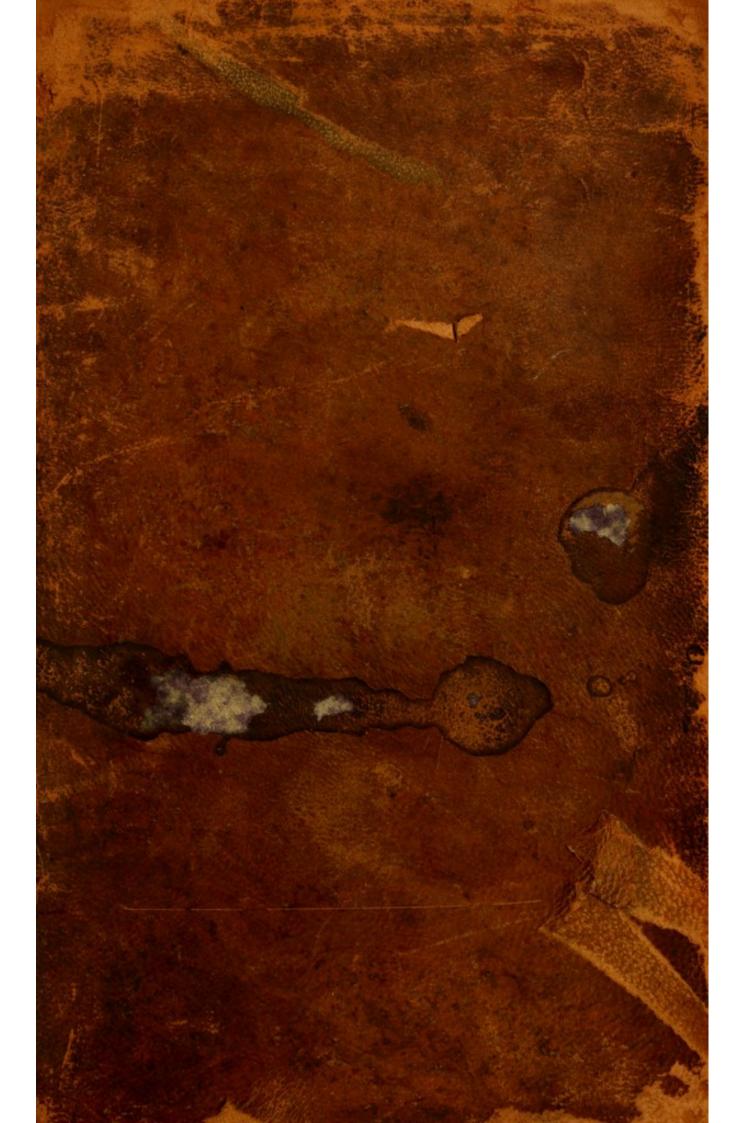
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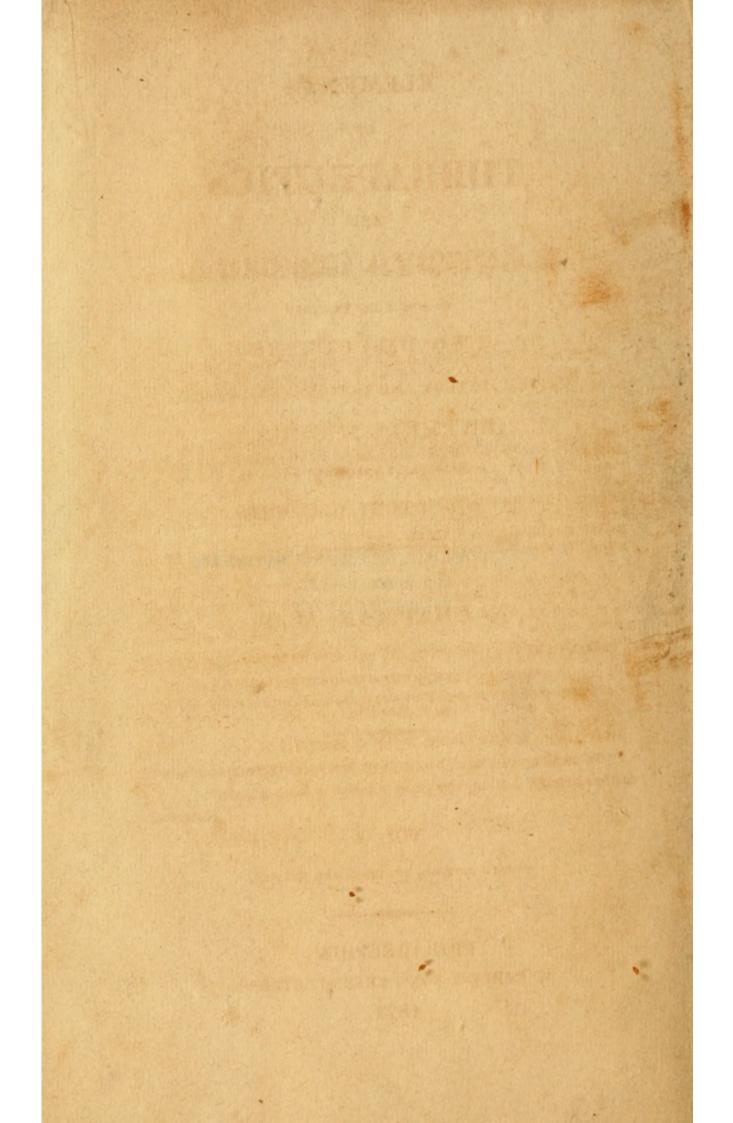


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PITTSBURGH ACADEMY OF MEDICINE, 322 North Craig St., PITTSBURGH, PA.



### ELEMENTS

OF

# THERAPEUTICS

AND

## MATERIA MEDICA.

TO WHICH ARE PREFIXED

TWO DISCOURSES

ON THE HISTORY AND IMPROVEMENT OF THE

MATERIA MEDICA,

ORIGINALLY DELIVERED AS

INTRODUCTORY LECTURES.

BY

## N. CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF PHYSIC AND CLINICAL PRACTICE IN THE UNIVERSITY OF PENNSYLVANIA:

PRESIDENT OF THE ACADEMY OF MEDICINE OF PHILADELPHIA, &C. &C.

"To communicate what I have tried, and leave the rest to others for farther inquiry, is all my design in publishing these papers."

NEWTON.

### VOL. I.

SECOND EDITION, ENLARGED AND REVISED.

### PHILADELPHIA:

M. CAREY & SONS, CHESNUT-STREET. 1821.

PITTEBURGH ACADEMY OF MEDICLES 322 North Craig St., Prepare 1186.

EASTERN DISTRICT OF PENNSYLVANIA, to wit:

§ BE IT REMEMBERED, That on the fourteenth day of Novem-§L. S.§ ber, in the forty-sixth year of the independence of the Uni-§ L. S.§ ted States of America, A. D. 1821, Nathaniel Chapman, M. D. of the said District, hath deposited in this office, the title of a book, the right

whereof he claims as author, in the words following, to wit :

"Elements of Therapeutics and Materia Medica. To which are prefixed two Discourses on the history and improvement of the Materia Medica, originally delivered as introductory lectures. By N. Chapman, M. D. professor of the institutes and practice of Physic and clinical practice in the University of Pennsylvania, president of the Academy of Medicine of Philadelphia, &c. &c. "To communicate what I have tried, and leave the rest to others for farther inquiry, is all my design in publishing these papers." Newton. Second edition, enlarged and revised."

In conformity to the act of the Congress of the United States, entitled, "An Act for the encouragement of learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies during the times therein mentioned."—And also to the Act, entitled, "An Act supplementary to an act, entitled, "An act for the encouragement of learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL, Clerk of the Eastern District of Pennsylvania.

# 322 North Craig St., PITTSBURGH, PA.

TO THE

## MEDICAL STUDENTS

OF THE

# UNIVERSITY OF PENNSYLVANIA,

THIS WORK,

PREPARED MAINLY FOR THEIR USE,

IS AFFECTIONATELY INSCRIBED.

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## PREFACE

### TO THE FIRST EDITION.

CALLED, very unexpectedly, in the year eighteen hundred and thirteen, to teach the materia medica in the University of Pennsylvania, I entered on the enterprize with none of the advantages which would have been derived from the previous study of the subject with this precise and definite view. After having delivered three courses of lectures on this science, I had the honour to be translated to the chair of the Institutes and Practice of Medicine in the same School. As soon as this event took place, I was pressed by the class that had formerly attended me, with an earnestness which I could not well resist, to prepare a work on the materia medica, or, in other words, to print my lectures. Engaged since, in the execution of the weighty duties of my new appointment, and in the still more oppressive exercise of an arduous profession, I could command little or no leisure for such a purpose. Except, therefore, the retrenchments which were required, to reduce the work to the ordinary dimensions of a Text Book, and a slight revi-

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sion of a few passages, I now commit my lectures to the press, in the state in which they were read, without any alteration or amendment, in the matter or style. To those, however, who heard them in the delivery, they may probably appear to have sustained an injury, in the loss of the facts and illustrations, thrown out in the extempore digressions, in which it is my habit very freely to indulge.

No one can be more sensible than myself, how much the work suffers by this premature publication. But it could not be prevented, without violating the promise to which I have alluded, and disappointing the purchaser of the manuscript, who had become exceedingly impatient of any further delay. Distinct from the motives I have assigned, I confess, that I was also influenced somewhat by the persuasion, perhaps a vain one, that the work, comparatively imperfect as it is, might prove not altogether unacceptable to the public, and particularly to the students and practitioners of physic, in the United States. It will, at least, be useful to my class, as exhibiting more than can elsewhere be met with, of my own speculative and practical views. Numerous, too, as are the treatises on the materia medica, there is no one which I have seen, precisely on the plan of mine, uniting to some of the more useful pharmaceutical details, copious practical instructions, adapted to the management of diseases, modified, as they confessedly are, by the peculiarity of the state of society, and climate, of our own country.

In every science, some system is required, and in no one, perhaps, is it more necessary, than in the materia medica. Consisting of an immense collection of diversified materials, which are not always obviously related, it would, without a perspicuous arrangement, be greatly defective in practical utility. As the result of much deliberation, and a full comparison of the several plans of classification that have been proposed, I was induced to prefer the one which I have adopted. But I am now persuaded, that a more natural, as well as useful arrangement of medicines, might be made, on the principle of their affinities to the several systems of the body, and, should an opportunity be afforded me, it is the one which I shall attempt hereafter to establish.

It will be perceived, that, instead of noticing in detail, as is usual with the writers on this department of physic, every individual article, I have dwelt more on the class to which it may be attached, pointing out the mode of operation of the whole congeners, or kindred assortment, and their peculiar relations to disease. By thus treating the subject, I cannot help thinking, that much greater order has been attained, and no little perplexity and tedious repetitions avoided. Yet I have not omitted to give some account of each substance separately, to indicate its more important pharmaceutical preparations, and its medicinal virtues, when these may be different from others of the same class, together with its dose, and manner of administration. I have also subjoined,

from a most valuable work,\* which has recently appeared, a list of incompatible substances, or such as, when combined, produce a change of composition. In doing this, I was fully aware, that in many cases, these very changes give rise to new products, of increased efficacy. Great mischief, however, often ensues from want of an acquaintance with the relative affinities of articles, without which, indeed, neatness and precision in our prescriptions are utterly unattainable. These general discussions on the modus operandi, and practical application of the several classes of medicines, are denominated Therapeutics, a province of our science exceedingly interesting, and which has been hitherto strangely neglected.

There was, here, a very wide field open to me. I have sometimes been led into physiological inquiries, and, still oftener, into discussions relative to the general nature of disease, or the peculiar character of the affection, directly before me. Disquisitions of this sort, though they may seem to trench upon another department, must be allowed as being indispensable to a clear and intelligible application of our remedies. Could it, indeed, be possible to convey a distinct conception of the various uses of mercury, opium, bark, or of any active article of the materia medica, were we not permitted the privilege of entering so far into the history of the diseases, to which the medicine is appropriate, as to enable us to point out

<sup>\*</sup> Paris's Pharmacologia.

the exact circumstances of the case in which it may be beneficially prescribed? Liberally as I have employed this license, I am afraid that I have not always succeeded in my object, and certainly, in many instances, by the apprehension of being accused of unwarrantable digressions, I have so narrowed my limits, as to do great injustice to my own opinions and modes of practice.

In the execution of this part of my plan, I have had to encounter another difficulty, which I do not know has not proved sometimes insuperable.

The application of different medicines, or classes of medicines, to the same disease, as emetics and cathartics, for example, has compelled me to re-state the case, in which, to the irksomeness of frequent recapitulations may perhaps be added the imputation of occasional inconsistency, or even of positive contradiction. But it should be recollected, that ambiguities of this sort are scarcely separable from extreme brevity, and I will not forbear to hope, that most of the instances which, at first, may seem amenable to such criticisms, will strike differently on a more considerate and careful examination.

As respects nosology, I have not adhered, with strictness, to any one existing system: all attempts of this nature are marked, in my opinion, with so many absurdities, and false collocations, as to forfeit every claim to an entire and indiscriminate adoption. My own arrangement of diseases, which is according to their more prominent seats, or, in other words, as

they occur in the different systems, by which I mean parts of an identity of structure, and co-operating in the performance of the same offices, I wished more time to perfect and mature, before I offered it to the public. Though, in this instance, heedless of the technical formalities of the schools, I have not deviated from the established nomenclature of the science, nor ventured to disturb the language which seems now to be settled by common consent, and consecrated, as it were, by universal usage.

By a recent writer, the materia medica has been compared to an inquisitive traveller, who, collecting every thing which interests him, on his journey, sees his baggage increase every moment in bulk, and feels himself frequently obliged to stop and examine it, in order to free himself from the useless articles, or to arrange, in a more convenient order, those which he cannot dispense with, that they may occupy less room, and the carriage, or the employment of them, be more easy and commodious. This is a very happy and correct illustration, since, surely, never was a science, to continue the allusion, so overcharged with superfluous lumber, as the materia medica is in its present state.

As such is indisputably the case, I have, with intrepid decision, endeavoured to cleanse this augean accumulation, by expunging whatever substances are known to be inert or redundant, and to retain only such as, from their powerful or efficacious properties, are emphatically denominated the "heroic remedies," or are confessed to be of unequivocal utility in the treatment of diseases. The practitioner who may wish information relative to the trite or subordinate medicines, I am content to refer to any one of the common Dispensatories. Yet, while thus boldly practising a system of expurgation with regard to the materia medica, I am by no means disposed to close the science against the introduction of new articles, or such improvements as may be afforded by further inquiries, or more correct views. It will accordingly be found, that I have enlarged its boundaries by the addition of several medicines, chiefly the indigenous productions of the United States-and, now and then, by expatiating more fully than heretofore has been done, on the properties and uses of some of the older articles.

Having expressly treated, in one of the subsequent discourses, of the improvement of the materia medica, I shall not here retouch the subject, interesting as it is in every view, and greatly as my reflections upon it might be extended. Yet, I cannot refrain from again pressing upon our physicians, who are so advantageously distributed for the purpose throughout the country, the strong claims which the profession, as well as the cause of humanity, has upon them, to devote more attention to the study of our native plants. Enough, surely, has been done in this field of exertion, to afford the amplest encouragement, and to facilitate further researches.

To what I have elsewhere noticed, as already accomplished, may now be added a work on the American materia medica, recently issued from our University, which, in some respects, may challenge a comparison with any similar production of Europe. It affords me pleasure to announce, that an undertaking somewhat of the same nature in the School of Boston, is commenced, by one of the professors, who, I know, will bring to it qualifications that can scarcely fail to insure it the most splendid success.

These are enterprises of the highest utility to the interests of medicine, and which are well calculated, by reflecting the lights of science from the new upon the old world, to redeem, in part, the heavy literary debt we have incurred, and to vindicate the insulted genius of our country, from the contumelious reproaches, so long and so disgracefully endured by us.

PHILADELPHIA, September, 1817.

In preparing this second edition of the work, I have endeavoured to render it more worthy of the patronage with which the first was received. The whole has been carefully revised, some parts retrenched, which seemed redundant, and others enlarged by fresh intelligence. My aim has been to present a sort of digest of the science of which I treat, in its present state, embracing all the recent discoveries and improvements which it claims. How far I have succeeded, it is not my province to decide.

Nov. 1821.

## ELEMENTS, &c.

### DISCOURSE 1.

## History of the Materia Medica.

MEDICAL Science, in its present state, is an accumulation of such extensive and diversified knowlege, that it has been found convenient to divide it into several distinct departments. My object is, to treat of that province of it, denominated the *Materia Medica*, or in other words, to deliver some account of the means which are employed, in the prevention or cure of diseases.

No branch of medicine is more copious than this, and none, perhaps, ought to be considered of greater importance. As well, indeed, might the mechanic attempt to carry on his operations without an acquaintance with his tools, as we to exercise our profession, ignorant of the properties of our remedies.

Notwithstanding the number of histories of the

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science already extant, I shall offer, as preliminary to my main design, a concise view of the rise, progress, and existing condition of the materia medica.

The rudiments of this department of medicine, were probably co-eval with the very existence of the species. It can hardly be supposed, that uninterrupted health was ever among our happy privileges; and mankind, always liable to accidents and diseases, would naturally seek the measures of mitigation or relief. The rudest tribes of savages are found, accordingly, to have their remedies and modes of cure, often rash, violent, and injudicious, though sometimes discriminated with precision, and adapted with dexterity and skill.

Commenced, however, as it may, the materia medica, humble in its origin, has gradually grown and become improved, by the contributions of vulgar ignorance, by fortuitous discoveries, by empirical experiments, and, in some instances, by well regulated inquiries.

Medicine, anterior to the civilization of Greece, presents a dreary waste, containing little to excite curiosity, or reward the trouble of research. Though it had been previously cultivated in Egypt, it does not seem to have participated, to any extent, in the general improvement of the arts and sciences, or to have kept pace with the polish and refinement of that country.

Confided entirely to the care of their priests, it was taught and practised only by them, who mixed with it the grossest superstitions, and subjected it to regulations of the most pernicious tenden-

cy, crippling it in its infancy, and precluding all farther growth or advancement. My allusion is to certain ordinances, among which was one, entailing the profession on the eldest son as an inheritance, and another fixing the time for the application of remedies in all diseases, without discrimination—prohibiting any new observation, or experiment, or innovation, in any respect. The stream of science, otherwise so rapid, thus inevitably became stagnant; and as not to advance in knowledge is to recede, we must presume that under such circumstances, the condition of medicine rather deteriorated than improved.

By the most ancient of historians we are told of a custom, which prevailed among the Chaldeans and Babylonians, in which is to be traced probably the earliest attempt to collect a materia medica. The sick were exposed in places of public resort, on the highways, and in markets, so that travellers and other persons might communicate to them the means of cure, which had been successfully used in similar cases. It is even said, that every one passing by was obliged, by law, to give some advice about each disease, and to indicate a remedy-and amidst such a multitude of suggestions, some, no doubt, proved salutary and valuable. But the results of experience in this mode acquired, suffered much in amount, as well as accuracy, from being handed down only by oral tradition. The first regular record of medicine, was kept in the temples of Esculapius in Greece, where diseases and remedies were engraven on durable tablets, and from this, I

think, we should date the dawn of what may be considered medical science.

The precise nature of these remedies, or the real state of medicine at this epoch, it were now vain to endeavor to determine. By the many revolutions and vicissitudes which have happened in human affairs, in this long lapse of ages, all authentic evidence has been lost, and researches the most patient and recondite, have ended in conjectures wholly unsatisfactory.

It would appear, however, from incidental sources of information, that some very active and useful remedies were known in early times. Melampus of Argos, the most ancient Greek physician with whom we are acquainted, is said to have cured one of the Argonauts of sterility, by the rust of iron in wine, and the daughter of king Prætus of melancholy, with the black hellebore. It is probable, that it was opium, or some preparation of the poppy, which Helen mixed with wine, and gave to the guests of Menelaus, under the title of Nepenthe, to increase their hilarity.\*

The Iliad abounds with proofs of some knowledge of surgical remedies, and particularly for wounds, which were treated by bathing with tepid water, cleansing them by suction, and by lenitive cataplasms, to assuage pain, and allay inflammation.

Thus,

"Patroclus cuts the forked steel away,
Then in his hand a bitter root he bruis'd,
The wound he wash'd, the styptic juice infus'd:
The closing flesh that instant ceas'd to glow,
The wound to torture, and the blood to flow."—ILIAD.

<sup>\*</sup> Paris's Pharmacopæia.

We learn, moreover, that Podalirius, on his return from the Trojan war, cured the daughter of Damætheus, who had fallen from a height, by bleeding her in both arms.

That the profession was highly appreciated, even with the allowance for the exaggeration of poetry, is shewn by the following lines:

> "A wise physician, skilled our wounds to heal, Is more than armies to the public weal."—ILIAD.

Yet, it is quite manifest, that the resources of the healing art were, at that time, exceedingly limited, and in every view lame and defective. Nor, indeed, till the appearance of that illustrious character, on whom posterity, by common consent, has bestowed the enviable title of "Father of Medicine," does the subject assume a shape so definite as to excite any lively interest, or to merit much attention.

Endowed with a genius vigorous and original, he cleared the profession of the incongruities of empiricism, and gave it some of the order and perspicuity of scientific arrangement. Every department of physic was more or less enriched by his discoveries, or reclaimed by his judgment, and the materia medica, in common with the rest, is largely indebted to him. Many of our remedies are the result of his observations and inquiries, and by his writings we are enabled, pretty accurately, to estimate the state of the science at the time.

Content to refer to them for minute details, I shall merely observe, that he was in possession, and seems to have applied with sufficient discrimination, a great variety of active articles, nearly all of which are still retained in practice. Of these, the most

important, are the colocynth, the scammony, the elaterium, the black and white hellebore, the mercurialis, the elder, the leek, the onion, the parsley, the cantharides, the henbane, the silphium, supposed to be the asafætida, the mandragora, several preparations of the poppy—and of mineral substances, some of the combinations of copper, and probably also of antimony. He practised venesection, and topical bleeding by scarifications and cups—and was entirely conversant with the use of enemeta, and of the whole routine of bathing, frictions, exercise, diet, &c. exhibiting on the whole, a pretty ample catalogue of remedial agents, and auxiliary expedients and resources.

Excepting Anatomy, the study of which, was eagerly prosecuted, little was done after the age of Hippocrates, for any province of medicine, in Greece. Of the materia medica, the chief promoters were the philosophers, who, cultivating natural history, made some small and indirect accessions to it.

To Aristotle, I more particularly allude: a man of such various powers and extensive attainments, as even in medicine to have eclipsed all its professed votaries of the age, and to have impressed on it, the character of his own peculiar views.

Yet, whatever may be our obligations to him, in other respects, certain it is, that while he enlarged the boundaries, he greatly corrupted medicine, by introducing into it the crudities of other branches of knowledge, sufficiently erroneous, and between which and our science, there is no immediate affinity.

The acquisitions of the Greeks, became for the

most part, an inheritance of the Romans. This extraordinary people had long dazzled the world with the splendour of their military achievements, and excited astonishment by the extent of their conquests, before they were distinguished by the polish of civilization, or the culture of letters.— Exclusively devoted to arms, to be adroit in the art of destruction, was deemed by them the highest of human accomplishments. But, towards the commencement of the Christian era, when they had subdued the fairest portions of the globe, and in some degree allayed their avarice of dominion, the ferocity of their martial character began to subside, and a spirit propitious to more liberal pursuits, was manifested.

Attracted by the wealth and renown of their mighty city, the learned and ingenious of every country, resorted to it. From Greece "the native seat of the muses," she gradually imported much that was excellent in the arts, ornamental or useful, and in literature, science, and philosophy. Nevertheless, medicine was little cultivated. Conceiving their superiority over other nations to be owing to a retention of an unmitigated ruggedness of character, it became a part of their policy to check, by legal prohibitions, whatever had a contrary tendency; and on this account, the introduction of those arts was still resisted, which soften and embellish manners, alleviate the sufferings of our nature, minister to the comforts, or smooth the asperities of life. Corrupted, however, at last, by the accumulated wealth which flowed in upon them, luxury and indolence ensued, and with these vices, a train of diseases, of which

they are the fruitful source. Men skilled in the art of healing being now wanted, the injurious restrictions relative to the profession of medicine, were in consequence removed.\*

Of their writers, among the earliest of any consideration, is the chaste, the elegant, the classical Celsus. He lived in the second reign of the imperial dynasty. Disputes have arisen, whether he pursued medicine as a profession, or only attended to it as a part of liberal science. Be this as it may, the work of his which has descended to us, is unrivalled by antiquity, and will now reward the most studious perusal. An eminent modern teacher emphatically enjoins on every student, "to keep Celsus in his hands by day and by night."

Concerning the materia medica, more information may be derived from him than from any of his predecessors. Though not professedly treating the subject, the view which he exhibits of it is very satisfactory, up to the period at which he wrote.

No province of medicine received any material improvement in the succeeding century. Engaged in perpetual controversies on points of doctrine, its cultivators have bequeathed to us little else than a mass of vague and unintelligible hypotheses. Two

\* On this subject, the prohibition of physicians settling in Rome, there remains a letter of Cato, the Censor, which is truly curious, on account of the stupid ferocity it breathes. "That violent and prejudiced man thought to govern the possessors of the wealth of the universe, like a convent of monks, or as he managed his own household. Cruel, parsimonious and capricious, he is well known to have ruled over the latter with the most tyrannical sway. To combine all sorts of despotism, he himself assumed the care of his family and slaves when sick—and the means which he employed for this purpose, evince the most disgusting ignorance, and the most ridiculous superstition."—Cabanis.

writers, however, on the materia medica, at length appeared. These are Dioscorides and the elder Pliny, who, though perhaps they ought to be excepted from this harshness of criticism, are now consulted rather as objects of curiosity, than for the purpose of gaining, in the present comparatively enlightened state of the science, any sound or useful information.

But at no distant interval, came Galen, one of the most remarkable characters whom our science has produced, whether we regard the extent of his learning, or the universality of the homage which he commanded. During thirteen hundred years, his opinions were received as oracular authority, wherever medicine was cultivated. But so long and uninterrupted a reign, must in part be ascribed to the operation of those general causes, which we shall presently see, extinguished the lights of learning, and enveloped Europe for a portion of the time in the darkness of barbarism.

As Galen wrote copiously on the materia medica, it was to be expected from his vast erudition, and practical experience, that this subject would have been considerably benefited by his exertions. But in this respect we are disappointed. The knowledge which he affords us is exceedingly encumbered by spurious theory, and obscured by the complexity of his prescriptions.

After his death, the progress of medicine may be considered as having terminated in Rome. Towards the close of the second century, this stupendous empire, which had proudly ruled the world, and where

the human character had appeared to the greatest advantage, began to exhibit the melancholy spectacle of decay, and was ultimately overthrown entirely by the successive attacks of different tribes of uncivilized nations. Not content with the conquest and plunder of the country, these ruthless invaders destroyed, in their fell career, all the monuments of taste, literature and science, which had been so splendidly raised, and having effected this state of desolation, carefully repressed the spirit of intellectual improvement, lest it might enfeeble that martial energy which they only prized.

In this turbulent age, so far from any advancement having been made in science, or the correction of taste and manners, even the vestiges of ancient learning and civility were nearly lost. Thus neglected, the human mind was depressed into the profoundest ignorance, or shot into the wild licentiousness of savage nature. Europe, accordingly, did not produce, for a long series of time, scarcely a single work deserving of criticism, or one solitary discovery or invention. Even the scattered relics of literature and taste, which floated from the wreck of the western into the eastern division of the empire, maintained only a temporary and feeble existence, uncherished and unproductive, and then sunk under the overwhelming inundations of the Saracens.

An effort was made by two illustrious monarchs,\* to meliorate this dismal condition of things. But the light thus shed, was the glare only of the tran-

<sup>\*</sup>Charlemagne and Alfred, who founded the universities of Paris and Oxford, &c.

sient meteor of the night, which passing away, left the scene in augmented darkness.

Yet medicine did not become entirely extinct.—Among the writers, on the contrary, of this disastrous period, brought up in the school of Alexandria, in which the science was sheltered, there are several still read with advantage, who are respectable as compilers, without being utterly devoid of original suggestions.\* Their services to the Materia Medica, however, deserve no special notice.

As the violent dispositions of the barbarous enthusiasts, whom I have just mentioned, were lulled by a relaxation of religious ardour, by a satiety of conquests, and a full indulgence of the lust of plunder, the arts and sciences began to be cherished, and medicine was particularly patronised.

By the middle of the ninth century, we find that establishments for the teaching of it were liberally endowed, and many of the Greek writers translated. To each place of worship, were attached an hospital and a school. Physicians, too, were now rewarded by an unusual elevation of rank and emolument. Yet our science, even with such munificent encouragement, did not succeed. The only branch of it materially indebted to the labours of the Arabians, is the materia medica. Dwelling in a region, and having a connection with India, equally rich in active plants, in spices, in aromatic gums, the medicinal properties of some of these substances they detected, and applied to the treatment of diseases.

<sup>\*</sup> Ætius, Oribasius, Alexander of Tralles, and Paulus Ægineta.

It was from them we derived the mild purgatives, manna, cassia, senna, and rheubarb, as well as musk, nutmeg, mace and cloves. The credit of introducing camphor as a remedy, seems due to them, and unquestionably they were the first to extract sugar from the cane, and apply it to the formation of syrups, julaps, conserves, and other pharmaceutical processes. Yet, with these solid acquisitions to the materia medica, were mixed many of the most absurd remedies—as the precious stones and metals, to which such value was attached, on several accounts, that in the ardour of their researches after them, may be discerned the first glimpses of the enthusiasm, which marked the alchymical enterprises.

The mind of Europe, plunged, as it was, into the deepest lethargy, did not suddenly emerge, or recover its tone. The presages of its renovation were long in accomplishment, and this slow advancement has very properly been attributed to the pernicious operation of the feudal system. The incessant contentions of its petty tyrants, interrupted the quietude so essential to literary pursuits, and an ignominious vassalage was imposed, which palsied the moral energies below the capacity of vigorous exertion.

As has been truly said, the lily and the bramble may grow and flourish together, but genius and slavery admit not of this social proximity. Wherever the highest order of intellectual excellence has been attained, there we have found neither the turmoils of anarchy, nor the fetters of despotism. To shoot with luxuriance, and bring to perfection its

choice productions, genius should be placed in a soil secured from disturbance by the provisions of a regular government, and sustained by the protecting care which such a government is alone competent to afford. But while the austerities of feudal tyranny prevailed, there was not the shortest repose from the distractions of war, nor the least defence against violence and oppression. The nobles had become arrogant by the practice of command, and the people dastardly from the habit of submission.

Of the causes which conspired to abolish this state of confusion and servitude, and to introduce order, regularity and freedom, the Crusades have generally been thought the most leading and efficacious. They aroused Europe out of its torpor, and engaged it in those enterprises which inspire activity, and invigorate intellect. Men, in every gradation of society were infected with the wild enthusiasm which originated these singular expeditions.—Composed of all the nations of Europe, armies were seen marching in a delirium of zeal, pledged either to redeem the Holy Land, or die at the tomb of Christ.

In prosecuting this romantic project, the Crusaders were happily obliged to traverse countries, whose institutions and customs were superior to their own. These could not fail to awaken taste, and of exciting emulation. Captivated by the charms of literature, the more enlightened of them collecting some of the classical writings and many of the Arabian productions returned with a taste improved,

and views widened and liberalized. Dispositions in every respect so auspicious were strengthened and confirmed by the invention of the art of printing, which, increasing the number, and reducing the price of books, diffused more widely the lights of knowledge, and quickened the speed of moral improvement. The efforts of literature, however, at the dawn of returning civility, were very unprofitably directed, having been turned either into the course which produces the wild and irregular sallies of the imagination, or were lost in the mists of metaphysical intricacies, and the mazes of scholastic theology. The science of medicine appears to have solicited little esteem. But in the succeeding age, the study of alchymy, or the art of transmuting base metals into gold, and the still more ridiculous attempt to invent an elixir, by which life should be prolonged beyond the ordinary term, engrossed the attention of most of the learned and ingenious. Experience has shown the futility of these pursuits. Yet intense exertions, in whatever way applied, are seldom wholly unproductive, and, accordingly, in the eager chase of these illusions, contributions of real value were occasionally made to the materia medica.

It was from one of these enthusiasts, Basil Valentine, we received some of the preparations of antimony, now in use, perhaps also of lead, and certainly the volatile alkali, the sal ammoniac, the mineral acids, and alcohol and ether.

Medicine moved on in this devious career, till about the middle of the fifteenth century, when it

underwent a revolution which had considerable influence on our department. At the period alluded to, medical knowledge, in Europe, was wholly borrowed from the Arabians. But on the conquest of Constantinople, the last lingering monument of Imperial grandeur, many of the erudite Greeks fled into Italy, and carried with them the ancient writings, -the sciences seeming now in decrepitude to cling to a people for protection, by whom they had been nurtured with such devotion, in their infancy. Thus taking root, medicine gradually revived and spread throughout Europe, very much, in the first instance, by the instrumentality of the Jews, who at the time, had more of international communication than any other description of persons, and made it equally subservient to the extension of trade and diffusion of liberal knowledge. Conversant with the Oriental languages, their medical men possessed the exclusive advantage of reading Hippocrates, Galen, and other ancient authorities, through the Arabic and Syriac translations, in which those writers were only to be found, a circumstance, that conferred on them a vast superiority of skill and regular science.

After a severe struggle, the doctrines of Galen regained their former ascendancy, which, however, did not long endure, being destined to fall under the formidable attacks of the chemists. The difference between these rival sects, while it related both to theory and practice, turned chiefly on the use of the powerful remedies which the latter derived from the processes of their art.

In this contest, the leader on the part of the opposition, was the celebrated Paracelsus. Destitute of regular learning, he had that sort of audacious genius, which is peculiarly calculated to sap the foundation of existing systems, and to prepare the way for the reception of unexpected innovations.—

The cures effected by the energy of his remedies, consisting mainly of antimony, opium and mercury, and the confident manner in which these were promulgated by himself and his disciples, procured with many the adoption of his opinions, and a wide dissemination to his popularity and fame.

Elected to the professorship of Chemistry, by the magistracy of Basil, the first instituted in Europe, for teaching of that science, among the earliest of his proceedings was to burn, while seated in his chair, with the utmost solemnity, the writings of Galen and Avicenna, declaring to his audience, that if God would not impart the secrets of physic, it was not only allowable, but even justifiable, to consult the devil. Beyond measure arrogant and vain, he treated his contemporaries with the same insolence, and in the preface to his work, entitled, "Paragranum," tells them, "that the very down of his bald pate, had more knowledge than all their writers-the buckles of his shoes, more learning than Galen and Avicenna-and his beard more experience, than all their universities."

Despising, or affecting to despise, all which he did not himself possess, on another occasion, he cried out, with a frantic voice, "away with Greek, Latin and Hebrew."

As might be supposed, he could not, with such a temper, long retain his situation, and driven out of it by a quarrel with those who had conferred the appointment, he rambled about the country, generally intoxicated, seldom changing his clothes, or even going to bed, presenting the spectacle of squalidness, and phrenzy. Boasting to the last, of having a panacea, which cured all diseases in an instant, and even was capable of prolonging life to an indefinite length, this drunkard and prince of Empirics, "the greatest fool of physicians, and the greatest physician of fools," died after a few hours illness, in the forty-eighth year of his age, at Saltzburg, with a bottle of his immortal Catholicon in his pocket.\*

In speculating on the cause of the successful career of this medical fanatic, we cannot be embarrassed. Consulting the history of our profession, we shall find, that practitioners, who pursue the "noiseless tenor of their way," whatever may be their claims, move on slowly, without notice, and, for a time, advance neither to fame nor fortune. It belongs to the multitude to delight in the wonderful, and to embrace with eagerness, the marvellous and extraordinary. The glorious orb which steadily dispenses light, and heat, and life, is to them an object of less curiosity and attraction, than the blazing comet, in its excentric course, shaking down its pestiferous influence.

Why such a propensity should strongly exist, in relation to us, is readily explicable. Disease, as has

<sup>\*</sup> Paris's Pharmacologia.

justly been said, depresses the powers of the understanding, as well as the vigour of the corporeal frame, and depraves the judgment as well as the process of digestion. He who is sick, is extremely credulous as to the object of his hopes and fears, so that whoever assures him of health, may easily obtain his confidence, and he soon becomes the dupe of quacks and ignorant pretenders.\* But the vulgar gaze, and the emotions which it excites, are alike evanescent, and all experience attests, that solid reputation and permanent success in medicine, as in other pursuits, are the rewards only of superior merit, and unusual acquisitions.

Nor was it only from the stores of Chemistry, that our science was enriched, at this time. The art of navigation having recently received its memorable improvement, maritime enterprise was emboldened to extend its researches, and the new world, now revealed to an adventurous spirit, poured into Europe its treasures and its drugs.

The Peruvian bark, the jalap, the ipecacuanha, the guiacum, the sarsaparilla, the two last, so important in the cure of the foul disease which was then extending its horrible ravages, and menacing the most lamentable consequences, to human happiness, are a few only of the valuable accessions to the materia medica, on this occasion.

Elated by success, the chemists, who still kept possession of the schools, urged with fresh ardour their analyses, and while they rendered their theo-

<sup>\*</sup> Cabanis, &c.

ries contemptible by an extravagance approaching to fanaticism, continued to elicit by the operations of the laboratory, medicines of the greatest importance, among which, may be enumerated, the fixed alkalies, the neutral and metalic salts, &c. &c.

Their triumph indeed was now so complete, that reasonings deduced from the peculiar views they entertained, were interwoven with every set of opinions, and every mode of practice, however varied by lighter shades of difference, or from whatever source they might issue. Those were finally embodied by Sylvius, who became the leader of the sect, in a theory of fever, which supposed it to be an effort of nature to concoct and throw out of the body, matters vexing its economy, or in any way unfriendly to its healthy condition. As a corollary from these premises, he maintained that perspiration is the natural and efficient process of cure in all such affections, and conforming his practice to his speculative notions, the most heating and stimulating diaphoretics were often employed, without the slightest regard to the inflammatory nature of the case.

No system, perhaps was ever more fallaciously founded, or productive of wider mischief. Europe felt, for years, its devastating effects. It was reserved for Sydenham, who with propriety has been called the "legitimate descendant of the Coan Sage," to discern and expose its fatal tendency. Like his prototype, carefully watching, and strictly obedient to the suggestions of nature, he at once reformed the whole plan of treating the febrile affections, and in

place of promoting an imaginary depuration by additional heat, and augmented stimulus, he recurred to cooling and depletory resources to unload oppression, or reduce excessive excitement.

Cotemporary, or nearly so, with these events was the discovery of the circulation of the blood, which imparted a vigorous impulse to medicine, and changed very materially its character and aspect. But the light shed by it on the animal economy, instead of leading, as was anticipated by the sanguine enthusiasts of the moment, to some correct and permanent conclusions, which might place the science on a basis, never again to be shaken by the changes of opinion, served only to redouble the rage for speculation, and to exacerbate the temper of controversy.

As having no direct leaning on our subject, it would be improper to dwell on the series of conflicting hypotheses, resulting from those angry contentions, many of which were the progeny of an unnatural alliance between medical science and the prevalent branches of knowledge.

Medicine has been corrupted in every age by the ambition to apply to it the general theories, or particular views of the other sciences. Its early history shows that it was constantly subjected to the dominant philosophy of antiquity. When chemistry triumphed, we have seen its reasonings intermixed with every set of opinions, and shaping every form of practice. Next mathematics came into vogue, and the functions of the living system, as well as the operations of medicines, were explained

on pure geometrical principles. After a while however, the reign of metaphysics ensuing, we had all its subtleties, and abstractions in the place of the preceding parade of data, postulates and demonstrations.

Thus stood our science at the dawn of the eighteenth century, when three distinguished characters arose, to subvert the authority of their predecessors, and to share the empire of medicine. These were Stahl, Boerhaave, and Hoffman. Each of their systems made a considerable impression on the materia medica, and must therefore not be entirely overlooked in the present review.

That of Stahl, which is rather of the earliest date, evidently grew out of those metaphysical discussions to which I have alluded. It assumes as a fundamental principle, that the rational soul of man rules his body in health and disease. No period has perhaps existed, in which some indistinct notion has not been entertained of a power resident in the animal economy, by which it is enabled to resist injuries, and to correct or remove the morbid derangements, to which it may be exposed. This mysterious faculty has received various names, as the impulsive principle, the soul, or anima medica, the archæus, the vis conservatrix, et medicatrix naturæ, the vital principle, the nervous power, and most commonly the vague appellation of Nature.

Giving to this faculty more definite attributes, he strenuously maintained that it is independent of any physical necessity, and operates by virtue of its intelligence. Theoretical views like these, must inevitably have dictated a practice cautious, feeble, and irresolute. Confiding in the wisdom of the soul, the disciples of this sect were accordingly vigilant in observation, and acute in discernment, though averse to the use of active remedies, lest they might interfere with its sanative designs. To them, we are peculiarly indebted for the art of curing diseases by expectation, and their practice has, with some propriety, been called, "a meditation on death."

No one could have been better prepared than Boerhaave to construct a medical system. To a mind calm, reflecting, and discriminative, he united the widest range of erudition, and the most patient industry. All the branches of knowledge auxiliary to his profession he had diligently cultivated. These advantages, however, did not exempt his speculations from the grossest errors.

As a genuine eclectic, he seems, in framing his system, to have been anxious to select from every source the best materials, and to blend these with such as his own genius might supply, into one whole, exhibiting the aggregate truths of the science. But this, like most finely wrought schemes, did not succeed. Excellent as was the mechanism of the work, the incongruity of the parts could not be concealed. To harmonize the contrarieties of medical doctrines was indeed a task as impracticable as to arrange the fleeting vapours around us, or to reconcile the fixed and repulsive antipathies of nature. Boerhaave adopted, in the utmost latitude, the prevailing mechanical and chemical philosophy, and, his system bears its full impression on the face

of it. Neglecting the peculiarities of vitality, he represented the animal body pretty much as a machine controlled by the laws of hydraulics in the circulation of its fluids. Medicines he supposed to operate chiefly by chemical combinations.

The system of Hoffman differs very widely from those of his two cotemporaries. Discerning the errors of the humoral pathology, he early rejected it. Whatever changes the fluids undergo, he alleged were produced through the intervention of the solids, and denied, that they exercise any direct or essential influence, on the healthy or morbid states of the body. Believing that the living system is regulated by a vital principle, he retains little of mechanical or chemical reasoning, but, very properly seeks for explanations of the phenomena of the animal economy in the agency of that principle exerted through the primary moving powers. With his subordinate notions relative to spasm, I have nothing to do.

In tracing those systematic arrangements of medical knowledge, which had any decisive influence on the materia medica, we must not entirely overlook that of the original and eccentric Brown, the child of genius and misfortune. My intention however, is not at all to detail the well known doctrines of the "Elementa Medicinæ." It will be quite sufficient for my purpose, to remark, that this intrepid theorist divides all diseases into two classes, sthenic and asthenic, or of increased or diminished excitement, and maintains that every agent which operates on the living body to be a stimulant, hav-

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ing an identity of action, differing only in the degree of force.

Whatever may be the merit of these views in some other respects, a point however, exceedingly disputable, they could not fail to produce the worst effects on the materia medica. Nothing can be less true than the notion which is here inculcated of the powers and modus operandi of medicines, or more mischievous than the abridgement of our remedial resources, to which such an estimate directly leads. Let it be conceded, that diseases really consist in graduated proportions of excitement, and that our medicines are weaker or stronger stimulants only, it follows, that a practitioner might sally forth to attack the foes of human health and happiness, armed alone with the lancet in one hand, and a bottle of alcohol in the other, to reduce vigor, or remove debility, as the case might demand. Extraordinary as this may seem, it is still a warrantable deduction from the premises, which were carefully laid down and so often elaborately defended, by the disciples of this sect, and which they fully illustrated by their practice.

Leaving now, these bold attempts at medical generalization, revert to the more direct history of our department. It can hardly be supposed, that, during the last century, when physical science was so studiously cultivated, the materia medica should remain stationary. No section of medicine is insulated, and whatever light is thrown upon one, soon becomes reflected over the whole. The improvements which took place in the departments,

even the most distantly related to it, were therefore not without effect. As physiology and pathology, the laws of the animal economy in a healthy, and the doctrines of its deranged condition, were further elucidated, we acquired more accurate views of the operation of medicines, and a happier manner of adapting them to the management of diseases. But it was from those branches which are its immediate kindred, that the materia medica derived its principal acquisitions. Every province of natural history has been tributary to its extension-and to the chemistry of modern times, we owe the highest obligations. Correcting its own errors by the surest methods, it has also extended the spirit of reformation to our particular science; and, while arming practitioners with some of the best means of combating disease, has, by proving their inertness, expunged others, and taught the art of preparing and administering remedies with infinitely more neatness, precision, and efficacy.

Of late, indeed, it has outstripped the most sanguine expectations, and by the minuteness of its analyses of vegetable substances, promises to confer inestimable benefits on the materia medica. As is well expressed by a recent writer, opium has at length been compelled to confess its secret source of action, and ipecacuanha, to yield its emetic element, in a state of perfect purity. Examples of similar purport, might now be infinitely extended, so diligent and successful are the efforts in this respect; among which may be cited, as of the first conse-

quence, the extraction of the sulphate of Kinine, or the active principle, of Peruvian bark.

During the period under review, much has also been written expressly on the materia medica. We have distinct dissertations on many of its active articles, in which the properties are carefully investigated, and not a few works encompassing the whole science. It is not my intention, at this time, to give any minute account of these productions, having hereafter occasion, very repeatedly, to recur to the subject. Now, I shall merely mention, that among the numerous works the science claims, there are three, which by reason of their superior merit, are entitled to be singled out and noticed. These are the celebrated systems of Lewis, Cullen and Murray.\*

The Edinburgh professor was decidedly the most distinguished medical personage of the age in which he lived. He occupied a larger space. His fame was more diffused. Deficient, perhaps, in that transcendant genius which reforms every thing by bold and general views, he had, to compensate it, the faculty of careful observation, and an uncommon share of diligence, sagacity, and judgment. The character of his mind is conspicuously displayed in all his writings, which, though not destitute of speculation, are eminently practical, and have tended,

<sup>\*</sup> I allude here to the work of my friend, the late Dr. Murray, of Edinburgh. The "Apparatus Medicaminum," by an author of the same name, I have never been able to procure. Nor have I met with the treatise of Alibert, of late so highly commended. I have just seen the fourth edition of Paris's Pharmacologia, which in its way is a work of incomparable value.

in the greatest degree, to the establishment of true and rational medicine.

Yet, his work on the materia medica, is not without defects, and by the changes which medicine
since its date, has undergone, is become in a certain
degree, antiquated, and even obsolete in many of its
parts, in theory as well as practice. As presenting
in narrower limits, a much more correct view of the
existing state of the science, reformed as it has recently been by new discoveries and improvements,
the treatise of Murray is to be preferred.

No notice has hitherto been taken of the efforts in the United States to advance the materia medica.—
These, owing to the long neglect of the subject, are comparatively slender and imperfect. It is true, the naturalists, distributed through the different sections of the country, have, at no time, been altogether heedless of its physical productions. But, their inquiries being directed rather to the botanical history than medicinal properties of plants, very few important accessions were made to the stock of remedies.

As soon, however, as our Medical School began to flourish, an attachment was awakened to the science, and it has since been considerably enriched from our native stores. Many of our graduates have signalized their talents by the investigation, in their inaugural dissertations, of no inconsiderable number of the indigenous medicinal plants.

But the credit of leading in this new career is indisputably due to my predecessor in the chair of the materia medica.\* Confessedly, it was by him, that a real taste for the natural sciences was created and diffused in the United States, the charms and utility of which, were ardently and eloquently enforced in his lectures, in his conversation, and by his writings. Too early has he been removed from the sphere of his labours. Emulating, however, his example, those who have succeeded to him in the School, in the several departments of the materia medica, natural history, and botany, seem resolute to repair his loss, by pursuing the same radiant path of duty and usefulness.

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DISCOURSE II.

## On the Improvement of the Materia Medica.

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Considerations arising from a due estimate of its importance, have led, in every age, to the assiduous cultivation of the materia medica. Long before principles were introduced into medicine, or even the common rules of practice established, no small attainments had been made in this particular department. But studiously as we have endeavoured to promote its cultivation, the materia medica, as a section of medical philosophy, is still crude, wild, and unregulated. We have, it is true, a prodigious collection of remedies. These, however, have been chosen, in many instances, with little discrimination, and are as carelessly investigated—arranged obscurely, and ministered without much accuracy or precision.

In treating of a science so defective, it seems to me proper that I should point out the mode by which, in my opinion, it may be prosecuted with the greatest success. To such a discussion, I am the more inclined, from the singular advantages which our country holds out to the extension and improvement of this branch of medicine.

Nature has cast the new world in her largest mould, and given to all its productions corresponding proportions. No instance of stinted, or niggardly creation exists. Every where, we behold the evidence of a physical luxuriance, equalled only by the moral and intellectual energies of the people. Even our diseases partake of the same character, and have a violence, which exacts for their cure, either new means, or original combinations of vigorous practice.

But most evils have their correctives, and it would seem especially to be a part of the benevolent scheme of Providence, that the malignant distempers incident to a climate, should be invariably associated with their appropriate remedies. If this be the case, can there be a nobler field to excite or reward exertion, than that which lies before us? The immense regions which we claim, though hitherto little explored, are known to be exuberant in the most active vegetables. It is more than probable, that on some of the Alpine heights, or along the margin of those bold streams which pervade our wide spread continent, there blooms many a plant, whose virtues, now flung on the "desert air," may be peculiarly adapted to the gigantic forms of disease, and capable of reducing the lengthened catalogue of the opprobria medicorum.

To aid those who may be disposed to enter on so useful an enterprise, I shall now proceed in the first place to review somewhat in detail, the various means which have been suggested, in order to acquire a knowledge of the medicinal virtues of substances, and to show how far these are applicable to the purpose.

Of the means alluded to, it is reasonable to suppose, that the sensible qualities of the article, by which are meant its odour, taste, and colour, were the first employed. To these criteria we are obviously led by a very strong instinctive impulse. No one can pick up an unknown plant or substance with a view of ascertaining its properties, without at once subjecting it to the decision of one or the whole of his senses. To the rude and educated man, as well as to the brute creation, it is incident to practice this mode of investigation. But, whatever advantages the savage or the lower animals may derive from the acute perceptions of the organs of sense, we are little indebted to this source in our medical researches.

The utility of smell is limited chiefly to vegetables, as few animal or mineral bodies betray their qualities in this way. Most generally, pleasing smells, as we are told by Linnæus, are innocent, while rank and nauseous ones are injurious. But pleasing and nauseous are relative terms. The odour which is grateful to one person, may be to another loathsome and disgusting.

Yet, it is a criterion perhaps not wholly to be disregarded. The odours of medicines he divides into aromatic, fragrant, ambrosial, alliaceous, hircine, stinking, and sickly. These, though not susceptible of any very precise definition, we have no great difficulty in recognising, and to most persons are sufficiently familiar.

The first is generally stimulant and transiently corroborant; the second, analeptic, and sometimes antispasmodic; the third, powerfully so, and likewise cordial; the fourth, actively stimulant, bracing the nerves and exhilirating the spirits; the fifth, sedative, and deleterious; the sixth, anodyne and poisonous; the seventh, narcotic; though in its primary impression it proves so offensive, as often to puke or purge.

His arrangement of tastes is into sweet, commonly nutritious; acrid, heating, corrosive, and irritating, in large doses emetic, and externally rube-facient and discutient; fat, demulcent and nutritive; styptic, astringent, and tonic; acid, refrigerating and diuretic; bitter, tonic and in some instances purgative; viscid, demulcent, expectorant, and nutritive. As regards the salt, the watry, and the dry, which comprehend the whole of his divisions, no inference deserving of notice, is to be deduced.

Tastes, it is affirmed, have a much more intimate connection with the medicinal properties of substances than odours. This is perhaps true. Like smells, however, they are so infinitely varied, that an accurate discrimination is not easy to be made. Much of what I have said in relation to the one, is equally applicable to the other. I shall therefore merely remark, in addition, that certain medicinal vitrues are found pretty constantly associated with peculiar tastes and odours, and will lead to a tolerably satisfactory conclusion where these are simple and unmixed. But, if compounded, which is usually the

case, we ought always to hesitate in deciding, as amidst the confusion of blended sensations, there can be nothing certain or definite.

Cullen maintains, that such substances as do not affect the taste or smell, or only in a slight degree, may be considered as inert and useless. To this rule, which is indisputably of very extensive application, there are not wanting some striking exceptions. Not to mention other conspicuous instances, the corrosive sublimate, arsenic, anti nony, and the poison of serpents, are equally insipid and inodorous.

As a test of medicinal virtues, it seems to be admitted, at present, that colour is entitled to less confidence than either of the two preceding criteria. But a different opinion was once entertained, and especially by the celebrated naturalist of Sweden, as is expressed in this memorable aphorism: "Color pallidus, insipidum—viridis, crudum—luteus, amarum—ruber, acidum—albus, duce—niger ingratum indicat."

Each of these positions, though true in the main, is to be received with many limitations, and on this account, the mere circumstance of colour, will always prove a devious and precarious guide.

In the enthusiasm of that period, when chemistry, as a novelty, solicited attention, it was imagined, that the processes of the art would illustrate every physical obscurity, and, among the rest, reveal the medicinal properties of substances. During the reign of the humoral pathology, these extravagant expectations were also sanguinely indulged. As applied here, the powers of chemistry cannot be trusted.

Experiments have fully demonstrated, that articles widely discrepant in their general nature, as aliments and medicines, the most salutary food, and the rankest poison, exhibit, on analysis, nearly the same results. This indeed holds so generally true, that the virus of the viper, and the mildest mucilage, the poisonous prussic acid, and the nutritive flesh of animals, constitute no exception. Decomposed into their elementary principles, they are essentially the same.

Chemistry, however, in other respects, is of the utmost importance to the materia medica. Copious in resources, this noble science explores all nature, and educes from each province the most valuable remedies. The animal, the vegetable, the mineral kingdoms, it lays under contribution to our purposes, and by it we are moreover taught neatness and precision in our pharmaceutical preparations.

As soon as botany assumed a regular shape, and was reduced to system, it came to be observed, that many of the plants which had been arranged together from their agreement, or affinity in botanical characters, were also allied in medicinal virtues.—
Nature having established, in not a few instances, a connection of this sort, it was presumed that she had done so universally. Classifications were accordingly made on this hypothesis, and, to a certain extent, they proved to be correct. There is, especially, one of the great divisions of Linnæus, embracing a very large number of plants, which scarcely exhibits an exception. But so far from this coincidence prevailing throughout his classes, it

frequently does not obtain even in the species of the same genus. As proofs to this effect, I may mention the cucumis melo, or common melon, and the cucumis colocynthis, or colocynth of the shops.— Nor is the difference less in a medicinal and dietetic view between the solanum tuberosum, or potatoe, and the solanum nigrum, or black nightshade. Examples of this kind it would be easy to multiply, were not those which have already been adduced, sufficient to show the fallacy of the criterion; and at the same time, the extreme danger which might result from carrying it into practice, without proper care and circumspection.

Exactly on the same footing stand the conclusions derived from what is called the natural order or assortment of plants. Many vegetables, resembling each other in their general aspects, do not disagree in their medicinal properties. But this does not always hold, and among the instances to the contrary, may be enumerated the digitalis, and the verbascum, or common mullein of our fields, each of which is included in the same natural family, though the one is as active as the other is mild in its effects.-Nor is this all. Different portions of some plants are possessed of very opposite qualities, as we see strikingly illustrated in our own podophyllum peltatum, or may-apple, the leaves of which are poisonous, the root powerfully cathartic, and the fruit agreeably esculent. What, on the whole, physiognomy proves in relation to the human character and dispositions, the exterior appearances of plants perhaps shew as to their virtues and powers. Each sometimes acquaints us correctly, though he who implicitly trusts to either, will often have reason to complain of his misapprehension and disappointment. As a general rule only, can the maxim be admitted,

" Quæ genere conveniunt, virtute conveniunt."

Culture, the varieties of soil, and of position, as well as climate, have all, moreover, a very decisive influence in modifying, or essentially changing, the properties of vegetables. Grown in a very rich soil, chamomile flowers lose their medicinal virtues; and some of the umbelliferæ, we are told, transferred from a dry to a wet position, become deadly poisonous. Examples of similar conversions, by the effects of climate, are numerous, and so familiar, as to require no specifications.

Let us not, however, disparage the utility of botany. To ascertain the identity of any plant, which the arrangements of this science enable us to do, is an object of no minor consequence. Deprived of the aid which it lends, the greater part of the experience of our predecessors would be lost to us.—We should have to start anew in our investigation of plants, and, like mariners cast on a desolate shore, move through unexplored regions with a step slow, faltering, and retarded.

Not the least of the extravagancies which marked the wild career of Paracelsus, was the inculcation of the notion, that such plants as bear a resemblance to any one part or constituent of the body, have a peculiar efficacy in relieving its disorders. Thus, the Euphrasia, even at the present time, from a continuance of this impression, is used in the complaints of the eyes, because it has a black spot in its corolla, resembling the pupil, and the pulmonaria retains not less reputation in the affections of the lungs, since in its form, its texture, and its areolæ, it is not altogether dissimilar to these organs. Turmeric being yellow, is, on the same principle, thought useful in jaundice, and some red plants are prescribed for the suppression of hæmorrhage.

Exploded as it is, wherever intelligence prevails, nothing except the desire to preserve something like a regular chain in my present narrative, would have induced me to notice, as one of the means of ascertaining the virtues of plants, this old and absurd doctrine of Signatures.

To determine the powers of medicines, it was formerly the practice to make experiments on the fluids taken out of the body. This was more particularly the case, while the doctrines prevailed, which supposed disease to depend on a depravation of the blood or other fluids. To the disciples of this sect, the operations of the laboratory were considered as presenting a faithful image of the actions of the living system, and hence they were very naturally seduced into this course of inquiry. Not the slightest advantage, however, has accrued from such visionary projects. Those who were deluded by them, ought to have recollected the peculiarity of vital power, and how much the changes which the fluids undergo, are influenced by impressions made through the intervention of the solids.

In pursuit of the same end, it has been not less the custom to experiment largely on the brute creation,

and on the first view it promised the most interesting results. Experience, however, more correct, has taught us that it cannot be trusted. Different animals, we have discovered, are variously affected by the same article. What is food to one, may be to another an active medicine, or virulent poison.—Thus, cows and hares will eat hemlock: hogs, henbane and hellebore: goats, nicotiana and euphorbium—and some birds, the laurel berry. The powerful antimonial preparations are comparatively feeble on a horse; and a dog, which can take three times as much opium as a man, may be thrown into convulsions, or perhaps killed, by a moderate dose of jalap, or even by a few bitter almonds.

Disappointed in their anticipations from the preceding modes of inquiry, the cultivators of the materia medica, were ultimately driven to make their trials on the human species. But doomed, as it would seem, to perpetual fallacy on this subject, they restricted their experiments chiefly to the system in a state of health. Nothing could be more inconclusive. Disease so materially influences the condition of the body, and its susceptibilities to impression, that the agency of substances is, in consequence, very strangely modified, and in many instances entirely changed. Nevertheless, such investigations are not to be contemptuously rejected. They will sometimes serve, at least, to acquaint us with the general powers of the article. That, however, they may be conducted to any practicable purpose, the phenomena produced by the substance must be carefully watched, and faithfully reported, not only as

indicated by the pulse, but as displayed in every part and function of the animal economy.

Great errors have been committed by inattention to these precepts. Even in the very best of our investigations of medicines, we find nearly an exclusive regard paid to the state of the circulation, its acceleration, or retardation, its augmentation or diminution of force and volume. Directed by their peculiar affinities, there are very many of our medicines, which, leaping over, as it were, the blood vessels, expend their energies on the nervous, the muscular, the glandular, the cutaneous, lymphatic, or some other subdivision of the general system.

By more than one enthusiast it has been assumed, that all medicines are similar in their operation, differing only in degree of force, permanency, and diffusibility. My own conviction is, on the contrary, that we should approach much nearer the truth, by considering every article, or, at all events, congeners, or assortments of kindred articles, as endowed with peculiar powers, and having a relation or affinity to some one organ or portion of the body.—
But more of this hereafter.

As yet, then, no means have been mentioned of ascertaining the medicinal virtues of substances in which we can implicitly confide. The sensible qualities of the article, chemical analysis, botanical affinity, experiments on dead matter, on the lower animals, or on the healthy human system, may conduct us, in most instances, to a tolerable knowledge of its general nature, but can never be adopted as safe criteria for practical purposes. Experience of

their effects on the body, in a diseased condition, is the only mode of determining the virtues of medicines. The subject is strictly clinical in its nature, and such inquiries can alone afford a correct result. It is at the bed side of the parient, I repeat, in the language of a great writer, that our knowledge of medicines is to be acquired. By examining, continues he, by touching, viewing, smelling, and tasting, we learn to know the different articles of the materia medica. It is by seeing them decomposed, and compounded, and by observing the qualities of the products, or new combinations, that we receive just notions of their chemical properties: it is by witnessing their properties in a laboratory, by preparing them ourselves, that we form a clear idea of their transmutations, and of the different properties which the different modes of preparation may impart to them: and it is only in the course of a long and extensive practice, that we become acquainted with the real properties of medicines, and learn to appreciate them, not in a vague manner, but by their real effects, circumscribed or determined with accuracy and with reference to the particular cases in which they have been observed.\* But even this course is liable to fallacy, and its dictates must be received with doubt and hesitation.

Medical conclusions differ very widely from every other species of evidence. We cheat ourselves by a thousand illusions, and have imposed upon us, still more deceptions. It is not necessary, that I should enforce this remark by the enumeration of

<sup>\*</sup> Cabanis.

any examples. No one, who is conversant with the practice of physic, need be told how often his own deductions have proved erroneous, or how little credit is to be reposed in those pompous recommendations with which medicines are daily promulgated.

The celebrated Vogel professed to assign to substances such properties only as had been accurately learnt from accumulated experience: and in his rectified catalogue, we have a roasted toad as a specific for gout: and he assures us, that a person may secure himself, for a whole year, from angina, by eating a roasted swallow!!\*

If, therefore, we cannot trust to experience, what must be our resource? There is a true and a false experience. The latter, which is the creature of ignorance, or results from ardent and precipitate observation, can be distinguished by a careful scrutiny, and ought to be repudiated. Yet, it must be confessed, that it is exceedingly difficult to determine the precise powers of a medicine.

Experiments on this subject present many obscurities, and are liable to various inaccuracies. Distinct from other perplexities incident to the case, we have to encounter the original idiosyncrasies of the constitution, or those fluctuations of condition induced by disease, or by age, temperament, habit, climate, the season of the year, and a variety of other causes.

Applied in different states of the system, or in different quantities, the same medicine will be pro-

<sup>\*</sup> Paris's Pharmacologia.

ductive of very different effects. This is, indeed, so emphatically true, that we can hardly ever pronounce with certainty what will be the exact results from the dose exhibited. By reason of this it is, that we have always had so much controversy respecting the powers of medicines, and that we find, even at the present time, the articles of the materia medica so oppositely arranged, and their properties so contradictorily described, in the treatises on the subject.

Consulting these, we shall see the same substance, sometimes noticed as an emetic, at other times as a purgative, now as a diaphoretic, a diuretic, or expectorant, and next as a stimulant or a tonic, an aperient or astringent. The uncertainty, indeed, is so great, that we cannot uniformly decide, whether the medicine has been productive of any effect, and the difficulty is often not less, where effects are conspicuously displayed, how much of these is to be imputed to its operation.

To arrive at a satisfactory conclusion on these points, it is indispensable, that experiments should be carefully repeated by different persons, so that any errors may be revised—and on different patients, in different diseases, and under different circumstances, as regards condition in society, the place of abode, whether in a ventilated apartment, with the comforts of home, or in a crowded ward of an hospital, with its inconveniency and privations.

Taught, however, by this mode, the virtues of a substance in a simple state, we are next to inquire

how far these may be injured or improved by a combination with other matters. It was a practice with the ancient physicians to incorporate a vast number of articles in the same prescription. This luxuriance was no doubt often mischievous, as ingredients wholly discrepant were associated, counteracting each other in their operations, and producing effects not at all anticipated. But, in the rage for reformation, it is not uncommon to step beyond the proper limits; and in every science, as in human affairs, it becomes salutary to review, at stated periods, what has been done, to correct the consequences of intemperate zeal, and to endeavour to hit the medium between the conflicting extremes.

Of late, the formulæ of practitioners have been marked by a simplicity which is commendable. To me, however, it seems to be sometimes pushed too far, and that, consequently, certain compound preparations are discarded, which were unquestionably of great value in the hands of our predecessors.

To check, in some degree, this tendency to excessive refinement, I mean, hereafter, to show by examples, that combination in our prescriptions is, in many instances, eminently advantageous, by rendering the exhibition more convenient, and that, while it imparts new powers, it increases the efficacy of the articles.\*

<sup>\*</sup> In this inquiry, I have been anticipated by the learned and sagacious Fordyce, who has published a very able paper on the subject, in the Medical and Chirurgical Transactions of London.

All these preliminary points being settled by a series of clinical observations, carefully made under every diversity of circumstance which can shed light on the properties of a medicine, we are lastly to seek for the several indications of its use. Limited, indeed, would be its value, were its application confined to the case only in which it was first discovered to be serviceable. But, to trace the multiplied relations of a medicine to disease, the exercise of the higher faculties of the mind is demanded, and we at once introduce the spirit of speculation, or what is termed reasoning in medicine.

Nothing has been more prejudicial than the abuse of this noble prerogative. Consulting the records of our science, we cannot help being disgusted with the multitude of hypotheses which have been obtruded upon us at different times. No where is the imagination displayed to greater extent; and perhaps, says an eloquent writer,\* so ample an exhibition of the resources of human invention might gratify our vanity, if it were not more than counterbalanced by the humiliating view of so much absurdity, contradiction, and falsehood.

The number of preposterous theories should not, however, continues he, create an antipathy to the term,

<sup>\*</sup> The venerable M'Clurg, of Virginia. Nearly half a century has elapsed, since he gave to the public an experimental inquiry relative to the bile, with a preliminary disquisition, in defence of reasoning in medicine. It is from this eloquent production, I derive some of the leading thoughts on this subject.

nor must a panic terror of them drive us from the sacred abodes of philosophy. To be hurt with the imperfect and puerile commencements of reasoning in physic, and to relinquish the hopes of rational theory, is to be offended with the prattle of infancy, and to expect nothing better from maturer age.

To exclaim against theory, has been considered as a proof of an ardour for observation. But is it not really to declare, that we must rest stupid and indifferent spectators of the events constantly passing before us? To think, is to theorise. We cannot contemplate facts for a moment, without perceiving some relation between them, and the very discovery leads to classifications. To deny its utility, therefore, is to clip the wings of genius, to banish invention from the science, and to consign it over to the dull registering operations of memory alone.

Experience, by which I understand that species of knowledge which is acquired by frequent investigation of the same object, has been much insisted upon, as the only guide to successful practice in medicine. Were this well founded, it would only be necessary diligently to attend the receptacles of the sick, and any well-trained nurse might be brought to excel the most enlightened and regularly educated physician. Let this principle be once admitted, and our practice becomes a blind routine, without reason or reflection—and the profession, instead of being studied as heretofore, as a science, will be considered merely as a mechanical art, and exercised

only as a low and vulgar trade. Can we consent to this degradation? As well might we compare the mere flutterings of the meanest and the most groveling bird, with the bold and well sustained flight of Jove's own imperial eagle, as those slow processes of a vulgar intellect by which facts are collected or observed, with the vigorous sallies of speculative genius, which seize truth, as it were, by intuition, and reveal it in a burst of light of celestial brightness.

Nevertheless, while we cherish a due attachment to theory, we ought not to despise the humbler employment of observation and experience. There is a natural alliance between them, which should never be dissolved. Let our zeal for speculation be tempered by the recollection, that before we can raise the edifice, the materials must be supplied, which can only be done by the unwearied exertion of this inferior species of diligence. Certainly, the annals of medicine are already sufficiently crowded and deformed with the abortions of theory, to moderate our ardour, and to create, in future, some degree of restraint and circumspection.

Not the slightest of the causes which have conspired to retard the progress of physic, is the eagerness for rash and indiscreet generalization, by which, at all times, it has been distinguished. But if ever we are to strip our art of its "glorious uncertainties," and bring into the practice of it something of exactness, it will be by pursuing a very different course. To

effect so important a revolution, we must studiously examine the phenomena of disease, and, with an attention no less unbiassed, observe the operation of medicines. Thus, perhaps, we shall ultimately learn to discriminate accurately the diversified shades of morbid action, and to apply to each its appropriate remedies. As it is, we are plunged into a Dædalian labyrinth almost without a clue. Dark and perplexed, our devious career, to borrow the fine illustration of a favourite writer, resembles the blind gropings of Homer's Cyclops round his cave.

It is a popular opinion, which has not wanted the countenance of persons of more intelligence, that medicine is necessarily a fallacious art; having its origin in credulity, and which by no exertion can be made to approach towards certainty and truth. They allege, that the animal machine is infinitely too delicate and complex in its fabric, ever to be ascertained by human sagacity, and hence its derangements will continue to be vaguely understood, and the reparation of them, by our remedial resources, of course, doubtful and precarious.

Exhibited in this light, the profession of medicine becomes exceedingly debased, and, were this representation of it just, should cease to be an object of liberal inquiry or enlightened regard. Declining at present any formal examination of this subject, it may, however, be permitted me, in closing this discourse, to indulge in one or two general reflections which press upon me.

Medicine is a science of observation and induction. Conceding this, it follows, as a necessary corollary, that, when properly cultivated, we can as certainly, though perhaps with greater difficulty, arrive at as definite conclusions in it, as in almost any other department of physical knowledge. All that is exacted in the study, either of the sound or morbid states of the body, is vigilantly to attend to the phenomena presented, to mark the order in which they occur, as well as their mutual relations, and so to arrange them, that this order, and these relations, may be easily perceived.

Nor is it true, as has been commonly thought, that a precise acquaintance with the vital principle is indispensably necessary, as a pre-requisite, to the advancement of our science. The nature of a principle may remain inscrutably concealed, and still the laws of its action be perfectly determined. Of this, the modern, or inductive philosophy affords very many striking proofs, in the specimens of its more splendid generalizations.

Encouraged by the success which has attended the application of the true methods of research to some of its kindred sciences, we should imitate this course, and endeavour to do the same with medicine. To this undertaking, we are called to unite our efforts, not more by a sense of professional duty, than by obligations of a still weightier description. We live in times, and in a country, singularly propitious to the enterprises of intellect, and to the schemes of reformation.

Availing ourselves of the privileges we possess, and animated by the noblest impulses, let us cordially co-operate to give to medicine a new direction, and attempt those great improvements, which it so imperiously demands. Even if we should not carry it to that point of absolute perfection, which sometimes has been, perhaps too sanguinely, predicted, we may, at least, "by infusing into the science the genuine spirit of reason and philosophy, render it richer in glory, and more fruitful in benefits to mankind." But a higher reward awaits our exertions.

Let us only pursue, with a steady and undeviating perseverance, that track of correct philosophising, which has been indicated, and we cannot fail to place medicine on a basis so solid, as never again to be convulsed by the revolutions of opinion, or vicissitudes of fashion, but which shall endure as a monument of our triumphant industry, unimpaired, amidst the waste of ages, and the ravages of time.

VOL. I.

## SECTION I.

and commeted by the publical impulses, let us cordi

## On the Modus Operandi of Medicines.

On this very intricate question, not a little difference of opinion prevails. The only point in the controversy which seems to be conceded, is, that the operation of medicines does not depend on any of the common laws of matter, but on a principle incident to vitality alone.

" Medicamenta non agunt in cadaver."

As this is so universally admitted, as even to become one of the established maxims of the schools, it may be right, before we advance further into the discussion, to endeavour to fix our notions in relation to the nature of life. But, as speculations of this sort, indulged to any extent, would be here misplaced, I shall exhibit my views of the subject, in as narrow a compass as possible.

Of the various doctrines of vitality, one only appears to me to be at all well founded, and conse-

quently deserving our attention. It presumes, that every animated body, animal or vegetable, is endowed with a primordial principle of life, and which, resident in the ova of animals, and the seed of plants, constitutes the power by which, in the first place, the various organs are moulded, developed, and perfected, and by which, afterwards, the animal economy is defended against the action of mechanical and chemical laws.

Located, perhaps, in the highest degree, among the digestive and assimilative organs, it enables them to change, or destroy the qualities of the substances exposed to their operation, without sustaining in return the slightest injury or change. It would hence really appear, that instead of matter, whether aliment, drink, or medicine, acting on the living system, as is commonly imagined, it is, on the contrary, the living system which operates on these matters. But, such is the case only, when the vital energies are in a vigorous and healthy condition. Different, indeed, is the result, where from debility or other imperfection, the vital organs are rendered unfit to act upon substances, or of resisting the action of substances on the system. Whatever is taken into the stomach under such circumstances, preserves its properties unaltered, or undergoes the same sort of alteration, which it would do out of the body, or beyond the sphere of the vital powers. Each article in this state obeys the order of its affinities, and the changes which occur, are purely

chemical. Common matter now acting by its own laws, the system, being thus languid and decayed, sinks under an attack it cannot repel, and the processes of fermentation and putrefaction ensue, which, if not timely arrested, become the precursors, as well as the causes of death and destruction.

Life, therefore, may be defined the principle, or power, by which the system preserves its own integrity unimpaired, and its several parts from decomposition, amidst the action of surrounding agents, while it acts upon things foreign to itself, assimilates them to its nature, and appropriates them to the supply of its exigencies, or to the redress of its injuries.

The theory I shall propose, of the operation of medicines, alleges, that they all act by exciting a local impression which is extended through the medium of sympathy. By many, however, it is still believed, that certain articles, at least, enter the circulation and produce their effects in this way.

This latter hypothesis is evidently a relick of the humoral pathology. By the disciples of that sect, it was held, that disease mainly consists in a depravation of the blood, "from too great tenuity or viscidity, by an excess of acid or alkaline acrimony, by morbific matter entering from without, or generated within."

As a necessary consequence of such notions, medicines were supposed to penetrate into the circulation, and, by a sort of chemical action, to correct the vitiated condition of the fluids, and hence the origin of the terms, inspissants, attenuants, antacids, antalkalines, antiseptics, diluents, demulcents, &c. &c.

To demonstrate the fallacy of these speculations, by any very minute detail of facts or reasonings, cannot now be required. All changes in the condition of the fluids are wrought by impressions made through the intervention of the solids. Not the slightest proof exists, so far as I know, of their undergoing any mutations, either by spontaneous action, or from the introduction of foreign matters, much less, that such is the cause of disease, or the mode in which remedies operate.

To reach the circulation, medicines must pass either by the lacteals, or lymphatics. Now, it seems more than probable, in either case, that their powers would be so neutralized by the preparatory processes of animalization, as to be deprived of all activity.

Can it, indeed, be credited, that any substance, after a subjection to the digestive and assimilative powers, retains, in the slightest degree, its original properties? Experiments, on the contrary, show, that chyle, however diversified the materials may be, out of which it is formed, whether animal or vegetable, has essentially an identity of nature, and, instead of being a *crude*, as is commonly imagined, is, in reality, a highly *elaborated* fluid, having many, and perhaps all the properties of blood, except its red colour. Three of the constituents of blood, it at least contains.

- 1. There is one portion of chyle, which preserves its fluidity during life, but coagulates after death, by exposure to the air, and is probably fibrine.
- 2. There is a second portion, which resembles serum, in continuing fluid when exposed to the atmosphere, and in coagulating at the same degree of temperature, as serum.
- 3. There is a third, consisting of globules, similar to those of blood, with this difference only, that they are much more minute.

The fact of the perfect and uniform constitution of chyle seems to me, at once, to put down the hypothesis which I am combating. Yet, perhaps, it may be said, it proves nothing in the case of medicines administered otherwise than by the stomach, as when applied to the surface of the body, or introduced into the bowels. To this objection the answer is obvious, and I think very satisfactory

No one who has carefully attended to the phenomena of the absorbent system, can help admitting, that every section of it is endowed with the power of digestion and assimilation, and the lymphatics quite as conspicuously as the lacteals. This capacity is given, as a provision of nature, to exclude noxious matters from the circulation.

The absorbents, in most instances, are fully adequate to this end; and when they are not, the substance penetrates to the first conglobate gland, which takes on inflammation, and arrests its further progress;

these organs acting here as centinels, gnarding the exterior approaches of the body. That some of the properties of certain articles are displayed in the secretions and excretions, I am not disposed to deny. But it does not hence follow, that these substances entered the circulation in their primitive state. Directly the reverse, indeed, seems to be proved, as no one of them can be detected in the serum of the blood.

To me it is clear, that the process of assimilation, as performed either by the chylopoietic viscera, or by any part of the absorbent apparatus, completely decomposes all substances; and, however discrepant in their properties, reduces them to a homogeneous fluid fitted for the purpose of nutrition. But, when thrown into the secretions or excretions, being removed beyond the control of the vital energies, chemical affinities are sometimes again brought into play, by which these substances are in part, or wholly regenerated.

No slender support is given to this hypothesis by the well known fact, that matters are found in such positions, which had not previously existed, in any cognizable state, in the blood. Thus, certain articles can only be detected in certain fluids, as the odour of garlic in milk, of asparagus in urine, of sulphur in the perspiration, and the colouring principle of madder is to be traced in no part of the solids, except the bones, and their immediate appendages, the cartilages. Did these articles pre-exist in the blood, instead of being regenerated in some such manner as I have stated,

ought they not to be thrown out indiscriminately by all the emunctories?

Whether this explanation be received or not, it must at least be acknowledged, that no substance, in its active state, does reach the circulation, since it is shown, that a small portion even of the mildest fluid, as milk or mucilage, oil or pus, cannot be injected into the blood vessels, without occasioning the most fatal consequences.

Twenty-two years ago, in conjunction with my friend, the late Dr. George Lee, then resident in the Pennsylvania Hospital, I instituted a series of experiments, to this purport. All the articles enumerated above, were tried in succession, together with some others of an acrid and stimulating nature, on dogs and cats, the animals selected on the occasion. But diversified as these substances are, we could discern no material difference in their effects, the whole seeming to act merely as extraneous matter in error loci, producing, at first, great distress to the animal, as was indicated by its movements and cries, followed by difficult panting, respiration, vomiting and purging, nervous tremors, convulsions, and death. Experiments very analogous to the preceding, have recently, I understand, been made by Professor Caldwell, and with confirmatory results.

That the late inquiries of Sir Everard Home and others, lead to a different conclusion, I am aware. Confiding, however, in the accuracy of our own ob-

servations, I must, in the present state of the question, still maintain, without the slightest qualification, the position I have assumed. The fact is, that though the blood be alive to impressions, and, perhaps, even more exquisitely than the solids, it being designed, that all matters should be excluded the circulation, they lose their specific mode of action, when introduced, and cause confused and disordered movements, like an irritant in the trachea, or in any other unnatural situation.\*

Conceding, however, to the humoral pathologists all that their doctrine demands, still insuperable difficulties remain in the way of its adoption, to account for the operation of medicines. Not to dwell tediously on the subject, I shall content myself, at present, with little more than mentioning, that we are not at all informed by it, why our remedies, after mixing with the blood, should be directed to one organ in preference to another, as mercury to the salivary glands, or how indeed they operate at all.

By the *medication* of the blood, were it possible, as is contended for, we must in all instances do harm. The whole mass of circulating fluids is equally charged in this case with the medicinal substance, and, therefore, while an action is going on in a diseased organ, which may be salutary as to it, every sound

<sup>\*</sup> On the experiments of Dr. Majendie, on venous absorption, I forbear to comment, as on repetition here by Dr. Sommerville, they were not confirmed. The subject is now before a committee of the Academy of Medicine, where it will receive the fullest investigation.

part of the system becomes subjected to a similar impression, which could not fail to disturb the order of health, and create morbid derangements.

Be it alleged, as it sometimes has been, that the action of medicines, under such circumstances, is on the surface of the blood vessels, the doctrine becomes utterly deserted, and we are forced to recur to sympathy, as affording the only explanation.

By a recent writer of high authority, whose opinions, however, on this point, are not wholly without the taint of the humoral pathology, it is conceded, as an incontrovertible fact, that a large proportion of medicines do act by the "medium of nervous communication."

"This," says he, "is manifest, from the effects of these substances being produced in a shorter time after they have been received into the stomach, than they could be, were they to act by being absorbed with the chyle into the circulating mass. The stimulus of wine or opium will instantly remove lassitude, and increase the vigour of the circulation, or of muscular exertion. Digitalis, given in sufficient quantity, very speedily reduces to a great degree the frequency of the pulse, or a large dose of cinchona, exhibited half an hour before the expected recurrence of the paroxysm of an intermittent, will prevent its attack."\*

Exactly the same conclusion is deduced by Mr. Brodie, from his experiments in relation to nearly all

<sup>\*</sup> Murray's Mat. Med.

the poisonous substances, vegetable as well as mineral—and the few which he represents as acting otherwise, really, from his own showing, seem not to do so.\*

The principle being thus clearly established in so large a number of instances, which, if necessary, might be still further increased, it appears to me, that it should be admitted as an universal law, unless exceptions to it are very clearly made out and demonstrated. To multiply causes superfluously, is against one of the fundamental rules of philosophising, and is not less repugnant to the general course of nature, whose means are proverbially distinguished by great simplicity and uniformity.

As regards the mercurial preparations, an example particularly selected by the writer whom I first cited, to illustrate the occasional admission of medicines into the circulation, we have the most conclusive proof that this never happens, whatever may be the manner in which they are employed,† and no doubt such is the case with all the articles of the materia medica. It is, at least, as clearly shown by experiments made by myself many years ago, and which have been since more than once repeated with greater precision, and on a more extensive scale, by graduates of this school, that none of the preparations

<sup>\*</sup> Transactions of the Royal Society, for 1811 and 1812.

<sup>†</sup> Experiments of Drs. Physick and Seybert, Medical Repository, vol. v.

of iron, of copper, of lead, nor the colouring matter of indigo, of madder, or of rhubarb, can be traced even so far as the chyle \*

Being introduced into the small intestines of dogs, these several articles were observed to be rapidly taken up by the lacteals, the coloured ones losing their tints in passing on, and, in every instance, so completely were their properties obliterated, as not at all to be cognizable by any chemical test in the contents of the thoracic duct.

Yet, it is not to be concealed, that some very respectable writers have affirmed, that certain matters do enter the circulation, and may be detected by chemical tests. Of the facts of this kind, not the least relied on, is one which comes recently from Mr. Brande. It is stated by this most eminent chemist, that the blood of a patient who had taken soda, long and largely, was found to contain that alkali in excess.

Granting it to be true, is not the force of the fact done away by the recollection, that soda is a constituent of blood, and, as such, may freely enter into its composition without detriment? All the experiments, however, on this subject, have been made without adverting to a source of fallacy, which greatly impeaches their validity. On blood, dead and separated into its parts, have the whole been made; and obviously under such circumstances, the elements of things may again

<sup>\*</sup> Hodge's Inaug. Dissertation, in which many of these experiments are contained.

re-combine, in a manner already noticed, which in the living state were broken up, and assimilated by the powers of animalization.

Could more proof be required of the operation of medicines being entirely independent of the circulation, it might be found in the well-ascertained fact, that many of them produce their full effects, though the heart and blood vessels be previously removed. Long ago it was shown by Whytt, that if the heart of a frog be taken out, and a solution of opium be injected into the abdomen, the animal speedily becomes convulsed. The poison of the viper, according to Girtanner, applied to a frog prepared in the same way, will destroy it as soon as if no mutilation of the animal had taken place. Numerous experiments of a similar import, with other active substances, have been instituted, the results of which are so exactly correspondent, that to detail them would be superfluous. But, before I finally dismiss this part of my inquiry, I will only remark, that the converse has been equally proved, or that no extension of the impression of medicines happens in cases where the brain and spinal marrow have been destroyed, though the heart and vascular system be preserved uninjured\*.

It results, on the whole, from what I have said, that we are to reject the fluids altogether in our inquiries relative to the operations of medicines; because, in addition to the reasons already stated for

<sup>\*</sup> Murray's Mat. Medica.

doing so, we have in that law of the animal economy termed sympathy, or consent of parts, a solution of the problem which comports infinitely better with the existing state of our knowledge.

Conformably to the theory I have adopted, whenever a medicinal substance is applied to a susceptible portion of the body externally or internally, an action is excited, which is extended more or less, according to the diffusibility of the properties of the substance, or the degree of sympathetic connexion, which the part may maintain with the body generally. Thus a set of actions is raised, every one of which is precisely similar, provided they are confined to the same system, by which is to be understood parts of an identity of structure. If, however, the chain runs into other systems, it loses its homogeneous character, the actions being modified by the peculiar organization of the parts in which they may take place. These are principles of universal application. In every case, whether it respects the operation of remedies, or the production of disease, the spot primarily acted upon, is a point, from which is diffused the radiated impressions. This is a mode of action peculiar to living matter, and is remarkably distinguished from all other processes. An impression is made and extended without mixture or combination, or in any degree disturbing the order and constitution of the part in which it takes place. But in chemical operations, to which we must look for an explanation, in the event of rejecting the above rationale, decomposition

inevitably occurs—and, as the result, new compounds must be formed from a union of the elements of the part, with the substance applied, wholly subversive of the existing structure. By a course of medicine, and, indeed, by every meal, our nature would become essentially changed. Exceedingly preposterous as it may seem, such is the direct and legitimate corollary, from any other than the sympathetic view of the modus operandi of agents on the animated frame.

Let it not, however, be supposed, that I am among those who consider the blood as a dead fluid, without any immediate dependencies or connexion with the rest of the system. Every argument, on the contrary, which can be adduced in favour of the animation of any section of the solids, strikes me as being equally applicable to the circulating fluids.

Referring to the writings of Mr. Hunter, for a full developement of the evidence to this effect, I shall, now, only state, that such a property in blood, is essentially necessary to the preservation of life. Between living and dead matter, there is an eternal hostility, which, under all circumstances, proves repugnant, and utterly irreconcileable. The moment a part dies, an effort is made by the conservative powers of the constitution, to throw it off, as we see in the processes of sloughing and exfoliation: where it is not successful, morbid irritations commence, in illustration of which we have many well known facts, and particularly the case of hectic fever. Even the secreted fluids cannot remain long in their proper receptacles

without doing mischief, as is perceived in retension of urine, though the bladder be not painfully distended—as well as in other similar cases.

The same effects precisely would take place, were the blood destitute of vitality: instead of the source of all action and life, it must become a morbid irritant, productive of inflammation, or, what is more probable, of immediate death. These views derive no inconsiderable support from what happens in the transfusion of blood. Experiments originally made by Dr. Physick, and subsequently repeated by Mr. Blundell, of London, demonstrate, that, prior to the coagulation of blood, or, in other words, till it dies, which takes place, for the most part, in about thirty minutes from the time it is drawn, it produces no bad effects. But after this, being injected, it destroys life as speedily as any dead or extraneous fluid whatever.

The animal machine is constituted of solids and fluids, by the latter of which, I mean, now, only the blood. It is a whole made up of parts, which, though somewhat dissimilar, and existing in different proportions, are no less endowed with the vital influence, and held together, and made to harmonize, by common susceptibilities and sympathies. Connected indissolubly by these ties, an impression made on any one portion of the system, whether solid or fluid, is equally felt by both, on account of this established consent of parts.

Do we not find the blood variously affected in diseases, so much so, indeed, as really to form not the

least unerring criterion of the nature of the case? Be this admitted, can we require any further proof of the correctness of the preceding views? It is, indeed, impossible to conceive how the blood can undergo such changes, from impressions on the solids, were they not united by sympathy, an exclusive attribute of the living state. No one has pretended to show, that they are of a chemical nature, or analogous to the changes which take place after death-and, I think, I have rendered it pretty certain, that they cannot be ascribed to the introduction of any foreign matter into the circulation. It remains for me, on this point, only to observe, in further illustration of my general principle, that so close is the consent between the blood and solids, and so completely reciprocal their dependence, that impressions made on the former, as, among many other instances, by a particle of the virus of the viper, death instantly ensues, and the whole animal fabric, solids and fluids, presents the spectacle of a broken texture, and total disorganization.

There would seem, at first, to be here some inconsistency with what I have previously stated on this part of my subject. But, I think, a little care in the comparison of the passages, will relieve me from this imputation, without the trouble of any explanation.

Entertaining such opinions, it may, perhaps, be demanded, why I reject the circulation, as a medium of the operation of remedies, and as a primary seat of disease? My answer to this inquiry might be collected, with no great difficulty, from the strain and

scope of much of the preceding reasoning. It will be recollected, that I have strenuously endeavoured to prove, that no article, whether remedial or morbid in its tendencies, enters the blood with a retention, in any degree, of its original or active qualities, and hence, that the fluids can only be secondarily affected, through the mediation, and by virtue of the sympathies which they maintain with the solids.

As the doctrine here advanced is intimately connected with the principle of sympathy, it may be proper that I should say a few words on this subject. There are, indeed, not wanting some who have affected scepticism as to the very existence of such a law. It must be confessed, at present, we have no very distinct intelligence relative to its nature. But are we, on this account, to question its existence? Equally might we doubt of the sensibility or irritability of the body, since neither of these qualities of vital matter has been precisely demonstrated. Notwithstanding this, we are persuaded of their existence from the phenomena which they exhibit, and it is by the same description of evidence, that we are, or ought to be, assured of the existence of sympathy.

" Causa latet, vis est notissima."

In employing this term, therefore, I mean only to denote, like chemical affinity, caloric, and many other such expressions, a principle, or power, of which we know nothing except from the experience of its effects, the precise essence or nature being occult, and concealed. Thus, in the same way, says Newton, "What I call attraction may be performed by impulse, or by some other means unknown to me. I use the word here to signify only in general, any force by which bodies tend towards one another, whatever be the cause."

Of the manner in which impressions are extended, as well as of the cause of the more intimate consent of parts, we are not, perhaps, accurately informed. It would seem, however, that in neither case is it to be exclusively referred to the nerves, as is commonly supposed. Those sympathies which prevail among the various viscera of the abdomen, and between them and the head, neck, and contents of the thorax, may be explained with sufficient probability, by the extensive anastomoses of the intercostals with almost all the nerves which proceed from the spinal marrow. But there are many other sympathies, not less conspicuous, between parts, the nerves of which have not the slightest connexion. It appears, that, either by the co-operation of different organs in the performance of a function, as in the complex apparatus subservient to respiration, or from similarity of structure, parts, though detached, being prone to be affected by the same cause, as the parotid gland and testes in the male, and the same gland with the mammæ in the female, the habit of acting in unison is acquired, and sometimes confirmed. This habit of concerted action is termed association, and has been adopted as a principle by Locke, by Hartley, and by Darwin, to account for the connexion in many of the motions of the body, as well as in the operations of the mind. Both the sound and morbid states of the system present numerous instances of these associated actions, some of which are constant and uniform, while others are occasional and anomalous, produced, as it were, accidentally.

The principle of sympathy pervades the body, every portion of it being susceptible of associative actions, by which means the several parts are linked together so as to consitute one whole, or unity of system. It is to this principle, whatever it may be, which, uniting all the organs of the animal economy, we are to impute the wonderful concurrence and perfect harmony which is observable in its complicated actions, during health. But though this general medium exists, to the reception and propagation of impressions, there are three surfaces on which remedies, and perhaps the causes of disease, more particularly operate. These are,

- 1. The alimentary canal.
- 2. The skin.
- 3. The organ of smell.

Each of these parts has a considerable susceptibility, and maintains a very extensive connexion with the system generally, though the stomach is possessed of infinitely the quickest sensibility to action, and the most intimate and multiplied relations. No viscus or organ, not even the brain itself, can be compared to it, in this respect, or which occupies so important a station in the animal economy.

Destitute of a stomach, no animal can exist. Life may be sustained, even in the perfect animals, independently of almost every other organ. Examples are numerous of fœtuses being born of a full size without a brain, spinal marrow, heart, lungs, liver, or uterus. No instance, however, has been met with, in the course of my very extensive researches on this subject, where the stomach was wanting. As the most indispensable of the vital organs, it seems, indeed, to be an inseparable incident to every variety and gradation of animal existence. No matter how inferior the being may be, it is always provided with some apparatus equivalent to a stomach.

Conveniently situated for the purpose, the stomach is probably the throne of the vital principle, from which would seem to emanate an influence, that, diffused over the system, preserves, as I have already mentioned, the order of the parts, and sustains the vigour, tone, and well-being of the whole animal economy.

" Languido ventriculo, omnia languent."

Assailed, however, by impressions which it cannot resist, this organ, as the centre of association, becomes the seat of the first link in the chain of most diseases, and is always the chief medium of the operation of our remedies, in the correction of morbid derangements.

As a continuation, pretty much of the same structure as the stomach, the intestines afford also a medium by which medicines may be introduced, and sometimes with great advantage. There is, indeed, scarcely one article of the materia medica which cannot be so managed, as to produce its full effect when thus employed. To attain this, however, the dose should be largely increased, and, as a general rule, about three times the quantity is demanded. It is, perhaps, not sufficiently known, that after the stomach, by long use, has lost, or greatly impaired, its susceptibility to the action of a medicine, this will operate with fresh and unabated force, if applied to the rectum.

That the surface of the body is another part on which our remedies act, has been known from the earliest times; and the practice founded upon it, is, probably, to be ranked among the first attempts that were made, in the infancy of our science, toward the removal of disease. The whole of the cutaneous surface seems endowed with some sensibility to impression, though the soles of the feet are possessed of it in the largest degree, and, hence, have been considered by a distinguished teacher of physic, as among the widest avenues to the invasion of disease, or for the introduction of remedial impressions. But, though the practice has been so long and generally pursued, it was never doubted till lately, that, when applied to the skin, medicines operate in

any other way than by entering the circulation. Even the rubefacient and vesicating applications were, at one time, not excepted: the effects of these being ascribed altogether to the absorption of the acrid particles of the substance used for these purposes, into the blood, and thereby raising general excitement.

Nearly about the same period, Mons. Seguin, in France, and Dr. Rousseau, of this city, called in question the existence of cuticular absorption. But the praise of laborious and successful investigation, is due exclusively to the latter experimentalist. As early as the year 1800, it was proved, or at least rendered highly probable by him, that the *pulmonary organs*, and not the *skin*, constitute the inlet through which certain substances enter the system.

By cutting off all communication with the lungs, which he easily effected by breathing through a tube, protruded into the external atmosphere, he found, that though the surface of the body were bathed with the juice of garlic, or the spirit of turpentine, none of the qualities of these fluids could be detected, either in the urine or the serum of the blood.

Conducted nearly on the same principle, but with a greater diversity of substances, experiments exceedingly well devised, and neatly executed, have since been made by persons of opposite prepossessions, to an almost incredible extent. Contradictory as many of these are, a candid examination of the whole, will still lead to a pretty satisfactory conviction, that absorption from the surface of the human body, does not exist as a natural and ordinary function.

Borne down with the weight of evidence against them, most of the advocates of the ancient hypothesis were, indeed, prepared to abandon it, as no longer tenable, when, about six or eight years ago, an experiment made by Dr. Mussey, again revived their faith in cuticular absorption. He very clearly proved, that if the body be immersed in a decoction of madder, the colouring matter of this substance will be taken in, and may be displayed in the urine by using any one of the alkalies, as a test.

Determined, if possible, to put this agitated question to rest, Dr. Rousseau, assisted by his friend Dr. Saml. B. Smith, has subsequently performed a series of experiments, many of which I witnessed, and can therefore bear testimony to their accuracy, with every variety of substances, mild and acrid, volatile and fixed, nutritive, medicinal, and poisonous.

The result of these extensive researches, is:

- 1. That of all the substances employed, madder and rhubarb are those only which affect the urine—the latter of the two, the more readily enters the system. Neither of these articles can be traced in any other of the secretions or excretions, or in the serum of the blood.
- 2. That the power of absorption is limited to a very small portion of the surface of the body. The only parts, indeed, which seem to possess it, are the

spaces between the middle of the thigh and hip, and between the middle of the arm and shoulder.

Topical bathing, with a decoction of rhubarb or madder, and poultices of these substances applied to the back, or abdomen, or sides, or shoulders, produced no change in the urine: Equally ineffectual was immersion of the feet and hands in a bath of the same materials, which, after being kept in it for several hours, not the slightest proof of absorption was afforded.

As I have described, such is the state in which this interesting subject is at present left. Though, perhaps, not absolutely decided, enough, surely, has been done, to demonstrate, that cuticular absorption rarely happens, and that, whenever it does, it cannot be deemed the effort of a natural function.

Covered, as is the whole surface of the body, by the impervious cuticle, it is manifest to me, that absorption can only take place in one of two ways: either by forcing the substance under the scales of the epidermis, as in the instance of the application of frictions, or by continued bathings or fomentations; the cuticle becoming so changed in its organization, as to admit of transudation, or the insinuation of the fluid under its squamous structure, so as to come in contact with the mouths of the lymphatics situated within.

At all events, whatever difference of opinion may be entertained as to the degree of conclusiveness of the experiments to which I have alluded, it cannot be necessary to resort to cuticular absorption, to explain the effects of substances applied to the surface of the body. We shall do this much more satisfactorily, by referring it to sympathy, and to another source which I am presently to point out.

That the skin has a very intimate connexion with the body generally, and more especially with the stomach, is a fact so notorious, that it would be a waste of time to attempt to prove it. It is through this medium, that most substances, applied to the surface, certainly operate.

The discovery of pulmonary absorption, would seem, I confess, on the first view, to militate in some degree against this opinion, and to render it more than probable, that volatile matters, at least, are inhaled and act through the lungs. Experiments, however, have recently been made,\* which go far to invalidate this supposition, and show, that, under such circumstances, it is the olfactory nerves which are the seat of the impression, and the medium through which these volatile matters produce their effects. These experiments would occupy too much space to be separately detailed. Collectively, they warrant the conclusion, that, by simply closing the nostrils, either by compression with the fingers, or by filling them up with putty, the fumes of ardent spirits, of a strong decoction of tobacco, or an infusion of opium, may be inhaled for one hour, without any unpleasant effects:

<sup>\*</sup> By Dr. Rousseau.

whereas, if the precaution mentioned, be omitted, the consequences are proved to be most distressing.

New as these results are, and inconsistent with our pre-existent notions as they may be, they are rendered highly probable, independently of the respectability of the source whence they proceed, by some facts of a very striking and indisputable nature. Every practitioner has witnessed, how powerfully all the volatile and odorous matters operate on the olfactory nerves in health and in sickness: and it is hardly less known, that when the sense of smell is impaired by a coryza, or entirely suspended by obstructing the nostrils, that the sensible qualities of most substances are so lost, that they cannot be accurately discriminated; and this extends, even to those articles of our food or drink, with which we are most familiar. The preceding facts are sufficient, at least, to awaken curiosity on this subject, and to urge to more exact inquiries, by which the truth may be elicited and confirmed.

## SECTION II.

On the Classification of the Materia Medica.

I HAVE completed what I mean, at present, to say on the modus operandi of medicines generally. The subject has not occupied as much of my attention, as, perhaps, its importance demands. But, I shall again incidentally revert to it, and, in treating of the particular classes of remedies, an opportunity will also be afforded, of giving to it a further and more precise consideration.

The materia has sometimes been divided into nutriments and medicines. This arrangement, which strikes me as incongruous, I shall not adopt. The plan hitherto pursued, in the investigation of the articles of food, seems idle in itself, and has certainly led to no practical utility. Who need now be told, at least in this abundant country, of the solid qualities of beef and mutton,—of the delicacy of poultry, or of the flavour of game—that there are some vegetables flatulent, and some otherwise—that ardent spirits,

or wine, when drunk to excess, will intoxicate, and ultimately produce disease—and that, on the whole, the use of water is more natural,—preserves sobriety, and conduces to health?

Daily experience teaches us, on these points, what to select, and which to avoid, with infinitely greater certainty, than any system of abstract instruction which can be devised\*. The disquisitions which I have met with of this sort, and more especially such as go gravely into an inquiry to determine the nutritive principle of substances, whether it be mucilage, sugar, or oil, or the whole or any of these, are, indeed, among the specimens of the most arrant pedantry, and empty flummery, that, in my opinion, have ever been imposed on the credulity, or insulted the common sense, of mankind.

Let it not, however, be supposed, that I wish to disparage the utility of diet, or to deprecate any further inquiries into the subject. Directly the reverse is the case. To a proper, regulated regimen, as a means of preventing and curing diseases, or to secure a speedy and uninterrupted convalescence, it is impossible for any one to attach greater importance than myself, or more ardently to desiderate a work, which, coming from the hands of a practitioner of enlarged experience, and sound judgment, shall exhibit the most minute and detailed instructions, for the adapta-

<sup>\* &</sup>quot;The common experience of mankind, will sufficiently acquaint any one with the sorts of food which are wholesome to the generality of men, and his own experience will teach him, which of these agree best with his particular constitution." Heberden.

tion, and even cookery of food, and preparation of drinks, in such cases.

As respects the classification of medicines, much difficulty has always been confessed. It is not my intention to notice, in detail, the multiplied systems, which are extant. The history of these may be found in most of the treatises on the materia medica. I shall now merely remark, that every attempt which has been made to arrange medicinal substances according to their sensible qualities, their chemical compositions, or their botanical affinities, has completely failed. The principle on which they are all founded, unavoidably associates articles, which, as remedies, have no resemblance, and separates others, that are intimately allied, by such relations.

The object, in the cultivation of the materia medica, being, to acquire a knowledge of the remedial virtues of substances, it is obvious, that the best arrangement is that, which places them as nearly as possible, as they correspond in their effects on the living system. Yet, even this is not without its perplexities and disadvantages, the chief of which, are owing to our imperfect acquaintance with the laws of the animal economy, and the mode of operation of agents. It is not easy, on this account, to appreciate their effects with accuracy, and especially in a state of disease.

Many medicines are possessed of diversified powers, and hence require to be considered in different views. The same article may be emetic, cathartic, diaphoretic, expectorant, diuretic, and, therefore, in order to its complete history, must be introduced into each of these classes, and its effects detailed.

This is exceedingly inconvenient, as it exposes us to constant repetitions, and renders our descriptions necessarily broken and detached. Yet, with all these defects, this mode of arrangement is, perhaps, superior to every other, and will be adopted by me.

Cullen, who of late has been usually followed by the teachers of the materia medica, has a general division of medicines as they operate on the solids and fluids.

The first class, according to him, act either on the simple or vital solid.

Those which operate on the simple solid, are astringents, tonics, emollients, and erodents: and on vital solid, stimulants and sedatives, including narcotics, refrigerants, and antispasmodics.

Medicines, operating on the fluids, are such, as either produce a change in them, or occasion some evacuation. The former comprise attenuants, and inspissants. When they correct general acrimony, they are called demulcents: when partial acrimony, antacids, antalkalies, and antiseptics.

The latter, as evacuants, are errhines, sialagogues, expectorants, emetics, cathartics, diuretics, diaphoretics, and emmenagogues.

In this respect, however, he has manifestly departed from his own system of pathology; since he strenuously maintains, that the fluids are never primarily affected. I will not pause here, to point out the many other objections which might be alleged against this celebrated classification. They are too obvious to escape observation, after what I have said on a preceding occasion, relative to the modus operandi of medicines, and, therefore, demand no particular criticism.

My deliberate conviction is, that they all act by virtue of that law of the animal economy, termed sympathy; and that, whatever changes may be wrought in the fluids, are to be referred to impressions through the mediation of the solids. Yet, while I maintain so far, the uniformity of the operation of medicines, I wish it to be understood, and for that purpose again repeat, that I am not among those, who, in the eagerness of generalization, have insisted, that they all are endowed with the same properties, differing only in degree of force, permanency, and diffusibility. I entertain an entirely opposite view of the subjectso much so, indeed, that I believe scarcely any two agents produce precisely the same effects, and hence, the infinitely diversified shades of disease, and the necessity for a variety of remedies in the management of them.

Every organ of the animal economy, we know, is excited to the performance of its office, only by its natural and appropriate stimulus, as the eye by light, the ear by sound, the testicles by venereal desire, &c.

Medicines, too, have their actions excedingly modified by the peculiarities of structure, on which they operate. What is remedial or innocuous when applied to one surface, may be poisonous to another. Emetic tartar, in the stomach, pukes;—introduced into the rectum, purges; on the skin, erodes, or vesicates; and dissolved, proves a mild lotion.

Cordial to the stomach, carbonic acid, inhaled by the lungs, suddenly destroys life.

The difference in the mode of action, of articles of the same class, is not less conspicuous. Mercury, and opium, and wine, and volatile alkali, and camphor, are all stimulants; and so far, they agree in their general properties, though, in the nature of their operation, are extremely discrepant, and cannot, by any variation of dose, or manner of administration, be assimilated. This holds equally true with respect to all the important articles of the materia medica. By an attentive observation of the phenomena, we shall be persuaded, that the action of each is modified by its own peculiar qualities, or the texture to which it is applied, and that the effects produced are, to a certain extent, sui generis.

Could any further proof be required of the validity of the position, it might be had in the acknowledged fact, that, when susceptibility to a certain agent is expended, some other will produce its full impression. Every practitioner is so fully aware of this law, that there is hardly a case of disease of any duration, in which it is not kept steadily in view, and the course of treatment influenced accordingly. Daily, will he

change, or essentially vary the stimuli, in the emergencies of the advanced stages of low and protracted fevers, and derive from the practice very important results. Commencing, perhaps, with carbonate of ammonia, in succession, as susceptibility becomes wasted, he prescribes camphor, bark, opium, musk, wine, ardent spirits, turpentine; till, finally, he runs through the entire class. Exactly in the same way, in the management of chronic affections, is the whole series of tonics exhausted. When bark or steel shall cease to produce an effect, some other of the vegetable bitters, or mineral substances, may be substituted with advantage. Nor does it always happen that the successful article is the most powerful, or, as a general rule, less fallible. Wine whey will often revive the excitement of a system sinking under the use of strong brandy toddy-and castor oil, magnesia, or the neutral salts, open obstructed bowels, which had resisted calomel, jalap, gamboge, separate or combined.

Examples, not less pertinent, might be derived from every class of the materia medica. Narcotics, in particular, furnish some very striking illustrations. Who has not seen henbane, or the hop, or the liquor of Hoffman, quiet irritation, and compose to sleep, when opium had failed; and even laudanum, paregoric, or some other preparation of this article, to succeed, when, in substance, it was impotent or mischievous?

But another distinction is to be attended to, in the history of medicines. There are some, which have a wide pervading operation over the whole system, while others are local, being limited to a single organ, or part.

Of the first class, or general stimulants, we have a considerable section, marked by great diffusibility, which, as soon as they are exhibited, occasion a universal excitement. There is a second division, by which vigour and tone are imparted to the body, attained, however, very slowly, and only by a long-continued administration. The former are transient in their effects, while such as operate gradually, produce more permanent impressions.

The local stimulants act either immediately on the stomach, or are directed by a species of affinity to some distant part. The relations between medicinal substances, and certain portions of our organic structure, are exceedingly curious, and, in a practical view, deserve the most serious reflection.

In advancing the preceding opinion, I am aware that the possibility of any medicine acting specifically on one part, without exerting the same sort of action on other parts, has been denied, and on the ground of the intimate connection, which can be traced throughout the whole animal structure. It must be conceded, that a superficial view of our organization, and the uniform order of its various actions in a sound state, render such an objection very plausible. But a more minute examination, independently of a series

of well-conducted experiments, performed in this University, establishes directly the reverse.\*

The fact is, that while the several systems, or subordinate sections of the body, are so linked together as to constitute one whole; such is still the independency of each, and such the difference in the operation of the same article, that certain applications made to an individual part, may be productive of, as before stated, the most fatal consequences, which, to some other, would be attended with mild, and even salutary effects.

In the ordinary divisions of the materia medica, we have, indeed, an ample recognition of the doctrine, as well as of its convenience in relation to practice. The very titles selected to designate the several classes of medicines, are expressive of the same views. Do we not mean, in using the terms emetic, cathartic, diaphoretic, expectorant, diuretic, emmenagogue, to convey, as distinctly as language will enable us, the idea of articles operating specifically on certain structures—and, by stimulants and tonics, some of a wider influence, embracing, perhaps, the whole system?

<sup>\*</sup> The experiments to which I allude, are contained in the inaugural thesis of the late Dr. Bibb, published in 1801. He enters pretty fully into the subject, and most satisfactorily establishes the point, as regards a large proportion of the ordinary articles of the materia medica. The same inference, I think, may be deduced from the more recent inquiries of Orfila and Brodie, concerning the mode of action of poisonous substances. Each set of these experiments warrants the conclusion, that most matters operating on the living system, are directed to some one part, in preference to others, on which their force is mainly expended.

It might be collected, from the preceding remarks, that I hold all medicines to be stimulants. As, however, it is material in every inquiry, that we should have a clear understanding of the terms to be employed, I shall, at this early stage, define what I mean by stimulants and sedatives. The discussion, which has so long been maintained on this point, is really little else than a dispute about words. As, whatever produces any positive impression on the living system, does it commonly by an incitant power, there can be no doubt, that, in a very strict sense, most medicinal substances are stimulants. But the effect thus created may be inferior to the natural degree of excitement, and much less than that of disease. When this happens, as lessening action, the article may, with propriety, be denominated, and in a practical view considered, sedative, in contradistinction to our more energetic remedies.

Yet, as serving to convey the erroneous notion of a state of *plus* and *minus* only, without any designation of the *peculiarity of action*, it were well, perhaps, to exclude altogether these terms.

Nothing is more delusive than the doctrine of the unity of diseased action, lately so dominant among us, and, as I have just shown, of the identity of medicinal impressions. There are articles, as wine and volatile alkali, which are, unequivocally, stimulant, and in the prussic acid we have an instance, among others, no less of a sedative. Conceding this, we shall still be at a loss to bring under either of these

heads, arsenic, mercury, or lead, whose mode of operation is so widely different.

Disease may be cured by the reduction of excitement, by evacuations, or by a direct sedative impression without depletion, or by counteraction, or by subverting the morbid movement going on at the time, by an imperceptible alterative agency, or by high stimulation, according as a sthenic or asthenic diathesis may predominate. To attain these purposes, we are possessed of means in the diversified collection of the materia medica, and, to facilitate their appropriate application, an assortment, agreeably to such analogies, is desirable.

The views which I have presented, of the qualities and modus operandi of substances, would lead to a very simple classification. I might, indeed, comprise the whole of the articles of the materia medica under a few general heads, or leading departments. But as such generalizations are deficient in perspicuity and practical convenience, I shall, to secure these ends, as well as to avoid any change in that nomenclature, now so universally received, adhere pretty closely to the ordinary plan, in each respect.

## SECTION III.

## EMETICS.

Emetics may be defined medicines which excite vomiting, independently of any effect arising from the mere quantity of matter introduced into the stomach.\* The use of these remedies is so extensive, and their effects often so salutary, that I shall be justified in treating of them at some length.

Emetics were employed in the earliest times. To evacuate the stomach, for remedial purposes, seems, indeed, to be an instinctive impulse. It is a practice pursued by the most savage tribes, and even by the brute creation. Nothing, therefore, can be more absurd, than the objection to their use, as an unnatural remedy. We have no class of medicines so generally resorted to, or of which there is a greater profusion.

In the process of vomiting, the vermicular motion of the stomach becomes inverted, the diaphragm and abdominal muscles are called into action by association, and the pylorus being contracted, the contents are forcibly ejected. But how this retrograde action takes place, it not very intelligible. Emetics, for the most part, are undoubtedly stimulants, though the effect is not always proportioned to the degree of

<sup>\*</sup> Murray's Mat. Med.

power which the article may possess. It is maintained by Darwin, with sufficient plausibility, that vomiting is not the consequence of increased, but of diminished action, proceeding from the disagreeable sensation of nausea and sickness. This state being induced, he presumes that the natural motion of the stomach is gradually lessened till ultimately it ceases, and a new and inverted action takes place. The supposition of vomiting having its origin in debility of the stomach, certainly derives some confirmation from the circumstance of its being frequently excited by extreme languor, or syncope, whether induced suddenly, or brought on by protracted disease. Whatever, in fact, relaxes the system, generally disposes to vomiting. But, on the other hand, many of our medicines, actively stimulant, are also emetics. It is not easy to reconcile such a contradiction; and the only way in which it seems to me that it can be done at all, is, by supposing, that while the article is acting locally as a stimulant, it is producing, indirectly, general debilitating effects.

By some physiologists, it has been doubted, whether the stomach be not entirely passive in the effort of puking. They allege, that in this operation, the diaphragm and certain auxiliary powers are alone concerned. But the experiments of the celebrated Haighton are so conclusive, as to leave this no longer a matter of speculative controversy. During the effort of vomiting, he opened several animals, and

distinctly saw the contractions of the stomach, and, of course, its direct agency in the process.\*

Connected with the operation of this class of artiticles, there is a peculiarity not unworthy of remark. Most other medicines lose their power by repetition, which, indeed, would seem to be one of the laws of habit. Exactly, however, as emetics are repeated, so does the stomach increase in susceptibility to their impression; so much so, that after frequent use, the mere sight of the medicine, or even conversation relative to it, will excite vomiting. Yet, like other articles, they operate with various degrees of facility, on different persons, and, at different times, on the same person, which is, in part, to be imputed to original peculiarities of constitution, and still more to the influence of disease. In most of the febrile affections, vomiting is readily provoked, while in mania, epilepsy, and tetanus, it is a matter of extreme difficulty. This is also remarkably the case with respect to cynanche trachealis.

Emetics do not immediately display their effects. An uneasy vermicular sensation of the alimentary ca-

<sup>\*</sup> It appears, from recent inquiries, that this is still a mooted point in physiology. Experiments, made by M. Majendie, and repeated in the presence of a committee of medical men, appointed for the purpose of testing their accuracy, are entirely contradictory of those mentioned above, showing the stomach to be quiescent in the act of vomiting. But, in going over the same ground, Dr. Manigault conducts us to an opposite result, in which he is supported by Professor Portal, and M. Bourdon, both of whom appeal to experiment, and to some pathological facts, which are very imposing.

nal, attended with some nausea and chilliness, a pale countenance, and a pulse feeble, quick, and irregular, are the first indications of their action. As soon, however, as vomiting is induced, the face becomes flushed, the circulation is more vigorous, though still comparatively weak, and there is a glow on the surface. The operation having ceased, the system is left languid, with a disposition to sleep, which is interrupted for some time by slight occasional sickness. The skin is cool and moist, with more or less perspiration, and the pulse, which continues weak, is slower and fuller.

In a curative view, the leading effect of an emetic is the evacuation of the stomach. This alone is a very important consideration, when we reflect on the extensive influence of this organ, and how dangerous are the consequences which often ensue from the retention of its acrid, vitiated, or oppressive contents. Nor do the advantages stop here. The same inverted motion which empties the stomach, is extended to the duodenum, and, in some measure, to the inferior portions of the intestinal tube—and while the united powers of the diaphragm and the abdominal muscles compress the gall-bladder, and force out its fluid, vomiting expels it. Emetics in this way promote the secretion and evacuation of bile, and, perhaps, of the pancreatic liquor.

It has been maintained by some, that the bile exists in the stomach previously to the inverted peristaltic motion. This may sometimes be true, though, were it uniformly the case, we should have the discharges of it in the first efforts of puking, which rarely happens.

On more than one occasion, I have noticed the extensive dominion of the stomach over the animal economy, and especially as relates to the surface of the body. By virtue of this intimate connection, one of the effects of emetics is, to induce an universal relaxation, approaching, in some instances, even to syncope, of which state of the system the extreme vessels partake, and perspiration breaks out.

It has been questioned, I am aware, whether so close a sympathy prevails between the stomach and the exterior surface, because diaphoresis is not uniformly the consequence of vomiting. But I really cannot perceive any force in the argument, since it only proves, that emetics, in common with all other remedies, are precarious in their operation.

An effect of this class of medicines, hardly less obvious, is the promotion of absorption. No one has attempted to withhold from them this valuable property, though the precise manner in which it is accomplished, is not so manifest to all. They act, in the opinion of some, immediately on the lymphatics, exciting these vessels to an increased effort.

But, whoever carefully attends to the phenomena of absorption, will be persuaded, that this function is always most vigorously carried on when the body generally, and particularly arterial action, is much reduced. Of this fact, we can have little doubt, since it is amply confirmed by clinical experience, and hence the conclusion, that our medicines invigorate absorption by an indirect effect.

Emetics would seem also to act on the kidneys, and, in some instances, certainly produce a copious flow of urine. Whether this is owing to a diuretic property in the medicine, or to the quantity of drink taken at the time, or to the mechanical compression of the kidneys during vomiting, or to the arousing the lymphatics, has not been satisfactorily determined. My conviction is, that they promote the urinary discharge, independently of absorption, since I have witnessed this effect in cases where no dropsical effusions existed.

Of the close relation between the stomach and head, we are fully aware. Emetics, on this account, most conspicuously operate on the brain, and form an important set of remedies in the diseases of that organ, and its dependencies.

Nor, perhaps, have they a less striking affinity to the pulmonary organs. As soon as nausea takes place, we may remark a copious flow of saliva, and a discharge, more or less, from the bronchiæ, which, when vomiting is induced, becomes considerably augmented.

Emetics, while thus displaying a specific relation to certain organs or structures, and hence so useful in the diseases of these parts, have also a more diffusive operation, and, by the strong impression whichthey create, prove eminently serviceable in breaking up deep-rooted affections, of a constitutional, or general nature, as we shall hereafter see.

Before I proceed to the application of these medicines to the cure of diseases, I shall suggest a series of precepts, to be attended to in their exhibition.

- 1. When the vessels of the head are full, or there is much general plethora, the emetic should be preceded by the loss of blood. Two advantages result from this practice. It renders the vomiting safe, and more easy and effectual. By neglecting this admonition, many a life has been either endangered, or sacrificed, by apoplexy or hæmoptysis.
- 2. When the necessity is urgent, and a certain and powerful operation is demanded, give a large dose, and of the most active species. But, in all ordinary cases, minister the medicine in divided quantities, so as to guard against too violent an effect.
- 3. Where the object is to make a strong revolutionary impression on the system, little drink should be allowed. But if it be to evacuate the contents of the stomach, large draughts of tepid water, or some other light drink, as warm chamomile tea, will promote this end, and, at the same time, facilitate vomiting.
- 5. As a general rule, emetics should be given on an empty stomach, and in the morning, acting then with greater certainty, and less distress. They will, however, answer very well in the evening, and where an apprehension exists of the patient taking cold, ought to be exhibited to him in bed, at the hour of rest.

6. To check inordinate vomiting, direct laudanum, combined with some cordial, apply fomentations to the pit of the stomach, and sinapisms to the extremities. Chicken water, copiously drank, is sometimes useful, by turning the action downwards. When these fail, anodyne injections may be resorted to, and a large blister should be put on, over the epigastric region.

## SECTION IV.

OF THE PRACTICAL APPLICATION OF EMETICS.

NEXT I am to point out the use of emetics, in the treatment of diseases. But, in doing so, I shall enumerate only the more prominent cases, in which they are employed.

The febrile affections are usually divided into idiopathic and symptomatic, or into such as are original and without any local affection, and into the reverse. Of all the distinctions introduced by nosology, this is, perhaps, not the least absurd and unfounded. Every fever, whatever may be its nature, is necessarily, secondary, or sympathetic. To illustrate this position, we need only recur to the origin of the different febrile affections. It will be admitted, without controversy, that such is the case, as regards the fever induced by wounds and other injuries. Nor is it less obviously true, in relation to the various fevers excited by inoculation, or the application of the virus directly to the surface.

Exactly on the same footing, must we place similar affections, occasioned by the action of poisons, such as arsenic, opium, and other narcotic or corrosive matters.

The position which I have laid down, is, so far at least, indisputable. By tracing the phenomena, we shall also be persuaded, that it not less holds, as applied to what are denominated *idiopathic* fevers. Each of these is caused, either by marsh effluvia, or contagion, or the variations of temperature. Now, it is one of the points sufficiently conceded, that such morbific matters, as I have mentioned, are only admitted into the system, by being entangled with the saliva, and thus swallowed. Hence it is on the stomach, that they must primarily operate, and that the blood-vessels are secondarily implicated, through the medium of the close sympathy which is entertained by these two portions of the animal structure.

It must be confessed, however, that there are some who still believe, that the lungs constitute the avenue, through which these poisonous effluvia pass into the system, or are the point on which they operate. But this is rendered improbable, by the great insusceptibility of these organs to impressions, and is absolutely confuted by the fact, that no one constituent of the atmosphere is thus introduced. Experiments most conclusively show, that it is the function of the lungs, to excrete or throw out matter, and that nothing in the place of it is received. But, whether this be so or not, the validity of my hypothesis is not at all affected, as these organs are still the spot at which action first commences.

Even the fevers, excited by the vicissitudes of weather, are obedient to the same law, as regards

their mode of production. Cold, which is a very prolific cause of such affections, acts primarily on the skin, and by consent of parts attacks the lungs, as an immediate effect, producing an inflammation of these organs, in the form of pleurisy, or peripneumony. But, should the throat or joints be in a higher degree of predisposition, the attack will be invited thither through a similar mediation, and an anginose or rheumatic affection result.

In the same manner, or, to speak, perhaps, with greater precision, on the same principle, does heat operate in the causation of disease. By virtue of an established sympathy, the impression on the surface, from excess of temperature, is extended to the stomach, which becomes irritated, and, generally, there is that disturbance of the functions which we denominate fever. The bowels, however, being in a more susceptible state, there will be, as the effect of the same cause, some one of the enteritic complaints, as cholera, diarrhœa, or dysentery, &c. The only difference, therefore, in the mode of action of the two sets of causes in the origination of fever, is, that in the first, the impression is primarily made on some internal organ, and extended by direct sympathy; whereas in the second, it occurs on the surface, and is extended internally, by reverse sympathy, to the great viscera.

Conformably to these views, it follows, that fever of every description is a disease, having its origin in local irritation, which is spread more or less, according to circumstances. The stomach, however, from

its central position, and extraordinary sympathies, would seem to be the organ most commonly, at first, excited, and, where the morbid action is not at once arrested, diffuses itself by multiplying the trains of association, till the disease becomes general, involving, in a greater or less degree, every part of the animal economy. It is in this way, that diseased impressions made on the stomach, are imparted, generally, in the first place, to the chylopoietic viscera, with which it is connected, as well by an immediate sympathy, as, in some degree, by an identity of function; and thence to the heart and arteries, the brain, lungs, the skin, and other important organs. It follows, therefore, that instead of considering fever as merely a primary, independent affection of the bloodvessels, we are to extend our views of it, so as to embrace within its influence the whole animal machine, in all its parts and functions, and particularly, though so little regarded, the capillary system.

This doctrine of fever, which I believe to be essentially true, leads to a most important practical advantage. It teaches most clearly the mode, as well as the place, of the origin of the different fevers, and thereby enables us to subvert and destroy the disease, in its early or forming stage, by a recurrence to the appropriate measures.\*

<sup>\*</sup> Doctrines so analogous to the above, have lately been promulgated by M. Broussais, that, without an explanation, I may, perhaps, subject myself to the imputation of plagiarism. I shall only observe, that

It may be deduced, from the preceding reasoning, that emetics are highly important remedies in fevers. These, for the most part, are attended, in the commencement, with nausea, vomiting, and other indications of disordered stomach. Emetics, under such circumstances, are productive of much advantage, and have been recommended from the earliest times. Even Hippocrates was apprised of their utility, and the practice seems to be the obvious suggestion of nature.

They clear the stomach of its noxious contents, and prepare the way for the reception of other remedies. Yet, they are not always indispensably necessary, as gastric distress may sometimes be allayed by an agreeable mixture, as a neutral or effervescent draught, and then a mercurial purgative substituted. Being, however, more than ordinarily vehement, I think it will be right in fevers with such symptoms, whatever may be the type, whether intermittent, remittent, or continued, to resort to an emetic, and to repeat it, if a successful impression be not made by the first exhibition.

That I am, on the whole, very much attached to emetics in this class of diseases, will be perceived. Experience, indeed, has persuaded me of their superior efficacy to purges, and I am sure, that I have the

it is a matter of notoriety, that I held and taught them for many years, prior to the appearance of any of the writings of the Parisian pathologists on the subject, and that it is to Zoonomia, a work, at present, too little studied, I owe the obligation of the original suggestion, of this and many other of my theoretical views.

support of those practitioners, who are most conversant with the inveterate shapes of bilious fevers.

There is a fashion in medicine as in all other things. Emetics, which, at one time, were universally resorted to in these cases, and of the utility of which, we had a collection of seemingly undivided testimony, in one of the revolutions to which the practice of our art is exposed, came, very suddenly, to be supplanted by purgatives, as a less disagreeable mode of evacuation. But their reputation is reviving, and, of late years, they are incomparably more used in our own practice, and especially in those sections of the country, in which bilious fevers prevail to the greatest extent, and are marked by most violence.

Exhibited early in such fevers, an emetic operating well will frequently check an attack, and, in the more advanced stages, judiciously repeated, we shall find by it the pulse reduced, pain in the head relieved, sickness of stomach appeased, temperature of the surface lowered, with diaphoresis, which restores quietness, and hastens a critical solution.

This precept is strongly applicable to the bilious fevers of our own climate, and especially as they occur in the southern states, where they prove exceedingly intractable under any other mode of treatment.

Even after the stomach has been thoroughly evacuated, so as to leave no suspicion of foul accumulations of any sort, active vomiting every morning, for a succession of days, I have found very ef-

fectual in the cure of intermittents, and especially those of long standing.\*

As to the use of emetics in malignant fevers, medical opinion is not so decided. They were, at one period, much prescribed in the commencement of the typhus mitior and gravior of the nosologists, and now are not neglected. The innovation, in this case, partial as it is, has been no improvement, nor are the views which led to it at all correct. Emetics, however beneficially they may operate as mere evacuants, produce effects not less salutary in another way. Whatever may be the cause, fever, as has already been shown, is a disease of sympathy, having, for the most part, the primary link of its ultimately lengthened and complex chain, in the stomach.

To expel, therefore, the offending cause, or to subvert the nascent impression which may be created, before it becomes invigorated, diffused, and fixed, an emetic is obviously the remedy. Nor does the utility of this practice rest solely on speculative grounds. Experience, on the contrary, has long since proved it, in the malignant fevers abroad, not excepting the plague, and, confessedly, its efficacy was great, when well timed, in that shape of pestilence, which for a series of years so severely desolated our cities. Yet, it cannot be too often repeated, or

<sup>\*</sup> This practice I have pursued for many years, and thought it original with the people of Virginia, my native state, whence I derived it; but I find it inculcated by Alexander Tralles.

strongly impressed on the mind of the practitioner, that it is in the forming state of this description of fevers, that emetics are at all admissible. Directed in the more advanced stage, or after the disease is absolutely confirmed, and pervades the system, they not only prove wholly incompetent to its removal, but generally heighten the worst symptoms, and augment the difficulty of cure. This effect was most strikingly exemplified, in the treatment of our yellow fever, and has been remarked in some other epidemics, as the plague,\* &c. But such is not uniformly the case, as regards ordinary typhus. I have, indeed, sometimes recurred to emetics, with utility, in the second stage of this disease, where the tongue was heavily loaded-thirst great, and the stomach distressed.

Emetics have been much recommended in puerperal fever. This is a disease, which so often proves

\* The efficacy of emetics, given on the principle which I have suggested, did not escape the sagacity of Sydenham. "When I have happened," says he, "sometimes carefully to examine the matter thrown up by vomit, and found it neither considerable in bulk, nor of any remarkably bad quality, I have been surprised how it should happen, that the patient should be so much relieved thereby; for, as soon as the operation was over, the several symptoms, viz. the nausea, anxiety, restlessness, deep sighing, blackness of the tongue, &c. usually abated and went off, so as to leave the remainder of the disease tolerable." Commenting on this passage, Wallis, the annotator on the work from which it is extracted, very correctly observes, that "Sydenham was not aware of the sympathetic affections which take place in the constitution, nor knew that an extremely small portion of morbid matter could produce effects so sudden and surprising, from a local action, so as to derange the whole system."

obstinate in its career, and fatal in its issue, that every suggestion relative to its cure, is worthy of attention. What renders it so unmanageable, it is not easy to determine. We hardly know, even, the seat of the complaint: much difference of opinion, at least, exists on the subject, and the practice is hence empirical and unsettled.

While some writers consider it as strictly an inflammatory affection, and urge the liberal employment of all the means of depletion, there are not wanting others, and of respectability too, who, influenced by a different impression, enjoin a mode of treatment directly the reverse. Nor is there less division of sentiment as to the precise seat of the disease. It has, in succession, been located in the uterus, in the peritoneum, in the omentum, in the intestines, and in short, in almost every one of the abdominal viscera.

My own views of the case lead me to the conclusion, that puerperal fever, most commonly, has its origin in inflammation of the uterus itself, produced by rudeness or violence in the delivery, which extends more or less over the abdominal contents, according to the vehemence of the attack, and the predisposition of the different parts to assume a morbid state. No doubt, however, the disease sometimes exists independently of uterine inflammation. It has been remarked, and I believe truly, that it occasionally follows the most easy labours, so as to preclude, altogether, the idea of any injury having been suffer-

ed by the uterus or its dependencies. Not unfrequently, puerperal fever has prevailed as an epidemic, and, according to the best testimony, it consists, at such times, in little more than inflammation of the peritoneum.

Why this membrane should be so liable after delivery, to take on this diseased action, is not very evident. May not, however, this predisposition be owing to the relaxation and debility, into which the peritoneum is thrown, in consequence of the previous distension by pregnancy? It appears to me not improbable, that so long as the disease is confined to the uterus, or to any of the contents of the abdominal cavity, it exhibits the phenomena of common inflammation, and is managed, without great difficulty, by the ordinary remedies in such cases. But, if the peritoneum be brought into participation, then the fever assumes a distinct shape, and betrays all those peculiar signs which denote inflammation of this membrane.

Cases of the latter description are very intractable. It is a curious fact, that inflammation of the peritoneum is singular in its nature, and always difficult of cure. What this is owing to, has never been satisfactorily explained. My observations have taught me, that, in this species of puerperal fever, venesection is of indispensable utility, though only in the early stages of the attack, and that, on the whole, I have derived most advantage from it, aided by prompt and copious purging, the occasional use of an emetic,

when clearly indicated, by fomentations, and emollient embrocations to the abdomen, and, in the more advanced period of the disease, from the regular exhibition of camphor alone, in large doses, or with opium and emetic tartar, and, finally, by the spirit of turpentine externally applied, and internally given in such quantities, as shall make a decided impression.

Now and then I have also prescribed emetics in puerperal fever, not so much to meet the general indications, as to relieve one most distressing symptom. The stomach is here, in some instances, loaded with a dark offensive matter, which occasions great distress, and, if allowed to remain, keeps up fever, and depresses the system into a typhous state. To evacuate this noxious matter, an emetic is indispensable, and its operation will often be followed by effects prompt and satisfactory.\*

No diseases, perhaps, exhibit more satisfactory evidence of gastric origin, than the whole of the exanthematous fevers. To detail the arguments by which this pathological view is sustained, would lead me into a very wide digression. It may suffice to remark, that they are derived from considerations of the causes, symptoms, phenomena on dissection, and mode of cure of these affections.

Commencing, invariably, as they do, with much disorder of stomach, this is, for the most part, remov-

<sup>\*</sup> This state of stomach occurs early in the fever, and is very different from that incident to the final stages, which, in every respect, bears a close analogy to the condition of stomach in yellow fever.

ed, or mitigated, by the appearance of the eruption, and a deadly sickness as uniformly reverts, on a sudden recession of it from the surface. The same thing happens in cases, where it is susceptible of demonstration, that the stomach is primarily affected. It is well ascertained, for instance, that when this organ becomes disordered by tainted or poisoned food, as by fish that have fed on mineral banks, an eruption or efflorescence generally appears, which is productive of more or less relief.

Examinations, post mortem, as constantly shew, in the exanthemata, where the disease has not been thrown out, the mucous coat of the primæ viæ marked by erysipelatous inflammation, and such cases are always of a typhoid or malignant nature. In my opinion, few propositions are better established, than that the feature of malignancy in disease is, under all circumstances, derived from the stomach. We might, indeed, affirm, on sufficient grounds, that such a condition is exclusively owing to the ventricular energies being so crippled, that they can no longer sustain the general tone of the system, and hence it sinks into debility, attended by the group of symptoms to which we apply this epithet.

Corrosive poisons afford a very striking exemplification of this reasoning, and particularly arsenic, which, in its protracted operation, is so closely imitative of malignant fever, as to be readily confounded with it.

To the difference between natural and inoculated small pox, we may appeal as a farther, and, perhaps, stronger illustration to the same purport. By opposite states of the stomach, only, can we account for the gradations of violence in the two forms of this fever-in the former, it being affected primarily, and in the latter, secondarily. Disease is severe or otherwise, according to the importance of the organ attacked, the power and extent of its connections, and the kind and amount of the injury received. The sympathies of the stomach, in variety and extent, are paramount to every other part: hence, when it is acted on by the variolous matter, these sympathies being greatly deranged, the casual small pox, marked by severe symptoms, is the consequence. But, in the process of inoculation, the virus attacking only a small portion of the skin, the sympathies of which being comparatively weak and limited, the effect must be proportionably moderate.

As a deduction from these principles, it follows, that emetics must constitute a leading ingredient in the management of the exanthemata. Two indications they are especially calculated to meet.

To relieve gastric distress in the commencement, and promote the eruption, or to recal it when unduly suppressed, they are found highly efficacious, as is abundantly shewn, in urticaria and small pox. Nor is this all which they will accomplish. Exhibited in the forming stage of some of these fevers, they abate the vehemence of the attack, and give to the

case, in its further progress, altogether a milder and more favourable aspect. Erysipelas of the face, particularly, I have often essentially benefited, or entirely removed, by timely vomiting—and, in several instances, have derived scarcely less advantage from the same remedy, when the brain becoming affected, stupor supervened.

Taken in the beginning, emetics are productive of the same utility in scarlatina—and how much they are directed to cleanse the throat, and for other purposes, at later periods of the disease, it were needless to state. Their power, indeed, is so great, in reducing the force of scarlatina, in its first stage, and of changing the nature of the action, that some practitioners are reluctant to use them freely, lest the system may not be sufficiently affected to afford protection against a subsequent attack.

To treat hæmorrhage, and particularly hæmoptysis, by emetics, was the practice of Dr. Bryan Robinson, of Dublin, and which, for a time, attracted considerable attention. Yet, I suspect, it was never very much followed, and seems finally to have been altogether abandoned, on the authority perhaps of Cullen, who, on trial, denounced it, on account of its temerity.

No doubt, however, they will occasionally check pulmonary hæmorrhage. I have seen spontaneous vomiting do it, in several instances, and the worst case, which ever came under my notice, was completely suspended by a dose of digitalis, which

puked violently. Yet, I concur with those who hold the practice to be hazardous, and would never resort to it, except under extreme circumstances, and where milder remedies have totally failed.\* I speak, at present, in relation to cases in which there is a copious hæmorrhage, in consequence of the rupture of a vessel of some size. Where there is only a slight raising of blood, mixed with the matter expectorated, as commonly happens in tubercles of the lungs, they may be administered with perfect safety, and sometimes with advantage. Emetics, under such circumstances, divert blood from the lungs, promote a more equable circulation, remove cutaneous constriction, calm the general condition of the system, and thus lessen anxiety, cough, difficulty of respiration, and the sanguine discharge. It is in this way, that we, in part, imitate the effects of a sea voyage, and command some of its advantages. They, moreover, in some instances, check hectic fever, an ordinary concomitant on this state of things, or which speedily supervenes.

Emetics have also been recommended in menorrhagia. When I come to discuss the subject of emmenagogues, I shall endeavour to show, that menstruation depends on a secretory action of the uterus. As a part of the doctrine, I shall maintain, that all

<sup>\*</sup> I have lately heard, that it was a favourite practice with Dr. Willis, so renowned for his skill in the treatment of mania, to give emetics, even in the most profuse hæmorrhage of the lungs, and that he insisted on their safety, as well as superior efficacy.

copious periodical discharges from the uterus, are to be considered as hæmorrhages, and not, as has hitherto been held, an immoderate flow of the catamenia.

I cannot, from my own knowledge, speak of the use of emetics in this species of hæmorrhage, and would greatly prefer, in the management of it, vene-section, and nauseating doses of these medicines. Thus administered, we are told by Bergius, that they are highly serviceable, and by Althofe, his colleague in the school of Upsal, that, under their use, he never lost a case. Though not prepared to go so far, I must say, that I repose much confidence in the practice, and that such is the result of no slender experience.

Every practitioner is acquainted with the utility of emetics in cynanche trachealis. This is not the place to expatiate on the nature and treatment of this formidable disease. I cannot, however, pass it over without some few observations.

Croup has been divided into spasmodic and inflammatory, and not a little discussion has taken place on this subject. It seems to me, that in all cases where it suddenly attacks, it must partake of the nature of spasm. The early symptoms correspond exactly with this view of its pathology, and dissections fully confirm it, showing, where death promptly happens, none of the phenomena of inflammation. But, under opposite circumstances, or where the disease slowly comes on, or is the effect of inflammation of other parts, extending to the larynx, then, of course, it is of a contrary nature, and inspections after death have revealed exactly such appearances as might have been anticipated.

Even admitting the distinction contended for, I am not aware that it leads to any practical difference, and especially as relates to the use of emetics. No one disputes the indispensable necessity of puking actively in the commencement of this disease, whatever theory may be entertained. Yet, unhappily, as I have before remarked, croup is one of those cases in which we often have to encounter great difficulties in getting the remedy to operate. What is now to be done? Experience teaches me, that nothing is so effectual as the warm bath, and, where it fails, venesection, in extreme cases, ad deliquium animi. Never have I witnessed one solitary instance in which these means combined, did not succeed in awakening the susceptibility of the stomach to the action of an emetic, and effecting all which can be expected from the most free and copious vomiting.

Nor, in the more advanced stage of croup, are emetics scarcely less demanded. The disease having continued for eight or ten hours, and sometimes even for a shorter time, it extends itself to the bronchiæ, and into the very substance of the lungs, producing vast accumulations of mucus or phlegm, as in peripneumonia notha. Being now loaded and oppressed, these organs imperfectly execute their functions, which is indicated by all the symptoms incident to such a condition. To relieve the lungs of this engorgement,

and to re-establish a free and equable circulation, are now the important indications. Copious vomiting by an active and stimulating emetic, while the patient is in a warm bath, is the most effectual of our means, and particularly when followed up by a blister or cups, or both, to the back, as the case may seem to require.

Emetics are favourite remedies in some of the other anginose affections. Early employed, I know of nothing more effectual in the ordinary inflammations of the throat.

It was once a universal practice, and is still recommended by some, to excite puking for the purpose of rupturing the abscess in the severer attacks of cynanche tonsillaris. The plan, though often successful, was productive of great pain, if not danger, and is now generally abandoned as unnecessary, the abscess being very readily punctured.

Emetics are, moreover, prescribed in malignant sore throat, and with utility. I have given them, when the stomach was distressed with nausea, probably from an accumulation of the feculent matter incident to the complaint, and not only done good in that respect, but have improved very much the condition of the ulcers about the fauces, which being cleansed, take on a disposition to heal.

In many of the complaints of the chest, emetics are liberally employed. As expectorants, we all know their utility. Even in some of the acute affections, and especially in the peripneumonies of old

persons, they are serviceable by emulging the bronchial vessels, and re-establishing an equilibrium in the circulation. On the same principle, they were used in the pneumonic forms of our late winter epidemic,\* and have been found serviceable in most cases of engorged or suffocated lungs, whether from blood or other fluids, attended with feeble action.

They are also advantageous in asthma. The distinction instituted in this disease, of humoral and spasmodic, seems, in some instances, to be correct; and, perhaps, the two species may occasionally exact some modification of practice. Yet, as relates to the use of emetics, I suspect the distinction need not be very nicely observed. They generally afford relief in the paroxysm, and, timely administered, will sometimes prevent the recurrence of it. Cullen, I am aware, holds a more qualified language on this point. But I cannot help thinking he is wrong, and especially as regards the distinction which he takes between the spasmodic and the pituitous or catarrhal species of the complaint.

Of the various remedies that, at different periods, have been suggested for the cure of pertussis, I know of no single one from which I have derived better effects, than from emetics. To the earlier stages of the complaint they are chiefly applicable, and, where the attack is violent, must be repeated daily, or even twice a day, for a week or two in succession.

<sup>\*</sup> The peripneumonia typhoides.

By steadily persevering in this course, and with the auxiliary means, which I am hereafter to indicate, we shall generally be able to conduct the case to a comparatively speedy and successful issue, provided it be that of a child, as the remedy is not so well adapted to persons in more advanced life.

Emetics have been extolled in the treatment of acute rheumatism. As yet, I have never used them in any of the forms of this disease, with one exception only, and must therefore advance my opinion with diffidence on the subject. The particular exception to which I allude, is that species of rheumatism originating in districts exposed to marsh exhalations, and where the attack, as sometimes happens, is blended with intermittent fever. They here prove serviceable, on a principle perfectly intelligible.

Nor have emetics been less commended, in the analogous affection of gout. By the practitioners of antiquity, they were, indeed, made an essential part of the treatment of the disease, and came to be excluded, with other evacuants, pretty much through the influence of Sydenham, as we shall hereafter see, more distinctly. During the reign of the humoral pathology, they were again brought into notice, and used to evacuate morbific matter, which was supposed to accumulate in the alimentary canal.

Of the late writers, who have most strenuously endeavoured to establish the practice, is Small, the author of a very good paper on gout, in which vomiting is recommended as affording prompt relief of the pain and inflammation, as well as abridging the career of the paroxysm.

That such may be the effect, I can readily believe, considering the nature of the case, and the unequivocal utility of purgatives in it. Yet my experience with the remedy, is too narrow, to speak authoritatively. Emetics, at all times, are much resisted, especially in the higher classes of society, where we chiefly meet with gout; and this, and not any want of confidence, has prevented my using them. But in certain cases, I have not hesitated to prescribe the remedy, as when the stomach was greatly disordered, the tongue loaded, and the constitution unimpaired. Like rheumatism, gout is, moreover, in some instances, associated with fever of the intermittent type, and these cases, which are to be met with in low countries, or in persons who have been transiently exposed to marsh exhalations, often require for the cure, active vomiting, and even the use of the bark.

Emetics have, unquestionably, done much good in dyspepsia, and other depraved conditions of the stomach. My first step, generally, in the treatment of these gastric affections, is to resort to this remedy. By the use of it, we now and then succeed in so completely reforming the state of the stomach, as by it alone to put an end to the complaint, and, where this does not happen, we at least pave the way for the introduction of other means. Emetics, judiciously repeated, proper attention to the bowels, and to exercise, and to clothing—with a course of tonics,

aided by diet, consisting chiefly of milk and the lighter meats, without vegetables, will rarely fail to cure indigestion, and all its concomitants.

To some of the bowel affections, emetics are well suited. It was usual with Sydenham, and his example has been imitated by many, to commence the cure of dysentery with exciting vomiting, which he advised to be followed up by copious draughts of some thin beverage, to cleanse more completely the stomach. Of the propriety of this practice, I am not prepared to speak from any personal experience. It may occasionally be useful in the early stage of the disease, where the stomach is loaded, as sometimes happens, with bilious or foul matter, creating nausea and distress. Cases of this sort are common in countries subject to intermittent fever, and the bowel affection wearing this character, the remedy becomes necessary.

Emetics, in diarrhœa, are still more employed, and their utility, perhaps, is less disputable. But the complaint is dependent on such a variety of causes, and assumes such different shapes, that it is difficult to indicate, in a mere summary, the precise cases to which the remedy is applicable. Of course we should not hesitate to prescribe it, where there is reason to suspect the discharge to be caused, or kept up, by a disordered stomach. Besides relieving that organ of its irritating contents, it checks purging, by inverting the peristaltic motion, and relaxing the skin, produces perspiration, which, on account of the intimate

connection between the surface of the body and the alimentary canal, proves salutary.

Many of the nervous and spasmodic diseases, have their origin, undoubtedly, for the most part, in the primæ viæ, and can only be treated successfully, by keeping this fact steadily before us.

Of the class of neuroses, the one which appears to be sometimes most unequivocally a mere gastric affection, is epilepsy. Entertaining this impression of the nature of the disease, I have freely prescribed emetics in it, and with manifest advantage. By exhibiting them just before the accession of the paroxysm, they will often prevent it, and, even if they fail to do so much, they render it milder, and of shorter duration. Nor is this all which they accomplish. By the strong and direct impression made on the stomach, the commencement in that organ of the wrong association constituting the disease, is broken, and afterwards it yields more readily to tonics.

Yet, it must not be concealed, that emetics are productive, sometimes, of mischief in epilepsy. I have known them, more than once, to bring on the fit, and with aggravation. It will be right, in using them, to avoid the cases primarily seated in the brain, or where any fulness of the vessels exists. To gastric epilepsy, I suspect, they are only suited.

Nearly the same views, I think, may be taken of hysteria. Even admitting that the disease is mostly radicated in the uterus, it does unquestionably very often proceed from gastric irritation, and demands to

be treated accordingly. Whatever may have been the immediate cause of the paroxysm, I have found, when exceedingly vehement, no remedy half so effectual as active vomiting. It promptly allays the convulsive agitations of the nervous system, and produces a state of composure which invites to sleep.

Emetics constitute a part of the treatment of many of the complaints of the head, or which, at least, in that part are most conspicuously displayed. They are frequently directed in apoplexy. This disease may be seated either in the brain or stomach, though it is more commonly brought on by accumulations in the latter viscus, the result of debauchery and excess. When thus occasioned, vomiting is obviously the proper remedy.

Encouraged by the success of emetics in apoplexy, some practitioners, and especially of the continent of Europe, have recently urged the use of them in palsy. I have no experience on this subject, though, were I to determine from the great efficacy of the drastic purgatives in some instances of this affection, I should not hastily condemn the practice.

That hydrocephalus internus does, in many instances, proceed from certain states of the chylopoietic viscera, is now admitted by the best pathologists. An irritated or oppressed stomach, I have seen excite the symptoms of the best marked cases of the disease, and which were speedily removed by puking. This is sufficiently intelligible. But the same sort of affection will occur, and of unquestionable gastric

origin, though there may be nothing in the contents of the stomach to which it can be traced. Even under such circumstances, vomiting occasionally proves useful, probably in the same way that it relieves some other cephalic complaints.

Emetics are certainly important remedies in mania. The forms of the disease, however, to which they are applicable, have not, so far as I know, been accurately discriminated. No one, I presume, would think of exciting vomiting in the more violent cases, where there is great arterial action, with high excitement of the brain. Nauseating doses, in conjunction with copious bleedings, general and topical, are here preferable. The first, in a very peculiar manner, subdue vascular action, reduce excitement, depress muscular power, and restore the mental and corporeal quietude of the patient. Nausea, thus kept up, will, in some cases, do more in these respects, than any other course of treatment.

It may, perhaps, be proper to repeat a remark which I formerly made, that mania is one of those diseases in which the stomach loses, in an extraordinary degree, its susceptibility to the operation of medicines, and particularly to emetics. This, I am inclined to believe, is even more conspicuously evinced in melancholia than violent insanity. Whether the torpor of the stomach is the cause, or effect, of the morbid state of the brain, cannot be stated positively. But of this there is no doubt, that its removal, as in croup, is a pretty certain sign of a speedy convales-

cence. As such seems to be the case, would it not be right to address our remedies more directly to this organ, with a view of arousing it out of its indolent condition? To meet this indication, nothing promises so well as a succession of active and stimulating emetics. The effect of the remedy, in two or three cases of this description, has much strengthened these speculative notions, and authorize me to recommend the practice, with no small confidence of its success.

By a very ingenious physician of this city, Dr. Klapp, this mode of treating one species of insanity, mania à potu, or, as he terms it, from Sauvages, mania à temulentia, has been adopted, and, according to him, its superior efficacy is fully and indisputably confirmed. To this course, he says, he was led, by often remarking, that the subjects of derangement from intemperance, are apt to labour under vomiting for several days before they become affected, and that, when the mental disease begins, the vomiting ceases: and also, by having seen, that spontaneous vomiting, when it recurs, in these cases, is generally attended with beneficial consequences.\*

Governed by what I have seen myself, I should say, that such a report is not quite warranted. Exactly, as in the other shapes of mania, where an insusceptibility to the action of remedies exists, emetics, in temulent affections, are of the greatest utility, and Dr.

<sup>\*</sup> Eclectic Repertory, vol. vii.

Klapp merits our acknowledgments for the extension of the practice. But susceptibility being awakened, all is done which can be effected by vomiting, and we must, to confirm the cure, in most instances revert to the stimulating articles hereafter to be noticed.\*

Even some degree of circumspection is required in the use of emetics. The cases of the disease must be properly discriminated, or they prove detrimental or even fatal. Exhibited where there is much prostration of power, or, in other words, extreme exhaustion, the system will not react, and the patient inevitably sinks. Two cases of this kind came under my own notice, and several others have been reported to me.

In that distressing complaint, denominated sick head ache, one of the most heavy of the curses entailed on the sedentary and studious, much has been said of the efficacy of emetics.

This is purely an affection of the stomach. It recurs periodically, and is preceded and accompanied by nausea, sour eructations, and other indications of imperfect digestion. Evacuations of the stomach alone will not cure it. The bowels must also be kept open, and the strictest attention to diet is demanded.

Externally, the head is liable to very acute, and sometimes even to excruciating spasmodic pains, attended by an exquisite tenderness of the scalp. Though this complaint may not hitherto have arrested

<sup>\*</sup> Camphor, opium, &c.

so much attention as to be accurately described, it has not altogether escaped notice. The plan of treatment pursued in this city, in some instances, after various other remedies had failed, was, to cut through the integuments, under the conviction that the case partakes of the nature of tic doloureux, and that, by dividing the affected nerve, a cure might be accomplished. What was the precise degree of success of the practice, I cannot say, though I suspect it afforded little encouragement, as I do not learn that it has often been repeated.\* Early adopting the notion, that this complaint proceeds from a morbid condition of the stomach, the only two cases of it which have come under my care, I managed by emetics, and had reason to be entirely pleased with the result. Even genuine tic doloureux, the neuralgia of some writers, has been cured, in several instances, by this same practice, and with such facility, as to place it decidedly above all other modes of treating this most painful, and hitherto unmanageable affection.

The credit of employing emetics in this case, seems due to Dr. Physick, and is one of the many valuable contributions which the profession has received from his ample resources. Yet, it is not to be concealed, that there is a passage in the writings of Mr Abernethy, which shews, that he also has adopted the same view of the pathology of the case, though he at-

<sup>\*</sup> The practice has been tried in England, and failed. Bendingfield's Medical Practice.

tains the practical end by means somewhat different, and, perhaps, not quite so prompt and efficient.\*

It is, perhaps, not generally known, that Richter, a writer whom I shall often have occasion to cite, maintains, that many of the diseases of the eyes proceed, more or less, from a disordered state of the chylopoietic viscera, though chiefly the stomach, and this he thought to be especially the case as regards amaurosis.

No one of the time had half his reputation, in this complaint, or, probably, an equal experience. His fame was so diffused, owing to his unrivalled success, that persons afflicted with it resorted to him from all the countries of Europe. He deduced his practice directly from the theory of the disease, which he had adopted.

Considering it primarily a gastric affection, he directed the exhibition of emetics, and afterwards a combination of tartarized antimony, with some other articles, to keep up a constant impression on the stomach.

Extraordinary as this hypothesis may seem on the first view, I am convinced of its correctness. The more we study the economy of the stomach, the more we shall be enlightened on pathology, and es-

<sup>\* &</sup>quot;In the cases of tic doloureux, which have fallen under my observation, there has been great disorder of the digestive organs, and I have known cases resembling those of tic doloureux cured by correcting the unhealthy state of these organs." Abernethy on the Disorders of the Digestive Organs.

pecially as to the diseases of the head. My practice has afforded me several cases of violent and intractable ophthalmia, that I could trace directly to a vitiated state of the stomach. Accumulations of bile in that viscus, have long been known most distressingly to disorder the head, and affect the eyes, though the more painful and obstinate inflammations of these organs have not hitherto, I believe, been ascribed to this cause. That it does occasionally produce them, I am persuaded; and of this, at least, there is no doubt, that they are at once relieved by emetics. Depraved vision, I have several times seen from spasms of the stomach; and one case, perfectly well authenticated, is in my possession, where total blindness took place, and continued for many hours, in consequence of a severe attack of bilious colic, and which was ultimately removed, by copious evacuations from the alimentary canal.

That emetics are useful in ophthalmia, seems, indeed, now to be pretty generally admitted. By many of the late writers, including Scarpa, they are recommended, and, we are told, were found singularly efficacious in that form of it which so violently attacked the British troops while in Egypt.

On a previous occasion, I adverted to the active promotion which absorption receives from the operation of emetics. It may, therefore, be presumed, that these medicines have not been neglected in dropsy. They are undoubtedly serviceable in this dis-

ease, though it is not easy to designate the precise cases to which they are applicable. As a general rule, I may observe, that, exhibited with a view to their nauseating effects, they are to be preferred. But where dropsy is conceived to arise from congestion, or obstruction in the biliary organs, from gall stones or spasm, active vomiting has often been productive of decisive advantage. It acts under such circumstances, by mechanical force, or inducing universal relaxation, removes the spasmodic constriction of the ducts—and it is in the same way, that it proves so serviceable in many instances of jaundice.

There is another case in which emetics are beneficially prescribed. It seems to be admitted, that when dropsy is connected with intermittent fever, as often occurs in situations exposed to marsh effluvia, evacuations from the stomach are in some instances demanded.

With scarcely less advantage, have I also sometimes prescribed them, where there was much torpor of system, and general insensibility to the operation of remedies.

Nevertheless, it is to ascites and anasarca, that this practice is chiefly restricted: no one, I believe, now ventures to try it in hydrothorax, and though recently some cases of hydrocele are reported to have been cured by emetics, it was not so much by vomiting, as by nausea long and perseveringly continued.

Emetics have sometimes been deemed necessary in diabetes. They are mentioned by Richter, as having speedily cured a case of the disease, which succeeded to fever, by the discharge of a large quantity of bile, and as the stomach appears always to be more or less concerned in this disease, the remedy might probably be oftener resorted to, with advantage, than has here-tofore been done.

They were too at one time much employed in several of the affections of the male organs of generation. I have already mentioned, that, of late, they are reputed to have cured hydrocele. Long since they were prescribed in the indurations, and other morbid states of the testicles. But they seem to have lost their reputation, or rather have sunk into disuse, in all these cases, except hernia humoralis. Of their efficacy here, no one doubts, yet, being a disagreeable remedy, and as we have other modes of treatment equally successful, are rarely used.

On the same principle, they were administered for the discussion of buboes, and other glandular tume-factions. The strong and decisive tone in which Mr. Hunter has asserted their superior powers in the venereal swellings alluded to, had once the effect of inspiring the greatest confidence in their utility. I am inclined to believe this confidence was not misplaced, though, for the reasons already assigned, the practice has not often been imitated by me. The case to which the remedy is more peculiarly appropriate, is indolent bubo.

Emetics have been commanded in the bites of venomous reptiles, inducing constitutional affections. This was originally an oriental practice. But I have understood that it is at present a good deal followed throughout our western country, where people are often bitten by the rattlesnake and other poisonous serpents. Of the utility of the remedy, I cannot speak from my own knowledge, though, as in all cases of morbid poisons, the stomach is always very seriously, if not principally affected, I am disposed to entertain a favourable impression of it.

To induce extreme relaxation of the system by the exhibition of emetics in nauseating doses, is one of the resources of surgery. Of the cases in which it is mostly resorted to, incarcerated hernia is one. Nauseants have, under these circumstances, been advantageously used in this city, and, by a surgeon of England, it appears, that they are not less so, in the reduction of luxated limbs, by overcoming muscular resistance. To dislodge substances, firmly fixed in the cesophagus, the same practice has been pursued, I understand, by Dr. Physick, and with great success.

Nor has the remedy been neglected by the practitioners of midwifery. It was at one period much prescribed by them, in order to induce relaxation in obstinate parturition, dependant on rigidity of the soft passages. Exceedingly plausible in theory, it, however, totally failed when reduced to practice. I have tried this means, and have seen the experiment made by others. The effect was, a very great degree of general relaxation, and distress, without at all facilitating the dilatation of the parts, or in any manner promoting labour, and hence the practice has been abandoned by me.

With the same view, vomiting was once directed in tetanus, and other violent spasmodic affections: whether with any advantage, as ordinarily administered, does not very clearly appear.

In looking back on what has been said on the use of emetics, we cannot help being struck with their great value, as means of combating disease, and at their wide and diversified application in the practice of our profession. Exceedingly disagreeable in their operation, they have, by a false refinement, been permitted to be laid aside, or superseded by other remedies, or modes of treatment, which, in my opinion, are less efficacious. To the complaints of children, emetics are especially adapted, and, since the effort of vomiting in early life is productive comparatively of little distress, fewer objections can here be alleged to this class of medicines.

Extensively beneficial as they are, we have, however, cases in which emetics must be resorted to with great circumspection, and some, where they are even wholly inadmissible. The danger of prescribing them, under circumstances of plethoric tendencies, I have already noticed. Equally are they prohibited, in all high degrees of visceral inflammation, and more particularly in that of the alimentary canal. To these cases may be added, an extremely debilitated system from any cause, and, finally, the advanced state of pregnancy, or where a prolapsus uteri, or hernia exists.

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# SECTION V.

OF PARTICULAR EMETICS.

# Callicocca Ipecacuanha.

Though this medicine was long employed in practice, it has only been recently known to what genus of plants it belongs. It is now ascertained, that the genuine ipecacuanha of the shops, is the root of a pentandrous plant, the cephalis emetica of some, and the callicocca ipecacuanha of other, botanists. It is a native of South America, and, I believe, has been discovered no where else.

Of the root, the only part of the plant used, there are several varieties imported, of which the ash-coloured is the best.

Good ipecacuanha is the mildest, and one of the most certain, of the emetics. It evacuates the contents of the stomach, without exciting violent vomiting, and is, therefore, peculiarly adapted to a large circle of cases. Much has been said respecting the proper dose of this medicine. Cullen states, as a general rule, that "to excite vomiting, and especially repeated vomitings, we cannot depend on a dose under ten grains, and frequently a larger dose is required." But it seems to me, that this quantity is too small for the purposes assigned. As an averaged dose for an adult, a scruple is little enough, and even this will produce very inadequate effects, unless it be assisted by warm water or some other drink. My practice is, where I deem it expedient to give activity to ipecacuanha, to combine with it a grain or more of the tartarized antimony, and this indisputably constitutes, for many purposes, the most valuable of our emetic preparations.

Distinct from its emetic property, ipecacuanha has been recommended as having peculiar powers in most fevers. But, on trial, it was found, in the estimation of practitioners generally, inferior to the antimonial preparations, and is now, I suspect, not much employed. If it retain any share of confidence, I am inclined to believe, that it is in intermittent fever, a case in which, at least, at one time, it was supposed to evince something approaching to a specific power. By Cullen it is said, that he knew a respectable practitioner who broke the paroxysms of this disease by administering ipecacuanha at the accession, or end of the cold stage. But here I would ascribe nothing to the peculiar properties of this medicine, having done

as much with other emetics, and especially the tartarized antimony, which, indeed, I prefer.

Given in small doses, this medicine is an exceedingly important one in hæmorrhage of every description. Many physicians of respectability bear testimony to its good effects in hæmoptysis, though it is in uterine hæmorrhage that it displays its best powers. In these cases, I really think it is quite equal to the saccharum saturni, and, sometimes, superior to that useful article. It must only be prescribed in nauseating doses; as, when urged so as to create vomiting, I am afraid it proves mischievous. Let me, however, be not understood as saying, that this is always the consequence of vomiting in hæmorrhage. The contrary sometimes happens. I have known, myself, uterine hæmorrhage to cease by the coming on of spontaneous puking. But, perhaps, there is a distinction to be made between a natural and artificial effort of this kind, the one being often salutary, while the other is pernicious.

The powers of small doses of ipecacuanha, are frequently astonishing in checking uterine hæmorrhage. I have remarked in many cases, that the moment nausea was induced, the flooding ceased. By what precise mode of action it causes such an effect, is a point on which there is no unanimity of sentiment. It cannot be by the astringency of the medicine, as some have alleged, since the most powerful astringents will not do it, and, besides, ipecacuanha does not appear to possess this property in

any great degree. It was contended by Murray,\* that it is to be referred to the antispasmodic qualities of the article, and the same hypothesis has been adopted by some subsequent writers. But admitting that ipecacuanha is antispasmodic, of which we have very slender proof, there are other medicines decidedly more active in this respect, which produce no such effect. Neither of these explanations is, therefore, at all satisfactory. May it not operate simply by inducing relaxation, thereby diminishing arterial action, which so uniformly has a tendency to suppress effusions of blood? Yet to this hypothesis, also, there are obvious objections. My mode of administering ipecacuanha in hæmorrhage, is, to combine one or two grains of it with half a grain of opium, and give this dose at stated intervals as may seem necessary.

Next to its use in these cases, this medicine is, perhaps, most celebrated in the several affections of the alimentary canal, and particularly dysentery. Having evacuated the stomach and bowels sufficiently, I begin with giving the article very much in the same way as I have mentioned above in hæmorrhage. It soon affords relief to the more distressing symptoms, and frequently effects a cure. By some practitioners, it has been thought, that ipecacuanha is more adapted to those cases of the disease in which there are discharges of blood, amounting almost to hæmorrhage, of the bowels. This opinion is, per-

<sup>\*</sup> Apparatus Medicaminum.

haps, correct. But, in every form of dysentery, it is useful, where the pain is great, and the desire to stool frequent and ineffectual.

The efficacy of the medicine in this disease, does not rest on my own authority. It has been employed for the last half century, by the most celebrated practitioners in every quarter of the world, with the most unqualified commendations. Of its modus operandi here, we know as little as in other cases. We can hardly suppose, with Cullen and Sir George Baker, that it acts as a purgative, because other purgatives have not the same effect, and since it does quite as much good when there is no evacuant operation.

By Mosely it is considered advantageous in dysentery, by relaxing the surface, and exciting diaphoresis. Whether this explanation be just, or not, it is more plausible than the other, and comports better with the obvious qualities of the medicine, and its known effects.

Two other modes of administering ipecacuanha in dysentery, have been employed. By a late writer,\* it is recommended, in the shape of a clyster, three drachms of the bruised root, boiled in a quart of water, down to a pint, which is to be repeated twice or thrice in the twenty-four hours. Of this I know nothing myself, though, other objections aside, we have always been taught to believe, that a decoction of the article is wholly inert. Much more confidence ought probably to be reposed in the second of these prescriptions.

<sup>\*</sup> Clark on the Nature and Cure of the Dysentery of the East and West Indies.

Defeated in his attempts to cure dysentery by the ordinary manner of giving ipecacuanha, Mr. Playfair,\* a surgeon at Bengal, has used it, he says, with advantage, in the dose of from a half to a full drachm, combined with from thirty to sixty drops of laudanum, confining the patient, for some hours afterwards, to a horizontal posture. If the first dose be rejected, the mixture is to be repeated, and is commonly retained. This practice, though represented as exceedingly efficacious, is confessed to be only adapted to the very commencement of an attack, since, if it be at all advanced, the stomach becomes so irritable as to reject the medicine at once. By Mr. English, another surgeon on the British establishment, the success of the remedy is corroborated.†

Diarrhœa is also treated by ipecacuanha. The case to which it is supposed to be suited, is well described by a writer, on whose authority, I apprehend, it was originally introduced into the management of this disease. "We meet," says he, "with persons of both sexes, and different ages, who, from a variety of causes, have long been subject to habitual diarrhœas, sometimes accompanied with sickness, bitter taste, furred tongue, and some degree of fever; and, sometimes, without these symptoms, yet, both liable to frequent discharges, often in the morning, sometimes in the night, and generally after taking any quantity of aliment, whether liquid or solid." Two or three

<sup>\*</sup> Edinburgh Med. and Surg. Journal, vol. x.

<sup>†</sup> Ibid. vol. x.

grains of ipecacuanha in the morning, and an adodyne in the evening, to be repeated for some days, are represented as having succeeded in a number of cases, which had "obstinately withstood the efficacy of very opposite remedies."\*

Of the use of our medicine in dyspepsia, I am not prepared to say much. It has been highly extolled by Daubenton, in his tract on the subject, and I have met with some respectable practitioners, who seem to place no slender confidence in its powers. As an emetic, no one questions its efficacy in this disease, though this is not the prescription to which I allude, the medicine being given in small and repeated doses, too small almost to excite nausea. Thus exhibited, it is alleged to act as an alterative, changing, imperceptibly, the state of the stomach, till finally it restores the organ to it natural tone, and healthy actions.

As strong claims has ipecacuanha to our notice, in some of the pulmonary affections. Confessedly in asthma† it is to be preferred to all emetics. As far as I know, the practice of using it in this case, originated with Akenside, the poet and the physician. There is, at least, an excellent paper by him, in the transactions of the London College of Physicians, on this subject. During the paroxism of the

<sup>\*</sup> Fothergill's Works, vol. iii.

<sup>†</sup> It is somewhat curious, that, though ipecacuanha is so efficacious in asthma, the odour which is emitted from the powder, will produce, in some persons, a short and difficult respiration, approaching almost to this very disease. I have witnessed this in one case myself, have heard of another, and a still more extraordinary one is recorded in the Philosophical Transactions, vol. lxvi. part I.

disease, he administered a scruple of the medicine, in order to afford immediate relief, and in the intervals, from three to five grains, every morning, to excite nausea, with a view to a permanent cure. Whether it produces vomiting or not, he says, it is equally useful.

Given in very minute doses, sometimes alone, though oftener united with calomel and opium, this medicine has been liberally prescribed in the cough of the advanced stages of pleurisy and peripneumony, in that of ordinary catarrh, and even of consumption. But I will not anticipate what I have to say under the head of expectorants.

The virtues of ipecacuanha may be extracted by several menstrua, though wine is the one chiefly employed, and by which the vinum ipecacuanhæ of the Dispensatories is formed. This is a neat preparation, and is sometimes substituted for the powder. It is well suited to children, and is accordingly often resorted to in their cases. As an emetic, the dose of the wine for an adult is an ounce.\*†‡

<sup>\*</sup> Vid. Diaphoretics and Expectorants.

<sup>†</sup> Incompatible substances—All the vegetable acids, and especially vinegar: also the vegetable astringents, as an infusion of galls, &c. By decoction, its active properties are destroyed. They are, moreover, lost by keeping the ipecacuanha in powder, and more speedily, if it be exposed to the air and light.

<sup>‡</sup> By M. Majendie and Pelletier, a new proximate principle in this root has been lately detected, in which its emetic properties are resident. It is called, accordingly, *Emetin*, and, in the dose of half a grain, pukes copiously, and displays the other qualities of the crude ipecacuanha.

### SPIRÆA TRIFOLIATA.

This is an indigenous plant, which grows plentifully in various parts of the United States, and is well known by the title of *Indian physic*. Like ipecacuanha, to which it has been compared in more respects than one, the root is the only portion employed, though the stem and leaves are not destitute of activity. The bark, much more than the wood, of the root, has the emetic virtue.

Of this medicine, I have no very great experience. Many country practitioners, however, place so much confidence in it, that it has nearly superseded the ipecacuanha in their hands. Enough I have seen, to convince me of its powers to excite vomiting effectually, and such, I suspect, is the amount of our information concerning its medicinal properties. It may, in common with the ipecacuanha, be applied to other purposes, though I have not heard of its having hitherto been done, except in the case of intermittent fever. I should be glad to see the plant further investigated, and more variously employed. It is given in the dose of thirty grains. The western states afford a species of this plant, which is said to be, in every respect, superior to the one I have described. But of this I know nothing myself.\*

<sup>\*</sup> By the present professor of botany in our University, we are told, that neither of these plants is a spirea, but that they both belong to the genus Gillenia. To the first, he gives the name of Gillenia trifoliata, and calls the second Gillenia stipulacea.—Vegetable Mat. Med. of the U. States, by W. P. C. Barton, M. D.

#### ANTIMONIUM.

ANTIMONY is a name bestowed on a peculiar metal, which is naturally combined with sulphur, and in this impure state, is collected out of the mines of several of the countries of Europe. Affluent, however, as we are, in such products, it has never, so far as I know, been discovered in any part of the United States.\*

The origin of the term antimony, is somewhat curious. It is related, that Basil Valentine, a German monk, much addicted to experimental inquiries, gave the crude antimony to some hogs, which it speedily fattened. Encouraged by analogy, he also, with the same view, administered it clandestinely to his brethren of the cloister, all of whom, however, died, and, from the circumstance of its proving so deleterious in this case, it acquired the appellation of ante-moin, and, ultimately, by corruption, antimony.

Like most active medicines, this urged its way into the practice of physic with great difficulty. After very violent contentions with many of the medical men of the age in which he lived, Basil Valentine, whom I have just mentioned, succeeded in establishing its credit as an internal remedy. Elated by success, he published a work exhibiting its proper-

<sup>\*</sup> Lately, as I have understood, it has been found in the state of New York.

ties, and his vanity, which, in the plenitude of exultation, he entitled "Currus triumphalis Antimonii." Nevertheless, the medicine soon relapsed into disrepute, and was once more brought into notice by the strenuous efforts of the wild and eccentric Paracelsus.

During the angry controversies, so long carried on between the disciples of the Galenical and Chemical schools, relative to the employment of those active preparations, which the latter derived from the processes of their art, antimony was rejected or received, just as one or the other party acquired an ascendancy. At this period it was, that a solemn act passed the parliament of Paris, prohibiting, under the severest penalties, the use of this medicine in any part of the French dominions. Notwithstanding this, it continued to be occasionally prescribed in other sections of Europe, with a variable and disputed reputation, till at last its efficacy was sanctioned by the approbation of Hoffman, and fully confirmed by the still higher authority of Cullen and Fordyce.

Nearly inert in its native condition, antimony, however, by its multiplied combinations, supplies us with a profusion of active remedies, amounting, indeed, most probably, to several hundred. To notice these in detail, or even to enumerate them would be a most irksome and unprofitable employment. It fortunately happens, that the antimonial preparations, though of different degrees of strength, are characterised by considerable uniformity in their mode of action, and general medicinal properties. On many accounts, the emetic tartar, is the one which is almost universally preferred in the practice of Great Britain and this country.

### ANTIMONIUM TARTARIZATUM.

VEL

# Tartris Antimonii.

Doubts are entertained as to the precise chemical composition of this article. It is generally supposed to be a triple salt, consisting of tartaric acid, oxide of antimony, and potash—and hence should be termed a tartrate of antimony and potash. But, in the accuracy of these views, the chemists do not all coincide.

Being nearly insipid, without colour, inodorous, and very minute in the dose, it may sometimes be given with perfect facility, in cases, where it would be exceedingly difficult, if not impossible, to get down any other medicine. By reason of this, it is admirably suited to children, and, while it has this superiority over its kindred preparations, it possesses, in an eminent degree, all the properties common to the class.

As an emetic, the tartarised antimony is distinguished by the certainty, extent, and permanency of its operation. The impression which it makes on

the stomach, is more forcible, and continues longer than that from most other substances, and hence it produces a more thorough evacuation, and occasions, in a greater extent, all the effects of active vomiting.

When, therefore, we wish such an effect, emetic tartar should be selected for the purpose. Either exhibited in a large dose, or in small ones repeated, it will puke, and purge also, copiously, in some instances. Besides these two leading and primary effects of the medicine, it, moreover, not unfrequently proves diuretic and expectorant, and almost invariably excites perspiration.

Wishing to vomit effectually, the dose of the medicine is from two to five grains, and to promote its operation, some tepid drink should be freely drunk. But, in ordinary cases, it is customary to dissolve five or six grains of it in the same number of table spoonfuls of warm water, and direct one every ten or fifteen minutes, till the end is attained.

Emetic tartar, dissolved in wine, is a preparation much used. It is the vinum tartaritis antimonii of the dispensatories. As formerly made, antimonial wine was very objectionable, from the uncertainty of its strength. Employing the glass of antimony, which is soluble in the tartaric acid, the power of the medicine very much depended on the degree of acidity of the menstruum. After all, I do not know whether the simple solution in water is not a more certain, and a better preparation. But the antimonial wine is, perhaps, too strongly fixed, at least in popu-

lar confidence, readily to be excluded. It ought to be recollected, that, when prepared according to the Edinburgh Pharmacopæia, one ounce of it contains two grains of emetic tartar, and is a dose for an adult, while that of the London College is of double the strength.

To the cases of children, antimonial wine is habitually appropriated, and is sometimes prescribed at a very early period of life. I have given it to an infant at birth, to relieve difficult respiration, in consequence of an accumulation of phlegm. The dose, under such circumstances, should not exceed one or two drops. It is, however, more common to resort to this medicine, in cases of children a little more advanced. At any period within the year, provided they have attained the age of three or four months, the dose, for the purpose of vomiting, is ten or fifteen drops, according to the urgency of the case, to be repeated at short intervals, till the effect is produced. But, if the disease be croup, the quantity should be larger, as there is here a very great insensibility, as has before been mentioned, to the operation of emetics. In such an attack, we may not hesitate to give to a child six months old, a tea-spoonful every fifteen minutes.

I should now proceed to point out, in detail, the application of the antimonial preparations to the cure of diseases, had I not already anticipated much of what I might otherwise have said, under the general head of emetics, and more particularly, when treat-

ing of ipecacuanha. I must, therefore, dismiss the subject, with some desultory and miscellaneous reflections.

Considering emetic tartar as justly representing all the antimonial preparations, I shall confine my remarks principally to it.\*

This medicine has been chiefly celebrated in the cure of febrile affections. It is given in the commencement of almost every description of them, to evacuate the alimentary canal, by its united emetic and purgative properties, and, in the subsequent stages, in minute doses, to moderate arterial action, and to excite and keep up perspiration.

To Cullen, the praise has generally been conceded, of having indicated, more particularly than had previously been done, the great value of antimonials in the management of fevers. Being ushered into notice, under the auspices of his distinguished name, the practice soon attracted attention, and became universally adopted, wherever his influence extended.

Of the precise manner in which emetic tartar operates, in these cases, or with the principle that should guide its use, we are not sufficiently acquainted. Cullen maintains, that it produces no advantage unless it vomits, or creates considerable nausea. It is, on the contrary, asserted by Fordyce, than whom there cannot be higher authority, that by exciting

<sup>\*</sup> It is decidedly the opinion of Cullen and Fordyce, that the emetic tartar, on the whole, is to be preferred to all the other antimonial preparations.

vomiting, much of its power is impaired, and that it is most efficacious, when there is the slightest gastric disorder created.

To this point, I have directed a very careful attention, and am led, independently of all authority, to concur in the latter opinion. Nausea, by whatever means induced, is not, in itself, a salutary effort, nor does it ever dispose fever to a crisis, or favourable solution. During its continuance, arterial action, muscular power, and animal temperature are undoubtedly lowered, though the moment it ceases, there is uniformly, at least in the febrile affections, a re-action of the system, and a correspondent exacerbation of the disease. Did the sickened state of the stomach operate in the beneficial way contended for, then the utility of the medicine should be proportioned to the effect thus created, and a variety of other nauseants, infinitely more powerful and lasting in their impressions, as the digitalis, the tobacco, and squill, ought to be preferred. But this is contradicted by the lessons of experience; and the united voice of practitioners is against their use, under such circumstances.

Medicines seem to do good in the cure of fever, by exciting their own specific or peculiar action; and when they disorder the stomach by sickness, they depart from this, and, if they do not act as poisons, always become nugatory, or more or less mischievous. To illustrate this position, by particular exam-

I can now indulge, and I am sensible, too, that they cannot be required by any one who has, or will devote his mind to this subject. Many, indeed, of the febrifuge preparations, are among the most pleasant of our medicines, such particularly as the effervescent draught, and the neutral mixture, the primary effect of which is, to remove nausea, or to sustain the tone and tranquillity of the stomach.

But, while I contend, that the antimonials, like mercury, lead, arsenic, bark, &c. operate by virtue of a peculiar power, I wish it to be understood, that I conceive, as in the instance of the articles just enumerated, that their efficacy in the reduction of fever, will always be proportioned to the quantity taken, provided they exercise their genuine mode of action, which, as before stated, is incompatible with any nauseating effect. Curious as these views of the modus operandi of our medicine, may be in speculation, they become incomparably more interesting when applied to practice. Be it admitted, that they are correct, and we have, indeed, at once, rescinded all the prejudices and objections against the use of a class of remedies, confessedly of the highest utility. Nevertheless, it is not to be inferred, that any part of the preceding remarks is applicable to emetics, in the forming stage of fever-these operating entirely on a different principle, and their efficacy, when thus employed, is too well attested to be shaken or disturbed.\*\*

Besides the more purely febrile affections, emetic tartar is liberally prescribed in various diseases, and is thought especially to be adapted to the phlegmasiæ. Bleeding, and other direct evacuations, having been premised to a certain extent, the small doses of it are recurred to with great advantage. Exhibited to keep down arterial action, this it does, by promoting the discharges from the alimentary canal, or the surface of the body, and by a direct impression on the circulatory system. Combined with opium, or nitre, or calomel, in various proportions, its powers are vastly increased, and are rendered susceptible of a much more extensive and diversified application.†

Nor was less confidence reposed in this medicine, at one period, in active hæmorrhages. No doubt, from the respectable testimony which we have in its favour, emetic tartar was here useful. I have sometimes directed it, in conjunction with nitre, in febrile hæmorrhages, and have thought it highly serviceable. It is suited to all cases of this description, though more particularly to hæmoptysis.

Yet, it must not be supposed, that I mean, by the preceding remarks, to derogate from the value of ipecacuanha, or the sugar of lead, in hæmorrhages. My design is not to institute even a comparison between

<sup>\*</sup> Fordyce's Third Dissertation on Fever.

<sup>†</sup> Vid. Diaphoretics.

the three remedies. Each one has its own appropriate cases, which a skilful practitioner will always discriminate and select.

Notwithstanding all that has been said of the utility of antimonials, in dysentery, I must think, they are inferior to the ipecacuanha. It is stated, however, by Sir George Baker, that the result of an extensive experience with both medicines, in that disease, was entirely on the side of antimony. To the same point, we have also the authority of Sir John Pringle, though not so strongly expressed.\*

The deliberate opinion of such men, on a practical matter, is always entitled to great weight and consideration. But still, I believe they were deceived, or, at least, my own observations and reflections have conducted me to an opposite conclusion. The antimonials, in dysentery, are now administered on the same principle, and under similar circumstances of the disease, as ipecacuanha. Competent evacuations having preceded, they are then introduced in minute doses, so as to affect the stomach, and, through this medium, to relax the extreme vessels.

Emetic tartar is a favourite remedy in some of the exanthematous affections. No practice, indeed, is more general than that of giving it in small doses in the eruptive fever, where it has or threatens to be-

<sup>.</sup> It was the cerated glass of antimony, which Pringle employed.

come high and inflammatory. In a different mode, it is also prescribed to meet some other indications. When, for instance, the eruption is retarded, and, as a constant effect, the system greatly depressed by gastric uneasiness, vomiting actively by it, more than by any other article, relieves the stomach, restores its energies, and the eruption appears.

Without, perhaps, our having any distinct conception of their modus operandi, the antimonial preparations have long been much resorted to, in the cure of chronic diseases of the skin, and other superficial affections, as some of those proceeding from venereal contamination. They are, indeed, one of our principal remedies in the milder cases; and even confirmed lepra, has probably been as successfully managed by them, as by any other treatment. They are given, in minute doses, either alone, or in combination with the mercurials, and other articles, having a more direct affinity with the surface of the body. To produce any decisive advantage in these cases, they must be very long and perseveringly continued.\*

To create extreme relaxation of the system, by emetic substances, I have already remarked, is one of the expedients of surgery. The most distinguished application of this practice has been made in the reduction of dislocated limbs, where the operation proves difficult, from muscular resistance. By Mr.

<sup>\*</sup> Willan on Diseases of the Skin.

Wilmer, an English surgeon, several instances, derived from his own experience, or that of other practitioners, are adduced in confirmation of its efficacy. He recommends, that a very large dose of tartar emetic be exhibited, so as to produce an entire prostration of muscular power, and, during this state of relaxation, to make the attempt at reduction. He closes his paper on the subject, with some remarks on its superior efficacy over bleeding, purging, baths, fomentation, and the other means hitherto employed with similar views. He maintains, that his plan is not only more certain, but, that no mischievous effects ever result from it.\* Nevertheless, I am inclined to believe, that the best remedy, in these cases, is venesection ad deliquium animi, as practised, with such prompt and decisive results, by professor Physick.

In concluding my inquiries in relation to the antimonial preparations, it remains for me only to state, that, as an enema, the emetic tartar has proved, in my hands, a most powerful remedy, and one which promises hereafter to be of very diversified and extensive application. The first case in which I employed it, was to evacuate the stomach, to remove poison which had been swallowed.

After having unavailingly tried a series of the most active emetics, I directed, that half a drachm of the tartarized antimony, dissolved in a little water, should

<sup>\*</sup> Eclectic Repertory, vol. iii.

be thrown up the rectum, and, as I anticipated, a violent cholera morbus ensued, evacuating the entire alimentary canal, so much so, indeed, that the food, undigested, came by stool. I have, since this time, had frequent occasion to resort to the same means, though not under similar circumstances. It has been chiefly in cases of obstinately obstructed bowels, that I have repeated the experiments, which have commonly proved satisfactory.

My ordinary prescription for this purpose, is a scruple of the medicine. But, if this do not prove sufficient, the same, or an increased quantity, may be repeated in twenty or thirty minutes. Even in the dose of a drachm, I have sometimes used it. Where the effect is full and complete, an extraordinary degree of muscular debility takes place, which sometimes lasts for an hour, or more, without, however, producing, so far as I have observed, any permanent mischief.

Bearing in mind the fact, of the uncommon relaxation thus occasioned, I had early resolved to make a new practical application of it to the cure of tetanic, and other spasmodic affections, which I have since done, and with such success, in a case of locked-jaw, that I cannot forbear to indulge the hope, that, under this treatment, the disease may hereafter be divested of some portion of its terrors and mortality. I will not, on so narrow an experience as a solitary instance affords, venture to predict, that such will be the result. Enough, however, has been done, to inspire

confidence in the remedy, and to induce us, on future occasions, to give it a fair and decisive trial. To the adoption of this course, we are, moreover, encouraged, by the success of a similar mode of treatment, more than one case having been recorded, of tetanus being cured by the tobacco injection. Nevertheless, we are to recollect how diversified is the nature of this disease, and that no rational expectation can be entertained, of all its forms submitting to any one remedy, or system of practice. Of the case before us, all I could learn of the cause from the patient was, that the nerve of one of his teeth was very much exposed, and that, by touching it, he had often the most acute pain, with convulsive twitches of the muscles of the face. But, whether the attack was brought on by this sort of irritation, or by lying out in the cold, cannot be determined. By the man himself, it was ascribed to the former cause, though, I confess, my own opinion has always been otherwise, as it appeared exceedingly analogous to those cases which are notoriously excited by sleeping in a chilly and moist atmosphere.\*†

<sup>\*</sup> Incompatible substances—Mineral acids, alkalies, and their carbonates—earths, soaps, hydrosulphurets, and the astringent vegetable infusions. The latter, indeed, so completely decomposes the emetic tartar, that they are found to be antidotes to that article, and of them, an infusion of the Peruvian bark, answers best. Orfila's Toxicology.

<sup>†</sup> Norris's drops are a spirituous solution of tartarized antimony.

# EUPHORBIA IPECACUANHA.

Of this plant, a species of spurge, which is a native of our country, growing chiefly in the middle and southern states, I know very little as a medicine. It is said, however, on good authority, to be a certain and active emetic, and to have many of the other properties of the foreign ipecacuanha. On further and more careful examination, should this statement be verified, the article will prove an important addition to the materia medica. The root, in powder, is only used, in the dose of five or ten grains.

### NICOTIANA TABACUM.

The tobacco is not commonly placed in the class of emetics. I do not know that I am right in doing so. It is, undoubtedly, a very active emetic, but it has other properties, which give it as strong a claim to a different position in the materia medica. Not to mention its minor qualities, it is a narcotic, a diuretic, and a purgative.

The history of this plant is interesting. The production of a little spot, the island of Tobago, it has engaged the attention of the sordid, and enchanted

the witty and the wise. Every where its powers are felt, and its fascinations acknowledged. The Arab cultivates it in his burning deserts. The Laplander risks his life to procure it, amidst his snows. No privation is too severe to the seaman or the soldier, while he commands this luxury. Even polished man, with all the comforts of elegant society, cannot dispense with his cigar.

The *nicotiana* is so called, from M. Nicot, by whom the plant was originally carried into France, and *tabacum*, from the island in which it was first discovered. But, previously to its introduction by Nicot, it had been brought to England, by Sir Francis Drake, and rendered an article of fashionable use, by the influence of Sir Walter Raleigh, notwithstanding the solemn denunciations against it, by James I. and the ready submission of many of his court to this proscription. Evidently a narcotic, from this proceed all its charms. Like opium, it calms the agitations of our corporeal frame, and soothes the anxieties and distresses of the mind.

Considered in a medical view, its property, as an emetic, now first attracts our attention. By Cullen, and some other writers, its use is opposed, on account of the harshness of its operation. Certainly it exceeds all others, in the promptness, violence, and permanency of its impressions. But these very qualities, unpleasant as they are, enhance its value in many cases. Tobacco seems, especially, to be adapted to the evacuation of some poisons, and may

be exhibited, either internally, or applied to the epigastric region. It is recorded by the late professor
Barton, that he resorted to such an application of the
moistened leaves of this plant with complete effect,
to expel an inordinate quantity of laudanum, in a
case, where even the active emetics, in the largest
dose, would not operate, from extreme torpor of
the stomach. Many instances of poison, and particularly the corrosive poisons, are attended, however, with so much exhaustion of strength, that it
would seem perilous to recur to tobacco, lest, from
its own effects, the power of vitality might be still
further prostrated, or perhaps, irrecoverably extinguished.

Yet, in small doses, it does still appear, that it may be prescribed safely, and even with advantage. By a writer of respectability, we are told, that while at the cape of Good Hope, he had a number of Hottentots under his care, with intermittent fever. Being deficient in medicines, he resorted to tobacco, and found, as he says, six grains of snuff as effectual in exciting vomiting, as two grains of tartarized antimony. Nevertheless, the tobacco is preferred in minute doses, with a view to its nauseating effects. Thus administered, I have seen it exceedingly serviceable, in subduing the turbulence of some of the more furious shapes of mania, and, where it cannot be given, as often happens, under such circumstances, a poultice of it, externally applied, will answer nearly as well. But the cases in which it is more commonly used, remain to be indicated. These are, incarcerated hernia, and obstinate constipation of the bowels, from whatever cause produced. To meet these purposes, tobacco is, I suspect, always prescribed as an enema, and certain it is, that, in this way, it proves very effectual, and has the unimpaired confidence of practitioners.\*

Deducing his practice from the same principle, Mr. Earle, a distinguished surgeon, has recently treated several of the worst cases of retention of urine, with signal success, by this same remedy, and has added some confirmation to the fact, of which we were already apprised, that it might be beneficially applied in tetanus, and the kindred spasmodic affections.†

As an unguent or lotion, tobacco is much employed, especially in the popular practice of this country, to cleanse foul ulcers, to remove eruptions, as tinea capitis, and some other of these affections, and also, in the shape of cataplasm, as a discutient of indolent tumours.‡

<sup>\*</sup> For the manner of preparation, see Enemeta.

<sup>†</sup> Earle's Paper, Med. Chirurgical Transactions, vol. vi.

<sup>+</sup> Diuretics.

## SCILLA MARITIMA.

Of the squill, I have little to say, under the head of emetics. It is a plant, with a large bulbous root, resembling the tulip or onion, having an acrid, bitter taste, and scarcely any odour. Two species of it are used in medicine, the red and white squill, which grow on the shores of the Peninsula of Europe, and along the margin of the Levant, and the Barbary states. As an emetic, the squill is now nearly supplanted by articles of more value. Yet, in the dried state, eight or ten grains of it will produce vomiting, with tolerable certainty. The recent squill is not so active, even as twenty to four, owing to its containing a considerable portion of inert juice, which escapes in the process of exsiccation. Different menstrua are employed to extract the virtues of this article, and we have three officinal preparations of it, the vinegar, the oxymel, and syrup of squills, each of which is nearly of the same strength, and will puke with sufficient activity, in the dose of an ounce. Neither, however, is, at present, resorted to for this purpose, except to relieve the pulmonary system, when oppressed by phlegm or mucus, and here it answers, sometimes, very well.\*

<sup>\*</sup> Vid. Diuretics and Expectorants.

#### CUPRI SULPHAS:

VULGO

#### CUPRUM VITRIOLATUM.

There are several of the preparations of copper powerfully emetic, and, perhaps, the whole might be so managed, as to become so. The only one, however, which is retained in practice, is the blue vitriol, or sulphate of copper. By Cullen it never was employed as an emetic, but he thinks that it is well calculated to excite nausea, and that, in this way, it sometimes promotes the urinary discharge.

Much was, at one time, said, of the utility of our medicine in pulmonary consumption. It has been particularly extolled by an English writer, who, I believe, originally applied it to the treatment of this disease. The plan which he proposes, is, to excite vomiting in the morning, every day, for weeks together. But there is nothing new in the suggestion. The same course has often been pursued, on the supposition that, by it, the effects of a sea voyage might be attained.

Nor am I aware, that the blue vitriol has any property which entitles it to a preference in such cases. The only ground of superiority claimed for it, even by its warmest advocates, is, that it is more local in its operation, and hence does not produce the general

relaxation of the other emetics, and especially the antimonial preparations. They allege, that it is really little more than a mere evacuant of the stomach. If this be true, I should presume it not to be so appropriate to consumption, it having been pretty clearly shown, that emetics are serviceable in these cases, in proportion to their wide and pervading influence. By virtue of this it is, that they subdue arterial action, promote absorption from the lungs, equalize excitement, and re-establish that just balance in the various parts of the system, on which health depends.

Of late, the blue vitriol has been strenuously recommended, in this country, as an emetic, in cynanche
trachealis. It is affirmed, that it is far more certain
in its operation, which, if it be so, renders the medicine a valuable acquisition. But I am disposed to
doubt the accuracy of the report on the subject, and,
at all events, I can discern no good reason, on such
slender evidence, for adopting the medicine, to the
exclusion of others of tried efficacy in this disease.
But it is right for me, at the same time, to state, that
I have no knowledge of it as an emetic, never having
used it. The dose is from three to five grains.

Combined with an equal portion of the tartarized antimony, it constitutes the once celebrated dry vomit of Mariatt, so called from its being exhibited without drink.\*

<sup>\*</sup> Incompatible substances. Alkalies and their carbonates—sub-borate of soda—acetate of ammonia—tartrate of potasse—muriate of lime—ni-

# SUB SULPHAS HYDRAGYRI FLAVUS:

#### VULGO

### HYDRAGYRUS VITRIOLATUS.

Not a few of the preparations of mercury occasionally produce vomiting. This often happens with regard to calomel.

But as an emetic, the turpeth mineral, or sub-sulphate of mercury, is the only one used to any extent.

Either alone, or in union with squills, it is alleged by some writers, to do good in the putrid sore throat, and in some of the forms of dropsy. Of its utility, I am not prepared to speak from any personal experience. Emetics are, unquestionably, sometimes, beneficially prescribed in each of these diseases, and the turpeth mineral, as one of them, may be productive of the same effect. The highest reputation, however, which it has attained, is, in the dispersion of the venereal swelling of the testicle.

As an emetic, it is distinguished principally by the promptness of its operation. Exhibited in the dose of six or eight grains, it hardly enters the stomach, before vomiting commences. It would, on this account, seem to be fitted for the expulsion of poi-

trate of silver—acetate and superacetate of lead—oxymuriate of mercury—the preparations of iron—and all astringent vegetable infusions or tinctures. sons, and, indeed, to all cases where a speedy operation is demanded. But there is a two-fold objection to its being generally introduced into practice. It operates with violence, and is apt to induce a salivation.

## HYDRAGYRI OXY-MURIAS:

#### VULGO

#### HYDROGYRUS MURIATUS CORROSIVUS.

Corrosive sublimate, or muriate of mercury, was early employed as an emetic. Being, however, harsh in its operation, it soon came to be considered even as a dangerous remedy. By some practitioners, it has lately been revived, and applied, it is said, with great success, to the treatment of croup. Nevertheless, I would enjoin a caution against its use, and especially for children. Before we resort to so violent a remedy, we ought to have, for our justification, much stronger proof, both of its safety and efficacy, than we have heretofore received.

As relates to cynanche trachealis, I am persuaded we do not want it. Though, it is true, we often have to encounter great resistance to the ordinary emetics in this disease, the susceptibility to their impression may be awakened by venesection, and the warm bath, as formerly mentioned.

## ZINCI SULPHAS:

VULGO

### VITRIOLUM ALBUM.

The operation of this emetic is said to be exceedingly expeditious and complete, and hence it has been much appropriated to the evacuation of poisons.

Cullen, who is not friendly to any of the mineral emetics, except the tartarised antimony, does not much approve of the white vitriol, even in the particular case before us. To render its effects certain, says he, the dose must be large, and, if this is not soon thrown out, it is apt to continue a disagreeable nausea, or even vomiting, longer than is necessary. But there are other practitioners, of good reputation, who give us a very opposite account of the medicine. Thus it is stated by Mosely, whose experience was ample with it, perhaps more so than that of any other person, that "the white vitriol, besides being in all respects safe and innocent, has advantages over every other nauseating or emetic article. These are, that the patient is not harassed with its operation, for that is never violent, as antimonials sometimes are, and is, generally, instantaneous, and as suddenly over, always leaving the stomach strongly invigorated. Neither does it cause spasms in the viscera, nor any nervous affections, mischiefs often produced by the antimonials."\*

Consulting the results of my own experience, I should say, that the language of this writer is somewhat extravagant, and seems to be dictated by extreme partiality to the medicine, which the whole tenor of his work conspicuously evinces. But I would still concede to him, that Cullen, in his description of its effects, has run into the opposite extreme, and that, so far as I am competent to judge, it is, as an emetic, sometimes safe, and highly efficacious, though I confess that it has uniformly disappointed me, as an evacuant of poisons, to whatever extent exhibited.

By some practitioners, it is thought to evince, in pertussis, in addition to the property of puking, an antispasmodic tendency, and hence is much commended. Whether this be so, I have not observed with sufficient care, to determine. But of its efficacy, there would seem to be a probability, since, independently of other evidence, many of the nostrums which are in high repute in the cure of this disease, consist mainly of it.

Exactly for the same reason, it is much prescribed in asthma, and not less so, in the vehement attacks of

<sup>\*</sup> Mosely on Tropical Diseases.

spasmodic croup. The dose, in ordinary cases, is about ten grains, which, however, in certain emergencies, may be increased to a drachm, or more.\*†

\* Incompatible substances—The alkalies—earths—hydro-sulphurets—the astringent vegetable infusions, and milk.
† Tonics.

## SECTION VI.

## Of Cathartics.

These are medicines, which, by quickening the peristaltic motion, increase the evacuations of the intestines, and induce purging. The intimate connection which exists between the whole of the alimentary canal, and the other portions of the complicated structure of the animal machine, gives to them an extensive influence, and renders them among the most important means in the practice of our profession.

It is well known, that cathartics differ very materially, in their degree of activity, some operating mildly, while others are more violent in their effects. The former have been usually distinguished by the title of *laxatives*, and the latter by that of *purgatives*, the harshest of which are called *drastic* purgatives.

Nor is this the only difference observable in this class of medicines. Most cathartics act through the entire extent of the bowels, while some few seem to be restricted to the rectum, or extremity of the tube

only. There is a section which operates speedily, and another, which is exceedingly tardy and sluggish. We have some, which always produce nausea, tormina, and tenesmus, and others, that, however actively they purge, never cause any such uneasiness.

In every age, cathartics have been freely employed. Like emetics, they are found, as remedies, among the rudest and most uncultivated savages. But, though thus early and generally resorted to, it appears to me, that their utility has not always been clearly perceived, or their administration properly directed.

When confidence was reposed in the tenets of judicial astrology, it was customary to prescribe cathartics, at stated times and seasons, under the impression, that they were more beneficial at particular stages of the moon, or in certain conjunctures of the planets. Even at the present moment, the relick of this preposterous notion exists to a considerable extent, among certain descriptions of people, and proves, in some instances, a very serious impediment to rational practice.

Nor were the views of the humoral pathologists, in relation to this subject, hardly more correct, or the principles on which these medicines were directed, less absurd. Conceiving, that by a process analogous to fermentation or putrefaction, a peccant matter was separated from the mass of blood, purges were given, with the intention of expelling it out of the system—and, as each fluid was conjectured to require its

own appropriate evacuant, we had introduced into the nomenclature of our science the uncouth terms, cholagogues, phlegmagogues, and menalagogues. The views to which I have alluded, engendering these ridiculous notions, though long declining, may still be traced, in the reasonings and practice of many, who have received their impressions from the earlier writers. Nevertheless, as respects the use of this class of medicines, we have, indisputably, attained to greater accuracy, whatever may be the obscurity in which their precise modus operandi may continue to be involved.

The primary and most obvious effect of cathartics, is an evacuation of the bowels. These are liable to various accumulations of a morbid nature, which, remaining, disturb health, and frequently excite or confirm disease. Cathartics, in relieving the bowels, under such circumstances, extend also their operation upwards, and bring down, in many instances, the contents of the stomach. To this may be added, that the strong impression which they impart to the liver and pancreas, excites these glands to invigorated efforts, and the result is, a vast increase of their respective secretions. It is in this way, that congestions are removed, biliary calculi dislodged, and jaundice, and other affections from organic obstruction, cured.

Cathartics have, moreover, a wider operation, in which the circulatory system is embraced, and, as a leading effect, arterial action greatly diminished.

This they do, by stimulating the exhalent vessels on the surface of the intestines, and the very copious effusions which take place, are so much detracted from the circulating mass. Thus it is, that they subdue the pulse, equalize excitement, and render such important service in the management of the febrile and inflammatory cases. Yet, it is not to be dissembled, that several writers, and some of these of high authority, have denied, that purging exercises any material influence over the blood-vessels. The arguments, however, by which this extraordinary opinion has been attempted to be maintained, are so slender and frivolous, as really to deserve no serious examination. All which is necessary, in order to its confutation, is, to recollect the extent of the intestinal canal, the number of exhalents opening into it, the prodigious quantity of fluid matter discharged by stool, and the depression of the pulse, which uniformly takes place, as a direct consequence of these evacuations.

To this diminution of arterial action, we, indeed, owe the activity with which absorption is promoted by these remedies. Confessedly we have none, not even diuretics, which, in many cases, more conspicuously display this property. But, cathartics, on another principle, conduce to the reduction of the pulse. It is a law of the circulation, sufficiently admitted, that, if depletion be made from any one set of vessels, the current of the circulation will be directed to these, and, of course, the blood diminished

in other parts. Cathartics oceasion this revulsion, and hence, in part, their utility in some of the diseases of the skin, of the head, and of the great viscera dependent on undue determination of blood.

From what has been said, it follows, that, while the action of this class of medicines is undoubtedly stimulant on the stomach and bowels, all their remoter and more permanent consequences are unequivocally sedative, agreeably to my definition of the term, by which I mean, whatever abates the vigour of the circulation, and lessens general excitement. Medicines so pervading in their effects, must be calculated to meet a variety of indications. But, before I proceed to enumerate the diseases to which they are applicable, I shall lay down, more precisely, the rules for their administration.

- 1. As in the case of emetics, the medicine is to be given on an empty stomach, and in the morning, or at bed time. By doing this, we prevent its being rejected, and secure a much more easy and effectual operation. Exactly for the same reasons, the intermission or remission of fever is to be preferred.
- 2. Let it be recollected, that there are cathartics of very different properties and modes of operation, and carefully adapt the medicine to the circumstances of the case.
- 3. Nor should it be forgotten, that the drastic cathartics operate, not only more leniently, but also vol. 1. 23

more completely, when combined with some one of the milder purgatives.

- 4. To promote the action of this class of remedies, as well as to obviate griping, warm beverages are to be freely taken after the first discharge, such as chicken water, or gruel, or molasses and water.
- 5. To check hypercatharsis, most of the means prescribed to arrest the inordinate action of emetics may be employed. The best, however, is laudanum, largely given per anum.

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## SECTION VII.

## Of the practical application of Cathartics.

In noticing the several species of fever, in which purgatives are deemed useful, I may again remark, that, in the treatment of intermittents, it has, of late, become very much the custom to prefer them to emetics, as evacuants of the alimentary canal, preparatory to the reception of the bark, and other tonics. But this preference is owing, more to motives of convenience, than to any conviction of their superiority. Emetics are still considered, in the worst forms of the disease, as indispensable. An adequate impression, however, being made in this way, or where the case is mild, purging may be advantageously substituted, and particularly, by the active articles, such as strongly affect the chylopoietic apparatus.

Nor is it less serviceable in remittent fevers. Cathartics are employed here, as well to evacuate bile, which, from the highly excited state of the liver, is perpetually accumulating, as to keep down the force of the blood vessels, and to obviate exacerbations of the disease.

Continued bilious inflammatory fevers are so closely allied to the remittent, in their causes, pathology, and treatment, that what I have said of the one, will equally apply to the other form of the disease. But I shall add, that, for the purposes mentioned, the purging, in many instances, is required to be renewed daily, and indeed, for a time, to be kept up without intermission.

Meaning, on a future occasion, to notice, more in detail, the course pursued in our yellow fever, I shall now be content to state, that, acting at first, under the impression of its being a highly aggravated bilious fever, it was universally the practice to purge, even with the drastic articles, most steadily and copiously. Taught, however, at length, a more correct pathology of this epidemic, by dissections, and a closer examination of its phenomena, this treatment was, in a great measure, superseded, and the remedies substituted were such as are suited to a very malignant species of gastritis, of the character of which, is this disease. The use of purgatives henceforward was limited pretty much to moderate evacuations in the commencement, and to the preservation of the bowels in a soluble state, in the subsequent stages, and which indications were met by the mildest articles.

Concerning our more recent winter epidemic,\* it is

<sup>\*</sup> Pneumonia typhodes, or spotted fever.

not possible, within a limited space, to indicate the precise practice, so diversified were its aspects in the several sections of the country, and, consequently, so different the means employed. As it occurred in this city, and still further north, purging was rarely found expedient, though, in the southern states, where it partook of a bilious diathesis, the freest evacuations from the bowels were demanded. Notwithstanding a contrary opinion has been strongly expressed by some physicians, I am persuaded of the rectitude of this practice, having witnessed the necessity of it among those members of the medical class, natives of the south, with the disease, under my care, who retained, in any degree, the tendencies of their climate.

Into the treatment of typhous fever, purgatives now enter largely. To the work of Hamilton,\* to whom the credit of having introduced the practice is due, I must refer for all the illustrations of it by cases, and for many other interesting details. This fever had long been managed by emetics, in the onset, and afterwards by the mild antimonials, and other nauseating medicines, with a design of maintaining diaphoresis. Not much encouraged by the success of this practice, he resolved on the innovation just stated, and the experience of his new plan, has entirely persuaded him of its superior efficacy. The usefulness of purgatives, he as-

<sup>\*</sup> Hamilton on Purgatives.

cribes "to their acting through the whole extent of the intestines, and to their moving and carrying off feculent matter, rendered offensive and irritating by constipation, and the changed nature of the fluids, secreted into the intestinal canal." To accomplish this purpose, he gives a purgative nearly every day, and of a very active sort, such as calomel, or jalap, or both united. While thus attached, however, to copious purging, he by no means excludes such other remedies, as the fluctuating state of the disease may exact.

That this practice is sound, seems to be very generally admitted: and, under this impression, it has been extended to puerperal fever, with no less success. Early and thorough evacuation of the bowels constitutes the chief system of prophylaxis, and the same, aided by venesection, the measures of cure in the early stage of this disease, as recommended by the latest and best authorities.

Much may be expected from cathartics in the exanthematous fevers. Next to cool air, early purging is found, in small-pox, most to allay heat, reduce excitement, and lessen the crop of the eruption. Except venesection, I know of nothing so beneficial in measles, as the milder laxatives. They occasion a depletion by the bowels, which commonly mitigates or prevents the pneumonic symptoms,—and the distressing diarrhœa incident to the sequel of the complaint, is certainly not so apt to take place. In erysipelas, where the inflammation runs high, every one

is acquainted with the utility of purgatives. The evacuations ought to be copious, and, in the progress of the attack, frequently induced: notwithstanding which, the loss of blood will sometimes be necessary, and, on account of the very heated sensation on the surface, topical application must be used.

Not less are they employed in scarlatina. "Many years ago," says a distinguished practitioner, "when the prejudices against the use of purgatives were more decided, and more prevalent than they are at this time, I ventured to prescribe them. My doing so was, indeed, the necessary consequence of the advantage I had experienced from the same remedies in typhus. I had learnt, that the symptoms of debility which take place in this species of fever, so far from being increased, were obviously relieved by the evacuation of the bowels. I was, therefore, under little apprehension from them in scarlatina. I have never witnessed sinking and fainting, as mentioned by some writers, and so much dreaded by them, neither have I observed a revulsion from the surface of the body, and consequent premature fading, or, in common language, striking in of the efflorescence, from the exhibition of purgatives."\* Having previously vomited, the practice, as here described, with the occasional introduction of the lancet, is undoubtedly best adapted to the disease, as it oc-

<sup>\*</sup> Hamilton on Purgatives.

curs in this section of the United States. To me, it has appeared to effect a cure in a more summary manner than any other mode of treatment, and likewise to afford the best means of preventing the dropsical swellings, and other derangements of health, or of removing them, when, by negligence, or unskilfulness, they have been permitted to take place.

Nor is it to the acute affections of the surface, that these medicines are restricted. They have, on the contrary, even from the remotest times, been much employed in all chronic eruptions. In some of these cases, and especially such as are of a pustular nature, they undoubtedly prove efficacious, and much more frequently in children, than persons further advanced in life.

Many of the eruptions, however, are purely local, and being situated on the very verge of vitality, are little, if at all, influenced by general or constitutional impressions, and, therefore, are more advantageously managed by direct applications to the part on which they are seated.

Diversified as are these affections, it would be impossible, within the narrow limits to which I am unavoidably confined, to deliver, with any sort of precision, a system of practice, applicable to all the cases, and I must, therefore, be content to refer to the works of established reputation on these subjects, and particularly to Willan's and Bateman's treatises on cutaneous diseases.

It is hardly necessary to mention, that cathartics constitute an important part of the treatment of the morbid states of the alimentary canal itself. I shall first speak of constipation. This is a relative term. While a large majority of the species require, for the preservation of health, a daily evacuation, there are some who are said to have passed days, weeks, months, and even years, without experiencing, from the interruption of this natural function, any very serious inconvenience. Cases to this purport are recorded, and a large collection of them may be met with in Haller's great work on physiology. Yet such a habit is generally found to be incompatible with the enjoyment of health, and is marked by head-ache, vertigo, nausea, fœtid breath, offensive excretions, with numberless other symptoms of a highly unpleasant and even disgusting nature.

Numerous causes produce this condition, which, however, may be, perhaps, arranged under the two heads, of deficient irritability of the intestines, and a suppression, or vitiation of bile. Each of these states can sometimes be removed by purging; and in the first, having quickened the peristaltic motion by stimulant cathartics, we are next to resort to the milder laxatives. Mercurial purges answer best, in the second, by the peculiar impulse which they impart to the liver, correcting its secretions; and when they fail, a slight salivation should be induced, or, which does very well, the blue pill, as an alterative.

The bowels often have their discharges interrupted by spasmodic constrictions, denominated colic. Without at present engaging in the inquiry relative to the varieties of this disease, I shall state, that in all such cases, cathartics are of indispensable utility. It is customary here, to direct the more active articles, and in liberal doses; but it is important to know, that, in some instances, the most lenient are to be preferred. There is a certain relation between the power of a medicine and the tone of the system, which would seem sometimes to be graduated with extreme nicety and precision. What operates at one time, we find to prove inert at another, under apparently similar circumstances, and in the same person. This is owing to the want of harmony in the case.

In a directly opposite state of the bowels, purgatives are not less demanded. No physician is ignorant of their utility in dysentery, in the several forms of cholera, and, in some instances, even of diarrhoa. As to dysentery, it seems to be a maxim settled, and very much by common consent, that they are to be continued till the evacuations assume a natural appearance. As a general rule, this is unquestionably correct, though in this form of intestinal disease, proceeding, as it sometimes does, from mere irritation, the purging may be intermitted sooner, and anodynes recurred to with very great advantage.

Cholera is somewhat differently managed. The opiate, and other soothing measures, as the warm bath, or fomentations, are first employed, and next,

evacuants of the bowels, to carry off the excessive accumulations of bile. The same plan may often be successfully pursued in cholera infantum, though, more generally, we are compelled to premise purging.

Of diarrhea, the case which calls for purgatives is where it arises from acrid bile, or vitiated intestinal secretion, or indigestible food, or any other cause irritating the bowels, and provoking them to discharges of preternatural frequency.

Nearly as much as any diseases, are the phlegmasiæ treated by purging. Of the more inflammatory of this order is acute rheumatism,\* and, of course, cathartics, among other evacuants, are useful. Notwithstanding, however, the most judicious treatment, it will sometimes continue without any considerable abatement for weeks, and even months. The phlogistic diathesis of the arteries is here kept up, while the strength in general is so much reduced, as utterly to forbid the further loss of blood. Even if venesection be admissible from the degree of vigour remaining, it only has the effect, as I have often remarked, of augmenting the excitability of the vessels, and thereby aggravating the mischief. Under cir-

<sup>\*</sup> Such is the established doctrine on the subject. But it is, nevertheless, not true, that rheumatism is a purely inflammatory disease. There is in the case great increase of action, requiring the freest use of all the depleting means for its cure, but it is an action of a peculiar nature, having none, at least, of the characteristics of genuine or phlegmonious inflammation, either in its progress or terminations.

cumstances like these, active purging occasionally proves of great advantage. It seems, more than any other remedy, to quiet the mobility of the arteries, and to diffuse excitement over the system, which, in this case, is chiefly concentrated in the blood vessels.

Consulting the history of diseases, we shall often discover certain relations between them, which will lead us to the most curious and interesting practical conclusions. Every one who has much clinical experience must have observed, how intimate is the connection which subsists between rheumatism and the acute affections of the intestinal canal, as cholera, diarrhæa, and dysentery. The affinity indeed is so striking, especially with dysentery, that this disease has been maintained, on no slender evidence, to be a rheumatic state of the bowels. Be this, however, as it may, we learn that they frequently alternate, or that the affection of the limbs is thrown on the intestines, or reversely; and by this translation, the pre-existing complaint for the time, is relieved.

Nothing, indeed, is much more common than to see rheumatism suspended, or even cured, by diarrhæa, spontaneously induced. The course which nature thus points out, I have often imitated, in the more obstinate and protracted cases of the disease, and have had much reason to be satisfied with the results.

The alliance is very close between gout and the preceding disease, so close, indeed, that they cannot always be discriminated. It will be found, that ac-

tive purging, in regular arthritis, is a very ancient practice, and must, indeed, have been even violent, as the articles then in use, were of a severely drastic nature. In fact, it prevailed, with no interruption, till prohibited by Sydenham, on purely theoretical prejudices, it being, he observes, "an inviolable law of nature, that the matter of the disease should be thrown out by the extremities, emetics and cathartics will have no other effect, than that of bringing back the offending matter to the bowels."

Enslaved by his high authority, we have, ever since, with some limited exceptions, nearly abandoned the use of purgatives, and been content, to let the attack spontaneously exhaust itself. To envelope the limb with flannel, and to urge a patient endurance of the pain, constitute, proverbially, the amount of what is at present done in a paroxysm of gout. The example of Sydenham has been, in this case, exceedingly mischievous, having led to the desertion of a practice, which, if judiciously applied, is, in my opinion, not only safe, but peculiarly calculated to overcome this most distressing disease. Interesting as would be the inquiry, it is not allowed me to indulge in any minute, or lengthened disquisition concerning the nature and causes of gout. My impression, very concisely stated, is, that this disease, if not originating in, has a most intimate connection with, certain states of the alimentary canal. I am inclined to this view of the subject, among other reasons, from having so frequently observed gout to commence with those symptoms, which denote a depraved condition of the stomach and bowels. The principal indications of an approaching attack of the disease, are, almost invariably, flatulence, sour eructations, indigestion, depraved appetite, nausea, strong sensations of internal heat, and obstinate constipation, or a laxity of the bowels.

It may seem, at first, somewhat extraordinary, that I should place in the primæ viæ a disease, the apparently regular, and certainly ostensible seat of which, is in the extremities. Were it permitted me to extend such speculations, I could easily shew, that there is nothing irrational in the hypothesis, or, which is not illustrated and confirmed, by many analogous cases. Whether the opinion I have ventured to advance on this subject be correct or not, it may be confidently stated, that the practice it dictates, is sound, and fully warranted by experience.

I have now, for many years, habitually employed purgatives in the paroxysms of gout, and with unequivocal advantage. Not content with simply opening the bowels, I completely evacuate, by active purging, the entire alimentary canal. This being accomplished, all the distressing sensations of the stomach which I have mentioned, are removed, the pain and inflammation of the limb gradually subside, and the paroxysm, thus broken, speedily passes away. To effect these purposes, however, it is often necessary to recur to the remedy repeatedly.

Whatever may be the difference of opinion among practitioners on other subjects, there seems to be the most perfect unanimity, as to the indispensable necessity of purging in the complaints of the head.

Commonly, it is maintained, that the proximate cause of apoplexy consists in a compression of the brain, produced either by congestion, or an extravasation of blood. That such appearances often exist, dissections have abundantly shown. But, whether they be the effects of disease, primarily seated in the brain, or produced secondarily, by sympathy with the stomach, is not so manifest. Of late, it has been held, by the pathologists of the continent of Europe, more especially, that apoplexy is really a gastric affection, and, in support of this hypothesis, they have argued with great plausibility. Whether we concur, or not, in this view of the subject, to the full extent, it must be conceded, that certain impressions on the stomach are capable, and do very often excite the apoplectic state. Evidence to this point may be collected in the history of those cases of the disease, which are brought on by the narcotic poisons, by worms, by a load of indigested matter, and by various depraved states of this viscus, the consequences of excess in eating or drinking.

Curious as this may be, as a matter of speculation, I do not know that it leads to any practical difference, so far, at least, as respects the employment of cathartics. Next to venesection, this class of remedies constitutes, in the hands of most practitioners, the leading ingredient, not only in the management of this, but of all the acute disorders of the head. Yet, to be effectual, the purging should be exceedingly copious, and induced by the drastic medicines. Evacuations of this sort, will be still more required where we have reason to suspect the cause of the attack to be accumulations in the stomach, though, in these cases, emetics are to be preferred. The pathology of palsy, is the same as that of the last disease. They are, indeed, reciprocally, cause and effect, or convertible cases-and palsy, perhaps, as often runs into apoplexy, as apoplexy into palsy. Nor does the practice differ, at least, as to the use of cathartics. My mode of treating the disease originally was, by bleeding, blistering, and stimulating embrocations, with the pretty free use of incitants or tonics.

Dissatisfied with this course, I have, for many years, abandoned it, and rely, now, almost exclusively, on evacuating the bowels, by the drastic purgatives. Of the propriety of the change, I can entertain no doubt, the success having exceeded my most sanguine expectations. To do justice to the practice, it should be steadily persisted in, and aided by such remedies, as the cases may, from time to time, demand. Of the auxiliary means to which I allude, there is none so important as a repetition of blisters, not to the affected limb, for this is comparatively useless, but to the back of the neck, or, what answers still better, caustic issues on the same part, or be-

hind the ears, or on the top of the head. These drains must be kept freely discharging, by irritating dressings.

I have already intimated my sentiments of the nature of the disease called hydrocephalus internus. Whatever may be our speculative differences on this point, no one disputes the great efficacy of purging, in the commencement of the complaint. In many instances, when this state of the brain was suspected, I have seen the disordered stomach, the dilated pupil, the comatose tendency, and other alarming symptoms, removed by very copious evacuations from the bowels. Constant purging will, indeed, be found more effectually to control the disease, than even venesection.

After these remarks, I need hardly add, that purgatives are entitled to our highest confidence in phrenitis, a case, which partakes so much of the nature of hydrocephalus, in its early stage.

To mania, in all its varieties and stages, this class of remedies has been immemorially applied. The ancients managed the disease, and especially melancholia, chiefly by purging. Effectual as it may be here, it is still more so in the furious shapes of insanity. But in these mental affections, we frequently meet with cases, distinguished by an insensibility to impressions of every description, so much so, that even the most copious venesection produces no effect. The vessels, under these circumstances, acquire a

certain habit of perverted action, which is not at all influenced by the loss of blood.

Continued nausea, or occasionally active vomiting for several days successively, will sometimes arouse the system out of its indolence or torpor—and when this fails, I have often derived the most signal advantage from large doses of drastic cathartics, so as violently to gripe and otherwise harass and torment the bowels. This practice is also well calculated to subdue the ferocity of the disease.

Being fully established, ophthalmia, even in its simplest forms, proves a very unrelenting case. That purging is useful in the early shape of it, is sufficiently understood and practised. But it may not be so generally known, that when all other depletory means have failed, the daily exhibition of active purgatives for a week or more, will succeed.

To comment on each of the series of visceral inflammations individually, would be a tedious repetition of the same observations. Yet there is one of these affections, in which it may be proper to insist more particularly on the utility of purging. From the enormous size of the liver, the vast flow of blood to it, and its peculiar structure, inflammation here is exceedingly rapid in its career, and often requires, to arrest its progress, a concurrence of all our powers. In aid of venesection, which, in its fullest extent, is indispensable, the administration of brisk cathartics forms a principal part of the treatment. They reduce the force of the circulation in the way before mention-

ed, and obviate those congestions, which so much aggravate inflammation.

Of the use of purging in hæmorrhage, I have little to say. Excepting in epistaxis, where, as in all other determinations to the head, it proves efficacious on a principle sufficiently intelligible—and, in one form of hematamesis, hereafter to be noticed, it is not urged farther than merely to keep the bowels in a laxative state.

The diseases arranged under the class of neuroses, or, in other words, the nervous and spasmodic affections, will next engage our attention, and I commence with chorea sancti Viti. Conformably to my own experience, which of course cannot be very extensive, in a disease of such rare occurrence, I should say, that there is scarcely any chronic affection of long standing, that yields more readily to any plan of treatment, than chorea to purgatives. It would seem, indeed, that the practice has acquired much confidence, and very widely prevails. The medical journals of Europe, contain many cases of cures of this disease, effected by purgatives. Chorea has two stages, and in the first, while the intestines still retain their sensibility, gentle purgatives, repeated as occasion may require, will effect a cure, or rather prevent the full formation of the disease. But in the second, a more careful attention is necessary. Cathartics, the most active, must be here given in successive doses, in such manner, that the latter doses may support the effect of the former. The impression once made on

the bowels, is never to be permitted wholly to subside. Without this, relapses are apt to take place, and we lose all which we had previously gained. Nor are we to trust exclusively to this one remedy. The disease, if not inflammatory, is often connected with a plethoric state of the vessels, and calls for the lancet. To bleed freely in it, was the practice of Sydenham, the propriety of which has been amply corroborated, as well by my own, as the experience of other practitioners. Topical evacuations, by leeches or cups, from the head, are also in some cases demanded, and, to confirm the cure, a course of tonic remedies becomes expedient.

In epilepsy, I have, also, used purgatives with the happiest effects. This practice, if not original with me, has never, perhaps, been pushed to the same extent by any one else. To its adoption I was led, not less by my theoretical views of the disease, than by the total failure of the ordinary plan of treating it by tonics. Nor could I help being encouraged to pursue it by the great advantage which I had derived, or seen derived, from the same practice in several of the kindred affections. Epilepsy, in common with all these cases, is connected with a certain mobility of the system, which would seem to proceed, if not always, at least very generally, from irritation in the alimentary canal. Thus, among a variety of other causes, it has been brought on by worms, by the sordes of dysentery, by the pain of dentition, by the narcotic poisons taken into the stomach, by intoxication, by repletion from excess in

eating, by acidity or flatulence, by eruptions repelled from the surface, and, finally, by obstinate constipation. When, therefore, we suspect the disease to be seated in the alimentary canal, we must look to emetics or purgatives as the chief means of cure. The circumstances under which emetics are proper, I have already indicated. Determining on the use of purging, it will not do merely to evacuate the bowels. Cathartics, on the contrary, must be repeated day after day, without interruption, unless absolutely forbid by circumstances. By continuing this course for many months successively, I have cured several cases of the disease completely, and afforded considerable relief in some others. My success, indeed, has been such, that I am almost encouraged to hope, could we get our patients to persevere in the use of this remedy, the disease would become incomparably more manageable than it has hitherto been.

Let it not, however, be understood, that I would limit the treatment of epilepsy only to purgatives. Even those cases which are most strictly primary affections of the alimentary canal, uniformly require the aid of other remedies. To remove the state of plethora, so often incident to the disease, venesection, as well as topical bleeding by leeches, or cups to the head, becomes necessary. Nor is it less important, under such circumstances, to impose the strictest regulations with regard to diet. The lowest and least stimulating articles, as vegetables only, or bread and water, I have sometimes found absolutely

indispensable in conducting the cure of the disease. But though, probably, a large majority of the cases of epilepsy, arise from derangement of the alimentary canal, there are some which may be traced to organic affections of the brain. These present much greater difficulties in the management, and most generally will prove to be altogether incurable.

Of the use of purgatives in hysteria, I have not much to say. As its name imports, this disease has been supposed to originate in the uterus. Notwithstanding what may be urged so plausibly to the contrary, I cannot help suspecting, that this received opinion, with respect to its pathology, is as unfounded, as the practice deduced from it has proved unsuccessful. Like all the rest of what are denominated nervous affections, this seems to be often intimately associated with certain morbid conditions of the stomach and bowels. The symptoms denoting this connection, in the present case, are violent pains in different parts of the alimentary canal, hiccup, sour eructations, flatulence, indigestion, constipation, vomiting or purging, which usually precede a paroxysm. In these views I am supported by the results of my own practice, and the concurrent experience of some very distinguished authorities—and by Hamilton, especially, who, to illustrate, as well as to vindicate this mode of treating the complaint, has collected a number of cases, which will be found in the Appendix to his work.

That purging alone will always cure hysteria, I am by no means prepared to assert. Though I have often rendered essential service by the remedy, it has not been my custom to trust to it exclusively. Many of the cases of the disease are attended with a full state of the vessels, and require bleeding; while others seem, from the commencement, to call for the pretty free exhibition of stimulants and tonics. My practice is, to evacuate the stomach and bowels by the steady exhibition of cathartics so long as there appears to be a necessity for it. Before this is effected, I have sometimes had occasion to repeat them every third day for a very considerable period-but commonly, they may be omitted in two or three weeks. The alimentary canal being thus relieved, tone may be restored to the system by combinations of the fœtid gums with the chalybeate preparations, or by the bark and other tonics, as I shall hereafter mention.

Tetanus, the last disease of this class, on which I shall at present make any remarks, is divided into two kinds, the idiopathic, and symptomatic. The first is produced by general causes, and the second results from wounds, or other injuries. Tetanus of the former species, I cannot help considering as merely an acute and highly aggravated shape of some of the preceding affections, or as may happen of rheumatism. Like these complaints, tetanus originates in a variety of causes, though, by whatsoever it may be produced, the attack is, for the most part,

ushered in, and accompanied, by the strongest indications of the alimentary canal being chiefly affected. Even where it is occasioned by a wound, much anxiety and distress are immediately felt at the præcordia, and sickness of stomach, and spasms of the bowels soon follow. But the irritation of a local injury, is only one of the causes of the disease. Tetanus is also excited by the vicissitudes of heat and cold, by exposure to marsh miasmata, by exhaustion from over exertion, by worms, by the acrid matter of dysentery, or other sordes, by the bites of venomous reptiles, by powerful stimuli acting on the stomach, as the stramonium, camphor, hemlock, ardent spirits in excess, and, lastly, by constipation of the bowels. Granting this history of the disease to be correct, the propriety of actively evacuating the alimentary canal becomes obvious,\*

In one variety of tetanus, the utility of purging is indisputably established. My allusion is to trismus nascentium, or that spasmodic affection which occurs in the first days of infancy, in consequence of a disordered state of the stomach and bowels, from the retention of the meconium, a congenital accumulation of acrid and offensive matter. Nor are we entirely destitute of direct evidence of the efficacy of the purgative plan, in the disease when existing un-

<sup>\*</sup> That idiopathic tetanus may appear as an aggravated form of epilepsy, hysteria, &c. there can be no doubt: and by exposure to cold, and especially at night, a state of rheumatism, with a general rigidity of the muscles, is a common occurrence.

der other circumstances. Cases are recorded by Hamilton in his work, and by many contributors to the periodical journals, of a character the most conclusive and irresistible. The earlier authorities, and particularly the writers on the diseases of tropical climates, might also be cited in favour of copious purging in tetanus, when originating, as they state it frequently does, in loaded and oppressed bowels, or, from acrid or indigestible matter received into the stomach.

I once met with a case of confirmed tetanus in a boy, produced by a collection of cherry stones in the rectum, and another from ascarides. They both gave way almost immediately on the cause being removed: and surely nothing can prove more strikingly, the intimate connection between such spasmodic affections, and primary irritation in the alimentary canal, than these facts.

With this I conclude what I have here to say, on the application of purgatives to the cure of the nervous and spasmodic affections. My observations, though copious, have been general, and, perhaps, on this account wanting in perspicuity, and that nice discrimination, so much required in practice. This, however, was unavoidable. It would have been inconsistent with my province, to have expatiated more on practical points, or to have descended further into the details of clinical instructions. My chief object has been, to point out some new views relative to these troublesome affections, which I honestly believe to be true in speculation, and which I know, as well from my own experience, as that of others entitled to confidence, will be found just and useful in practice.

Considering the close analogy between the opinions I have delivered, and those contained in the work on purgatives, to which I have so frequently referred, it may seem, that candour requires, that I should make a distinct acknowledgment, of my having borrowed them from that source. But such is not the fact. More than twenty years ago, and very early in the progress of my professional studies, I read a paper before the Medical Society of this city, on the connection of the alimentary canal with the rest of the body, which embraces this very pathology, and, as an obvious deduction, precisely the same modes of practice. But, though I must assert my own claims to originality in this respect, I am not the less sensible of the obligations due to the distinguished character, who has propagated, and established, by the weight of his high authority, one of the greatest improvements which practical medicine, in my estimation, has of late received. To those who are not conversant with the reputation of the author of the work on purgatives, it may not be uninteresting to be told, from my own personal knowledge, that, as a practitioner, he unites to the quickest perceptions, and the soundest judgment, the accumulated experience of nearly half a century, acquired from private practice, and by an attendance in one of the most extensive, and, perhaps, the best clinical school in Europe.

Evacuations by the bowels are deemed of the greatest service in dropsy. Not a few practitioners, indeed, rely almost exclusively on purgatives in these cases. By Sydenham they are recommended to be employed every day, unless prohibited by the debilitated state of the patient; and this is, undoubtedly, sound practice, though it ought not to be resorted to indiscriminately. Dropsy is connected with very opposite states of the system, and requires to be treated in different modes. Every practitioner has seen it associated with fever, and no inconsiderable degree of even inflammatory action. Exactly as the case assumes this aspect, does it indicate the use of the lancet, the saline purgatives, and other depletory measures. In the selection of cathartics, it is common to prefer the drastic species, or what were formerly called hydragogues. Medicines of this character are mischievous, under the circumstances mentioned, and can be only advisable, where the alimentary canal is torpid, the habit phlegmatic, without fever, or local visceral disease. That dropsy is sometimes a febrile affection, attended by great fulness and activity of the arteries, is no new opinion, though it has recently been claimed as such. The doctrine is distinctly laid down by Stahl, in his chapter on hæmorrhage, and, subsequently, by Grapengiesser, in his dissertation "De Hydrope Plethorico."\*

<sup>\*</sup> Vid. Duncan's Commentaries.

Dropsy, however, is, perhaps, not less frequently a disease of feeble action, the consequence of a debilitated and exhausted system, or of a highly disordered state of some one of the principal organs, as the spleen, liver, &c. Cases of this description, instead of admitting the free use of purgatives, exact, for their cure, a combination of tonics, with the more stimulating diuretics, and, sometimes, when associated with visceral disease, a temperate exhibition of mercury. Of the several forms of dropsy, however, anasarca and ascites are the only ones, in which purgatives are employed. To hydrothorax, they seem wholly inapplicable, except sometimes in the very commencement of an attack, as they do not here promote absorption, and are apt to increase debility, while the dyspnœa, and other distressing symptoms are aggravated.

Marasmus is a complaint more particularly confined to children, and generally makes its appearance soon after weaning. It had long been customary, owing to the symptoms of debility, to treat it by steel, bark, and other tonics. The result of the practice showed its impropriety. In every case of the disease coming under my care, I have, from an impression of its superior efficacy, pursued the purgative plan, and my success has been such, as to inspire me with much confidence in it.

Marasmus has been imputed to worms, and to obstruction of the mesenteric glands. Both of these causes may produce it, though I am disposed to think, that it has most commonly its origin in a torpid or weakened state of the alimentary canal, with which the whole of the chylopoietic viscera sympathize. To this conclusion I am led, not less by the external phenomena, or signs of the disease, than by the appearance after death. Dissection shews the intestines filled with black fætid sordes, or impacted mucus, the liver much enlarged, and the mesenteric glands tumefied. The intestines being thus loaded by these foul collections, the absorption of chyle is prevented, and languor, from inanition, ensues, attended by various derangements. But, whatever theory may be adopted in this case, the practice is necessarily the same. If the disease has its origin in worms, purgatives, which are among our best anthelmintics, will be useful. If it is produced by a morbid state of the mesenteric glands, this class of remedies, which are the most powerful deobstruents, must be equally required. If it is owing to a torpid state of the intestines, they will be most effectually excited by active purgatives.

Two stages, the incipient and confirmed, are distinctly marked in marasmus. In the first, the bowels are not altogether inactive, and mild purgatives, repeated at proper intervals, are to be employed. But it is different in the second stage, there being here little sensibility, and the collection of feculent matter is prodigious. We are, therefore, required to purge actively. Calomel, in as large a dose, and as

frequently renewed, as circumstances will admit, has always answered best in my hands. Extraordinary as it may appear, this copious purging, instead of adding to the debility of the child, will often be found to relieve its distresses, by daily increasing its strength.\* But should it fail, we may succeed in rectifying this morbid condition by small and repeated doses of calomel, so small, indeed, as to produce, for a time, no sensible effect. The fourth, or the eighth of a grain united with still less opium, is the proper proportion, and this course should be continued for several weeks.

In chlorosis, or that general derangement of health, to which girls are exposed about the season of puberty, this class of remedies has sometimes signalized its powers. As it is not permitted me to enter into such inquiries, I shall overlook the multiplied theories that have been advanced, to explain the singular group of affections incident to this period of life, or of the divers modes of treatment, which, at different times, have been adopted. The writer, by whom this practice is particularly recommended, remarks, that the "slightest attention to the general history of the disease, evinces, that costiveness precedes and accompanies the other symptoms. It is this, which induces the feculent odour of the breath, disordered stomach, depraved appetite, and impaired digestion, which preclude a sufficient supply of nourishment, at a period of life when it is most wanted."

<sup>\*</sup> Hamilton on Purgatives.

Considerations of this sort, led him to the use of purgatives, and he declares, that they proved safe, and quickly salutary.\*

Of this practice, I cannot speak with much confidence from personal knowledge. Though a good deal consulted in the diseases of women, I have not had many very well marked cases of chlorosis. The vigour of the female constitution, in this city, seems to prevent its occurrence, in any very great degree. Yet, in states of disordered health closely allied to it, and particularly in some of the forms of amenorrhœa, I have seen the best effects from active purging.

As not too remote from this subject, it may be right to notice here, that a species of hæmatemesis, occurring in females in early life, is stated to be very successfully managed by the liberal use of purgatives. It had generally been held, that this particular hæmorrhage, which is proved to have no connection with any organic affection of the stomach, is a discharge vicarious to the menses. To this opinion, I still incline, because, among other reasons that might be alleged, I have always remarked, in the cases which have come under my notice, that amenorrhœa existed. It is now contended,† that it proceeds from, or, at least, is mainly dependent on, a constipated state of the bowels, the fæces which are brought off being always copious, and of an unnatural colour, consistence, and smell. What is the success of this,

<sup>\*</sup> Hamilton on Purgatives. .

compared with the former mode of treating these cases, I will not take on myself to pronounce. Of this, however, I am assured, that purgatives have hitherto been too sparingly resorted to in the cachetic complaints generally. That they are, sometimes, of the greatest advantage in scrofula, and its associate affections, I well know. The white swelling I have seen most essentially relieved, by a long continued course of purging, and its beneficial effects are now fully attested, in the morbus coxarius, as well as in the disease of the spine, more especially, when it proceeds from a strumous contamination. Nor is it hardly less useful, in the dissipation of glandular enlargements, and particularly of those tumors approaching to scirrhus, which occur in the mammæ of women. But, to be productive of any decisive utility, in any of the preceding instances, it is required, that this plan of treatment be persisted in with steadiness, and for a great length of time, and that there be brought to its aid various other measures, such as topical bleeding, blisters, low diet, and a state of rest. Cases of the above diseases, I have cured, by purging every other day, for several months successively. It was Dr. Physick, I have reason to believe, who originated this practice, or, rather, urged it further than before had been done. Much has it already accomplished, though infinitely more may be anticipated from it, when it comes to be applied, as I am sure it might, to all the diversified shapes of chronic inflammation.

Extensively as I have entered into the consideration of the use of cathartics, many cases still remain to be indicated in which they are much prescribed, and with the greatest advantage. But these are, comparatively, of minor consequence, and the principles which I have already delivered on the subject, will serve sufficiently as a guide, to the further application of the remedies. Even at the present time, cathartics are too much neglected in the management of disease, and most commonly, from an impression of their extremely exhausting effects. As regards acute diseases, there is no doubt that active purging reduces very rapidly arterial action, and, with it, the general excitement of the system. But such is precisely what is desirable, and in most of the chronic affections where any increase of debility is to be avoided, these medicines would really seem to operate very differently.

Nevertheless, as in all other instances, a recurrence to purgatives is to be controlled by a sound discretion, and, under certain circumstances, they are either utterly precluded, or to be very sparingly and cautiously used. Exceptions to their general use, at least to their active use, may be found in all low and sinking conditions of the system—in most of the complaints of the chest, and especially where expectoration is solicited—in the first stage of inflammation of the stomach and bowels—in hæmorrhoidal predisposition—and, during menstruation, pregnancy, and immediately after delivery.

It is a curious fact, fully confirmed by experience, that, urged to any extent, evacuations from the bowels, are found in the complaints of the lungs mischievous, and in some cases so injurious as to be wholly inadmissible. Even in pleurisy, we cannot purge with the same freedom as in other cases of acute inflammation—and in the chronic pneumonic affections, especially in pulmonary consumption, the system immediately sinks under the operation of purgatives, and hence we are so careful to restrain diarrhæa in this disease.

# SECTION VIII.

OF PARTICULAR CATHARTICS.

# Oleum Ricini.

Castor oil is derived from the seeds of a plant called palma christi, or ricinis communis, a native of the West Indies, which thrives and grows luxuriantly in many parts of the United States. These seeds are variegated with black and white streaks, resembling in shape and colour the insect ricinis, or tick, whence the name is given to the plant. They were used, so early as the time of Hippocrates, and the skin being extremely acrid, one or two of them will often operate violently, as a drastic purgative. It is, probably, about a century since it was discovered, that the oil expressed from the seeds, is an excellent laxative, wholly destitute of the disagreeable or baneful properties of the seeds themselves.

Castor oil operates with great certainty, and produces its effects without griping or stimulating the intestines, and is, therefore, adapted to most cases where a laxative is required.

It was originally employed in colica pictonum by the physicians of the West Indies, where the disease abounds, and its efficacy is too well attested to be doubted. I have, indeed, often witnessed its opening the bowels in other forms of colic, when powerful cathartics had been resisted. Yet, we cannot generally trust to it in obstinate constipation, or when copious evacuations are demanded. It will insinuate itself through the intestinal canal, bringing with it a small portion of the more fluid contents, leaving behind the collection of indurated fæces. Were I to resort to it, under such circumstances, it should be some hours after a dose of calomel and jalap, or any other active cathartic. Thus administered, it promotes purging, and mitigates the harshness of the drastic medicine.

Castor oil is much employed in dysentery and other inflammatory states of the bowels. It has been supposed to be peculiarly adapted to these cases, as passing through the whole extent of the alimentary canal without being sensibly changed; and hence, while it purges away offensive matters, it sheathes the delicate surface of the intestines. The quantity of oil, however, is too small to answer any such purpose. As the disease advances, and when there is tormina, or tenesmus, I have used advantageously the an-

nexed preparation.\* To cholera infantum, the oil is supposed by most practitioners to be not less suited. It is given in the beginning of an attack to evacuate the bowels, and, subsequently, in smaller doses, pretty much with the same view that it is directed in dysentery. This complaint, however, being usually attended by nausea and acidity, I have found the oil still more beneficially administered in the following shape.†

Exciting little or no irritation, the oil is also recommended in hæmorrhoids,—in puerperal women,
and after surgical operations. As a laxative, it is
useful in all the diseases of children, no medicine, indeed, being so appropriate. The dose of the oil for
an adult, when we wish it full effect, is an ounce, and
for an infant, not less than a tea-spoon full even at
birth.

Being an exceedingly unpleasant medicine to most persons, several means have been suggested to obviate this inconvenience. It is sometimes taken in ardent spirit. This vehicle, however, is obviously improper in many cases. The French always take it in coffee. Mixed with a strong infusion of senna, in the

<sup>\*</sup> R. Ol. ricin. Zi. Pulv. Gum. Arab. Zii. Sacch. alb. Zi. Tinct. theb. gtt. xl. Aq.: menth. Zii. m. This is called oleaginous mixture, and remains on the stomach much better than the pure oil. The dose is a table-spoonful to be repeated.

<sup>†</sup> R. Ol. ricin. Zi. Sacch. alb. Zi. Album: ovi q. s. ft. mist: adde gradatim. Aq. calcis. Zv. Tinct. theb. gtt. xx. m.

proportion of three parts to one, it is said to be far less nauseous, and sits more comfortably on the stomach. An emulsion with the yolk of an egg, and cinnamon or mint water, is not very disagreeable. On the whole, there is no better way, than by pouring it on a little sugar and water, which prevents its adhering to the sides of the glass, and both before and after swallowing it, to rinse the mouth with rum or brandy.

When it cannot be retained, a substitute may be had in an emulsion made of the seeds of the palma christi, previously stripped of the skin. We should, indeed, often employ this preparation, could we always procure the recent seeds. These soon become rancid, and in this state are unpleasant to the taste, and very harsh in their effects.

# OLEUM OLIVARUM.

In many of its leading properties, olive oil is similar to the last medicine. It is very mild, very quick, and a very certain laxative. I know not indeed of any property which it does not possess in common with castor oil, except perhaps its activity. It may be administered in all cases where the former is useful, and, I am persuaded, with nearly equal advantage. Being less offensive to most people, it has, indeed, in this respect, a superiority. There are two cases

where it is decidedly preferable,—as when certain poisons have been swallowed, and in the colic of children, accompanied with obstructed and inflamed bowels.

The objection which I have heard made against the olive oil in inflammatory cases, that it is digested, and therefore increases the quantity of circulating fluids, is wholly unfounded. Given in such a dose as to purge, it always passes through the bowels like castor oil, and not more changed. The fact is, that in all acute affections of the alimentary canal, the process of digestion becomes nearly suspended, and whatever is received into the stomach, even the nutritious mucilages, are so little acted upon, that the latter are expressly directed to "blunt acrimony, and sheathe the delicate surface of the intestines." The dose is the same as castor oil.

As a substitute for each of the preceding articles, melted butter may, on some occasions, be employed. It has often been prescribed, when acrid matters have been taken into the stomach, and is exceedingly beneficial in irritable states of the bowels, as in dysentery, &c. As a fact of some practical importance, it is worthy of recollection, that the animal oils are much less irritating than the vegetable.

### SULPHUR.

The sulphur of commerce is the product of volcanoes, in Italy, or is dug out of the mines of Germany, Sweden, and Hungary. Now and then, it has been been found perfectly pure, though the more ordinary state in which it is met with, is that of adulteration with various extraneous matters. By the process of sublimation, it is purified, forming the flores sulphuris; and, when melted, and run into cylindrical moulds, is called roll brimstone, which is usually not so pure. The former of these is most commonly prescribed. But by exposure to the air, or in the sublimation of it, this preparation sometimes acquires a degree of acidity, which renders its operation very harsh, and hence the washed sulphur\* is preferred. To obviate the same inconvenience, sulphur may be precipitated from a state of solution in an acid, by an alkali, forming the lac sulphuris,† which becomes white, owing to the presence of a small portion of water.

The action of sulphur is principally on the great intestines, and, on account of its mildness, is thought to allay the irritation of these parts. It is hence

<sup>\*</sup> Sulphur Lotum.

much employed in hæmorrhoidal affections, and habitual costiveness.

In gout, as well as rheumatism, sulphur has acquired considerable repute. When the former of these diseases attacks the alimentary canal, with flatulence, and spasmodic uneasiness, it is undoubtedly often serviceable. I have not tried it, in any other forms of arthritis, though it has been much used to evacuate the bowels, in the regular disease. But in rheumatism, I have prescribed it much, and certainly with advantage. To the chronic states of rheumatism, attended with pain, it is the best suited. I have generally directed it in such doses as to keep the bowels, at least in a laxative condition, though the sulphur also operates by exciting perspiration. It is by this twofold property, that it probably does good in these cases, as well as in a variety of other diseases.

By the German writers, a good deal has been said of the utility of our medicine, as a purge, in dysentery. As, however, their practice was never imitated to any extent, and is now nearly repudiated, I presume it had no very solid claims to attention. Yet, in dysentery, of that species which partakes of the character of rheumatism, or catarrh, sulphur might perhaps be applied with advantage, though this is mere conjecture, having no experience whatever with the medicine, under such circumstances.\*

<sup>\*</sup> Diaphoreties.

# MAGNESIÆ CARBONAS,

much employed in memorability wifertions, and

OLIN

# MAGNESIA ALBA.

This is a simple earth, found, for the most part, in a state of great impurity, from which it is cleared by certain chemical processes. It was introduced into the materia medica, at the beginning of the last century, by Count De Palma, at Rome, and continued, for a long time, a very lucrative secret. It scarcely, indeed, lost the character of a quack medicine, till it was prepared, about forty or fifty years ago, by a Mr. Glass, an apothecary, at Oxford.

Magnesia usually exists as a carbonate. When administered in this state, if it meets with an acid in the stomach, a decomposition sometimes takes place, and a considerable quantity of carbonic acid is disengaged, which causes an uneasy distention, and the other symptoms of flatulence. It should, therefore, be always calcined, or, in other words, deprived of its fixed air, before it is used. This is more especially necessary, as regards children, with whom it is much employed, even within the month, and who sometimes suffer much, from the neglect of this precaution.

Magnesia is a mild laxative. Combined with other substances, it becomes more active, and especially with rhubarb. Equal portions of it and the lac sul-

phuris,\* form one of the most certain, and, at the same time, lenient of our purgatives, and is admirably suited to remove a torpid state of the bowels. Magnesia, however, is mostly prescribed alone, to correct acidity, and, afterwards, to act as a purgative. It is, with this view, much given in gout, in all the deprayed states of the stomach, in the griping colics of infants, and other analogous affections. The annexed formula will be found useful in these latter cases.† As a purgative, the dose of magnesia is two or three drachms, mixed in water or milk.

Sulphur precipitatum.

† R Magnes. calc. gr. xxx., pulv. rhei gr. vi., sach. alb. 3i, ol. anis. gtt. iii., tinct. theb. gtt. iv. aq. font. Ziss. M. The dose for the infant, is a tea-spoonful.

There are several nostrums much used, into which magnesia enters largely. Of these, the most popular is Dalby's Carminative. This consists of carbonate magnesia, two scruples—oil of peppermint, one drop—of nutmeg, two drops—of aniseed, three drops—of the tincture of castor, thirty drops—of asafætida, fifteen drops—of the spirit of pennyroyal, fifteen drops—of the compound tincture of cardamom, thirty drops—and of peppermint water, two ounces.

Paris Pharmacologia.

Incompatible substances.—Acids, and acidulous salts—alkalies, and neutral salts—alum—cream of tartar—nitrate of silver—acetate of mercury—oxy-muriate of mercury—super-acetate of lead—sulphates of zinc, copper, and iron.

# CARBO VEGETABILIS,\*

VEL

### CARBO LIGNI.

This article, on account of its antiseptic properties, has long been used for a variety of purposes in domestic economy. Excepting, however, its external application as a poultice to ulcers, to correct their odour, or to arrest the progress of mortification, no great use was made of it in the practice of medicine or surgery. It is true, that, during the reign of the pneumatic pathology, it was proposed, and perhaps employed, as a means to rob the system of the excess of oxygen, which was presumed to cause certain diseases.

Reasoning on its general properties, I was induced, several years ago, to administer it internally, in a case of ulcerated fauces, and tongue, accompanied with a very fætid breath, which I suspected to arise from a morbid state of the stomach. After a few trials, I had the satisfaction to find, that the fætor was corrected, the ulcers improved, and, by perseverance in its use, a cure was ultimately effected. I have since been much in the habit of employing it, in all chro-

<sup>\*</sup> Parr's Medical Dictionary.

nic ulcers of the throat, where I supposed them to be owing to the same cause, and often with advantage. Encouraged, also, by what I had observed of its effects, in removing offensiveness of the breath, in some of the preceding cases, I have since, and with not less success, prescribed it with the same view, where this existed, independently of ulceration. My observations have taught me, that the odour, under such circumstances, does not proceed from diseased lungs, as is commonly supposed, but is a foul exhalation, from a depraved condition of stomach.

The power of charcoal, in destroying the odour of substances, is very peculiar, and I do not think has hitherto been well explained. Even medicines placed near it, are deprived, it is said, of this property, and more particularly valerian, galbanum, balsam of Peru, and musk.

Charcoal, in the dose of a table spoonful twice a day, which is my mode of exhibiting it, opens the bowels gently, and seems to be well calculated to obviate costiveness. It may, therefore, be placed among the milder purgatives, though it has claims to be considered in another light. Certain I am, that it is a substance of much more extensive utility, and may hereafter become an important accession to the materia medica.\*

<sup>\*</sup> Tonics.

SALES NEUTRI.

## NEUTRAL SALTS.

These are a very valuable class of evacuants, and though there is a considerable number of them, they are so uniform in their properties, and so familiar in their use, that little occasion exists, to enter into any details on the subject. They are all given nearly in the same quantity, which is about an ounce dissolved in water, and are considered as occupying, in point of force, an intermediate space between the laxatives and purgatives. Each has also the peculiarity of operating in a smaller dose, on repetition-and of producing copious watery evacuations, by the strong impression made on the exhalents of the intestines. As they relieve the bowels pretty freely, without much excitement, either locally or generally, they are usually resorted to when a phlogistic diathesis prevails. If, however, a thorough evacuation of the contents of the alimentary canal, or a sudden reduction of the excitement of the system, be demanded, as mostly happens at the commencement of inflammatory bilious fevers, these saline laxatives must give way to the mercurial combinations. But, after such effect has been produced, they are admirably calculated to

keep down action, to preserve the bowels in a soluble state, and may be so combined with antimonials as to act on the surface, and to fulfil a variety of other indications.\*

Of this assortment of medicines, the vitriolated natron, Glauber salt, or sulphate of soda, in some respects, is to be preferred. It has all the leading properties of the rest, and is distinguished by rather more activity and certainty of operation.

The next of the saline laxatives, is the sulphate of magnesia. It was once known by the title of bitter purging salt, vitriolated magnesia, and still more by that of Epsom salt, from the name of the place at which it was originally manufactured. Excepting that it is more apt to be retained, I do not know that it has any superiority. But on this account, it has been strongly recommended in colica pictonum, in dysentery, in cholera morbus, in enteritis, and other complaints attended with great gastric irritability. That it will lie on the stomach, when most other articles are rejected, I have sometimes seen, and think

Incompatible Substances.—Muriates of ammonia, baryta, and lime—nitrate of silver—sub-acetate and super-acetate of lead.

<sup>\*</sup> Diaphoretics.

<sup>†</sup> It should, however, be recollected, that in a state of efflorescence, by the loss of its water of crystallization, one half of the weight suffices for a dose. By the addition of a small portion of Cremor tartar, the Glauber salt is rendered more active, as well as less unpalatable, and by a combination with emetic tartar, it, in common with all the neutral salts, has the purgative power vastly increased.

particularly in cholera infantum, a disease, in which it may be often recurred to with advantage.

Combined in the proportion of two drachms of Epsom salts, to one of calcined magnesia, we have a product, which proves a most active, certain, and valuable purgative, well adapted to our bilious fevers, and particularly when preceded by a dose of calomel.\*

The tartrate of potash and soda, the sal. Rupellensis, or Rochelle salt, is only recommended by the circumstance of its being less nauseous. It is now most generally given, dissolved in Seltzer water, and in this way, is by no means unpleasant to the taste, or offensive to the stomach.

Of the vitriolated tartar, sal de duobus, or sulphate of potash, I have as little to say. It is very seldom used, and seems to be less estimated as a laxative, than any of the neutral salts, though it still retains some reputation as a deobstruent. When resorted to at all, as an evacuant, it is in the dose of a drachm or two, united to jalap or rhubarb, or some other ve-

<sup>\*</sup> Incompatible Substances.—The same as the preceding article. The fixed alkalies and their carbonates, moreover, precipitate from it magnesia, and its carbonate. Phosphate of soda occasions no immediate precipitate, unless ammonia be present, in which case the triple ammoniaco, magnesian phosphate will be produced. The addition of ammonia, which, in the form of sp. ammon. aromat. is not unfrequently prescribed, in conjunction with a solution of this sulphate, forms also a triple salt, and a portion of magnesia is precipitated. Whenever, therefore, this ammoniacal stimulant is ordered with a purgative salt, the scientific physician will prefer a solution of the sulphate of soda.

getable purgative. But even in this way we see little of it in practice.

Being very insoluble and hard, it is an eligible substance for triturating and dividing powders. The sal polychrest of the old chemists, which is a sulphuret, as well as a sulphate of potash, though to be found in some of the foreign Pharmacopæiæ, has no claims to further notice.\*

The phosphate of soda is comparatively a new medicine, not having been introduced into the materia medica above twenty or thirty years. Like the preceding salts, it is a mild purgative, and certainly not so disagreeable. Yet I doubt whether it be so active, or well calculated to meet several important indications. It seems to be less cooling in its effects, and commonly produces an intolerable degree of thirst, with uncomfortable sensations about the stomach. It may be exhibited in solution in water, and in soup, or gruel made without salt. Being very similar to the muriate of soda in taste, it will answer very well as a substitute in this way.

Of the soluble tartar and cremor tartar, the tartrate and supertartrate of potash, I shall defer saying any thing till I come to the history of diuretics.

But, in dismissing this subject, I must say a few words of two other saline purgatives, which, though

<sup>\*</sup> Incompatible substances.—The sulphate of potash, in solution, is entirely decomposed by lime and its compounds—by oxy-muriate of mercury—nitrate of silver, and by sub-acetate, and super-acetate of lead.

not in general use, I have found sometimes exceedingly convenient. Cheltenham salts, the name by which one of the preparations to which I allude is vended, is formed by triturating together, in the following proportions:

Sod: Sulph: 3ii.

Magnes: Sulph: gr. lxvi.

Sod: Muriat: gr. x. Ferri Sulph. gr. ss.

In this dose, these salts will purge actively, and seldom offend the stomach.

We have now, also, in the shops, what are called Patent Seidlitz Powders. These consist of two distinct powders, which come to us wrapt up in different coloured papers. The one in white paper, contains two drachms of tartarised soda, and two scruples of carbonate of soda: that in blue paper, thirty-five grains of tartaric acid. The contents of the white paper are to be dissolved in half a pint of water, to which those of the blue paper are to be added, and the draught taken in the state of effervesence, which ensues. The carbonic acid thus evolved, is grateful to the stomach, while the neutralized salt subsequently proves smartly purgative. That such a medicine should be serviceable in our bilious fevers, and other diseases attended with gastric disorder, is sufficiently obvious.

## HYDRAGYRI SUB-MURIAS,

#### VULGO

## HYDRAGYRUS MURIATUS MITIS.\*

Of all the purgatives, this is the most important, and the one which is susceptible of the widest application in the practice of physic. There is scarcely, indeed, any case in which purging is required, that it may not be so regulated, either alone, or in combination, as to meet the several indications. It has the singular property of imparting force to many of the mild, and moderating the severity of the drastic medicines. Whenever we wish a strong and permanent impression to be made on the alimentary canal itself,

\* No article of the materia medica has probably received a greater variety of names than this preparation of mercury. In the "olden time," it was called draco mitigatus-aquila alba-aquila mitigatamanna metallorum-panchymagogum minerale-panchymagogus quercetanus-sublimatum dulce-mercurius dulcis sublimatus-calomelas, &c. &c. It is now generally known by the title bestowed on it in the London Pharmacopæia-Hydrargyri-sub-murias. This, however, in common with, perhaps, all other designations proceeding from its supposed chemical composition, is objectionable. Being regarded as a compound of muriatic acid and oxyd of mercury, it is not a sub-muriate, but as much a muriate as corrosive sublimate. The only difference in the two cases, depends on the degree of oxidizement of mercury, which is at a minimum in calomel, and at a maximum in sublimate. Conformably to the new views respecting chlorine, calomel must consist of one proportional of chlorine, with one proportional of metal, and is, therefore, a chloride of mercury. It is called proto-chloruretum hydrargyri, in the Codex Med. Paris.

Vid. Paris Pharmacologia.

and through it on the neighbouring viscera, or the system generally, by universal consent, it is consecrated to these purposes. Besides the superior efficacy of calomel as a purgative, it is recommended by the facility with which it is administered. Devoid of taste and odour, and minute in its dose, it will be often taken when other medicines are refused, and may be so disguised, as to be imposed on the most suspicious or unmanageable of our patients.

Calomel, on every account, seems to be peculiarly adapted to the cases of children. Whether we wish to relieve actual disease, or merely to evacuate the contents of the bowels, it operates leniently and efficaciously. Yet, by many, it is supposed to be a very violent purgative, and, hence, there is a sort of popular prejudice against its use in the complaints of children, an error, which leads to so much mischief, that we ought to unite to remove it. From an extensive experience with the medicine, I am entirely convinced, that in those cases, its action is incomparably milder, than in more advanced life. To infants of only a few weeks old, I have known it to be given, and have witnessed no very harsh effects from it. But this is not my own practice. Never from choice do I resort to calomel, till the child is old enough to distinguish tastes, and to resist the administration of what is nauseous. Believing castor oil, or rhubarb, preferable, I seldom prescribe it within the first year.

The dose of calomel for an adult, when taken alone, is from ten to twenty grains. We commit a mistake

in giving too small a quantity of this medicine. Employed largely, its action is infinitely less irritating to the stomach and bowels—and is not so apt to be rejected by vomiting—its purgative operation being more prompt and complete. I have known a drachm to be taken at a time without inconvenience, and even without much increase of effect.

What renders this medicine occasionally harsh in its effects, I suspect, is a mixture of some portion of corrosive sublimate. There is, in this respect, great carelessness. It is easy to detect such vitiation by boiling the suspected sample with a small portion of muriate of ammonia, in distilled water, and adding carbonate of potash, when a precipitation will take place. Calomel ought also, when rubbed with pure ammonia, to become intensely black, and to exhibit no traces of an orange hue.\*

<sup>\*</sup> Incompatible substances.—Alkalies and lime water decompose it, and turn it black, by precipitating the black oxyd of the metal. It is also decomposed by soaps—sulphurets of potash and antimony—and by iron, lead, and copper—hence it is improper to employ any metallic mortar for dispensing medicines which contain it. There seems to be reason for supposing, that this preparation may undergo decomposition in transitu, and that, therefore, some substances may be chemically, and yet not medicinally incompatible with it. If calomel be boiled, for a few minutes, in distilled water, to which alcoholized potash has been added, it is completely decomposed, a muriate of potash, and a black oxyd of mercury, being the new products.

### RHEUM PALMATUM.

This is the botanical title of the plant which affords rhubarb. The root, the only part used, is brought from China,\* and also from Siberia, by the way of Russia. Being imported from the Levant, the latter has obtained the name of Turkey rhubarb, and is of much superior quality. It is in small pieces, of a bright yellow colour, has a smell somewhat aromatic, and a bitter, approaching to a styptic taste. The Chinese comes in larger and more cylindrical shapes, is paler in its appearance, harder and more ligneous in its texture, and has less of the sensible qualities. The rhubarb has been cultivated in different districts of Europe, and within a short period in our own country, and, where care is taken in the raising and preparation of it, answers very well.

Combining the purgative property with that of astringency, rhubarb differs from almost every other article of the same class in this respect, that, while it purges, it increases, instead of lessening the tone of the alimentary canal. It has also this further pecu-

<sup>\*</sup> It has been supposed, that the Chinese rhubarb is afforded by a distinct species of the plant, the Rheum Undulatum. But this is now contradicted. The difference in the kinds, it is alleged, is owing entirely to the culture and modes of preparation.

liarity, that however combined with opium, its purgative property is not at all restrained: and, hence, is invaluable in cases where a necessity for evacuating the bowels is connected with so much pain, as to demand the interposition of opiates. Of the accuracy of this observation, which, so far as I know, is original, I cannot permit myself to doubt, having confirmed it by ample experience. Equal portions of calomel and rhubarb, ten or fifteen grains of each, form a purgative, well suited to all bilious affections. Except, indeed, that it lingers longer in its operation, I am not sensible that it is inferior to jalap, or any other medicine. It is therefore not a little prescribed in our autumnal fevers, and is as useful in the early stages of dysentery with accumulations of bile, or hepatic engorgement. Evacuations having been premised, it may, in conjunction with ipecacuanha and opium, be advantageously directed in the same disease, to relieve tormina, tenesmus, and other distressing symptoms.\*

Cases of diarrhea are treated nearly in the same way. The rhubarb is at first given as an evacuant, and subsequently in minute doses, with a view to its astringent and tonic effect, sometimes alone, though much oftener, with the same articles, and pretty nearly in the shape, just mentioned. Nor is it scarce-

<sup>\*</sup> R Pulv. Rhei. gr. xx. Ipecac. gr. x. Gum opii. gr. iii. Ol. cinnam. gtt. v. Gum Arab. q. s. ft. mass. Div. in pill. x. One of which, every two or three hours.

ly less resorted to, in the chronic complaints of the stomach, no medicine having been found perhaps to answer better, in the several forms of dyspepsia, and in the affections symptomatic of it, as hypochondriasis, &c.

Connected with most cases of atonic gout, there is a very depraved state of the alimentary canal, producing flatulence, sour eructations, and spasmodic uneasiness more or less severe, to relieve which, I know nothing more effectual than Warner's cordial, a preparation, into which the rhubarb enters largely.\*

Considerable confidence was, at one period, reposed in the powers of rhubarb in all hepatic congestions and obstructions, and particularly in jaundice. As a purgative it unquestionably does good in many of these cases, though its efficacy may be increased by adding calomel to it. The liver having been strongly impressed by this active purgative, or by the action of an emetic, a favourite prescription of many, consists of rhubarb, aloes, and Castile soap, in equal parts, made into pills, of which enough may be given to keep the bowels in a soluble state. To the cases of children, few medicines are so well suited as rhubarb. It is taken with tolerable facility, and operates so gently, that it may be prescribed at a very early

<sup>\*</sup> Take of Rhubarb bruised 1 oz. Senna ½ oz. Saffron 13. Fennel seed and coriander seed, each 23. Powdered liquorice 43. Raisins pounded 1 th. Brandy 3 pints. To be digested for a week. The dose is half a wine glass full.

period of life, and under almost every circumstance of their diseases.

As rhubarb readily yields its virtues to water, to proof spirit, and to wine, these menstrua are employed to form a variety of preparations of this substance, all of which that are officinal, will be found in the different dispensatories. As some of these are neat and efficacious, they are worthy of attention. But while on this subject, I will mention a domestic preparation of rhubarb, in very general use, of which the formula cannot be procured in books. It is called the *spiced rhubarb*: and there are two modes of making it, one with water, and another with spirit.\* The dose of rhubarb, when given alone, is from twenty to forty grains.†

- \* R. Rad. rhei. Z i. Cort. cinnam. Z ii. Nux Mosch. Z i. Caryophyll. Zss. Sacch. alb. Z vj. Sp. cinnam. H ij. To be put into a deep dish and burnt out.
- 1 R Rad. rhei. Cort. cinnam. Macis ā ā 3 ii. Aq. font. Hij. To be simmered away till half evaporated, and then add sugar and brandy enough to preserve it from becoming sour. Exhibited in divided doses, this medicine is sometimes useful in the second stage of most of the bowel affections, especially of children.

† Incompatible substances.—The salt of iron strikes a black with its infusion. By the alkalies, alkaline earths, or neutral salts, its colour is changed to red, and it is rendered more quick, and mild as a purgative, though its astringency is destroyed. It may not be altogether out of place, here, also, to mention, that by toasting or torrefying rhubarb, we add to its astringency, though, in the same proportion, we diminish its force on the bowels.

## ALOE PERFOLIATA.

Of a plant, which grows in the south of Europe, in Asia, Africa, and America, aloes is the inspissated juice, or extract. Three varieties of the medicine are kept in the shops, the socotorine, the hepatic, or Barbadoes, and the caballine or horse aloe. The first is preferred, and the last is only admitted into veterinary practice. As yet, the species of plants producing these different sorts of the article, have not been clearly determined. It seems, however, probable, that the socotorine is afforded by the aloe perfoliata, and the Barbadoes and caballine, either by the aloe spicata, or aloe vulgaris. Aloes is a warm stimulating purgative, which passes through the stomach and small intestines without making much impression, though operating with some force on the lower part of the alimentary canal, and especially the rectum. It is, on this account, when employed for any length of time, apt to produce hemorrhoids, or, if they exist, to increase the pain and irritation of these tumours. This medicine ought therefore to be avoided by persons subject to these, or any other affections of the lower intestines.\* It is supposed also strongly to excite

<sup>\*</sup> I have lately heard, that it is the practice of an eminent surgeon of London, to employ aloes as a cure for hamorrhoids. Whether this

the uterus, and hence is forbidden in pregnancy. But in many cases the aloes is both a safe and efficacious purgative. It was the opinion of the older physicians that it has some of the qualities of bile, perhaps from its intense bitterness, and that when there is a deficiency of that fluid, it might be prescribed as a substitute. I know not how far this hypothesis is well founded. But certain it is, that aloes has, in a very great degree, the power of stimulating the intestines, and hence its utility in habitual costiveness,—a very small dose answering the purpose.\* Cullen says, that he has known innumerable instances of persons who very constantly obtained this effect from one or two grains, and it is equally remarkable, that, though the dose be increased to ten times the quantity, the effect is nearly the same. If this observation be correct, we are taught, that though perhaps no medicine is more fit to open the bowels, aloes is wholly unsuited to the purposes of copious purging. But it is not altogether true, that the effect is not increased by a large dose. Ten grains of the medicine will operate with some activity. Cullen also, seems to think, that nothing is gained by mixing aloes with other ar-

proceeds from a vulgar affectation of singularity, or that the article really does good, on the principle that a remedy is sometimes found in the cause of a disease, I shall not attempt to decide.

<sup>\*</sup> Combined with asafætida and myrrh, aloes forms a pill, exceedingly useful in some of the atonic shapes of dyspepsia, and especially, in delicate women, and aged persons.

ticles, and is particularly opposed to its union with the drastic purgatives. But his objections are evidently more the result of speculation, than actual experience, and are therefore entitled to little weight, being wholly unsupported too by the observations of any one else. This, indeed, is so little the case, that aloes, with hardly a single exception, is never employed alone. It has been the practice, ever since its introduction into use, to torture it by every species of combination, and it now enters into an uncommonly large number of preparations. Whether, in every instance, its efficacy has been improved, I am not prepared to say, though of this there can be no question, that when calomel, or rhubarb, or scammony, gamboge, &c. is added, its activity, as a purgative, is considerably promoted. Different modes are adopted for the exhibition of aloes. But the form of pill is to be preferred in most cases, on account of the extreme bitterness of the article.\*

- \* Besides the officinal preparations, we have the following pills, which are a good deal employed, the whole of which have aloes as a basis.
- 1. Anderson's Pills. These consist of aloes, with a proportion of jalap and oil of aniseed.
- 2. Hooper's Pills. These consist of aloes, myrrh, sulphate of iron, and Canella bark.
- 3. Dixon's Antibilious Pills. These consist of aloes, scammony, rhubarb, and tartarised antimony.
- 4. Dinner Pills. These, which are also called Lady Webster's or Lady Crespiny's Pills, are the "Pilulæ Stomachicæ," or "Pilulæ ante cibum," are made agreeably to the following formula:

### CASSIA SENNA.

This is a plant which grows in Turkey, Syria, and Persia. The medicine which it furnishes is commonly called Senna Alexandriana, because it was once exclusively imported from the city of Alexandria, in Egypt. We have some inferior kinds of the article, which come from Italy, the Barbary states, and the West Indies. They are, probably, the same plant degenerated by cultivation in a less genial soil and climate.\* The senna is one of the medicines,

R. Aloes opt. 3vj.

Mastich.

Ros. Rhub. āā 3ij.

Syrup. de Absinth. q. s. ft. mass. et div. in pilul.

These pills produce promptly, a very large, free, and copious evacuation—and as one of their titles would seem to indicate, are well calculated to prepare the stomach of the glutton and debauchee for renewed excesses.

\* We are told by Dr. Paris, in his Pharmacologia, that the senna from Alexandria is much adulterated by the merchants of Cairo, with the leaves of the Cynanchum Oleafolium, and with those of the Colutea Arborescens, and that from Tripoli still more by the Cynanchum. On this point there is some confusion. As well as I recollect, for I cannot now consult the paper, it is stated by one of the botanists of France, who, some years ago, visited Egypt, that the Cynanchum is a genuine Senna, and furnishes the article of the best quality.

which we originally derived from the Arabians, and is an active and useful purgative, though apt to gripe when given by itself. It may, however, in part, be obviated by moderately infusing the leaves in a large quantity of water, and be further counteracted, by adding some of the carminative seeds, as coriander, or fennel. An aromatic, as cardamom, or ginger and liquorice, have the same effect, as I have lately been told. The oxydized extractive matter being the principle which causes the griping effects, the best corrective, on the whole, will be found in an addition of a small portion of one of the fixed alkalies, or some of their salts, and the soluble tartar especially. By infusing senna with the common black tea, its taste is much improved.

At present, senna is rarely prescribed in substance, the dose being both bulky and disagreeable. It, however, yields its virtues very readily to water; though we should, in preparing the infusion, carefully avoid the water boiling, as the volatile parts of the leaves, in which reside the more active properties, are evaporated. Nor is it less important to use a covered vessel in making the infusion, since by exposure to the air, such is the strong affinity of its extractive matter for oxygen, that it becomes oxydized, and, consequently, gripes. No more, for the same reason, should be prepared than is wanted for immediate use. By standing for a few hours only, it undergoes the same change, deposits a yellow precipitate, loses its

purgative quality, and distresses the bowels by tormina, &c.

The senna is hardly ever used alone. The ordinary mode of directing it is with manna, salts, or cremor tartar, and sometimes, with all three ingredients. As a purgative, it is distinguished by the certainty and activity of its operation, and is also recommended by its lying well on the stomach. It is hence a good deal resorted to in obstructed bowels, and whenever we require a searching and active evacuant.\*

### CASSIA MARILANDICA.

As its name imports, this is a plant of our own country. It is very abundant in different parts of the United States, and possesses nearly the same virtues as the foreign senna, being of the same genus. As a substitute for it, I am informed, that it is much used by country practitioners. The dose and mode of preparation, are the same. From what I can learn, this article is well worthy of further examination.

<sup>\*</sup> Incompatible substances.—The infusion is disturbed by strong acids—lime water—nitrate of silver—oxy-muriate of mercury—super-acetate of lead—tartarised antimony—and by an infusion of yellow cinchona.

# PODOPHYLLUM PELTATUM.

Every section of the United States furnishes this plant, and it is designated by several provincial names, as mandrake, ipecacuanha, May apple, &c. To the New World, this species of podophyllum, I believe, is restricted, and is one of those plants, the several parts of which are possessed of different properties, the fruit being esculent, the leaves poisonous, and the root highly medicinal.

My experience with this article is not very extensive, though I have seen enough of its effects to persuade me, that it is not without claims to our notice. As a purgative, it resembles jalap, and I think, in a similar dose, it is scarcely less active or effectual. Like that medicine, also, its powers are heightened by an union with calomel, and, in bilious cases especially, ought not to be prescribed without it. As a remedy in intermittent fever, it is said to be useful, independently of its purgative property, of which, however, I know nothing myself.

The proper season for collecting the root, is late in the fall, when the foliage begins to drop. If gathered in the spring, it is comparatively inert. This fact is deserving of recollection. JUGLANS CINEREA,\*

VEL

# JUGLANS CATHARTICA.+

Of all our indigenous cathartics, at least such as are known to me, I suspect the butter nut, or white walnut, affords the most valuable. An extract made from the inner bark, had long been used as a popular purgative. During our revolutionary war, when drugs became scarce, the medical men of the army employed it as a substitute for the more elegant medicines of the shops. On this authority, it has since been introduced generally into practice, and is certainly entitled to much confidence. I have used it a great deal, and have seen it used even more. In the dose of from ten to twenty grains, it operates well, evacuating, thoroughly, the contents of the bowels. In the southern country, and especially in Virginia, it is much resorted to as a purge in all bilious cases, and is supposed to be calculated to clear the alimentary canal, preparatory to the administration of bark, or other tonics, in autumnal fevers. But its efficacy may be increased by the addition of calomel. The extract should be made about the month of

\* Linnæus. † Michaux.

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June, as the bark is, at this period, considerably more powerful.

### CONVOLVULUS JALAPA.

This plant, a native of Mexico, is found most abundantly near the city of Xalapa, from whence its name is derived. It has also been discovered near Vera Cruz, and in the south of Florida—and we have some reason to suspect, that it exists within the limits of our ancient territories. The root only is used in medicine, and is brought in transverse slices, solid, hard, and heavy, of a dark gray colour, and striated texture,-having little smell, and scarcely any taste. When swallowed, however, it affects the throat with some slight pungency. Jalap is a very powerful purgative, its activity residing principally, if not wholly, in the resin, which, though given in small doses, occasions violent griping. The gummy part bears an inconsiderable proportion to the resinous, and is found to have little or no effect on the bowels, though, as a diuretic, it is said to be active. This is the opinion which has long been received on the subject. But recent experiments would go to shew, that the distinction in the properties of the two constituent parts of the medicine, is not well founded.

The dose of jalap is from twenty to forty grains. Triturated with the crystals of tartar, it operates in smaller doses, and without harshness. This is also the case, as we are told, when united with ipecacuanha.\*

From its active properties, it has been much used in the commencement of bilious fevers. Combined with calomel, in the dose of ten grains each, it was the purge which came to be generally employed in the yellow fever of this city, while the disease was considered highly bilious. As a hydragogue, it had formerly an unrivalled reputation, so much so, indeed, that it was distinguished by the appellation of of panacea hydropicorum. My experience persuades me, that it is entitled to much of the praise which has been lavished upon it in dropsy, though I cannot help thinking, that its efficacy is increased, by uniting, cremor tartar with it. Ten grains of the one, with a drachm of the other, constitute the best medicine which I have ever tried, not only in the dropsical, but in all other cases, where long continued purging is demanded.

\* Vid. Aikin's Mat. Med.

### CONVOLVULUS SCAMMONIA.

This is a plant, growing in Asiatic Turkey, and the neighbouring countries, and probably elsewhere. From an incision made in the root, there issues out a milky fluid, which, by inspissation, becomes concrete, and constitutes the scammony of the shops. The best of this article is imported from Aleppo, in light, spongy masses, of a shining blackish colour, having a faint, unpleasant smell, and a bitterish, pungent taste, consisting of a resin and a gum, in nearly equal proportions.

The Greek and Arabian physicians employed scammony as a purgative, and externally in the discussion of tumours—and as a wash for tenia capitis, and in most chronic eruptions. By Boerhaave, it was much used as an evacuant, and, since his time, has been considered a safe medicine. But it is very harsh in its operation, and is now little prescribed, except in combination with substances, which temper its effects. Its violence, it would appear, however, depends much on the state of the alimentary canal. The intestines being lined with an excess of mucus, we are told, it passes through without irritation, whereas, in their natural condition, and still more, if the mucus be defective, it gripes severely, and, sometimes, even excites inflammation. Its powers, too, may be modi-

fied by other substances. Ganbius tells us, "Scammoneum acidi commixtio reddit inertius: alcoli fixum, contra adjuvat." The common dose of scammony is from five to ten grains.\*

#### STALAGMITIS GAMBOGIOIDES.

Gamboge is a gummy, resinous concrete, brought from the East Indies. It was formerly supposed to be the product of a tree, called in the oriental language, Coddam Pulli. It is now better ascertained to be the stalagmitis gambogioides, though the accuracy even of this statement is questioned. It is not, indeed, precisely known from which of the several trees, named by writers, we derive it. It is denominated gamboge, from the country whence it comes. As received here, it is in large flakes or rolls, of a deep yellow colour, with no smell, and very little taste.

Exhibited in a full dose, gamboge operates most violently, both as an emetic and cathartic. It was, on this account, much used in the yellow fever in this city, in cases, in which it was deemed, at one time, expedient to excite an artificial cholera morbus. But, in smaller doses, the gamboge acts, generally, with sufficient mildness. Combined with calomel, in the proportion of two, three, or four grains to ten, it

<sup>\*</sup> The genuine scammony plant, I have understood, has been discovered in New Jersey.

proves a most powerful evacuant of bile. No medicine, perhaps, in some bilious cases, is to be preferred to it.

Like other drastic cathartics, gamboge has also been celebrated for its efficacy in dropsies. It is employed alone, and in connection with cremor tartar, and other articles, and sometimes displays great powers. Combined with calomel, I have seen it, in some instances, remove, very speedily, large accumulations of water, and this it does by copious alvine evacuations. On the old practice of treating gout by the drastic purgatives, I have already expatiated. During the period when this system prevailed, such was the reputation of gamboge, that it came to be distinguished by the appellation of "gutta ad podagram."\*

### HELLEBORUS NIGER.

Of the same description of purgatives, is the black hellebore, which is also known by the title of melampodium. Doubts have been entertained, as to the origin of the latter appellation. The most obvious etymology is, from Melampus, one of the earliest of the Greek physicians, who, it is said, having observed the purging effect upon some goats, which fed on it, introduced it into the materia medica.

<sup>\*</sup> Hill's Mat. Med.

By the ancients, hellebore was held in the highest estimation as a cathartic. It is especially extolled by Hippocrates, and his successors down to Galen, who seem to have considered it as the most valuable of this class. But when milder medicines, of the same kind, were brought into practice by the Arabians, and still more by the discovery of the New World, hellebore came, in a great measure, to be superseded.

It was once supposed to be singularly useful in the diseases of the mind, and particularly in melancholia. The practice of antiquity, in this case, consisted, indeed, chiefly of purging with hellebore. It is somewhere recorded, of Melampus, to whom I have already alluded, having acquired immense wealth and renown, by restoring to reason the daughters of an eastern monarch, of great dignity and power, who had all, from some cause, been deranged. The only article he employed, was the hellebore. But distinct from this, possibly a fabulous tale, we have, in the more authentic writings of the earlier ages, much evidence of its utility, in the several forms of insanity.

Notwithstanding the facts which might be collected in its favour, it is problematical, whether hellebore is possessed of any peculiar powers in the mental affections. As was formerly observed, in the treatment of many of these cases, there is no remedy entitled to greater confidence, than active, and even violent evacuations from the bowels. They sometimes will subdue the fiercest forms of mania, and as

often awaken the sensibility of the system, in the lowest depression of melancholy. The more griping the purgative, under such circumstances, the greater its efficacy, and, on this account, hellebore, which is uncommonly severe in its operation, must, like the rest of the drastic cathartics, have done good.\*

## CUCUMIS COLOCYNTHIS.

Colocynth, or coloquintida, or bitter cucumber, is the produce of Syria, and some of the islands of the Grecian Archipelago. It is the soft pulp of the fruit, a species of gourd, dried, which constitutes the medicine. With little smell, it is so intensely bitter, as to be called Fell Terræ, the gall of the earth.

Colocynth is one of the oldest articles of the materia medica. To Hippocrates it was well known, and by him, not to mention other writers, it is described as a most active cathartic, pre-eminently endued with all the powers of a hydragogue. Besides having this property, it is alleged by the ancient authorities, to be highly beneficial in the affections of the head, whether acute or chronic, in obstructions of the viscera, and especially of the uterus, in epilepsy and similar complaints, and in the diseases of the skin. Whether it is really calculated to be of much service in the pre-

<sup>\*</sup> Emmenagogues.

ceding cases, I cannot speak from my personal know-ledge, having rarely given it alone. When prescribed by me, it has been with the view to promote the operation of the slower cathartics, as aloes, rhubarb, calomel, &c. Combined with the last, especially, I have sometimes directed it in mania, in apoplexy, in coma, and palsy. To all these diseases, which are invariably attended with more or less torpor of the alimentary canal, it is suited. The dose of colocynth, in powder, is from four to six grains, and of the compound extract nearly the same, which is more generally directed. Externally applied, about the region of the navel, colocynth, it is said, displays all its purgative effects.

#### CUCUMIS AGRESTIS.

The last of the cathartics which I am to notice, is elaterium. This is furnished by a plant, the cucumis agrestis of some, and the momordica elaterium of other botanists. The popular title is wild cucumber, so called from its analogy to the vegetable which bears the same name. It grows in several countries of Europe. The elaterium of the shops is the inspissated juice of the fruit, or the cucumber itself, previously pressed.\* It comes to us in small thin cakes

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<sup>\*</sup> By Dr. Paris, we are told differently. "This substance," says he, "spontaneously subsides from the juice of the wild cucumber, in consequence, I presume, of one of those series of changes which vegetable

of a loose and friable texture, of a green colour, and bitter acrid taste.

The ancients were acquainted with the powers of this medicine, and prescribed it freely, especially as a hydragogue. By the Greeks, it was termed elaterium, which signifies to dart, or squirt, most probably from the forcible manner in which it ejects the contents of the bowels, or, perhaps, as has been conjectured, from the juice shooting in different directions when the fruit is pressed. As a cathartic, elaterium is, in the most remarkable degree, harsh, griping, and irritating, to such an extent, as, occasionally, to produce inflammation of the intestines, and even bloody discharges. Nevertheless, its operation is sluggish, unless promoted by some more active article, and, besides, it sometimes proves emetic, and disappoints our expectations, though commonly, in a full dose, it operates both upwards and downwards. In one respect, it differs widely from the class of remedies to which it belongs. By it the whole system becomes highly stimulated, so much so, indeed, that the pulse, and other circumstances, indicate pretty considerable febrile action. It is, in short, indisputably the most violent cathartic with which we are acquaint-

matter is perpetually undergoing, though we are hitherto unable to express them by any known chemical law. It is, therefore, not an extract, either in the chemical or pharmaceutical acceptation of the term, nor an inspissated juice, nor is it a fecula, as it has been termed. The Dublin College has, perhaps, been most correct in simply calling it Elaterium, the name given to it by Dioscorides."

ed, and ought therefore to be resorted to with great caution, and only when the more lenient medicines have failed. The dose is from half a grain to two or three grains.

There has been much uncertainty on this point, owing to the various degrees of strength, in which the article is met with. To secure greater uniformity in this respect, Dr. Clutterbuck has recently instituted a series of experiments, the results of which very satisfactorily prove, "that the active principle of this plant, is neither lodged in the roots, leaves, flowers, or stalks, in any considerable quantity. Nor is it to be found in the body of the fruit itself, or in the seeds, but in the juice around the seeds."

The substance which spontaneously subsides from this liquor, obtained without pressure, is genuine elaterium, the quantity of which contained in the fruit, is so extremely small, that only six grains were procured from forty cucumbers.

To this active principle, the name of *elatin* is now given, the dose of which is about the eighth or tenth of a grain.

I have remarked, that elaterium was known to the ancients. It appears that, even up to the period of the last century, it was still in the hands of some practitioners. By Sydenham, by Lister, by Hoffman, and all their cotemporaries and immediate successors, it is very strenuously recommended in dropsy. But, for various reasons, and particularly on account of its unpleasant effects, in many instances, it gradually lost ground, till finally it slipt altogether out of practice. We may form some idea of what are the effects of elaterium when largely given, from the following declaration of a writer, who appears to be conversant with the medicine: "Elaterium esse in catalogo diaboli, quo necat homines," &c. Its use has been once more revived by Dr. Ferriar of Manchester, who lately published a series of cases illustrating its great powers in the several varieties of dropsy, and especially in hydro-thorax.\*

## SECTION IX.

## Enemeta.

As supplementary to the consideration of cathartics, I proceed to make some remarks on the use of enemeta or clysters. Though these may appear very humble means, they are often employed as substitutes for purgatives, and have been found to answer in practice many important purposes. Every part of the alimentary canal maintains the most intimate rela-

\* This is the prescription of Ferriar:—R Extract. Elaterii gr. i. Sp. æther. nitrous, unc. ij. Tinct. scill. Oxymel. colchic. sing. unc. ss. Syrup rhamni, unc. i. ft. solut. Capt. drach. i. ex. aquæ pauxillo, ter quater-ve in die. This dose here is too small. Half a grain of elaterium is little enough.

applied to either extremity of it, are productive of pretty nearly the same results, though, when introduced into the rectum, as a general rule, they ought to be in about three times the ordinary dose.

I shall treat of enemeta in the order of the indications which they are calculated to fulfil. Commonly, we recur to them to promote the tardy operation of a cathartic, or to evacuate the bowels, where, from delicacy of stomach, such medicines cannot be retained. All that is required here, is a simple laxative mixture, composed of an ounce of castor, or olive oil, and the same quantity of molasses, with a pint or more of tepid water; and, to render it somewhat stimulating, a table spoonful of common salt may be added. But it frequently happens, in obstinate constipations, proceeding from various causes, that the most active injections become indispensably necessary. Of this description, we have a vast number, and one which is very generally directed, is a large solution of Glauber or Epsom salts, alone, or with oil. What, however, answers better, is the terebinthinate clyster, made by blending intimately, one or two table spoonsful of the oil of turpentine with the yolk of eggs, adding a full pint of water, or thin mucilage of gum arabic, or flaxseed. This is a valuable prescription, under many circumstances of obstructed bowels, and particularly of flatulent colic. When these ingredients cannot be had, a watery solution of asafætida may be substituted, and occasionally proves very effectual.

An infusion or decoction of the drastic purgatives, has been recommended, for the same purpose, and of colocynth particularly. The mode in which this last is prepared, is to boil three drachms of colocynth in a pint and a half of water for twenty minutes, then straining the fluid, add one ounce of oil, and as much of the sulphate of magnesia. My ordinary injection of this sort, is a pint or more of a strong infusion of senna, mixing sometimes with it a drachm or two of jalap, with the effects of which I have had much reason to be satisfied.

An opinion has been advanced, that enemeta act pretty much by the stimulus of distension, and hence the mildest fluids answer as well as the more active articles. To a certain extent this is true; and in cases of stubborn constipation, it should be recollected as a guide to our prescriptions. I have, more than once, known, under such circumstances, warm water to prove effectual. The fact is, that the bowels being very irritable, stimulating enemeta are apt to bring on or confirm spasm, by which the obstruction is rendered more unrelenting. Yet we have the clearest evidence of the susceptibility of the intestines to the impression of medicine, and, as a general rule, of the increased power of the remedy before us, by the addition of a cathartic substance. Distension of the bowels by warm water, having occasionally overcome obstruction when active enemeta had failed, proves nothing, since the same effect is produced in the stomach, by similar means, in certain states of that viscus, and yet no one denies the general power of emetics.

Enemeta, of an opposite character to those I have enumerated, are also prescribed in similar cases, which act, chiefly, by inducing extreme relaxation. Every one has heard of the efficacy of tobacco with this view, in the shape of decoction or fumigation. The first preparation consists of a drachm of the leaves to a pint of water. But so distressing at all times are the effects of this remedy, and often so alarming, that it ought not to be resorted to, except in an emergency, and even then it will be advisable to proceed cautiously, exhibiting only half the quantity at once. Death has sometimes happened from this injection, and I have repeatedly witnessed the life of individuals placed in some jeopardy from it. Yet it is a remedy of such indisputable efficacy, that we cannot entirely dispense with it. By Mr. Earle it has, therefore, been lately proposed, that, as a substitute for the enema, we should, in all cases, use a suppository of tobacco, which, at a moment, may be withdrawn, and all bad consequences averted.

For the administration of tobacco fumes, a particular apparatus has been invented. But should this not be at hand, it may be done conveniently enough with a common clay pipe, introducing the tube into the rectum, and covering the mouth of the bowl with a fold of linen, through which the smoke can be blown into the bowels.

The fumes are far safer than the infusion of tobacco, and, according to my experience, incomparably more effectual. As acting on the same principle, and hence appropriate to cases of spasm, the opiate injection should here be noticed. Eight or ten grains of opium, or a corresponding portion of laudanum, entangled in a gill of mucilage, and lodged in the rectum, will, by overcoming spasmodic stricture, now and then be found most happily to succeed.

Tepid water alone, I have said, often opens the bowels. The very reverse of this is now and then practised with advantage, under desperate circumstances. Constipation the most obstinate, has sometimes been removed, by throwing up the rectum the coldest water, even iced water. Effectual, however, as the preceding formulæ generally prove, cases do occur, in which they fail. As a dernier alternative, I would suggest the bold exhibition of emetic tartar, as formerly pointed out, injecting from twenty to sixty grains dissolved in water.

Clysters rarely reach, even when most forcibly urged, beyond the sigmoid flexure of the colon. They act principally, by exciting the lower portion of the intestinal tube, and produce only partial discharges. It is on this account, that they are comparatively of little service, unless a purgative has been previously taken, in which event, by promoting its operation, the alimentary canal becomes completely evacuated. But such is not invariably the case, as it

sometimes happens, that the local impression is extended through the medium of sympathy, and very thorough and copious discharges are the consequence. To accomplish this end, the injection must, in some instances, be frequently repeated, with the largest possible quantity of fluid, which the bowels will admit. To be more precise, however, I will state the measure adapted to the several stages of life. An infant, at its birth, or soon after, requires one ounce: a child, between the age of one and five years, from four to six ounces: a youth of ten or fifteen years, a pint—and an adult, from a pint and a half, to a quart. This is the maximum, and appropriate to extreme cases.

The means ordinarily used, for the administration of injections, are, a pipe and bag, or a pewter syringe, both of which are defective, on several accounts, and especially where we wish to throw up a large quantity. De Haen's instrument for this purpose, is a common syringe, with a lateral tube fixed to it, through which it may be replenished without drawing it from the rectum. No doubt, by this contrivance, so much fluid might be injected, as to overcome, by mere distension, almost any obstruction of the bowels. This, indeed, is no longer a matter of conjecture, as the experiments of De Haen himself show the practicability of it, he having thus filled the colon of a dog,—forcing the valve, which offers the resistance to the passage of fluids upwards.

Greatly superior to either of the common instruments, is a large flexible bougie, fixed to a bladder, or a bag of oil silk. It is easily introduced,—gives no pain from the readiness with which it accommodates itself to the course of the intestine,—and reaching up to some distance, so disposes of the matter of the injection, as to secure its retention, and, in other respects, the fuller and more complete design of the measure.

Enemeta are capable of answering several indications besides such as have been mentioned. But, as these do not properly appertain to cathartics, they cannot be noticed in this place. All that I shall remark further is, that, when used as fomentations, the blandest fluid, in large quantity, is selected,—that, to restrain diarrhæa, or to relieve spasm of the bowels, or for any anodyne purpose, an ounce of thick mucilage, with a portion of laudanum, is the form adopted,—and that, to remove the tormina, or tenesmus, of dysentery, the best injection consists of a pint of melted butter, or lard, perfectly fresh, or, in other words, without salt, or rancidity.

## SECTION X.

# Of Diuretics.

These are medicines which promote the urinary discharge. As respects their precise mode of operation, some difference of opinion has always existed. It was formerly believed, and is even now, by those who retain any of the prejudices of the humoral pathology, that the articles of this class enter the circulation, with an entire retention of their powers, and act directly on the kidneys. Entertaining this impression, diuretics were much prescribed at the time, with a view of expelling certain peccant matters, imagined to be the cause of particular diseases. But, whatever may have been the utility of the practice, under certain circumstances, there can be no doubt of the inaccuracy of the views by which it was dictated.

An increase of the urinary discharge may take place, either by stimulating the kidneys, or by an in-

vigoration of the powers of absorption, and especially in cases of dropsical effusion. Diuretics are, therefore, of two species, though each operates by an action primarily on the stomach, extended to the lymphatics, or kidneys, according to the affinity of the article to the one or the other of the parts. As the effects of these remedies is not a little controlled by certain circumstances, it is right that such should be indicated.

By a law of the animal economy, it would seem, that the discharge from the skin and the kidneys, is in an inverse proportion. Whatever increases perspiration, will, most commonly, diminish the urinary secretion. It is on this account, that, in the administration of diuretics, we ought studiously avoid the application of external heat, and, as much as possible, keep the patient out of bed. Cold to the surface, on the contrary, heightens their effects, and, when admissible, may be resorted to with very great advantage. This, indeed, is so strikingly the case, that exposure to cold air, or walking on a cold floor, or immersing the feet in cold water, or cold applications to the pubes, will often excite the action of the urinary organs, when every thing else has failed.

The operation of diuretics is also promoted by diluent drinks. It is obvious, that, if much liquid be taken into the stomach, it must be eliminated by perspiration, or urine, or internal exhalation. There are states of the system, in which it has been thought doubtful, whether it would be prudent to endeavour to excite the increased flow of urine by these means.

It sometimes happens, that recrementitious fluids, instead of passing off by the natural emunctories, are effused into some one of the cavities of the body, or cellular membrane, giving rise to dropsy, or, if it previously exist, aggravating the disease. An apprehension of this sort, has so strongly prevailed with some practitioners, as to lead them, under such circumstances, to enjoin, as much as possible, an abstinence from drinking, and, it is alleged, that such abstinence has, in some instances, effected cures. But this statement, I suspect, will not bear a very rigorous scrutiny. To such purport, facts are of rare occurrence, and the numerous examples of the total failure of the practice, have led finally to its abandonment. It is, indeed, a very painful and difficult task, to resist the vehement thirst, which usually attends this disease. Drinks, in these cases, most fortunately, seem to promote the urinary discharge, and, of course, to reduce the degree of effusion; while, on the contrary, the abstinence, which has been thought so important, conduces manifestly to the inactivity of the kidneys, and to a correspondent accumulation of water.\*

Cullen's Mat. Med.

<sup>\* &</sup>quot;I have frequently found, that a very entire abstinence from drinking, by diminishing the quantity of urine, allowed the secretories of the kidneys to fall into a contracted state, so that the quantity of urine voided was still further diminished, and, as I judged, tended to increase the effusion, and thereby, to aggravate the disease."

By observing their beneficial tendency, the practice has, for some time, become very general, to endeavour to invigorate the action of diuretics, by the copious use of diluent beverages. Common water often answers the purpose exceedingly well, though water, impregnated with the vegetable acids, will be found more agreeable to the patient, and of decidedly superior efficacy. Even by the use of such drinks alone, cures of dropsy have been effected: to which point we have the evidence of Sir George Baker, of Sir Francis Milman, and of Cullen himself, not to mention a variety of other names, of nearly equal respectability. The propriety, indeed, of indulging the patient in a liberal use of drink, is now so incontestably settled, by the concurrent approbation of the ablest practitioners, that it would be superfluous to attempt to enforce it by any theoretical deductions, or by a recurrence to additional authorities.

Even admitting, that the practice proves occasionally prejudicial, such instances can be deemed exceptions only to a very general rule, and the mischief is so easily detected, as to be at once guarded against, or arrested in its progress. Discovering that the drinks, instead of answering the purpose of their administration, by taking a wrong direction, serve only to excite effusion, and enlarge dropsical distension, they would, by every physician of any sagacity, be timely discontinued, or restrained.

The action of diuretics, is, moreover, promoted, by the direct reduction of arterial action. The blood vessels and lymphatics are, to a certain extent, antagonising powers, and, while the former retain their force, the functions of the latter are feebly exercised. No one, indeed, can have failed to have observed the activity of absorption in most cases of debilitated circulation, and how imperfectly it proceeds where the pulse is febrile or excited. Instructed by this very obvious fact, we should always, in the use of diuretics, watch attentively the state of the system, and duly regulate it, by occasionally recurring to venesection, or other measures of depletion.\*

Diuretics have been recommended in many diseases, though it is in the several forms of dropsy, that they display their best powers, and are generally employed. The manner in which they operate, here, has been a matter of doubt and speculation. To some it is inexplicable how any evacuation by the kidneys, can remove an accumulation of fluids in the cavities or tissues of the body. As I have already stated, there are two sorts of diuretics, the one having an immediate relation to the urinary organs, and the other to the lymphatic system, and, in the cases alluded to, it is to the latter we are chiefly to ascribe the effects.

The use of diuretics has been extended, so as very generally to embrace the diseases of the urinary or-

<sup>\*</sup> Determining, from the great praise which Mr. Majendie has received for his recent experiments illustrative of this point, it would seem, that, in a physiological as well as a practical view, it had escaped attention in Europe.

gans. There is, indeed, scarcely one of these affections, in which some one of this assortment of articles is not occasionally prescribed, and often, as affording the best means of relief.

Their utility in nephritis of every species, however induced, is a matter so well known, and universally admitted, that little need be said on the subject. Yet, these cases are exceedingly different, and connected with such opposite conditions of the system, that, for their successful management, some nicety of discrimination is required, in the selection of the proper article. Equally do these remarks apply to the affections of the urinary bladder, these being also various, and exacting very dissimilar remedies. To point out now, with any minuteness, the relation of the several articles of this class of medicines, to the cases of disease to which I have alluded, would be only an anticipation of what can be much better done, when I arrive at the consideration of particular diuretics.

No slender confidence was reposed, at one time, in the powers of diuretics in the disorders of the lungs, whether of an acute or chronic nature.

" In omnibus morbis pectoris ad urinam spectandum."

This is the language of a distinguished writer, by which he meant to express the importance of attending to the appearance, as well as to the promotion of the urinary discharge, in these cases. Considering how much and variously this secretion is affected by morbid impressions, we do, certainly, in the present state of medical refinement, improperly overlook it, not only in forming our estimates of disease, but, also, as furnishing a guide to the cure.

By a writer of great intelligence,\* it has lately been shown, and, I think, with sufficient probability, that the urine, at least in dropsy, affords, among the most unerring criteria of the several states of the discase, and, of course, the leading indications of treatment. Nor should it be forgotten, that, by the ancient cultivators of medicine, who, confessedly, are unrivalled in the precision and fidelity of their observations, the urine was greatly attended to, in framing their conclusions. Why we should so carefully inspect the alvine evacuations in disease, and be totally heedless of the urinary discharge, is neither to be explained nor vindicated.

The kidneys are one of the emunctories, through which nature, when oppressed by disordered action, endeavours to relieve herself, and this she does chiefly, by throwing off the more watery parts of the blood, which, in some instances, amount to a very large quantity. Evacuations of this kind, by emptying the blood vessels, though, perhaps, not so effectual, have, unquestionably, a tendency to reduce morbid excitement, and, therefore, are entitled to be classed

<sup>\*</sup> Blackall on Dropsies.

with the other depleting remedies, as venesection, sweating, purging, &c.

These views being correct, it follows, that diuretics are susceptible of a much wider practical application than has hitherto been made. No reason, in fact, exists against their use in all diseases of much action, provided the milder ones be selected, either as auxiliary in the plan of depletion, or, where other means fail, separately and independently. Whether they are particularly serviceable in the purely pectoral affections, as has been alleged, I cannot say. More than one of the active diuretics are much prescribed in these cases, though not exactly with the view of exciting the urinary secretion. Disorders of the chest are, however, so often connected with more or less of effusion, and especially when dyspnæa, or oppression exists, that these medicines generally afford relief, and should never be overlooked.

As to the febrile inflammatory affections, they are sometimes unequivocally benefited by diuretics. It may be remarked too, how often such cases are brought to a favourable issue by a spontaneous diuresis, and this, I think, I have especially seen in gout and rheumatism. That some of the complaints of the head, mania included, may be successfully treated by these remedies, my own experience has satisfied me. Copious discharges from the kidneys, kept up, without remission, for a succession of days, will as completely reduce the force of the circulation, and calm the violence of excitement, in some of these distem-

peratures, as the detraction of blood, or any other means with which I am conversant. Neither should we forget, in speculating on the probable utility of this set of medicines, that many of them operate most powerfully on the absorbents, a system of vessels, much more concerned in the production, as well as the removal of disease, than has generally been suspected. This order of diuretics, however, is chiefly suited to the feebler forms of morbid action, embracing a considerable proportion of the cachectic affections.

Many of the substances considered diuretic, are very inefficient, and a character common to the whole, is that of extreme uncertainty, which is, in part, owing to the want of discrimination in the application of the medicines, and still more to the circumstance, that there is hardly one of the class exclusively diuretic. They are nearly all possessed of other powers, as diaphoretic or purgative, more particularly, and whenever either of these preponderates, diuresis, so far from being increased, is sensibly restrained.

It may be collected from all that I have said, that the following rules are the most important to be attended to, in the use of this description of remedies:

- 1. Be careful in the selection of the article, that it is properly fitted to the case.
- 2. Never prescribe diuretics, if it can be avoided, to a patient in bed.

- 3. Let the temperature of the room be low, and all determinations to the surface prevented.
- 4. As absorption is promoted by the reduction of arterial action, attend to the pulse, and keep it down below the natural standard. This is strikingly applicable to the treatment of dropsical effusions. But avoid depletion by venesection or purging, during the action of a diuretic.
- 5. Where the full effect of the medicine is wished, give diluent drinks freely.

## SECTION XI.

# Of Particular Diuretics.

#### POTASSA.

THE potash, either pure, or in its carbonate states, evinces, in some instances, very considerable diuretic powers. By the older physicians, and, indeed, the custom is continued to the present time, among common people, the ashes of a variety of vegetables were used in dropsy. Being, however, only efficacious from the alkaline matter they contain, the carbonates of potash, as prepared in the shops, have completely supplanted them in regular practice.

## POTASSÆ CARBONAS.

Of this medicine, I do not know a great deal from my own experience, though, from the few trials which I have made with it, I am disposed to think not altogether unfavourably of its properties. Exhibited in the dose of ten or fifteen grains, dissolved in water, and repeated several times a day, it has commonly proved, with me, diuretic, though sometimes purgative. Cullen, who is abundantly sceptical on the subject of medicines, speaks not altogether contemptuously of this one.

The cases of dropsy, in which the potash is, perhaps, most useful, are such as are connected with great depravation of the powers of digestion. It is common, under such circumstances, for an acid to be evolved in the stomach, which produces, or is associated with some very distressing affections. Cullen was of opinion, that the alkali owes all its diuretic properties to a conversion into a neutral salt, by an union with this acid. But I doubt the accuracy of this hypothesis.

By combining the potash with any of the bitter tonics, we very much improve its efficacy in these cases.
Thus exhibited, it is said to increase the diuretic
effect, while, at the same time, it removes the gastric
disorder, and invigorates the system generally. To
Sir John Pringle we are indebted for this practice,
which has since been imitated with sufficient success
to warrant my noticing it. Yet, it must be confessed, that the alkali, in its pure or carbonate state, is
very inferior to several of its combinations with the
other acids, forming neutral salts. Most of these have
diuretic powers, though there is one, which has

been supposed to possess them in so great a degree, as to be emphatically called

### SAL DIURETICUS.\*

Notwithstanding its former reputation, I am not disposed to say much in favour of this article. The few trials which I have made with it, have disappointed my expectations. Like most of the neutral salts, it has the mixed quality of a mild aperient with that of a diuretic, though I suspect it is more apt to act on the bowels than kidneys. Comparatively, at least, it is much inferior to several of the same class of articles. The dose is from ten to twenty grains, dissolved inwater, to be repeated four or five times a day.†

POTASSÆ TARTRAS,

OLIM

### TARTARUM SOLUBILE.

This, which is as well known by the title of soluble tartar, is still retained among the diuretics. There are some of my medical friends, indeed, who repose much confidence in its powers. But my own expe-

<sup>\*</sup> The acetate of potash.

<sup>†</sup> The acetate of potash is decomposed by tamarinds, and most sub-acid fruits—by almost every acid, as well as by every variety of neutral salt, whether alkaline, acid, or metallic.

rience has not led me to appreciate it so highly. Given in the dose of a drachm, several times a day, it will, now and then, very actively promote the urinary discharge, and, at the same time, bring away watery stools.

As a diuretic, I am, however, persuaded, that its powers are promoted by uniting a small portion of the carbonate of potash with it.\*

## POTASSÆ SUPER TARTRAS.

OLIM

#### TARTARUM CRYSTALLI.

This is not a neutral salt exactly, though it is nearly so, and, in all its medicinal properties, so closely resembles these preparations, that we should do a sort of violence in removing it to any other place. Cremor tartar has been much employed in dropsy, and is a very valuable medicine. To ascites and anasarca it seems to be best adapted.

Of our diuretic medicines, it is, perhaps, best fitted to those cases of dropsy, which are accompanied with increased or febrile action, though it here, sometimes, operates more effectually when combined with jalap, or some other active purgative.

<sup>\*</sup> Incompatible substances—Magnesia—baryta and lime—sub-acetate and super-acetate of lead, and nitrate of silver, decompose it. All acids and acidulous salts—tamarinds, and other sub-acid vegetables, by neutralizing a proportion of the base, convert it into a super-tartrate.

Cremor tartar has been strenuously recommended in this disease, by several highly respectable practitioners, among whom are Home and Ferriar. By experiments, they were led to consider its anti-hydropic power, to use the phrase of one of these writers, as quite equal to the digitalis, and, in many respects, to be preferable to that, in some degree, hazardous medicine. My intention is not to make any comparison between the two articles, nor do I see how it could well be done. They are possessed of very different properties, and seem to me not at all applicable to the same description of cases. Certain it is, however, that the cremor tartar, if judiciously administered, will often disperse dropsical swellings more speedily than any other medicine. When it does this so expeditiously, I have observed, that it is by a combined operation on the kidneys and bowels, producing free discharges of urine, and copious watery stools. This fact I mention the more particularly, because there are two modes of exhibiting the article, in which its effects are not a little different. Dissolved in a large quantity of water, it acts merely as a diuretic; whereas, the same dose, given as an electuary, or in a small portion of water, either alone or in combination with some other purgative, will operate as an hydragogue. The latter mode, from what I have said, is, therefore, to be preferred, where we wish to evacuate large accumulations of fluid, and it will be here proper also to enjoin on the patient an abstinence from drink. This should not be forgotten in practice. The dose of the cremor tartar alone, is about a drachm, to be repeated every three or four hours.\*

### POTASSÆ NITRAS.

As a diuretic, nitre has been long prescribed, and is, unquestionably, one of our best remedies in tonic dropsy. It seems, however, to do as much good by subduing febrile action, as by the promotion of the urinary discharge. Dropsy, in its first stages especially, is very often connected with a strong pulse, and a high degree of excitement. Cases of this description are only to be cured by first reducing the force of the circulation, and, as one of the means of attaining this end, nitre is eminently useful. The average quantity of the medicine directed, is a drachm or two a day, and a very common mode of giving it, is in powders. I am sure that its efficacy is improved by a small addition of emetic tartar, and, in some cases, also, by calomel.

Wishing, however, its diuretic effect chiefly, it is best to exhibit it in free dilution. An ounce dissolved in two or three pints of water, or cider, which latter vehicle is admissible in the weaker forms of dropsy, may be taken with less inconvenience to the

<sup>\*</sup> Incompatible substances.—Alkalies and alkaline earths—the mineral acids, &c.

stomach, than a drachm in the usual way, and its operation on the kidneys is secured in a tenfold degree.\*

## SPIRITUS ÆTHERIS NITROSI,

OLIM

#### SPIRITUS NITRI DULCIS.

This medicine, which consists of a portion of nitric ether and nitric acid, combined with alkohol, has been held in very great esteem, as answering a variety of indications. As a diuretic, it sometimes proves active, when largely given. But it is chiefly valuable in the cases of children. We have, indeed, scarcely any medicine, which, in their complaints, can be substituted in its place, and it may be given to them, even in the earliest periods of life. Besides dropsy, to which children, in certain parts of our country, are subject, the spirit of nitre is a valuable remedy in the disorders of the urinary passages, and particularly in some instances of partial or complete suppressions of urine.

<sup>\*</sup> Incompatible substances.—Alum—sulphate of magnesia—sulphuric acid—the sulphates of zinc, copper, and iron; and, according to the usual laws of affinity, it should also be decomposed by sulphate of soda, which, however, does not occur, except at the temperature of 32° and then partially.

We commit a mistake, in giving too little of this medicine. As a diuretic, the dose for adults should be about half an ounce, and for children, in the same proportion. The spirit of nitre is one of those articles which has also, in some measure, a tendency to excite perspiration, and, exhibited in a reduced quantity, it is much more apt to be directed to the surface.\*

#### APIUM PETROSELINUM.

Every part of this plant, the common parsley of our gardens, is actively diuretic, though a strong infusion of the roots I have usually prescribed. The seeds will probably answer as well. Having become a domestic remedy, parsley has been too much overlooked in regular practice. I know of no diuretic more valuable, in certain cases.

In dropsy, it has, undoubtedly, done good, having, within my own knowledge, cured ascites, where tapping had been twice used. But, beneficial as it may be here, I suspect it is still better adapted to the ordinary suppressions of urine. In strangury from

<sup>\*</sup> Incompatible Substances.—With a solution of green sulphate of iron, it strikes a deep olive colour, owing probably to its holding a portion of nitrous gas in solution, and with the tincture of guaiacum, it produces a green, or blue coagulum. By age and exposure to the air, it is gradually decomposed, and gives rise to the reproduction of nitrous acid.

blisters, it is one of our best remedies, and I think it scarcely less serviceable in similar affections from other causes. The painful micturition, so frequently an attendant on nephritis, I have sometimes relieved by its use.

This medicine is recommended, particularly by the circumstance of its being retained, nearly under all circumstances, and which is the more important, as the stomach is generally very irritable in the complaints of the urinary organs. To heighten the effect, it is customary to unite with the parsley, the seeds of the water-melon, but, whether any particular advantage is gained by the addition, I am prepared neither to aver nor deny.

### LEONTODON TARAXACUM.

Dandelion is a plant common to the United States and Europe. It has some valuable medicinal qualities, and, among the rest, that of promoting the urinary discharge. But I do not know whether this effect is so conspicuously manifested, as to entitle it to a place with the diuretics. The fact is, that it has no very sensible operation.

As a diuretic, the only case in which I have ever employed it is dropsy, associated with visceral obstruction, and here it has sometimes proved useful. The best reputation, indeed, of the article is as a deobstruent. By Zimmerman, Bergius, and other practitioners of the continent of Europe, it is highly extolled in this view, and more recently by Pemberton, in his work on the diseases of the viscera.

In obstructed states of the liver, it does most good. But we are told by the last named writer, that he has seen great advantage result from it in chronic inflammation, and incipient scirrhus of that viscus, as well as in chronic derangements of the stomach. Of its utility in the latter cases, I am fully persuaded.

The late Dr. Rush had much confidence in the deobstruent powers of this article, and often prescribed it in hepatic affections. In evidence of its efficacy, he was in the practice of relating the fact, which he learnt from the butchers of this city, that *liver grown* cattle are speedily relieved by grazing in fields abounding in this vegetable. But perhaps this effect ought rather to be ascribed to the change of diet and habits of the animal, and particularly since we are taught that the virtues of the plant are in the root.

Dandelion may be given in the form of extract, or decoction—the latter made by boiling an ounce of the root, sliced, in a pint of water, till the quantity is reduced one half, adding to the strained liquor a drachm of the vitriolated or cremor tartar. The dose of this is an ounce or more, several times a day—and of the extract, which is an officinal preparation, from a scruple to a drachm, repeated in the same way.

As a sallad, the fresh leaves of the dandelion are used, when boiled, as a green. The root, well roasted, makes a very tolerable substitute for coffee.

### DIGITALIS PURPUREA.

Besides the mild and stimulating diuretics, we have articles, strongly possessed of the power of increasing the urinary discharge, of a somewhat peculiar nature, which may, perhaps, with propriety, be interposed between these two sections of this class of remedies. Of these, by far the most prominent and interesting article, is the digitalis, or fox glove.

This plant is not a native of the United States, though it is cultivated among us, and succeeds so well, that it may be considered as naturalized in this country. Of the several species of fox glove, the one selected for medicinal use, is the digitalis purpurea.

Every portion of the plant possesses its peculiar powers, but the leaves are preferred for medicinal purposes.

Considerable attention is required, in the selection and preparation of the medicine. The leaves should be gathered when the flowers are just beginning to develop themselves, and the largest and deeper coloured, are the best. They are to be carefully dried in a warm room, through which a current of air passes, and when crisp, to be reduced to powder, and

kept in bottles closely corked, and not exposed to the light. These are the directions of a writer, who has devoted much attention to the subject. It is a more common practice, however, to preserve the leaves entire, and, from what I have heard, the virtues are, in this mode, best retained.

The effects of digitalis on the system are extraordinary, and there is no little difficulty in determining its precise mode of operation. In a full dose, it produces exhaustion of power, marked by great and sudden reduction of vigour in the circulation, the pulse being diminished, both in frequency and force, falling, sometimes, from seventy-five or eighty to thirty or forty beats in a minute, and is rendered exceedingly small and tremulous. This is accompanied with sickness, anxiety, vertigo, dimness of vision, and, in a very large dose, with vomiting, syncope, coldness of the extremities, coma, convulsions, and, pushed a little further, by death. But these consequences of the medicine are not uniform: even from the same dose, we observe considerable diversity of operation in different individuals. Thus the pulse is sometimes rendered lower, without being diminished in fulness; while, at other times, it becomes broken and irregular, imparting a sort of jerking, or convulsive stroke. Nor does sickness, or other gastric affections, always attend even its extreme, much less its usual, operation. In some cases, when administered in the ordinary quantity, no effect whatever is evinced for a considerable length of time, and then, suddenly,

and very unexpectedly, the whole of its powers are disclosed, to such an extent, indeed, as occasionally to excite alarm for the safety of the patient. Examples of these violent effects are not of very frequent occurrence, though they are sufficiently so, to create some degree of circumspection in the use of the article, where we find its operation slow and protracted.

I have had several opportunities of remarking, especially in dropsical effusions, that, though the medicine, for a succession of days, were given in an ample quantity, it was entirely passive, neither influencing, perceptibly, the arterial or absorbent vessels, nor disturbing any of the functions of the animal economy, when, almost instantly, there would come on, depression of the pulse, a loss of general power, and a profuse discharge by the urinary passages. Thus induced, its effects will continue for several days without the slightest abatement, though the medicine be omitted, being analogous, in this respect, to mercury.

Another singularity attending digitalis, originally mentioned in the Edinburgh Medical and Surgical Journal, is worthy of attention. I allude to its action being, in some instances, regulated by the different positions of the patient's body. In the case in which this extraordinary peculiarity first attracted observation, the pulse was much increased in frequency when the patient stood up, being, in this posture, upwards of an hundred: but in sitting down, it fell to seventy-five, and, when lying on his back, to forty

strokes in a minute. The experiment was repeate again and again, and with precisely the same result. Cases of a similar nature, though not in the same degree, have since been recorded by Hamilton, Beddoes, and other writers of respectability, so as to leave no doubt of the occasional existence of the fact. These anomalies, or exceptions to the ordinary operation of digitalis, are curious in themselves, and eminently interesting in a practical point of view.

It has been a matter of considerable discussion, ever since digitalis claimed any attention, whether it produces its more regular effects by a sedative or stimulant operation. I do not mean to entangle myself in this idle dispute. Conformably to the definition which I have already delivered of those terms, it appears that I, at least, must place it among those articles which are calculated to reduce action. It is, nevertheless, insisted, and, from actual experiments too, that its primary operation is, to increase the number, and in some instances, perhaps, the force of the pulsations. This, however, even admitting it to be true, is a mere transient effect, which passes away in a very short time, leaving the system in a state which can only be referred to the operation of a sedative.

In the experiments to which I have alluded, the effects of the article on the pulse were alone attended to, not the slightest notice being taken of its action on other parts of the system. This is a defect which is incident to almost all the investigations I have met with, of the articles of the materia medica. The arte-

rial is only one of many systems of the body, and is so insulated, in its relations to certain medicines, that very strong impressions may be made upon it, without at all extending to the other portions of the animal machine. The converse is equally true. There are many substances which act intensely on particular parts of the system, without affecting, in the slightest degree, the blood vessels. The state of the pulse, therefore, can never be trusted alone, as affording a safe criterion, by which we are to determine the properties, and modus operandi, of medicines. Looking, however, at the general effects of the article, as already detailed, we can have little hesitation, I think, as to the nature and properties of digitalis. Connected by botanical affinity with the nicotiana, the hyosciamus, the cicuta, the solanum, and other narcotic sedatives, it has, with some modification, all the distinctive features of its congenera, or kindred plants. Like these, it lessens the mobility, or excitability, and in this way, reduces, after a short interval, the actions of the system at large.

Having now disposed of all those preliminary points which were necessary to the correct understanding of the qualities and modus operandi of digitalis, I next proceed to the application of it to the cure of diseases. This is no easy undertaking. The fortune of our medicine has been various in the medical world. At one time, it was extolled as the most valuable of remedies, in a wide circle of cases, and at another, proscribed and rejected as inert and useless. This flucture

tuation and contrariety of opinion has extended to the present moment, and while one set of practitioners consider digitalis as indispensable in the management of certain diseases, there are others of equal respectability, who, in contempt of its properties, would almost be for expunging it from the materia medica. These opposite views of the same article are, indeed, very extraordinary, and can only be accounted for by supposing, that the plant, owing to negligence in the curing, has not always possessed equal powers—to the want of accurate observation of its effects, or to its having been given in diseases, or forms of the same disease, which were not at all suited to its use.

Of the diseases in which the digitalis has been employed, its efficacy in dropsy is least disputed. To Dr. Withering, we owe the introduction of the medicine into the treatment of this disease. It appears, that he had the most ample opportunities of experimenting with it in every species of hydropic effusion, and, so highly did he estimate its diuretic powers, that he declares, "so far as the removal of the water will contribute to cure the patients, so much may be expected from this medicine."

No sooner was the fact known, of the utility of digitalis in dropsy, than the periodical journals were filled with communications from the most eminent men, of its further success in their hands, and, in the list of those who bore testimony in its favour, are the distinguished names of Darwin, Baker, and Percival. The former of these spoke of it with his usual enthu-

siasm, and thought it serviceable in every variety of effusion, whether occurring in the cellular membrane, or in the cavities of the body. But, in the latter part of his life, he appears to have lost, in some degree, confidence in the remedy, and it became, finally, his opinion, that it was best suited to cases produced by intemperance and debauchery. Combining digitalis with bark, he also gave a grain of opium at bed time, and continued this practice, without intermission, for a length of time. No medicine, I suspect, will be found more useful in all the complaints of drunkards, than opium, and hence I have every reason to suspect, that the above prescription is an excellent one.

By Dr. Ferriar, one of the most able and accomplished medical men of the age, digitalis has also been used very extensively in dropsy. But the result of his multiplied trials with the medicine, is not so favourable as that of some other practitioners. From a review of the cases which he has published, the following estimate may be made. "Digitalis," says he, "has been given in twenty-nine cases, of which eleven were cured, seven died, two were relieved, and nine remained stationary. But the cremor tartar succeeded in thirty-three cases out of forty-three." It appears, therefore, from this statement, that digitalis is decidedly inferior, in point of efficacy, in dropsy, to cremor tartar, an article which has hitherto been considered, generally, as having infinitely less power over the disease.

By the no less celebrated Dr. Currie, even a still more unfavourable report has been made of the fox glove, in hydropic affections. Considering the digitalis as a sedative, or highly debilitating medicine, he thought it, indeed, wholly inapplicable to a disease, which, he maintained, originates in exhaustion.

It would be easy to cite many other writers, and such, too, as are by no means contemptible, who go still farther to disparage the powers of this medicine. But it is superfluous; since, by a fair comparison, it will be found, that the weight of authority decidedly preponderates in support of its efficacy. If, indeed, there be a fact in the practice of physic, which is so deeply rooted in certainty, as not to be disturbed by cavils or disputation, it is the utility of digitalis in dropsy. There is no species of the disease in which I have not employed it, occasionally, with great advantage, and it seems to me to be nearly as well adapted to the one as the other. It is useful in hydrothorax, in anasarca, and ascites: all that we have to attend to in its administration, is to see that the system is in a proper state for its reception. As long as there is much activity in the pulse, and a considerable portion of general strength remaining, it will prove mischievous. Cases of this description are to be previously managed by venesection, purging, and other directly depleting or antiphlogistic remedies. In these views, I am fully warranted by Withering himself, whose ample experience entitles his opinion to particular respect. He states, "that in persons of tense fibres,

and great natural strength, the medicine seldom succeeded, while, on the contrary, if the pulse were feeble or intermitting, the countenance pale, and the skin cold, it hardly ever failed to do good." By observing this, he was induced to attempt the reduction of his patients to that state which he conceived was favourable to the operation of the medicine, and for this purpose, chiefly recommends squills and cremor tartar, which, he thinks, are the best preparatives to the use of digitalis.

It has been just remarked, that digitalis is very serviceable in all the species of dropsy. This is not a common opinion. By many, it is considered to be productive of little advantage in ascites, and to be extremely useful in the accumulations of the chest—to which, I can only state in reply, that my own experience teaches me the contrary. Certain I am, that I have done less good with it in hydrothorax, than in the other cases.

Of those who differ from me on this point of practice, Dr. Hamilton, the author of a treatise on digitalis, expresses his opinion with the greatest confidence. "That a collection of water," he says, "in any of the cavities within the chest, must constitute a disease of great danger, by impeding the action of organs essentially necessary to life, cannot be denied: and, it is equally obvious, that such a disorder, if not removed, must soon prove fatal. But, that this desirable object may be obtained by the proper use of the digitalis, experience, by which alone I presume

I have adopted the effective use of this medicine in such cases, I have never seen one, however advanced, or desperate, that was not speedily relieved by it: indeed, it has, in such distressing instances, appeared possessed of powers infinitely beyond what could have been hoped from any medicine whatever, and almost approaching to certainty of effect." Most happy would it be for humanity, were one half of this account correct, and, it is truly surprising, how a writer, otherwise so respectable, should permit his judgment so far to be deceived by his prejudices or enthusiasm, as to make so extravagant and unfounded a statement!

There is a case, however, of dropsical effusion, in which I fully coincide with him as to the great efficacy of digitalis. The more violent attacks of scarlet fever are often succeeded by anasarcous swellings of the lower extremities, and, occasionally, of the whole body, proving exceedingly troublesome, and sometimes even dangerous. Being considered as the effect of debility, it has been customary to treat this complaint by tonics or stimulants, and rarely with success. The utility of active purging, under such circumstances, I have already mentioned. But, like all other modes of treatment, this will not uniformly succeed, and there are cases connected with a low and enfeebled condition of the system, to which it is utterly inapplicable. Exactly where purgatives

are precluded, in these affections, will the digitalis be found serviceable.

As might be presumed, our medicine has not been overlooked in the disorders of the urinary organs. By several writers, it is well spoken of in nephritis and I have heard of its being prescribed in painful dysury from other causes. But I am distrustful of its efficacy in these cases. It seems to me to be one of the diuretics which act directly on the absorbent system, and have little or no relation to the kidneys: and to this inference I am led, by having observed, that it never produces an increased discharge of urine, except in dropsical effusions.

Digitalis is now prescribed in three different forms, in substance, in tincture, and in infusion. The last is made by putting one drachm of the dried leaves into eight ounces of boiling water, to be reduced to seven ounces, to which, when strained, one ounce of any aromatic spirit is to be added. The dose of this, for an adult, is about a table spoonful three times a day. A grain of the powder is usually given, either alone, or mixed with some aromatic, morning and night. It may also be made into a pill, which is, perhaps, a more convenient and agreeable mode of exhibition. Of the tinctures, there are two, the most approved of which, is prepared agreeably to the formula of Dr. Darwin, by digesting two ounces of the dried leaves, coarsely powdered, in eight ounces of proof spirit, for some days, and it is called the saturated tincture; while that prepared

after the directions of the London and Edinburgh Pharmacopæias, contains only an ounce of the leaves. The medium dose of the first is about five or six drops, and of the second, double the quantity.

An opinion is entertained by some practitioners, and, among others, by Withering himself, that the infusion is particularly adapted to dropsy, or other cases in which the diuretic effect is desirable; and that, in substance, the medicine answers best where its narcotic property is indicated, as in the pneumonic affections. Given in the latter mode, it is also alleged that it is much more apt to produce its noxious or exorbitant effects, as not passing off so readily by the kidneys, the repeated doses, under such circumstances, being accumulated in the system. As I have never witnessed such a result, or heard of any well authenticated cases of its happening, I presume that this is mere conjecture, wholly unwarranted by fact.

The dose of digitalis requires to be regularly increased, where we wish to derive full advantage from it. But, in making this increase, we must proceed with caution, from the circumstances already mentioned, that the action of the article is, in some instances, suspended for a time, or at least, does not develope itself—and as we are often surprised with inordinate effects, even from a moderate dose, owing to some peculiarity of constitution. Certain signs usually occur, by which we are admonished of its undue effects; and on their appearance, it should in-

stantly be discontinued. These are, retardation of the pulse, palpitations, faintness, sickness, and purging. There is, likewise, a membranous tensive pain of the head, sometimes over one eye, with a sort of disturbance of the brain, that occasionally attends an over dose, preceding every other bad symptom, and which has not hitherto been sufficiently noticed, though, if neglected, it generally proves the precursor of convulsions and death.\*

Its more ordinary effects are extreme nausea, or vomiting, dim and perverted vision, nervous tremors, cold sweats, with an utter prostration of arterial and general strength, the pulse sometimes slow, though as often quick, diminutive, and tremulous, and the whole accompanied by the utmost degree of indescribable wretchedness. To afford relief in a case like this, we are called upon without delay, and the treatment consists of a blister over the stomach, or sinapisms to the extremities, with the freest use of the active stimulants, and cordials, as opium, volatile alkali, the tincture of cloves, and, above all, strong brandy and water. Great reliance, we are told by Beddoes, is also to be placed on opium, and where, on account of the state of the stomach, it cannot be retained, anodyne enemeta may be substituted. †‡

<sup>\*</sup> Blackall on Dropsies. † Narcotics.

<sup>‡</sup> Incompatible substances.—The sulphate of iron, and the infusion of yellow Peruvian bark produce precipitates, and its effects are greatly counteracted by the use of brandy and water.

#### NICOTIANA TABACUM.

To what I have said of this article, under the head of emetics, little remains for me to add. As a diuretic, it is, in some respects, similar to digitalis, though, undoubtedly, a very inferior medicine. Not many years ago, it was introduced by Dr. Fowler, with much commendation, as a remedy in dropsy, and, at the time, as is usual with new medicines, was strongly supported by the attestations of some other respectable practitioners. But its reputation has gradually been declining, and, at present, I suspect, it is very rarely employed. Of my own knowledge, I cannot speak relative to its properties in dropsy, having never prescribed it. Being so exceedingly unpleasant in its effects, we ought to have very unequivocal evidence in its favour, before we resort to it, in preference to other remedies, of indisputable efficacy. To the utility of this article in some other affections, the evidence is more pointed. I have elsewhere mentioned Mr. Earle's mode of treating retention of urine by it\*—and it would seem to be, in some of these cases, scarcely less serviceable when given internally. It is prepared for use, by infusing one ounce of the dried leaves in a pint of water, of which the dose is

<sup>\*</sup> Emetics.

twenty or thirty drops, gradually augmented, till it amounts to three or four times this quantity.

MELOE VESICATORIUS,

VEL

## LYTTA VESICATORIA.

Cantharides, in whatever manner applied to the body, evince a very decided affinity to the urinary and genital organs, and hence are used in many of the diseases of these parts.

To promote, as well as to restrain, the urinary discharge, they are employed. It seems, at first, not a little extraordinary, that the same article should be capable of meeting such contra indications. As an attempt towards an explanation, I shall only observe, that the medicine produces dissimilar effects in opposite conditions of the system, and in different quantities. Exhibited in a state of excitement, or at any time, in small doses, it most commonly occasions strangury, while, in a reverse state of the system, and in large doses, it as constantly proves diuretic. Thus, in the weaker forms of dropsy, two, three, or four drachms of the tincture, given in divided doses during the twenty-four hours, will produce the most copious evacuations of urine. Never, indeed, have I witnessed more powerful effects in this way, from any remedy, and to such cases of the disease, therefore, it appears to be adapted.

The fact which I have stated, does not rest entirely on my own observation. It is, on the contrary, corroborated by several very respectable authorities. But I must not conceal, that, by some of equal weight, very different representations have been made, of the properties of the article. Cullen, among others, seems to distrust altogether its diuretic powers, and to consider its operation as confined to the neck of the bladder. But he is surely incorrect in this view of the subject.

As before mentioned, cantharides are prescribed in some of the cases of incontinence of urine. They have been given with success in this affection, dependant on general paralysis, as well as in that proceeding from over distention of the bladder, and, conversely, in ischury, having its origin in similar circumstances. They have, also, and especially within a few years, been very strongly recommended in gleet and leucorrhæa.\* But, after a pretty fair trial in each of these complaints, I am not warranted to say much in favour of the remedy. Of their powers in diabetes, I have no knowledge.

Cantharides may be directed in substance or tincture. The dose of the former to begin with, is about a grain, made into a pill, and of the latter, ten or fifteen drops, except in reduced or phlegmatic states of

<sup>\*</sup> Robertson on Cantharides.

the system, where the medicine may be much more liberally prescribed.\*

## TEREBINTHINA VENETA.

This is an exudation from a tree, the pinus laryx. It comes to us a thick tenacious mass, of a pale yellow colour, having a pungent taste, and a very peculiar odour. By distillation it affords a large portion of essential oil, the oleum terebinthinæ, which is highly volatile and inflammable. The residuum constitutes the resina alba, vel flava, of the shops.

Of these preparations, the first two are chiefly prescribed internally, and the oil is preferred. It is a very pervading stimulant, directed specifically to the urinary organs. As a diuretic, however, it does not display much activity in dropsy, or, at least, my trials with it, in the atonic shapes of this complaint, have not been successful. Much more may be done with it in some of the nephritic affections, and I have, undoubtedly, seen it useful in the strangury from blisters, in gonorrhæa, gleet, and leucorrhæa. The dose of the concrete turpentine, is four or five grains, and of the oil, ten or fifteen drops, to be repeated once or twice a day. Exhibited much more largely, its diuretic effect is defeated, by the purging which it

<sup>\*</sup> Incitants-Epispastics.

occasions. The resin is hardly ever used, except in the composition of unguents or plasters.\*

#### BALSAMUM COPAIVÆ.

This balsam is exuded from a tree, the copaifera officinalis. Though, undoubtedly operating actively on the urinary passages, it has never claimed much attention in dropsy. But in some cases of nephritis, it is admitted to be highly serviceable, and has not been less beneficially employed in leucorrhœa and gleet. My conviction, however, is, that it is more particularly adapted to the early stages of gonorrhœa. Ever since I entered upon the exercise of my profession, I have trusted to the copaiva almost exclusively, in the management of this disease, and my confidence in its powers has increased, and is fully confirmed. This is no new practice. The medicine was long ago employed in gonorrhœa, though, in the final stages, when the inflammatory symptoms had subsided, and the doses were small and inefficient. Experience has taught me to pursue entirely a different course. Commencing with it on the very accession of the disease, I am utterly regardless of all the appearances of inflammation, such as ardor urinæ, chordee, &c. No remedy, indeed, is better calcu-

Antilithics-Anthelmintics-Incitants-Enemeta-Rubefacients.

lated to relieve these very symptoms, than the copaiva itself.

In the treatment of gonorrhæa, one caution, at least, should always be enjoined on patients who are desirous of a speedy cure. It is, an entire abstinence from every heating article of food or drink, and a state of complete repose. Without low living and rest, this, and all other plans of managing the disease, are counteracted, and rendered comparatively of little use.

There are two circumstances which interfere with the exhibition of the copaiva, and detract from its utility. It sometimes purges, and when it does, its efficacy is lost, or greatly diminished. We should here combine laudanum with it, which commonly checks this prejudicial tendency. But, if it should not, the medicine must be discontinued for a few days, till the bowels recover their tone. To the stomach of some persons, the copaiva is also exceedingly offensive, so much so, indeed, that it cannot be retained. It is often very difficult to overcome this prejudice, as it is hardly possible to disguise the taste of the article. In my various endeavours to effect this purpose, I do not know that I have succeeded better than by one of the annexed prescriptions.\*

<sup>\*</sup> R Bals. copaiv., Sp. nitr. dulc. āā Zss., Sp. lavend. comp. 3ii., Tinct. theb. 3i., Pulv. gum. arab. 3ii., Aq. font. Ziii. m. R Bals. copaiv., Sp. nitr. dulc. āā Zss., album. ovi, Sacch. alb. 3i., ft. mist.—adde, Tinct. theb. 3i., Aq. font. 3iii. m. Of these mixtures, the dose is a table spoonful, three times a day.

It may, however, be taken dropped on milk or sweetened water.

On the use of the copaiva, I am thus precise in my instructions, because I do really conceive, that I am suggesting a very important practical improvement, and one, perhaps, on which information cannot elsewhere be procured. No complaint, of so slight a nature, is more troublesome to the patient, or more vexatious to the practitioner, than gonorrhæa. Contrasted with the ordinary mode of treating it by injections, the plan which I propose has several advantages. It is more convenient to the patient. It produces no swelled testicle. It occasions no strictures. It leaves no gleet. It is more prompt and certain in the cure.

In what manner the copaiva operates in this case, I am not prepared to say. It does, indeed, seem, in some degree, an anomaly, that so heating and active a stimulant, should be salutary under such circumstances. Nothing, however, is more absurd, or leads to grosser fallacies, than speculations on the precise properties, or modus operandi, of medicines. Could any one suppose that turpentine, the most acrid, perhaps, of all the irritants, would allay the heat, soothe the pain, and arrest or subdue the inflammation of a burn?

The copaiva is distinguished in a remarkable degree, by the property of a specific relation to the genital and urinary organs, and to the whole of the neighbouring parts. This is evinced, independently

of the facts which have already been mentioned, by the great relief it affords in strangury from blisters, as well as in painful hæmorrhoidal tumors.

Notwithstanding, however, what I have said in relation to the powers of copaiva in gonorrhæa, we are not always to expect it to succeed in that disease. There is, perhaps, no medicine, which is so apt to be adulterated, or to be met with of an inferior quality. Where this happens, we shall uniformly be disappointed.\*

## SCILLA MARITIMA.

As a diuretic, the squill is, indisputably, the most certain, active, and useful article which we possess.

It is employed in every form of dropsy, and with the most signal success. Both in ascites and anasarca, it is useful; though, were I to determine from my own experience, I should say, without hesitation, that it is still better adapted to hydrothorax.

In our public institutions, where the patients have, for the most part, those habits which produce effusions in the chest, I have had the most ample oppor-

\* It is commonly adulterated with mastich and common oil. We are told by M. Bucholz, that if it does not dissolve in a mixture of four parts of pure alcohol, and one of rectified ether, we may infer its adulteration. When adulterated with rape oil, which it is also frequently, if dropped into water, the drops do not retain a spherical form, as they invariably do in a pure state. Paris's Pharmacologia.

tunities of making comparative experiments with this and other medicines, and the result is altogether in favour of the squill. My mode of using it in hydrothorax, as well as in the other forms of dropsy, is, to combine it with calomel, in the proportion of three grains of the former, to one of the latter, to be made into a pill, which may be given morning and night, or even oftener, if circumstances should urge its use.

Cullen disapproved of this combination, supposing it would produce purging, which he thought interfered with the diuretic powers of the medicine; and, under the expectation of its being determined more directly to the kidneys, prescribed it with the neutral salts. Being entirely hypothetical, his opinion here is entitled to no sort of confidence or respect. When calomel purges unduly, which it will sometimes do, we may restrain it, by adding to the preparation a little opium. In the use of mercury, the mouth becoming affected, is always an auspicious circumstance. I have observed, especially in hydrothorax, that the distressing symptoms commonly subside on the appearance of ptyalism, which is not altogether owing to the mercurial action, since mercury alone will not so often produce the same effect.

It was once a question much debated, whether the powers of our medicine are increased or diminished, by permitting it to induce vomiting, or other effects on the alimentary canal. By Home, then Professor of Materia Medica at Edinburgh, the affirm-

ative side was assumed in this discussion. In dropsy, he gave of the squill and nitre, each, ten grains daily, so as to excite vomiting, and at night supported the patient by means of cordials. Cullen, who was cotemporary in the same school, and between whom, and his colleague, a great rivalship existed, loudly condemned this practice. He, on the contrary, maintained, that the diuretic effect of the medicine is greatly abated, whenever it operates either as an emetic or purgative, and which he ascribed "to its being prevented entering the blood vessels, and thereby reaching the kidneys." By "a certain writer," says he, in another place, alluding to Home, "it is alleged, that the diuretic effect of the squill is not to be expected, unless it shows some operation on the stomach. This, perhaps, may be founded. But I understand it in no other way, than that some operation on the stomach is a test, and a necessary test, of the squill's being in an active state, in the same manner as we are only certain of the activity of the mercurial preparations, when they have shown some effects on the mouth. I have often observed, that when the sqill operates strongly on the stomach or intestines, that the diuretic effects were less ready to happen."

Like most other cases, truth lies, in this controversy, nearly between the extremes, and, in order to reach it, we must pursue a middle course, avoiding Scylla, as well as Charybdis. The point in dispute, is not whether emetics or purgatives are useful in dropsy, but, whether the peculiar powers of the squill, in these cases, are best attained by pushing the medicine to this extent. From my own experience, which has been ample, I should say, without hesitation, that the just medium, in the employment of the medicine, is a very slight and moderate degree of the nauseating effect. Nevertheless, this is not absolutely necessary to its successful operation, as, in some cases, I have commanded its full effects, without having observed the slightest affection of the stomach.\*

#### COLCHICUM AUTUMNALE.

The meadow saffron, though not a native, is cultivated in our gardens, and succeeds well. It has a bulbous root, the only part of the plant that is medicinal. In its recent state, this is exceedingly acrid, and, on being cut into pieces, emits particles, which irritate the eyes and fauces, and even paralize the fingers, for a time, with which it is held. Taken into the stomach, in so small a quantity as a grain, enveloped in some vehicle, it at once excites a sense of heat and thirst, with strangury, tormina, and tenesmus.

Notwithstanding, however, these violent effects, the baron Stoerk, with his characteristic intrepidity, resolved to make an application of the article to the

<sup>\*</sup> Emetics-Expectorants.

cure of disease. Having first tried it on himself, he prescribed it freely "in desperate hydropic, and other serous disorders," in which, as exhibited by him, it was always found to act "without disturbance, as a most potent diuretic, after the common medicines employed with that intention, had failed." As an oxymel, or syrup, he ascertained, that its harshness is mitigated, and his formula, which has since been generally adopted, is contained in the dispensatories. Of this preparation, a drachm may be given, two or three times a day, gradually augmented to a much larger quantity.

Of the powers of the colchicum, I cannot say much myself, having rarely seen it used, and, indeed, I suspect that it never had, in any great degree, the confidence of the practitioners of Great Britain or this country. But on the continent of Europe, particularly in Germany and France, it has always been, and continues to be, in high repute, in dropsical effusions—in some of the complaints of the chest, as an expectorant—and in the treatment of intermittent fevers.

Within the last few years, a very general attention has been directed to this article, in consequence of its being supposed to constitute the basis of the Eau Medicinale, a nostrum, that has acquired immense celebrity, in the cure of gout and rheumatism.\* The

<sup>\*</sup> The Eau Medicinale was invented nearly half a century ago, by M. Husson, a military officer in the service of France. It soon acquired great reputation on the continent of Europe, as a remedy in the arthri-

preparation of colchicum now in use, is a saturated vinous tincture, of which, from forty to sixty drops, are the proper dose, to be taken morning and night,

tic affections, which it has ever since maintained, with little or no diminution. But, it is only within the last eight or ten years, that it has attracted much attention in England or this country. As it comes to us, it is in small bottles, which hold about two drachms, and is a fluid of the colour of ale, with a nauseous bitter taste, and strongly scented of the Spanish wine, used as the menstruum. The whole contents of a bottle is recommended as a dose, though I have found it safer to give half this quantity. It is usually taken on going to bed, and its operation may be greatly promoted by warm beverages. After a few hours, the patient complains of nausea, which is sometimes followed by active vomiting, and copious evacuations of dark bilious matter by stool. To these, succeed a moderate diaphoresis, and ultimately, very powerful diuretic effects, which will sometimes continue for a succession of days.

During the operation of the medicine, the pain and swelling of the joints so rapidly subside, that it is not uncommon for the person to be at perfect ease in the morning, and to have, in a great degree, restored to him the use of his limbs. If the paroxysm should return, or not entirely go off, the dose is to be repeated.

As might be imagined, this medicine is very differently estimated by practitioners. While, by some, it is most highly extolled in gout, there are not wanting others, who condemn it as both useless and pernicious. Even by some of those who admit its immediate utility, it is dreaded lest it may eventually produce injury to the constitution, like the Portland powder, &c.

From my own experience, which, however, is not very extensive with it, I should be warranted in saying much in favour of the Eau Medicinale. I have seen it tried in five or six cases of gout of different forms, and always with signal advantage. In paroxysms of podagra, the effects which I have witnessed, were nearly such as I have just described, with this difference, however, that long before nausea or purging commenced, there were, in every instance, a marked mitigation of pain, and a correspondent degree of composure, resembling, very nearly, the state induced by an anodyne. Twice I have given it in misplaced gout, attacking the stomach with great violence, and each time promptly afforded relief. Whether the repeated use of this medicine has any tendency to

and to have its operation encouraged by warm diluent drinks. Whether this tincture is substantially the Eau Medicinale I will not take upon myself to determine. By those, however, whose experience with the two articles is more extensive than mine, their identity has been confidently asserted. To this point, at least, we have some very strong evidence, that the colchicum has done a great deal of good in gout and rheumatism, sometimes even in their early and inflammatory stages, and that, in all its leading effects, it very closely resembles the French medicine.

What, too, lends further support to the same conclusion, is, that it appears from the older writers on the materia medica, that the hermodactyle, a species of colchicum,\* was much resorted to in gout and rheumatism by the earlier physicians, who considered it so signally efficacious in these diseases as to

impair the tone of the system, and thereby aggravate the mischief which it is designed to remove, I have not sufficient experience to decide. The only fact which has come within my own knowledge, is against any such apprehension. There is a gentleman of this city, who, during the greater part of a long life, was the victim of gout, in its several forms, and, by recurring to small doses of Eau Medicinale, whenever admonished by any of the indications of an attack, has very successfully warded off a paroxysm for several years, and is now in a sound and vigorous state of health. Nevertheless, I do not recommend an imitation of this practice. My experience with the medicine is much too narrow, to speak in a tone of confidence, with regard to its applications.

The Eau Medicinale has also been supposed to consist of the nicotiana, the gratiola, the veratrum, the elaterium, &c. &c.

<sup>\*</sup> Colchicum Illyricum.

bestow on it the title of "anima articulorum."\* Besides which, it is ascertained that the hermodactyle enters largely into many of the most celebrated of the specifics for gout, such as the dia hermodactylum—the pulvis arthriticus Turneri—the Vienna gout descoction—the mixture of Wedelius, &c. To this it may be added, that the effects of the first of these nostrums, as described by Alexander of Tralles, are precisely similar to those unusually produced by the Eau Medicinale, and, according to him, that people who take it, are at once relieved of gout.

Not much is said in the new reports relative to the colchicum, of its diuretic powers, or of its application, in this view, to the treatment of disease.

But we have the most ample testimony to its efficacy in atonic gout, and in ordinary, as well as syphilitic, rheumatism. Treating of its effects in these cases, a late writer thus enthusiastically expresses himself: "I cannot contemplate an extensive use of it in many painful diseases, besides those already noticed, without entertaining the hope and belief that we have at length found the happy desideratum, a powerful, yet mild medicine, capable of substituting calmness, tranquillity, and balmy sleep, in the place of pain, weariness, and restless nights—a renovation of long lost limbs, and comparatively robust health in lieu of feebleness and emaciation—in a word, affording to the poor, as well as to the rich, the cherishing prospect

<sup>\*</sup> Quincey's Dispensatory.

of prolonged life, and, during its continuance, an oblivion of many of its distressing pains."\*

By other authorities of respectability, we are assured, that this article has, in so eminent a degree, the power of subduing the pulse and overcoming inflammation, that it may be very advantageously used in place of the lancet in the purer fevers, as well as in the phlegmasiæ. Of the correctness of this statement, I am exceedingly incredulous. There is no substitute for venesection in such cases, and these estimates of the qualities of the medicine, partake most strikingly of the character of similar exaggerations which we had some years ago, relative to digitalis.

This extravagance of praise is, however, restricted pretty much to a new preparation of colchicum, the vinous tincture of the seeds of the plant, which are said to possess in a higher degree the medicinal virtues of the root, without any of its baneful qualities. Of this I know nothing myself. The only preparation of the article which I have employed, is the vinous tincture of the root, which, being good, is decidedly serviceable in the reduced shapes of rheumatism and gout, and especially, I think, when the kidneys or muscles of the lumbar region are affected.

Doubtless, much of the contrariety of opinion on the subject of colchicum, is to be ascribed to the difference of state in which it is found in the shops,

<sup>\*</sup> Williams on Colchicum.

owing to the season at which it is gathered, and the mode of preservation. On these points, there is no exact concurrence of advice or practice.

By one of the highest authorities\* were are told, "that it should be collected upon the first appearance of the leaves in spring, for the bulb begins to decay when the flower expands. In autumn it is quite inert. It is also necessary to extract the virtues of the bulb as soon as it is gathered, for, though removed from the earth, the developing process of vegetation continues, and the substance undergoes a corresponding series of chemical changes, and finally becomes as inert as if it had remained in the ground."

Contrary to this, it is stated by an authority of no less weight, † " that the month of July is the best period for taking up the plant, as the bulb has then obtained its full growth and perfection-while the vegetation of the gems or lateral progeny, for the support of which the bulb is intended, has scarcely commenced. That the bulb, when taken up, should, as soon as possible, be cut into transverse slices, equal in thickness to half a crown, and these being spread out upon clean white paper, should be dried without artificial heat, in an airy situation screened from the sunshine. That the slices, when dried, should be nearly oval, but not notched or panduriform-friable, of a white or cream colour, somewhat granular on both surfaces, inodorous, bitter to the taste, and altogether

free from sweetness, and should afford a fine cærulean blue colour when rubbed with a few drops of vinegar and the alcoholic solution of guiacum."

Denying, in part, the propriety of the preceding instructions, a third authority of equal character,\* informs us "that the plant may be dug up so late as the *first of August*, there being, at this period, no offsets or succeeding bulbs, and that, previously sliced, it should be dried in a heat of one hundred and seventy degrees, instead of "an airy situation screened from sunshine."

What, on the whole, seems to be most important, is to dig up the plant before the second growth commences, and so to preserve it as to prevent this process taking place, in which all medicinal strength is expended.

As regards the seeds, they should be collected at the end of June, carefully dried, and kept in this state. Two ounces of these in a pint, or, as some writers direct, a quart of sherry wine, and strained through blotting paper, after digesting eight days, is the mode of preparation. Either vinegar, or the aromatic spirit of ammonia, will, however, answer as well as a menstruum. The tincture of the root may be made in the same way, and in similar proportions of the articles—and the dose of each is a small tea spoonful several times a day.†

<sup>\*</sup> Mr. Battley, of London.

# POLYGALA SENEKA.

This is a native plant, very abundantly distributed throughout the United States, though flourishing best in Virginia. The root, which is the only part medicinal, is contorted and tuberculated, as if composed of joints, and by an effort of the imagination has been been assimilated to the tail of the serpent, the name of which the plant bears.

Towards the middle of the last century, the sene-ka was introduced by Dr. Tennent, of Virginia, as a remedy in numerous diseases, and especially as a specific for the bite of the rattlesnake, a case in which it has long since lost all credit. But, in other respects, its claims to medicinal properties have been fully established. It is, indisputably, among the active and diffusible stimulants, pervading every part of the body, exciting arterial action, and promoting freely the secretory and excretory processes.

As a diuretic, it has been much celebrated. But though using it very freely, I have never been able to see any extraordinary operation from it on the kidneys. Nevertheless, it is undoubtedly serviceable in dropsy—has been employed in all the forms of this disease, and, if the most respectable writers are deserving of credit, it would seem, with distinguished success. We are informed, by Sir Francis Millman, that he cured six

out of thirteen cases of ascites, by this medicine only: by Percival it is highly commended, under the same circumstances, and likewise in hydrothorax: Cullen, too, who seems not to have employed it himself, cites some authorities in its favour. The seneka, however, has lost much of its reputation in dropsy, and, I suspect, from its having been too indiscriminately used. Certainly no one has pointed out, with any sort of precision, the species of the disease in which it is applicable, or prescribed any principle for its just administration.

From what I have observed of its effects, as well as from my theoretical notions respecting its properties, I am inclined to believe, that it will be found most efficacious in those cases of universal dropsy, which depend on a very enfeebled absorption, and are connected with a general cachectic, or vitiated state of the system. It is only under such circumstances, that my own experience teaches me it is beneficial. The seneka, in its diffusive operation, often extends to the lymphatics, exciting these vessels to very invigorated efforts. Its efficacy here may sometimes be promoted, by combining small quantities of calomel with it. This is easily done, by previously reducing it to powder, and forming it into pills: the usual dose of which is about a scruple, to be repeated several times a day. I have, however, exhibited much more of it at a time.

# LOBELIA SYPHILITICA.

This is an indigenous plant. The root, which is the only part used in medicine, consists of short white fibres, resembling tobacco in taste, and, if chewed, is apt, at first, to create nausea, and even vomiting. The lobelia had some reputation as an Indian remedy, for the cure of syphilis, till it was fairly tried, and found to be useless.\* But its diuretic properties are fully confirmed, and it seems not at all unreasonable, to conjecture from this, that its reputation may have arisen in consequence of its doing good in gonorrhæa, which, from all that we can learn, is by far the most prevalent form of the venereal disease, among our aboriginal people.

The lobelia is employed, I understand, by some practitioners of the western country in dropsy, and not without success. I know nothing of it myself. But it is undoubtedly one of those native vegetables, which, on every account, ought to be carefully examined, and its properties accurately determined.

<sup>\*</sup> Pearson on the effects of various articles, &c. in the cure of Lues Venerea.

# CHIMAPHILA UMBELLATA.

This is one of the plants common to the Old and New World. It is said to be found in several of the districts of Europe, in the south of Asia, and throughout the United States. Nothing appears, however, to have been accurately ascertained as to its medicinal properties, till recently, though we have some reason to believe, that it has immemorially been employed as a diaphoretic, by our Indians, in their inflammatory diseases. It is called by them Pippsissewa, and is recognised in popular practice, where it has been long used for the same purposes, by the title of rheumatism weed. As an active diuretic, it is likewise well known to the country people, and is much resorted to by them in dropsies, and the affections of the urinary organs generally, being a remedy, moreover, on which they greatly rely to relieve their cattle of strangury. Nor, from recent intelligence, does it seem, that our northern Indians, at least, are unacquainted with its powers in these respects. In the year 1803, the properties of this plant were, probably for the first time, investigated with any sort of care or precision, and the credit of doing this, is due to Dr. Mitchell, a graduate of our university, who made it the subject of his inaugural dissertation. But, though he distinctly pointed out its medicinal virtues, as well as many of the diseases to which it is applicable, the

plant attracted little or no attention. Not long since, however, some account was given to the public, of the great powers of this article in dropsy, by Dr. Sommerville, of the British forces in Canada,\* and from that time, it seems to have become, among the London practitioners especially, a very favourite remedy in the disease. The late periodical journals of that country, contain some very strong attestations in favour of the article, proceeding from the highest medical authority, such as Farquhar, Satterly, Marcet, &c.

As yet, I apprehend, it has not been so much tried in the regular practice of the United States. It is creeping into use in this city, and some very decisive evidence might be collected in support of the statement from abroad, of its efficacy. But, from what I can learn, it is quite as much prescribed elsewhere as a diaphoretic, and was particularly so in our late winter epidemic, the typhoid pneumonia, or spotted fever.

As a diuretic, the quality which most conspicuously gives it a place in the materia medica, chimaphila is distinguished by activity and certainty of operation,—and has this peculiarity, that, while it stimulates the kidneys to a very increased effort, it acts on the stomach as a tonic, and with so much effect, that it has been prescribed successfully in intermittent fevers.

<sup>\*</sup> London Medico-Chirurgical Transactions, vol. v.

Whether the medicine is serviceable in correcting the lithic diathesis, an opinion of the late professor Barton, I am not prepared to assert from any new facts. Being, however, somewhat analogous to the uva ursi, one of our remedies under such circumstances, it is more than likely that it might be of advantage.

That it is useful in scrofula, cannot be denied. Its reputation, indeed, in this disease, is so high, that it has acquired the provincial title of "King's Cure," and I have witnessed, myself, some striking effects from its exhibition. To open scrofula, it is, probably, best suited, the ulcers being washed with a decoction of it, while the same may be taken internally. By acting on the lymphatic system, the seat of the strumous affections, it thus probably does good in these cases.

Besides, in decoction, chimaphila is directed in strong infusion, or in the shape of an extract, a pint or more of the former to be taken in the twenty-four hours, and of the latter, during the same period, one or two drachms, made into pills, or dissolved in water. Every part of the plant is active.

# SECTION XII.

# Of Lithontriptics, and Antilithics.

By a very natural transition, I pass from the diuretics, to the consideration of lithontriptics, or, as they have been more recently called, antilithics. These are medicines, which were once supposed to break down or dissolve a stone, and now are more generally held to be correctives only of the lithic diathesis. Each of the terms appears to me to be appropriate, and ought to be retained. We require a name for the set of articles which exists, or is supposed may exist, as solvents of stone, and not less, some appellative designation of such as prevent, or correct the lithic tendency.

What occasions this diathesis, is not distinctly understood. Its connection with gout is obvious, and the latter is seemingly dependent, in a great degree, on a weakened or disordered stomach. Certain habits and peculiar modes of living, the sedentary occupations of the studious, the indulgencies of the volup-

tuous, or the excesses of the still more intemperate and debauched, are found alike to be sources of the two diseases.

By this analogy, however, we do not add much to our knowledge. The origin of the one, as well as of the other, is shrouded in obscurity, though I am persuaded, that the first link of the series of actions, which cause these two formidable maladies, the scourge of our nature, and, in some degree, the reproach of our art, has its commencement in the stomach.

It is now sufficiently established, that in gout, there is a peculiar matter, originating in a vitiated state of the digestive process. Nor, perhaps, is it less true, that similar matter, taken up, and ultimately thrown into the bladder, constitutes the foundation of one species at least of gravel and stone. Numerous reasons exist for this conjecture, and among others which might be mentioned, is, the perfect identity of some of the arthritic and urinary concretions.

It is ascertained, that the deposition in each of these cases, is urate of soda. The relation between the two diseases, is, moreover, shewn by an alternation of symptoms, and by the copious appearance of red sand in the urine, as immediately preliminary to the subsidence of a gouty paroxysm.

But the urates are only one of the calculous products, and whence proceeds the cause of the rest, so diversified in composition, as well as in their outer aspects? It is the same in all instances. No function

of the animal economy is more under the controul of the stomach, and its immediate dependencies, than the secretion of urine, and as the one, so will the other become affected. Digestion, in the fullest sense of the term, being sound, chyle is a homogeneous fluid, however various the materials may be, out of which it is formed. But when this process becomes deprayed, the result is very different, and a vast variety of new ingredients is found in the urine, entering into divers combinations.

The requisite, for the most part, under such circumstances, for the formation of stone, is some nucleus, and this is usually supplied by a deposition of mucus, or by drops of extravasated blood, or a gravelly fragment, or, in fine, by any extraneous matter, around which an accretion takes place, with greater or less rapidity.

But whatever obstructs the escape of the urine, as an enlargement of the prostate gland, or strictures of the urethra, by permitting depositions from it in the bladder, also conduces to the same end. Thus settling, the gritty particles are gradually conglomerated into a petreous mass.

The nature of the stone will be determined by the state and composition of the urine at the time, and its subsequent changes, presenting, in some instances, an entire uniformity, and in others, a basis and strata very differently constituted.

As the most common occurrence, the stomach is in a state either of acidity or alkalescence. When

the first prevails, we have the urates, and in the second case, the phosphates. The urates, however, are by far the largest proportion of calculi, as well as of the sandy deposits.

Chemistry had no sooner made its way into medicine, than it began to exercise its ingenuity in devising theories to explain more precisely the origin of the calculous formations. But even its extraordinary resources have been, in part, baffled by the difficulty of the subject. Chemical analysis, however, has ascertained, pretty accurately, the substances which enter into the composition of calculi, and pointed out the agents, which operate upon them most powerfully, out of the body. The substances hitherto discovered, are the following:

- 1. Uric acid,
- 6. Magnesia,
- 2. Phosphate of lime, 7. Phosphate of iron,
- 3. Phosphate of magne- 8. Silica, sia and ammonia, 9. Urea,
- 4. Oxalate of lime, 10. Cystic oxid,
- 5. Muriate of ammo- 11. Mucus.\* nia.

As previously stated, these elementary matters exist in different combinations, which have been variously arranged. The classification of Wollaston is,

<sup>\*</sup> Two non-descript substances, forming concretions in the bladder, have lately been noticed by Dr. Marcet. The one he calls Xanthic oxide, and the other Fibrinous calculus.

perhaps, the best, and, in a practical point of view, deserves a preference. Calculi he divides into four kinds:

- 1. Uric calculi—composed of uric acid, or chiefly of that substance.
- 2. Fusible calculi—composed chiefly of phosphate of lime, and phosphate of magnesia and ammonia.
- 3. Mulberry calculi—composed of oxalate of lime.
- 4. Bone-earth calculi—composed chiefly of phosphate of lime.

Endeavours have been repeatedly made, to discover solvents for these several productions. The inquiry, which, for some time, was neglected, has again been renewed by the French chemists, and, as I have already remarked, not without success. These experiments were instituted, for the purpose of showing the practicability of dissolving stones in the bladder, by injections through the urethra. The result most incontestibly proves,

- 1. That a solution of pure potash or soda, so weak that it may be kept in the mouth, and even swallowed, without pain, soon dissolves calculi composed of uric acid, of urate of ammonia, provided they be kept plunged in it.
- 2. The phosphates are quickly dissolved by nitric or muriatic acid, so weak that it may be swallowed without inconvenience, and possessed of no greater acidness than urine itself.

3. Calculi composed of the oxalate of lime, are slowly dissolved by nitric acid, or by carbonate of potash or soda, weak enough not to produce any irritation.

It is contended, that these solvents, injected into the bladder, ought to act upon the stone, and gradually dissolve it:—nor do I perceive any reason why they should not, though the few attempts which have been made, afford us little encouragement. But, may not this be owing to their not having been conducted with all the care which the case requires? To succeed in experiments of this sort, much skill and perseverance will be necessary. They surely are worthy of a fair and ample trial.

The fact of the different species of calculi being so readily soluble out of the body, should also incite us to further and most assiduous exertions, to detect some agent which may produce the same effect in the bladder. Whether we, at present, possess such, is extremely problematical, though cases have sometimes been recorded, where a stone has disappeared under the use of lithontriptics. The older writers abound in statements of this description, and we are not deficient in more recent and authentic evidence. Within my own knowledge, facts to this purport have occurred. Yet, it is not clearly ascertained, whether this effect is to be imputed to the medicine, or the spontaneous operations of nature. I am rather inclined to suspect, from a review of the whole ground,

that certain articles have occasionally displayed this valuable property. But the practice, under such circumstances, must be very ambiguous and precarious.

Of the many difficulties incident to the case, not the least is to determine the composition of the existing stone, in order to select the appropriate solvent. As we have no precise mode of doing this, we shall be compelled to practise somewhat empirically,—experimenting with one and another substance, without any definite rule, or principle, till we hit upon some one, which may answer the purpose.

The opinion which I have expressed, of the possibility of dissolving a stone in the bladder by a course of medicine, rests upon two grounds:

- 1. That, by experiments already referred to, it appears, we possess solvents for almost every species of calculi, out of the body, which might be given in a sufficient quantity to effect the end, with no prejudice to the system.
- 2. That some of these solvents do reach the urinary bladder without any, or, at least, a material change being wrought in their properties, so that, when coming in contact with the stone, there might be a play of chemical affinities, and hence a decomposition of the calculous body. My present view of the subject is perfectly consistent with the doctrine which I formerly delivered, that no substance enters the circulation, with a retention of its original powers. To me it is still most manifest, "that the process of assimilation, whether performed by the chylopoietic

viscera, or by any part of the absorbent apparatus, completely animalizes all articles subjected to its influence, and, however various in their composition, reduces them to one homogeneous fluid, bland in its nature, and fit for the purpose of nutrition. But, on the secretions or excretions being removed beyond the sphere of the vital powers, chemical action takes place, by which those substances are, in part, or entirely regenerated."

Besides, it would seem, that there is really a direct communication between the stomach and bladder, through which substances are conveyed without undergoing any essential change. The fact, of a rapid transmission of certain fluids to the urinary organs, had, long ago, led to a suspicion of such a passage. Every physician was aware, that nitre, rhubarb, turpentine, or garlic, may be detected in the urine twenty or thirty minutes after it has been taken into the stomach, a time much too short, to believe that it reached that destination through the ordinary route of the blood vessels. It was supposed by Darwin, that the transmission takes place, in these cases, in consequence of the retrograde action of the But this is surely a very lame and imabsorbents. perfect solution of the problem. Even admitting, that the lymphatics do occasionally perform this inverted office, which, from their valvular structure, is rendered next to impossible, it is obviously the effect of disease, -and it is contrary to all the rules of medical philosophizing, to resort to an irregular and

morbid state, to account for the phenomena of a uniform and healthy function. Whatever may be the mode of communication, of the fact there cannot now be much doubt. It has been long known, that in some cases, where the kidneys were nearly destroyed by the ravages of disease, the bladder was filled, as usual,—I will not say with urine, because this is a peculiar fluid, the result of a secretory action of these organs. By tying the ureters in the dog, it has also been found, that the discharge from the bladder, though diminished, is not entirely suspended. These facts I state, on the authority of Darwin.

The experiments of Sir Everard Home are still more satisfactory. To determine this point, he placed a ligature round the pylorus of the stomach of a dog, which had been previously evacuated thoroughly, and, afterwards introducing fluids into it, coloured by rhubarb, he detected this substance in thirty minutes in the urine, a time quite too short, to allow of its being transmitted through the regular route of the circulation. These experiments were repeated so frequently, and under circumstances apparently of such precision, as to leave little hesitation as to their accuracy.

Notwithstanding all I have said, I shall not absolutely insist upon the solvent powers of any substance, with which we are at present acquainted. It has always appeared to me, that our knowledge respecting the lithontriptic medicines, is exceedingly imperfect, very vaguely stated for the most part, and mixed with, and disfigured by, a vast deal of credulity and

empiricism. Enough, however, is ascertained, in relation to this class of remedies, to warrant us to persevere in our trials, as well with those which we already possess, as with new substances. Even admitting, that we neither have, nor never shall have, a real lithontriptic, it must still be conceded, that there are now in our possession, and no doubt, others remain to be discovered, many articles which are indisputably useful in mitigating the pain, or arresting the growth of calculus, not to mention the nephritic affections, in which such medicines are serviceable.

# SECTION XIII.

# Of particular Lithontriptics, &c.

Or the substances which are supposed to possess such properties, one of the most conspicuous, and longest known, is carbonic acid, or fixed air. Its utility, however, in calculous complaints, was not very satisfactorily illustrated, or the mode of its administration pointed out, till the appearance of the work of Dr. Dobson on the subject, about thirty-five or forty years ago. The remedy soon after attracted general attention, and we find both Drs. Saunders and Percival strenuously insisting, to use the language of one of these writers, "for the solubility of the human calculi, while yet in the bladder, by the regular and continued use of fixed air."

It was now proved, as had been previously suggested by Hales, that calculi immersed in malt liquor, or in water impregnated with carbonic acid, are, by virtue of this principle, gradually diminished in bulk, till, finally, they undergo a complete solution. These experiments were made by Drs. Saunders, Percival, and Falconer.

The next point to be determined, was, whether this fluid taken into the stomach, could be so conveyed, as to enter the bladder unchanged, the practicability of which, was also speedily demonstrated. We are informed by Dr. Percival, that a patient of his, while under a course of fixed air, which he took daily, in very large quantities, had his urine strongly impregnated with it, as appeared by the precipitation it produced in lime water, by the bubbles it copiously emitted when placed under the receiver of an air pump, and by the solution of several urinary stones immersed in it. This fact, which is so strong in itself, has since been corroborated, by a series of experiments conducted by the celebrated Dr. Priestley.

It, moreover, appears, on the authority of several respectable writers, that when human calculi are placed in the waters of Pyrmont and Spa, which contain carbonic acid, they are dissolved, and that the urine of the persons drinking these waters, has the same effect.

Of the utility of carbonic acid, in cases of stone, I can say little from my own personal observations. It would, however, be an unjustifiable degree of scepticism, to doubt its occasional efficacy. I do not mean as a solvent, for, in this view, it is altogether questionable.

In some nephritic affections, I have certainly used it with advantage. It may be given in the form of Seltzer water, an exceedingly pleasant beverage, which is readily taken in any quantity.

# FIXED ALKALIS.

The idea of calculus having its origin in an acid, has led to the very common employment of the alkalis, as solvents or correctives. This, which, by some, is supposed to be a modern practice, is not so. Consulting the writers at the commencement of the last century, I find the alkalis recommended in these very cases. In Robinson's Treatise on Gout, which appeared in the year 1721, the salt of tartar is expressly suggested among other things, as a solvent for the stone. At a period somewhat later, these medicines are particularly noticed in the works of Hartley, Whytt, Kirkpatrick, De Haen, &c.

Notwithstanding all this weight of recommendation, the alkalis were certainly laid aside, and, for a long time, had nearly lost their reputation in such cases. It was not, indeed, till about thirty years ago, that they were revived, and once more introduced into the treatment of calculous complaints. Experience has subsequently confirmed, in some measure, the virtues of the medicine.

The fixed alkalis are prescribed both in the mild and caustic state, according to the object in view. The solution of the stone being intended, the pure alkali has been recommended, in the dose of fifteen or twenty drops of the aqua potassæ, chiefly morning and evening, increasing it gradually, as far as the stomach will allow. It is apt, after a short time, to produce gastric distress, which may, in some degree, be obviated, by combining it with mucilage, and still more, by taking it in soup, or other gelatinous matter. But, under the best management, it cannot be long continued. On this account, the vegetable alkali is more commonly directed, in the state of carbonate, as a palliative only, and here it operates by merely correcting the lithic acid, thereby preventing the further increase of the stone.\* Thirty or forty grains of it, in some diluent drink, to be repeated several times in the twenty-four hours, is one mode of exhibiting the medicine. But a super-saturation of it with carbonic acid, constituting the aqua mephitica, alkalina, or the aerated alkaline water, as it is called, prepared by a well known apparatus, is more frequently prescribed, and, perhaps, has greater efficacy. There are, indeed, very few remedies which afford so much relief, at least in the nephritic affections, especially when drank to the amount of two or three pints in the course of the day. But where this cannot be had, a tolerable

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<sup>\*</sup> No advantage is probably gained by the administration of the caustic alkali with a view to its solvent effects. Long before it reaches the bladder, it meets with fixed air, and is converted into a carbonate, &c.

substitute is afforded in the common effervescent draught, frequently repeated.\*

With the same views, the carbonate of soda is found to be not less advantageous, the pure alkali very rarely, if at all, being used. It is given in solution, in the proportion of a drachm, or more, to a quart of water, of which the whole may be drank in divided quantities, daily, or it may be prepared exactly as is the carbonate of potash. But a more common, as well as agreeable mode of using it, where it is attainable, is in the shape of soda water. In thus prescribing it, we ought to recollect that the popular beverage now vended under this title, contains little or no soda. It is, indeed, for the most part, seltzer water, or with so slight an alkaline impregnation, as not to affect the taste. By Mr. Brande, who has written with much practical ability on this subject, it is recommended that soda water should be kept in the shops, single, double, and treble. The first to contain one—the second, two-and the third, three drachms of the crystallised sub-carbonate in a pint of water. Of this, three half pints, more or less, may be consumed daily, according as suits the case. To render it more palatable, a table spoonful of lemon juice may be add-

<sup>\*</sup> Incompatible substances.—The carbonate of potash is decomposed by the acids and acidulous salts—by borax—muriate of ammonia—acetate of ammonia—alum—sulphate of magnesia—lime water—nitrate of silver—ammoniated copper—muriate of iron—sub-muriate and oxy-muriate of mercury—super-acetate of lead—tartarised antimony—tartarised iron—the sulphates of zinc, copper, iron, &c.

ed to each half pint of the strongest of these prepara-

The mineral alkali is also prescribed sometimes in pills. But for this purpose, the salt must be previously exposed to a very gentle heat, till it loses the water of crystallization, and the dry powder thus obtained is worked up with mucilage.

Each of the alkalis has, moreover, been much used in the form of soap. It is, of course, the purer soaps, such as are made with the mild expressed oils, of which an ounce may be taken daily, in pills or otherwise.

# AMMONIÆ CARBONAS,

VULGO

# SAL CORNU CERVI.

The volatile alkali has never before been placed in this position of the materia medica. But there is no reason why it should not be useful in calculous affections, and we are told by Mr. Brande, that he finds it to be so. The cases in which he recommends it, are, where symptoms of indigestion are brought on by the other alkalis, and especially in the depositions of red sand, connected with gout. It may be given in the form of aqua carbonatis ammoniæ, in the dose of a drachm or more, or the solid salt converted into a

julep, or, what he prefers, into pills with extract of camomile or some other bitter, twenty grains of the former, and a drachm of the latter, divided into twenty-four pills, two or three of which are a dose, thrice a day.

An objection, however, seemingly of some force, has been raised against the employment of the alkalis, in any shape, in stone. It is alleged, that the phosphates of lime and magnesia, which exist in the urine, are retained in solution, principally by an excess of acid; and if, therefore, for the purpose of dissolving a uric acid calculus, or preventing its growth, alkalies be given so as to neutralize this acid, the deposition of these phosphates may be favoured, and a layer of them form on the existing stone.\* Chemically, all this may be true, and no doubt does occasionally happen. Calculous productions, however, are not limited exclusively to this particular composition, and the experience of every practical man has shown, that this set of articles is very often beneficial, and must not too hastily be laid aside.

To the cases where the uric acid predominates, the alkalis, we are told, are lonly appropriate. This is obvious enough. But how are such cases to be discriminated? The only mode in which this can be done, is, by an examination of the sediment in the urine, which will be found to consist of red sand

chiefly, and, if there be any fragments of calculus, by subjecting these to an analysis.

## AQUA CALCIS.

The lime water has been used for similar purposes. Though not a solvent, as has been suspected, it is, sometimes, one of the best palliatives of the pain and distress of the calculous affections. It will not only relieve the sufferings from the stone, at the moment, but, in some instances, suspend them for a considerable length of time. There is a case precisely of this kind, related by De Haen, of a man who drank eight hundred quarts of lime water in six months, and, in consequence, continued exempt from pain for three years, though the stone still remained in his bladder.

To be decidedly useful, where there is a stone, it should be given in considerable quantities, otherwise little or no effect is produced by it. I presume that not less than a quart daily would answer the purpose. In gravel, and other milder affections, much less, however, will do. I generally direct, in these cases, about a wine glass full, five or six times a day, mixed with an equal portion of new milk. Exhibited in this way, it is far more pleasant, and agrees better with the stomach.

In all cases of nephritis, whether proceeding from gravel, or other causes, which are accompanied with much disorder of stomach, as gastrodynia, sour eructations, flatulence, and nausea, lime water will be found useful. It is, perhaps, on the same principle, that it proves so beneficial in diabetes, a disease, which, seemingly, commences in some wrong action of the stomach.

If lime water ever prove a solvent, it can only be by acting on the albuminous matter, which serves as a cement to the different strata, or particles of all urinary calculi. That out of the body, it has the power of destroying the cohesion in this case, has been shown by more than one experimentalist. But it is said, that it ought to be given in combination with an alkali, to neutralize the excess of acid in the urine, otherwise it will unite with the lime, and render it wholly inert, a process, I fear, not to be very easily adjusted, in actual practice, though this is substantially the composition of Stephens's medicine, which acquired so much celebrity as a solvent, that the English parliament was induced to purchase the secret of preparing it, at an enormous price.\*

<sup>\*</sup> Incompatible substances—All alkaline and metallie salts, phosphates, borates, tartrates, and citrates, acids, sulphur, spirituous preparations, the infusions of orange peel, columbo, cinchona, rhubarb, senna, and all vegetable astringents.

#### MAGNESIA.

In the course of the last few years, not a little has been said of the value of magnesia, in calculous affections. To Mr. Brande, one of the most enterprising of the European experimentalists, we owe the credit of this discovery. Denying the lithontriptic power of any substance with which we are at present acquainted, he was induced to institute an enquiry, with a view of ascertaining some means of preventing the formation of uric acid. Comparative trials with the alkalis and magnesia, satisfied him of the decidedly superior efficacy of the latter article in this instance, and the practice which he deduces from it, is illustrated by four cases, which I shall present, in an abridged form, as the remedy is a new one, to serve, in some degree, as a guide to its use.\*

\* The first is that of a gentleman sixty years of age, who had been in the habit of indulging in the free use of acid liquors, and who repeatedly passed small calculi, entirely composed of uric acid. Of the subcarbonates of soda and potash, he freely took without effect. Next the magnesia was directed, in the dose of fifteen grains, three times a day, in an ounce and a half of the infusion of gentian. After a week, the uric acid was found, by examining the urine, to have greatly diminished, and in a short time, nearly disappeared. The magnesia, however, was persevered in for eight months longer, and ultimately a cure may be considered as having been effected.

The second case is that of a gentleman about forty years old, who occasionally voided considerable quantities of uric acid, in the form of

It appears, from these, that while magnesia is well adapted to gravel, it will, most probably, render little service in stone. There is, in some instances, a very material difference in the two complaints. The red sediment of urine, is simply the uric acid, and is most usually met with in gouty and dyspeptic persons, somewhat advanced in life. Children, on the contrary, are most subject to stone, the composition of which, is, for the most part, the triple phosphate of ammonia and magnesia, sometimes combined with the phosphate of lime, on which magnesia will not at all act. Nevertheless, even limiting its utility to gra-

red sand, and once passed a small calculus. His urine was generally more or less turbid, and, after taking any thing which disagreed with his stomach, even in a slight degree, the red sand often made its appearance. Twenty grains of magnesia, in a little lime water, every night and morning, were prescribed for him, by continuing which, for six weeks uninterruptedly, he perfectly recovered.

The third case is that of a gentleman forty-three years of age, who, after violent exercise on horseback, was attacked with pain in the right kidney and ureter, and in the course of the night, discharged a small uric calculus. His urine was turbid, and deposited red sand. To relieve these symptoms, twenty grains of magnesia were ordered every night. The result was, a speedy cure.

The fourth case is that of a gouty person, aged fifty-six, whose urine constantly contained a large portion of mucus and red sand. His stomach was weak, and he often complained of heartburn, and pain in the neighbourhood of the right kidney. The alkalis and some other remedies having failed, he was put upon twenty grains of magnesia, three times a day, mixed with water, which, however, affecting his bowels, one powder was omitted, and five drops of laudanum were added to each of the other doses. Continuing this plan of treatment for six weeks, the urine became less loaded, and there was a longer escape from a paroxysm of gout, than for the six preceding years.

vel, it is still a very important accession to our stock of remedies, for surely there is no case more painful, or which oftener proves difficult of management, than these affections.

Whether the magnesia be calcined or not, Mr. Brande tells us, is of no great consequence. The sub-carbonate, he seems rather to prefer, except when there is much flatulency. "This remedy," says he, "is particularly commendable, where the alkalies have been employed for a long time, when they excite indigestion, or disagree with the bowels, or where the red sand continues to be formed, even during their use."

My own experience does not enable me to say a great deal in favour of magnesia, in this new application of it, and I confess, on the whole, I have been disappointed. We learn, indeed, from Dr. Marcet, a writer of great authority, "that such is the tendency which the public has to overrate the utility of a new practice, or to take a mistaken view of its proper application, that there is every reason to believe, that the use of magnesia has, of late years, become a frequent source of evil in calculous complaints." It is a fact, at least, that in a long continued use, magnesia is apt to collect in the bowels, and form stony concretions of considerable size, so much so, as to endanger life. The bowels are, therefore, to be attended to, under these circumstances, and where there is any suspicion of such an accumulation, it is to be worked off by a mild purgative, or corrected by the occasional use of acids, if admissible.

#### MINERAL ACIDS.

Nothing can illustrate, more strikingly, the difference in the composition of urinary calculi, than that remedies so directly the reverse of each other as the alkalis and acids, should be serviceable in the same set of affections. The muriatic, as well as the nitrous acid, has of late acquired not a little reputation in Europe, as a lithontriptic. It is now about six or seven years, since some cases were recorded in the periodical journals, of the efficacy of the muriatic acid especially. More recently, Mr. Copeland, a surgeon of London, has called the attention of practitioners to both of these acids, and, from comparative trials, is led to believe, that the nitrous has superior powers.\*

<sup>\*</sup> Two cases are stated by him, in which a solution of the stone, according to his account, certainly took place. In the first, thirty drops of the muriatic acid were taken in water, three times a day, the dose being gradually increased to fifty drops, and continued till two ounces were consumed, when the complaint was removed. The patient was directed to collect daily in one vessel, all the urine of the twenty-four hours. The clear urine was then poured off, and the sediment collect-

These reports have, in a great degree, been subsequently confirmed. We learn from Mr. Brande, that all the mineral acids are occasionally useful, and may

ed upon a paper filter. The sediment thus collected, amounted to one hundred and four grains, of a buff-coloured impalpable powder.\*

In the second case, forty drops of the diluted nitrous acid were taken in water, every two hours, till a sediment appeared in the urine, and afterwards continued four times a day. By persevering with the medicine, for nearly five months, during which time twenty-seven ounces of the diluted acid were consumed, six hundred grains of a thick light coloured powder were collected, in which, towards the conclusion, a few fragments of calculus were found, partially decomposed.† In the treatment of these cases, opium was occasionally ordered, to mitigate the pain. Costiveness was prevented by mild laxatives, and the stomach, when oppressed by the frequent doses of the acid, was relieved by taking spirit and water. It appears, from Mr. Copeland's observations, that the nitrous acid, in many other instances of lithiasis, procured a discharge of sediment with the urine, and an alleviation, more or less, of the symptoms.

\* One hundred grains of this powder, subjected to chemical analysis, was found to contain,

Uric acid	72 grs
Ammonia	18
Carb. of lime	3
Phosp. of lime	5
Loss	2
	-
	100

† One hundred grains of this sediment, subjected to analysis, gave

Uric acid	80 gr
Ammonia	11
Carbonate of lime	2
Phosphate of lime	1
Loss	6
	-
	100

be varied, as the case seemingly requires. The nitric, he thinks, is most apt to disagree with the stomach; the muriatic less so; and the sulphuric being decidedly tonic, admits of much longer continuance, without inconvenience.

It is stated, that where these acids agree with the stomach, they are usually very effectual, and in a few days diminish or entirely prevent the sabulous deposits. Disagreeing, however, they rather increase its quantity; and, at the same time, irritate the coats of the bladder to throw out mucus, which, by agglutinating the particles of sand, may lay the foundation of stone. They, moreover, prove offensive to children, who are particularly liable to depositions of the phosphates, and, on these accounts, it becomes necessary to recur to another mode of treatment, consisting of the

#### VEGETABLE ACIDS.

Of these, the tartaric acid, either in its pure form, or as it exists in cremor tartar, will be found to answer pretty well, in the dose of from five to twenty grains of the former, and of the latter, from a scruple to a drachm, dissolved in barley water, or any other convenient vehicle. The citric acid, however, is represented, on the whole, as preferable, given in the same way, in the dose of from five to thirty grains.

Of the use of the vegetable acids, I know nothing myself. But coming from such high authority as Mr. Brande, I repose much confidence in the practice, and, that it may be understood, insert an extract from the paper, in which it is fully developed.\*

\* " Cases are by no means uncommon, in which a white sabulous deposit in the urine, often going to a great and alarming extent, appears symptomatic of, or in some way connected with, irregularity of the biliary secretion; pain in the region of the liver, sallow complexion, whitish brown and dry tongue, are its usual concomitants in these cases; and there is a very troublesome irregularity of bowels, generally tending to costiveness of an obstinate kind; sometimes succeeded by or alternating with relaxation. I have known persons returning from warm climates, in this predicament, and upon being questioned as to their complaint, gravel and sand are usually uppermost in the mind. They often have recourse to the solvents of empyrics, which, with very few exceptions, are strong alkaline solutions; or they consult medical men, who, hearing of the sand, and inadvertent as to its kind, prescribe soda water, solution of potash, magnesia, and the like ordinary preventives. This alkaline treatment invariably does harm; the patient's digestion, already feeble, becomes more impaired; the sand, previously, perhaps, small in quantity, is rendered abundant; the bowels pass from occasional to constant irregularity, and every symptom becomes slowly, but mischievously, and in many cases irretrievably, augmented. Cases of this kind I describe with the more confidence, having seen several. I allude to them now as particularly improper in most cases for the mineral acids in large doses, whereas by the vegetable acids they are always greatly benefited. But, in these, and a number of similar cases, the best and simplest plan of treatment, is not to employ medicine, so much as diet; to adopt a general acid system; to abstain from soda water, and all alkalis; to refrain from malt liquor; to take weak lemonade, and an occasional glass of cider as ordinary drink at meals : if accustomed to wine, to prefer champagne and claret to Madeira or port, but to take little of either; if the bowels remain constipated, to take a drachm or two drachms of Epsom salt in a half pint tumbler of lukewarm water in the morning, fasting; or, what is more pleasant, to stir a teaspoonful of magnesia into an occasional glass of sour lemonade; to As in the case of alkalis, an objection has been started to the use of the acids, in calculus. It is said, that, if the stone consists chiefly of phosphate of ammonia and magnesia, instead of producing a solution of it by the introduction of acids, we should occasion a deposition of uric acid. But, in all these cases, we must attend to the state of the urine, endeavour to ascertain its constitution, and the influence of the remedies upon it, as well as their effects on the comfort of the patient, and to suspend, or vary them accordingly.

eat salads and acid fruits, and more especially oranges, which in this state of things are a heroic remedy.

"I have said, that there are few cases in which the vegetable acids, properly administered, produce any aggravation of the symptoms, or where they can be said to disagree; yet such cases do occur, and a very copious deposition of white sand shall be attended with a peculiar irritability of bladder, (independent of calculus, for those cases I propose afterwards to consider,) which is aggravated by any of the above-mentioned acids, and yet in which they are most decidedly indicated. In a paper which I presented to the Royal Society, in 1812, (Philos. Trans. 1813, p. 213,) and in which I have detailed some cases illustrative of the operation of acids in preventing the white deposit, I have spoken of the beneficial effects of carbonic acid, where, from peculiar circumstances, the other acids disagree; and, since that period, several cases have occurred, attended by equally beneficial results. The mode of exhibiting this acid is, either simply dissolved in water, in which case it may easily be prepared by the patient in a Nooth's apparatus, or procured from the dealers in artificial mineral waters; or it may be administered in the form of a saline draught in the state of effervescence, as by dissolving thirty grains of carbonate of potassa, and twenty grains of citric acid, in separate tea-cups of water, mixing the solutions in a large tumbler, and drinking the whole during the effervescence. This dose may be repeated two or three times a day, or oftener, if expedient."

### OLEUM TEREBINTHINÆ RECTIFICATUM.

The relation which the terebinthinates bear to the urinary organs, is well established. But in no case do they display such valuable powers, as in the correction of the lithic diathesis, and in the alleviation of the pain of the nephritic paroxysm. Of the different preparations of turpentine, the oil is to be preferred for these purposes, and its effects are often very extraordinary. I have known a single dose to put an end to the deposition of red sand, and, at the same time, relieve the most acute suffering, with the promptness of an opiate. On what principle it operates is not very intelligible, though it would seem that its appearance in the bladder is necessary to its success. I am told by Dr. Physick, to whom I owe much of the information which I possess on the subject of this article, that whenever it has failed with him, the violet odour was wanting in the urine.

The oil of turpentine may be directed in these cases, in the dose of from ten to twenty drops, several times a day, and the best mode of exhibition, is on a tea spoonful of powdered sugar, to be washed down with a little water.

#### ARBUTUS UVA URSI.

All the bitters and astringents, are, I suspect, without an exception, more or less antilithic, though it is more conspicuously the case with gentian, quassia, centaury, camomile, the hop, and uva ursi. It is, however, affirmed, that the common tea is endued, in a very great degree, with this property, so much so, indeed, that in China, where the article is so copiously consumed, it appears that calculous affections are wholly unknown.

The employment of astringents, under such circumstances, is a very ancient practice, and which seems to have prevailed at all subsequent times. By some, it has been presumed, that several, or the whole, of this class of remedies have the property of dissolving the stone. But it is now pretty clearly ascertained, that they are productive of no such effect, and that the symptoms induced by a stone may be relieved, while it continues in the bladder; their modus operandi, in these cases, is not distinctly understood. It was conjectured, by Cullen, and, I think, very erroneously, that they operate by absorbing the acid which is evolved in the stomach. To me, it appears more probable, that they act only by restoring the healthy tone and condition of the digestive process, and there-

by hinder the generation of lithic matter, the further deposition of which being thus arrested, the asperities of the existing stone are gradually worn off, or perhaps, as sometimes happens, it becomes imbedded in a cist of the bladder, and, in this way, the pain from irritation is diminished, or entirely removed.

Of the astringents, uva ursi is the most valuable in these cases. This is a plant found both in Europe and this country, growing in all the northern states, and plentifully not far from this city. It is also known by the provincial names of bear berry, bear's whortle berry, wild cranberry, &c.

The uva ursi is an ancient medicine. It was employed even so early as the time of Galen, mostly, however, as a simple diuretic, nothing of its other properties being ascertained, especially its antilithic properties, till some few years ago. It is now very much prescribed in all calculous affections, and, though not a solvent of stone, it mitigates pain, and promotes a freer discharge of urine. There can be no doubt, that it is more adapted to nephritis, in all the forms of which I have prescribed it, and occasionally with advantage. It is an exceedingly popular remedy in this city, and has the confidence of many of our most respectable practitioners. Being without any very positive action, and especially on the blood vessels, it may be exhibited in almost every state of the system, and in nearly every variety of the diseases of the urinary organs. To its great efficacy in some of these cases, we have the testimony of Ferriar, strongly stated. "I have," says he, "given this medicine in a considerable number of nephritic affections, in very moderate doses, and always with manifest advantage. When the pain is very acute, and the pulse quick, I begin the cure with bleeding, and a gentle purgative, composed of manna and a neutral salt. This purgative I repeat twice a week, and, on the intermediate days, direct the patient to take five grains of the uva ursi, and half a grain of opium, three or four times a day, according to the urgency of the symptoms. I have never found larger doses necessary. This method always relieves, and generally effects a cure. Of sixteen patients, treated in this manner, I have discharged twelve, cured. In reckoning the cures, I do not rest on the cessation of a single fit, but require a permanent relief from pain. Many of my patients have used the remedy for several months together, before this end was attained. The fits became slighter, and at length ceased."

By De Haen, to whom we are indebted for much of our knowledge of the remedy, it is most favourably spoken of in ulceration of the kidneys, the bladder, and their appendages. Catarrhus vesicæ, I have seen successfully managed by it, and the strangury from blisters not less so. But in the former complaint, its use ought generally to be preceded by those remedies, which are more directly calculated to subdue inflammatory action, a state, of which it always partakes in the commencement.

Every one who has tried uva ursi in diabetes, seems to have been pleased with its effects. It is now very much used, both in Europe and this country, and the few cases of the disease which have come under my care, were treated partly by it, and successfully. Yet, diabetes can very rarely be cured by any one remedy. It mostly presents a case exceedingly complicated in its nature, often highly febrile, and exacting copious venesection, and purging, as preliminary measures. After the system is brought down to the point where tonics are proper, then the uva ursi may be recurred to with advantage, and not before. The annexed prescription is that of Ferriar, which has generally been adopted.\* The medicine, in this case, I have reason to believe, operates very much as a tonic to the stomach, though, by its affinity to the kidneys, it may, at the same time, do away, or mitigate the irritation of these organs. That it is beneficial in the first view which I have exhibited of its properties, I am satisfied, from having witnessed its efficacy in the ordinary forms of dyspepsia, and especially, when the disease could be traced to a relaxed state of the stomach. It, moreover, proves serviceable in hectic fever, and doubtless by virtue of the same tonic property.

Entertaining the notion of its astringency, it has also been recommended in leucorrhæa gleet, and pas-

<sup>\*</sup> R Pulv. uva urs., cort. Peruv. āā Əi, opii. gr. ss. quater in die: bibat aq. calc. Zii. post sing. dos. pulver.

sive hæmorrhage of the uterus. These are all, very often, unmanageable cases, and I am not sensible that I have derived, in any one of them, the slightest advantage from this medicine.

Of the uva ursi, the average dose is from twenty to thirty grains of the leaves powdered, three or four times a day. Double this quantity, however, is sometimes prescribed. It is also given in the shape of infusion or decoction. Thus prepared, it answers very well, though I prefer the powder, as being, on the whole, more certain, and, perhaps, less disagreeable to the taste.

#### HUMULUS LUPULUS.

I do not mean, at present, to detail the general medicinal properties of the hop, or enter into the enquiry, how far calculous affections have been influenced by the increased consumption of malt liquors.

As a lithontriptic, an infusion of it has long been celebrated. We are told by Lobb, in his Practice of Physic, that, out of the body, it is one of the most prompt and certain of the solvents of urinary calculi, and that, when given internally, it affords much relief.

My experience with it is confined to nephritis only, where it has sometimes proved efficacious. Exhibited in strong infusion, to the extent of a pint or more a day, it lulls pain, excites the urinary discharge, and, in some instances, is productive of more permanent benefit. The tincture of hop, which is preferred by some practitioners, is far less efficacious.\*

### DAUCUS CAROTA.

This species of carrot grows wild in many parts of the United States, and most abundantly in the vicinity of this city. It was stated, by the late professor Barton, to be the same as the common garden vegetable, changed somewhat by the want of cultivation. But, it would seem, that he was deceived. The wild is certainly the more powerful of the two plants, though the domesticated is by no means inactive. Throughout the country, this is a remedy much employed in all the urinary complaints, and, I suspect, that confidence is not misplaced in it. I have used it in several of these affections with great advantage, and particularly in gravel.

As a diuretic, it is very certain and active. Exhibited merely to promote the urinary secretion, we shall rarely be disappointed, and, perhaps, it ought to be placed with that assortment of medicines. It is one of our best means of relieving strangury from blisters. An infusion either of the root or seed, is

<sup>\*</sup> Narcotics.

used, though the latter is preferred, and may be drank as freely almost as any other herb tea.

## ALLIUM SATIVUM.

The alliaceæ, or, at least, some of these articles, have undoubtedly been productive of utility in calculous affections. The garlic is the most powerful of the class. As it reaches the urine in a state little changed, we should suspect, a priori, that it operates pretty actively on the urinary organs. This suspicion has been fully verified by experience. It is a highly stimulating diuretic, and, in atony of the kidneys and bladder, has proved very serviceable.

By Sydenham, as well as by more modern writers, it is much commended in dropsy. It was, likewise, formerly, resorted to as a lithontriptic, and, indeed, in ancient times, was even a favourite remedy. From some cause, however, it lost all its reputation in these cases, and for a century we scarcely find it mentioned, in reference to such virtues. But of late, it is again creeping into practice, and, if we can credit the accounts which are published, it is entitled to our notice. When I was in Europe, it was employed in the London hospitals. I do not, however, remember any very decided effects from it.

It may be given either in substance, by cutting the cloves into pieces of a convenient size to be swallow-

ed, or the juice may be extracted by pressure. The leek is said to be equally useful, and may be administered precisely in the same manner.

In reviewing what has been said concerning their properties, it will appear, that the arrangement of many of the preceding articles, under the separate heads of antilithics and diuretics, is somewhat arbitrary, and, perhaps, useless. Excepting a few, indeed, they are all possessed of nearly the same properties, and hence susceptible of similar applications.

Dismissing the subject, I shall only further remark, that it is important to recollect, that, though occasionally more diversified, the great majority of cases, whether of gravel or stone, are of uric acid, or the phosphates. Being still in the gravelly state, the only one, perhaps, remediable, they may be readily distinguished, by the first being a *red sand*, and the second a *white* sediment—the former requiring to be treated mainly by the alkalis and magnesia, and the latter by the acids, mineral or vegetable.

In the *compound* calculi, it is recommended to give these articles alternately, "as the symptoms of the case, and the deposit of the urine may indicate." But this will be found exceedingly perplexing in practice, and in case of stone, should there be any effect at all, might be mischievous, by a partial solution of it, converting a smooth into a rough irregular surface, productive of pain and irritation.

### SECTION XIV.

# Of Diaphoretics.

DIAPHORETICS are those means which produce a discharge from the surface of the body. They are an important class of remedies, and one applicable to the management of an extensive circle of diseases. In the common language of the schools, the term diaphoretic is restricted to those articles only, which promote insensible perspiration; and such as occasion sweating, are distinguished by the appellation of sudorifics. But since we can discern, in the medicines arranged under these titles, no difference, except in the degree of force, or what arises from the manner of administration, I shall comprehend the whole under the head of diaphoretics.

The discharge from the skin being merely an increase of a natural secretion, it is plain, that this may take place by an invigorated action of the cutaneous vessels, produced, either by the direct application of

stimulants to them, or by augmenting the general force of the circulation. Diaphoresis, however, is not the constant and necessary consequence of increasing the energies of the heart and arteries, as there often exists a constriction of the extreme vessels, by which the tendency to this process is counteracted. To excite sweating, under such circumstances, something is required to overcome this resistance, and which is most effectually accomplished by inducing the state usually denominated relaxation of the surface.

Diversified, however, as they may be, in their modus operandi, they all concur, when properly applied, in reducing morbid action, and hence are to be considered as one species of depleting remedies. They lessen the force of the heart and arteries, by a direct evacuation from the skin,-by taking out of the ordinary route, a certain portion of blood, which is determined to the extreme vessels,-and by overcoming the constriction of surface, which acts as an indirect stimulus to the moving powers of the circulation. Nor is this all which they do. By their centrifugal tendencies, they lessen or entirely remove deepseated congestions, and produce, probably, on the capillary system, which is now ascertained to be so important in every view, an impression, though not very intelligible as to the mode, doubtless of the most salutary nature.

I shall now suggest some few rules to be observed in the administration of these remedies.

- 1. To promote perspiration, it is essentially necessary that the patient should be confined to his bed, and his pulse, and the temperature of the body, be carefully watched. If the one be vigorous, or the other high, venesection, where it is not particularly forbidden, should be employed. It is said, that sweating never takes place, when the heat of the skin is above a hundred and eight degrees, and, by a later writer, six degrees less,—and it is equally true, that, with a vigorous pulse, it rarely happens,—and when it does, it is partial and injurious.
- 2. In the exhibition of diaphoretics, give diluent drinks, unless the stomach is irritable. This qualification chiefly applies to the antimonial preparations, and some of the combinations of ipecacuanha. The temperature of the drinks must be regulated by that of the skin. The latter not being high, they should be warm, or even hot, but, if the contrary prevails, cold.
- 3. In the low forms of disease, while pursuing the diaphoretic plan, carefully avoid purging, unless circumstances imperiously require this remedy. It is very apt, in this state of the system, to check sweating, and to bring on an aggravation of the complaint. It does this, by diverting action from the surface to the intestines, and by exposing the patient to cold.
- 4. As the action of the cutaneous vessels, and of the urinary organs, is in an inverse ratio, it is no less obviously proper, that when we wish the one, the other is to be restrained. During the operation of a diaphoretic, therefore, we are also to abstain from the

use of whatever promotes the secretion of the kidneys.

- 5. In cases where a regular and long continued discharge from the skin is desirable, we should never hesitate to substitute a flannel for the linen shirt. This is a very important precept, and one which we ought to carry with us into practice. It is, indeed, impossible to keep up perspiration for any length of time, with uniformity, without using flannel next to the skin. The older practitioners resorted to it, in all cases in which diaphoresis was to be promoted,—a custom, however, I think, not only unnecessary, but really injurious in some acute diseases, and especially in febrile affections.
- 6. The linen or flannel of the patient, with his bedclothes, should be changed, when the process of sweating is over. The filth thus generated is prejudicial in itself, and adds so much to his wretchedness as sometimes to excite fever.

## SECTION XV.

Of the practical application of Diaphoretics.

Diaphoretics, I have said, when judiciously managed, are a very important class of remedies, though perhaps, there is none which has been more abused. The practice so generally prevalent at one time, of endeavouring to cure diseases of an inflammatory nature, by extorting sweat, by the profuse exhibition of the heating and stimulating articles, was productive of the most mischievous effects, and brought these medicines into discredit among regular practitioners.

It has been alleged, that, since diaphoretics are not resorted to by the brute creation, like emetics and cathartics, they cannot be of primary importance. An obvious reason for this exists, since there are not many of the lower animals, in which the function of perspiration takes place. As regards the human subject, and certain animals, no mode of curing diseases, is more distinctly and intelligibly pointed out

by nature, or the beneficial tendency of which better established.

Of all the plans, indeed, of managing disease, the practice of sweating is, perhaps, the most popular, and generally adopted. By the vulgar, it is resorted to on all occasions, and, in their estimation, is the safest and most effectual remedy. Nor is this opinion confined altogether to the low and illiterate orders of mankind. Every class of society seems, more or less, to have acquiesced in the prejudice, and to entertain the same views. Yet, it is obvious, that remedies which so powerfully operate on the system, are not wantonly to be trifled with, or inconsiderately used.

To intermittent fever, diaphoretics are well adapted. Correctly prescribed in these cases, they have the twofold effect of conducting the paroxysm to a speedy solution, by exciting perspiration, and of obviating its recurrence, by supporting the tone of the extreme vessels. But in these opposite states of the system, a very different species of the medicine is exacted. To prevent the paroxysm, the stimulating diaphoretics are usually directed;—while, to subdue it, the cooling and relaxing are found to be preferable.

Nor are these remedies scarcely less suited to remittent and continued fevers. They are not, however, to be rashly or indiscriminately employed. Discarding utterly the notion, of fever being an effort of nature to throw off peccant matter, as was once supposed, we are not to force or encourage perspiration

in the early stages, by the use of any of the alexipharmic means. On the contrary, it is to be recollected, that, in the present reformed state of our science, it is a principle settled and fully recognised, never to resort to diaphoretics, in fevers of an inflammatory species, till arterial action and general excitement are considerably reduced by previous venesection, and evacuations by puking or purging. After this depletion, they come in with great advantage, and will commonly either mitigate, or completely arrest the progress of the disease. Even here, however, we trust only to the milder medicines, combining with them all the auxiliaries which have the same cooling and relaxing tendencies. It may, indeed, be laid down as a rule, never to be deviated from, that, in the whole of the inflammatory cases, we are rather to solicit perspiration by lenient means, than extort it by any violent measures.

These observations are particularly applicable to our autumnal bilious fevers. It is well known, in many instances, how exceedingly protracted is their career:—and I have sometimes found, under such circumstances, diaphoresis kept up for twelve or eighteen hours, very successfully to conduct them to a crisis, by breaking the wrong habits by which they are continued.

Of the use of sweating in yellow fever, I am not prepared to say much. It was, by myself and other practitioners, very fairly tried, in some of the visitations of that epidemic, and though occasionally of benefit, it did not afford any great encouragement. But elsewhere, it seems to have proved more serviceable, and I have understood, that it has always been made a leading part of the treatment of the disease, by some of the most distinguished medical men of New York.

My conviction is, on the whole, that, in common with all other modes of managing yellow fever, it is so unavailing as hardly to deserve attention.

Typhous fevers being accompanied with feebler action, attempts to excite perspiration may be much earlier made in them than in other cases. Even here, however, some degree of circumspection is necessary. It is now, I believe, an established practice, sanctioned by the highest authority, that, in the two forms of typhus, the mitior and gravior of the systematic writers, sweating ought to be preceded by evacuations of the alimentary canal, cold applications to the surface, and sometimes by venesection.

The typhous fever, such as I have alluded to, is not one of the complaints of this city, or perhaps, in any great degree, of any section of the United States. Exclusively, or nearly so, the product of camps, of ships, of jails, and other crowded receptacles of vice, poverty, and filth, it finds no where, within the limits of our happy country, any copious source of generation, or the medium of general prevalence.

But, in place of this severe scourge of Europe, there has, of late years, appeared among us a wide wasting pestilence of the same typhoid character, which, in its career, has ravaged some of the fairest portions of our country. All accounts agree in representing this disease, the spotted fever, or peripneumonia typhoides, as it is more generally called, as a perfect Proteus, assuming every variety of shape, and requiring no little diversity of treatment. But in whatever form it commences, there generally ensues a great, and, in many instances, an unprecedented prostration of strength.

Two leading modes of treating the disease, have been adopted. By one set of practitioners, the most profuse use of the diffusible stimulants has been recommended while, by another, the sweating plan is preferred. My opportunities have been sufficient to compare these different modes, and I do not entertain the slightest doubt of the superiority of the latter. The mind of the physicians of this city, at least, is pretty well made up on this point, and they all acknowledge the infinitely greater success which attended the early and steady employment of the more active diaphoretic measures. But, such is the practice when the disease assumes its most simple guise.

Distinguished, as it often is, by great local determinations, as in the bilious, pneumonic, and anginose cases, particularly, it is conceded that in these, some difference of treatment is required. Emetics, here, have been found pre-eminently useful, and are sometimes to be followed by the mercurial purgatives. The end being attained for which these evacuants are administered, we may recur to diaphoretics,—

and, to remove any remnant of topical congestion or pain, blisters, or the most acrid rubefacient applications, become the appropriate means.

Besides this new species, we have another form of the same description of fever, which hitherto has not been noticed, or I have not, at least, met with any account of it in the course of my reading. It is produced by an exposure to cold, and affords one of the clearest illustrations of the sedative influence of a low degree of temperature when long continued. The cases of the disease, which have come under my observation, are chiefly the paupers of our Alms House, who, taken out of the streets, or other exposed places, are brought into that establishment, during intensely cold weather, in a state approaching torpidity. They are in a heavy stupor, the power of speech is lost, or greatly impaired, the pulse is either very feeble, or wholly imperceptible, the surface is cold, with nearly an extinguishment of sensibility, and suppression of the movements of vitality. In this situation, which resembles not a little the incipient state of hybernation of some of the inferior animals, the indication is obviously to solicit the return of the actions of life, by the use of stimuli, graduated to the feeble remains of excitability. The warm bath, in the commencement, perhaps, answers better than any other remedy; but, where this cannot be procured, dry heat applied to the surface, may be substituted, and cordial stimulants should be given internally.

It is often exceedingly difficult, from the loss of susceptibility, to arouse the system by any plan of treatment. But, most commonly, after a short time, a partial re-action takes place, and the result is, a slow and feeble state of fever, very analogous, in all its essential attributes and leading features, to the typhus gravior. Like in that disease, in its advanced stages, there is the dark incrusted tongue,-the skin is hot and parched, and the pulse quick and small -there is low delirium-the eyes are glassy, with dilated or exceedingly contracted pupils-and that lank, haggard, and distressing expression of countenance exists, which is peculiar to the worst forms of the malignant febrile affections. In many instances, I have known the patient to continue in this state, with little or no deviation, for six or eight weeks, and ultimately to recover. The treatment, during this protracted interval, has consisted, in the persevering exhibition of stimuli, chiefly the volatile alkali, the capsicum, camphor, wine, or warm spiritous drinks. As soon as the system begins to re-act, which is perceived by a more complete exercise of the natural functions, stimulating sudorifics may be employed with advantage. They relax the surface, develop a new animal temperature, and release, as it were, from the bondage in which they had so long been held, all the vital energies.

Connected as they are, in some degree, with the preceding fevers, I am next to make a few remarks on the application of diaphoretics to those affections,

which are produced by contagion. During the dominion of the humoral pathology, a system of notions, that originated in an eclipse of medical reason, and which has been perpetuated among some, to the present moment, by an ignoble servitude to authority, it was believed, that the particles of the virus floating in the circulation, and still keeping up the disease, could be eliminated through the pores of the skin. Conducting the treatment on this hypothesis, the sweating plan was early resorted to, and pushed to the utmost extent. This was the course pursued, more especially in plague, small-pox, and, at one time, even in syphilis, affording an example, among many others which might be adduced, of false theory being the parent of mischievous practice.

In such diseases, whether of a low or inflammatory character, there is a point which will occur to every judicious practitioner, at which we may very usefully resort to diaphoretics. But there is nothing peculiar in their operation, in these cases. They act here, also, on the general principles I have already stated, and the only guide necessary to their correct administration, is, a due attention to the state of the system,—using the stimulant or milder medicines, as the existing circumstances may demand.

Eruptive complaints, particularly, have been much treated by diaphoretics. The skin being the immediate seat of those diversified affections, it was reasonable to suppose, that such remedies would produce the best effects. In many of these cases, however, there is so much heat of surface, and, at the

same time, such vascular action, that it is not admissible to resort even to the most lenient of them, without previous evacuations of a more direct description. But the force of excitement being reduced by venesection or purging, or by cold affusions, sweating is often productive of the happiest effects.

Diaphoretics are among the best of our remedies, in some of the bowel complaints. It is now more than half a century since the celebrated Akenside proclaimed their superior utility in dysentery. To the preparations of ipecacuanha, as before stated, he chiefly confided. The same views have subsequently been adopted, with some modifications, by several distinguished practitioners. It has been particularly insisted by Richter, an authority among the highest, that dysentery is a rheumatic, or catarrhous affection of the large intestines, and accordingly, in its treatment, the leading indication, is to excite perspiration. Without adopting, precisely, his theory, as applicable to all cases of the disease, I concur in the propriety of the practice. It has long been my conviction, that, in the bowel affections, we have, as a general rule, purged infinitely too much. Cherishing, still, the antiquated notion of morbid humours, it is usual, in these complaints, with some practitioners, to evacuate the intestines, as long almost as any discharge can be procured, under the impression, that the matter retained is irritating and offensive, and, therefore, the immediate source of all the mischief. The very reverse of this, I hold to be true. It appears to me, that the accumulation of acrid matter,

is the effect of previous irritation in the stomach and bowels, which causes an increased effusion from the mucous follicles, or the exhalent vessels, and, sometimes, a very vitiated secretion of bile. Deducing my practice from this view of the nature of the disease, I have been accustomed, after comparatively moderate evacuations, to exhibit medicines so compounded, as to meet the double indication of allaying intestinal irritation, and, more remotely, of relaxing the surface. Combinations of opium and ipecacuanha, to which calomel may sometimes be added, are an invaluable preparation for this purpose. But the irritation being excessive, and, as usual, productive of frequent and painful discharges, I either augment the quantity of opium, or, what is more effectual, administer anodyne injections, three or four times in the course of twenty-four hours. These remedies will, in most cases, calm the irritation of the bowels, and, as soon as this happens, the acrid discharges, together with the other symptoms, cease to be troublesome.

In cholera morbus, as well as in the bowel affection of children, emphatically called the SUMMER COMPLAINT,\* I pursue pretty nearly the same practice. The latter disease, which might really be considered as among the opprobria medicorum, from the dreadful expenditure of life which it occasions, owes much of its mortality to the preposterous mode in which it has hitherto been treated. Continually purged,

<sup>\*</sup> Cholera infantum.

as is the ordinary practice, what else can be anticipated from such a course of exhaustion, except the rapid decay, and ultimate dissolution, of the delicate frame of a child? Entertaining the same views of it, as I do of dysentery, I endeavour, after limited evacuations, to quiet the irritation of the bowels, (and here, minute doses of calomel, with the other articles, are always useful), which being accomplished, I next resort to astringents, to restore the tone of the alimentary canal.

My remarks have hitherto had reference chiefly to the acute forms of intestinal disease. Before I dismiss the subject, I must say a word or two relative to chronic dysentery. This is a complaint, which, perhaps, has not attracted as much attention as it deserves. In these cases, though the acute symptoms be removed, there still remains considerable tenderness of the bowels, which are excited to action frequently, and by the slightest causes, producing small and very offensive stools. Every evacuation is attended with more or less griping, often exceedingly painful. Little appetite exists, and the food taken is not digested. The skin is dry and parched, the complexion sallow, and the eyes are sunk, with a shrivelled and meagre expression of face. Evidently, there is here, among other irregularities of function, a confinement of the blood to the deep-seated vessels, and, on this account, the determination to the surface considerably diminished.

I have met with several such instances, which, after resisting the ordinary treatment, have rapidly recovered under the use of those means which promote a moderate degree of perspiration. The same practice may be pursued in chronic diarrhæa, and in protracted cholera infantum, with no less advantage. The disease, in all these cases, is occasionally continued, by a morbid condition, either of the liver, or some other of the viscera, and, where this happens, calomel, in minute quantities, should be united to the other medicines.

Having said so much, it is hardly necessary to add, that in enteritis, the same course is to be pursued, with this difference, only, that venesection and its immediate auxiliaries, are much more urgently demanded.

Concerning peritoneal inflammation, I have had already several occasions of expressing my opinion of the peculiarity of its nature, and the extreme difficulty of its cure. I shall, therefore, after repeating here, that the most prompt and copious detractions of blood, are indispensible in the first stages of an attack, only mention, that having reached the point when direct depletion must be stopped, sweating is the remedy in which we ought to confide, and that it will often be productive of the most satisfactory results.

That it is important in the management of all these affections, to attend vigilantly to the state of the surface, with a view of preserving the tone and excitement of the extreme vessels, is sufficiently obvious.

To attain this end, the co-operation of blisters, and of warmth, by means of flannel, is frequently required: and, to render the latter more effectual, in the chronic cases, it should be applied as a roller tightly around the body, from the hips to the arm-pits. By this very simple expedient, I have done great good, having much used it, as is well known, both in my public and private practice, long before the appearance of a work,\* where it is particularly noticed.† The roller seems to act, by affording mechanical support to the bowels, by producing a determination to the surface, by exciting moderate diaphoresis, and by sustaining the natural degree of temperature. By the writer to whom I have just alluded, it is stated, that this application is equally beneficial, even in the commencement of dysentery, an opinion, however, in which I cannot acquiesce. As preventive of a relapse, where such is apprehended, it may be recurred to, in the convalescence of that disease, or, perhaps, in its advanced stages, having seen it particularly serviceable under such circumstances, in cholera infantum, and, at all times, in diarrhœa.

Of the phlegmasiæ proper, there is hardly an instance, in which diaphoretics are not indicated. But, as the state of the system is generally above the sweating point, we must previously resort to measures having a more powerful tendency to reduce the force of

<sup>\*</sup> Dewar on Dysentery, &c.

<sup>†</sup> It is also a matter of proof, that many years ago, I used the roller torheumatic limbs, and in the gangrene of ædematous swellings.

the circulation, and restrain the evolution of heat. Cold to the surface is an admirable remedy for these purposes, though there are some exceptions to its use, and rheumatism is one of the cases. Why cold should prove injurious, when applied to heated and inflamed joints in this disease, does not very clearly appear. Of the fact there can be little doubt, and we must be governed accordingly in practice.\* Every one who is at all conversant with disease, has heard of the efficacy of sweating in rheumatism. Yet, it is to be recollected, that, in the inflammatory stages, it is never beneficial, and ought, uniformly, to be preceded by more active depletion.

As regards the associate affection, gout, much difference of opinion has prevailed, as to the propriety of this class of remedies. Believing it to be one of the diseases dependent on morbific matter, and that the skin is the natural emunctory for the discharge, the disciples of the humoral pathology indulged in the free use of diaphoretics. I have already developed my views, as to the treatment of the arthritic affections. As secondary means, diaphoretics are serviceable. Nature, whose indications ought always to be consulted, and which, most generally, may be trusted, sometimes points to their use. The paroxysms of regular gout, when spontaneously cured, are so, most commonly, by diarrhæa, diaphoresis, or diuresis. Yet, we are not

<sup>\*</sup> Cold applications to rheumatic swellings, have been used in this country, on the authority of the Russian physicians, and, I have reason to believe, with results such as I have stated.

too early to resort to this remedy. Nearly as much as any other case, is the arthritic paroxysm distinguished by a high degree of inflammatory action, peculiar in its nature, though best managed by the ordinary means of depletion. The pulse and temperature of the surface being lowered, sweating comes in, sometimes, with propriety.

As in rheumatism, cold applications, though apparently proper, are prohibited. Not a little, I am sensible, has been said in their favour, and especially of the utility of immersing the feet in a cold bath, when painfully swollen. But the experience of the wise and the circumspect, the best guide in such matters, is against the practice most decidedly. The only case, in which it is at all admissible, is where the subject of attack is of a vigorous constitution—and even here, it will be prudent, to fortify the stomach previously, by taking something cordial and stimulating, so as to guard more completely against a retrocession.

Of the utility of diaphoretics, in some of the pulmonary affections, we are all apprised, though appropriate to very different stages of these cases. Exhibited in the forming state of catarrh, or pneumonia, or asthma, they will, sometimes, completely suppress the attack, and reinstate health. But, postponed till the disease is firmly fixed, they never fail violently to exacerbate the symptoms, and to render the cure more tedious and difficult. Yet, as in the preceding cases, when arterial action is sufficiently reduced, sweating may be recurred to, with a view of equal-

izing excitement, and extinguishing the last remnants of disease,—and this is especially true, in relation to pleurisy, and the other acute shapes of pneumonic inflammation.

The only case of neuroses, in which sweating has been used by me, is idiopathic tetanus. This affection, when brought on by exposure to cold, a very common cause of it, partakes much of the character of rheumatism, and exacts nearly the same treatment. But there is this difference in the two cases, that the former has little activity of pulse, and the surface is cold and damp in the first stage. Diaphoresis, therefore, is at once indicated, and when the system fully re-acts, which it will speedily do, under the cordial and stimulating remedies, as the hot bath, carbonate of ammonia, and wine whey, then, if necessary, we may purge and bleed.

Among the cachectic cases, in which diaphoretics are employed, diabetes is one. Two opinions at present exist, relative to the origin and seat of this disease. The first refers it altogether to derangements in the secretory organs of the urine, and the second, to a vitiated state of the digestive apparatus. The latter hypothesis has received the support of several very ingenious writers, and seems to me to be correct. To this conclusion, I am led by various considerations, which I cannot be permitted to detail. It may be sufficient, merely to observe, that any imperfection in the assimilative process, must necessarily affect the

urine, and that, ultimately, functional disorder of the kidney, may produce structural disorganization.

Of this disease, there are two distinct species, the mellitus and insipidus.

Differing as it may, in this respect, it is still managed by nearly the same remedies, accommodated to the state of the system, and the particular circumstances of the case. It is not my intention to enter into the treatment of diabetes. Yet, I cannot forbear again to mention, that in the few cases of it which have come under my notice, there were great activity of pulse, and many of the other indications of the febrile condition. Bleeding repeatedly, and never without manifest advantage, I have next trusted to occasional purging, and, finally, to the plan which is adopted in dyspepsia, consisting of tonics, and antacids, and to a diet restricted to milk, and the lighter and most digestible meats exclusively.

I have remarked, that sweating has sometimes been used with success in these cases. This indeed, is a process from which salutary effects might have been anticipated. I mean so far, at least, as respects the diminution of the urinary discharge. The principle on which it acts, has been explained on a preceding occasion. Besides the diversion from the kidneys to the surface, thus induced, it seems to be especially required by the state of the skin, that having been noticed as parched and heated, or cold and scaly.

The discharge by the surface, having the effect of diminishing that from the kidneys, diaphoretics could bardly be presumed to be admissible in dropsical effusions. They have, however, unquestionably done good in some of these cases, and it was, indeed, at one time, quite a favourite practice, to treat them by sweating. I have used it myself, with sufficient success to recommend it to attention. The cases to which the remedy seems more particularly adapted, are such as have had their origin in intermittent fever, and are kept up by visceral congestions. Commonly, there is here a small, tense, corded pulse, with cold extremities, and pallid countenance, a dry skin, together with all the other indications of a feeble and imperfect circulation on the surface. Diaphoretics, from their centrifugal operation, relieve the viscera, by determining blood to the extreme vessels, and restore that equipoise in the circulation, which constitutes the first step in the cure of the disease. They, moreover, under the circumstances of torpor, which usually attend such cases of dropsy, revive susceptibility to remedial impressions, and, in this way, no less conduce to the cure.

No practitioner can be ignorant of the utility of diaphoretics in the more obstinate chronic affections of the skin. They act here, most probably, by changing the morbid condition of the extreme vessels, and the antimonials, united with mercury, are thought the most effectual. But, as we shall hereafter learn, there is a class of articles, as sulphur, guiacum, &c. not less suited to certain cases.

To the preceding diseases, many others might be added, in which diaphoretics prove serviceable. But I have already lingered so long on this subject, that I cannot go into further details. Enough has been said, to direct their general administration, and, as respects their special applications, I must leave much to the sagacity and experience of the practitioner himself. Yet, in conclusion, I cannot refrain to insist on the value of sweating, as a remedial process. The practice, with some, I am aware, is in abeyance, from causes which have been assigned. But it is wrong to reason against the utility of a thing, from its abuses, or to be influenced by such considerations. Like vene-section, or any other measure, sweating may prove beneficial, or otherwise, as it is applied.

Employed under the control of a just discrimination, it will be found an highly important, and, sometimes, an absolutely indispensable means, of combating disease. Let us not, therefore, be seduced away from a remedy so salutary in its tendencies, and so fully sanctioned by experience, by any of the idle objections that theory may raise, or a false refinement in practice dictate.

## SECTION XVI.

Of particular Diaphoretics.

#### SALES NEUTRI.

OF mild diaphoretics, we have not many articles which possess this, as a distinct or independent property. They either have it, in common with an emetic or purgative power, or acquire it by combination with one or more substances, and most of the neutral salts are of this description. Exhibited in minute doses alone, or in union with antimony, they will generally produce diaphoresis, or, at least, a softness of skin, accompanied by a reduction of arterial action, and of animal temperature. In this respect, they resemble the mineral acids, and some other articles, which are denominated refrigerants. How this latter class of medicines produce their effects, it is not easily explained. By some of the later writers, it is

referred altogether to a chemical action. But the hypothesis, though sufficiently ingenious, affords no satisfactory explanation. As the reduction of the power of the circulation usually diminishes, in a correspondent proportion, animal heat, may it not be owing only to this cause?

I have said, that the neutral salts become more actively diaphoretic, by a combination with antimony. To meet the double indication of moving the bowels and relaxing the surface, the annexed formula will be found to answer very well.\* Exhibited pretty freely, this mixture will even purge actively. Evacuations having been premised by calomel and its ordinary adjuncts, I know of no medicine, which sometimes seems to be better suited to the autumnal fevers of our climate. It keep the bowels and skin precisely in that condition, so favourable to the solution of the disease.

Not dissimilar in its effects, or, at least, in some of its leading effects, to this mixture, is a saturated solution of the carbonates of potash, with a vegetable acid.† To increase its diaphoretic power, the dulcified spirit of nitre and the antimonial wine may be added, in such proportions as may seem necessary.

<sup>\*</sup> B. Sal Glaub Zi., Emet. tart. gr. i., Succ. limon. Zi., Aq. font. ferv. Ziii. m. Of which a table-spoonful may be given every hour or two.

<sup>†</sup> R. Succin. Limon. recent.—vel Acet. Acid. Zii.—Sal. Tart. q. s. ad saturand. adde Aq. font. Zii.—Sacch. alb. Zi. The dose, a table-spoonful every hour or two.

This preparation is very well adapted to the febrile affections of children, and even to grown people of delicacy of habit. Grateful to the stomach, when given without antimonial wine, it is calculated to allay nausea, to soften the skin, to preserve a laxative state, and to obviate or subdue the exacerbations of fever. This is called the saline or neutral mixturediffering from the draught of Riverius chiefly in the latter being given during its effervescence, and which is formed by dissolving forty or sixty grains of the salt of tartar in half a wine glass full of water, adding gradually the citric acid, or sharp vinegar, till the fixed air is disengaged, when, in this foaming state, it is swallowed. By some practitioners the solution of the alkali is first exhibited, and immediately afterwards the acid, so that the effervescence may take place in the stomach. As a corrective of nausea, and even to restrain vomiting, this draught is much celebrated.

#### NITRAS POTASSÆ.

No medicine is, perhaps, more used in fever, and other inflammatory cases, than the nitrate of potash, or common nitre, with a view to its diaphoretic property. But I am doubtful whether it has any direct operation of this sort: unquestionably it does not often produce sweating. Yet, it is a very important medicine in reducing the force of excitement, from

whatever cause proceeding, and hence is applicable to the treatment of a very extensive set of diseases.

To increase its powers, however, it is usual to unite with it calomel and emetic tartar, and this combination constitutes the well known nitrous powder, which, of late years, has been so generally employed in the practice of this country.\* This prescription is suited rather to the more robust patients, and, from the quantity of calomel it contains, will be apt to purge, which, however, may be easily regulated. In some cases, it will be prudent to exclude the calomel, lest it might harass the bowels, or excite salivation, which it is likely to do, when long continued. I have known, indeed, more than once, a single dose to have this effect. The emetic tartar will also have to be graduated to the circumstances of the case. Even in the moderate quantity in which it enters into the preceding prescription, it sometimes exceedingly distresses the stomach, or excites vomiting.

<sup>\*</sup> R Sal. nitr. 3i., Calom. prep. gr. xii.; Emet. tart. gr. i. m. Div. in pulv. viii. Of these powders, one may be taken every hour or two.

### SPIRITUS ÆTHERIS NITROSI,

OLIM

#### SPIRITUS NITRI DULCIS.

The spirit of nitre is one of the mildest and most agreeable of the diaphoretics, exceedingly appropriate to the cases of children, and other delicate persons. It may be given alone, in the dose of a tea-spoonful, occasionally repeated, or in various states of combination, and especially with laudanum and antimonial wine.\*

\* Incompatible substances—With a solution of green sulphate of iron, it strikes a deep olive colour; and with the tinctures of guaiacum, it produces a green or blue coagulum. When added in a small proportion to malt spirits, it gives them a flavour resembling French brandy. It is presumable, that the peculiar flavour of cogniac, depends on the presence of an etherial spirit formed by the action of tartaric, or, perhaps, acetic acid, or alcohol. In new brandy, there also appears to be an uncombined acid, giving it a peculiar taste and quality, which are lost by age. This explains the reason, why the addition of five or six drops of liquor ammoniæ to each bottle of new brandy, will impart to it the qualities of that of the oldest date.—Paris's Pharmacologia.

### ANTIMONIAL PREPARATIONS.

It is well known, that all of these, without, perhaps, a solitary exception, may be so managed as to prove diaphoretic, though there are two or three of them which, at present, are greatly preferred for this purpose. As an imitation of the once celebrated James's Powder, a combination of the calx of antimony with the phosphate of lime, called pulvis antimonialis, has been introduced into the materia medica, as one of the most certain of the sweating medicines. Though it is not at all improbable, that it may answer tolerably well, it has now, for some time, entirely given way in practice to a neater and less precarious preparation. Those, however, who are disposed to try it, may direct it in the dose of eight or ten grains, to be repeated, if necessary, at stated intervals.

On the continent of Europe, and especially in France, the golden sulphur of antimony,\* has long maintained an indisputable ascendancy, in the estimation of practitioners, over all its kindred preparations. My own experience will not allow me to speak in any decisive tone, as to its value. I have rarely prescribed it, because my prejudices have been against it chiefly on account of its being less convenient

<sup>\*</sup> Sulphur Auratum Antimonii, vel Sulphuretum Antimonii Przcipitatum.

in the administration. Compared with emetic tartar, it is, I think, in every view, inferior. As I have more than once before said, this latter medicine may be so managed, as to supersede all the rest of the antimonial preparations. Nearly tasteless and inodorous, it can, at all times, be exhibited without difficulty, and certainly possesses, so far as I am able to determine, equal, if not transcendant powers. The golden sulphur of antimony is usually directed in the dose of five or six grains, made into pills. Emetic tartar is, when given alone, dissolved in water sometimes coloured with cochineal merely to disguise it, and in the fourth, sixth, or eighth of a grain every hour or two, till the effect is fully attained. But it is more customary, as we have already seen, to prescribe it in various states of combination. and particularly where it is desirable to move the bowels, as well as to relax the surface.\*

#### IPECACUANHA.

This is an article which has an affinity to the surface, and induces a great degree of relaxation. On this account it is exceedingly appropriate to all cases where spasmodic constriction, of any kind, is to be overcome by sweating. The dose of the powder is

<sup>\*</sup> Emetics:

from half a grain to two or three grains. The wine of ipecacuanha may be substituted.

The lenient diaphoretics, I have to remark, ought to be given at much shorter intervals, and, when necessary, from gastric distress, in smaller doses than are commonly directed. As a general rule, the period between the repetition of a medicine should not be so remote as to allow of the slightest abatement in the impression, and this applies with peculiar force to the articles of which I am treating. The operation of most of them is transitory, and if the effect be not kept up, by a regular and frequent renewal, it quickly passes away, leaving the system to contend against all the consequences of the process of sweating, imperfectly performed, or too suddenly suppressed.

#### OPIUM.

The force of the circulation, with a view of exciting perspiration, may be increased by a variety of means. Of the medicines capable of doing this, I shall first mention opium, which, though diaphoretic, is yet rarely exhibited alone. To temper its stimulating effect, as well as to determine it more directly to the surface, we generally combine some other article with it. Either antimony or ipecacuanha is mostly employed for this purpose, and may be prescribed in substance or in the fluid state. A grain of opium, and one-fourth or

sixth of a grain of emetic tartar, will sometimes excite sweating. But combinations of laudanum, with antimonial wine and dulcified spirit of nitre, are a neater, and, perhaps, a still more efficient prescription.\*

This draught is usually given at bed time, and is applicable to the ordinary catarrhal affections, or other complaints where a moderate diaphoresis is desirable. But it is not so well suited to raise, or to keep up profuse sweating in more intractable cases. To meet this indication, the union of opium with ipecacuanha is infinitely to be preferred. Nor, indeed, in the whole circle of diaphoretics is there one article, which, in my opinion, can at all be compared, either as regards certainty or general utility, to Dover's powder.† Comprising within itself opposite properties, it may, on this account, be applied to a great diversity of cases, as will be indicated. This famous composition consists of one part of opium and ipecacuanha each, and eight of sulphate of potash. Attempts have been made to improve its qualities, by substituting in place of vitriolated tartar, loaf sugar, nitre, &c. But, so far from any advantage having accrued from these innovations, I am persuaded they have proved injurious.

<sup>\*</sup> R. Tinct. Theb. gtt. xxv. Sp. nitr. dulc. 3 i. Vin. antimon: gtt. xxx. Aq. font. Zss. m. This combination very frequently operates as a diuretic in dropsy, and has more than once within my knowledge removed the effusion in this disease, under circumstances, the least to be expected.

<sup>†</sup> Pulvis Ipecac. et Opii.

Dover's prescription has always appeared to me to be one of those lucky hits in the compounding of medicines, which allows of no alteration, either in the ingredients themselves, or the proportions. Made in the old way, this powder has, for a long time, maintained an almost unrivalled reputation, for certainty of effect, and before we run the risk of change, the evidence of improvement should be very clear and satisfactory.

In the exhibition of this preparation, very precise rules have been laid down by several writers, and particularly by Cullen. But I am not sensible that any particular formalities are demanded in the case, and all that seems to me to be necessary is an attention to those general precepts which I suggested in my preliminary discussion on this set of medicines.

To point out in detail, the various diseases in which this powder is directed, seems to be superfluous. It is, perhaps, suited to the whole of the phlegmasiæ, in the secondary stages, when arterial action, and general excitement, have been subdued by venesection, and the rest of the directly depleting processes. Yet it is in rheumatism, under the precise circumstances which I have just stated, that it has been mostly employed. As a maxim, let it be recollected, that Dover's powder is never admissible in this disease, while any considerable febrile excitement prevails, and, when once begun, the sweating is steadily to be maintained in obstinate cases of it for not less, on an average, than twenty-four hours.

Of the utility of this powder in the bowel affections, I have nothing to add to what I have so recently and repeatedly said, under different heads. Though this precise preparation be not always prescribed, we resort to combinations of nearly the same articles, and in similar proportions.

Not long ago, we had some communications in the London medical journals, of the efficacy of Dover's powder in diabetes. Whether it is really useful in any of these cases, I cannot determine, from experience of my own. Diaphoretics are, however, sometimes called for in the disease: and this powder, under such circumstances, would seem to have, on several accounts, strong claims to attention.

By it I have treated dropsy exclusively, and not entirely without success. The experiment was made in one of the public institutions of this city, on cases, apparently excited by cold, and blended with intermittent fever, and in ascites, as well as anasarca.

The dose of the powder is about ten grains, to be repeated every third, fourth, or fifth hour, and to have its operation promoted by warm drinks, and particularly wine whey. But these, as I formerly mentioned, are not to be allowed immediately, lest vomiting be provoked.

#### CAMPHOR.

To the class of medicines of which I am treating, camphor is considered as belonging. It undoubtedly evinces some affinity to the skin, though, given by itself, rarely produces perspiration. In this respect, its power may be augmented by variously connecting it with opium, calomel, nitre, ipecacuanha, or antimony.\*

#### PREPARATIONS OF AMMONIA.

What I have said of camphor may be repeated of the carbonate of ammonia. Like that medicine, it acts on the surface, and pretty much in the same degree. Each is employed with advantage in the low states of disease, but more to sustain the excitement of the system, than to promote sweating.†

The Spiritus Mindereri, or acetate of ammonia, is a much superior diaphoretic. This preparation, once in high repute, has, as too often happens, in the fluctuations of practice, been supplanted by other medicines of far less efficacy. With great certainty it excites perspiration, and may be used on many occa-

sions. Of the diaphoretics, it is one of the best, to break down and bring to a speedy issue, the paroxysm of intermittent fever. Neither heating nor stimulating, it may, therefore, be applied with less caution, than most other articles. There is another circumstance which recommends this medicine: being rather cordial, it is often retained in irritable states of the stomach.

The citrate of ammonia has many of the qualities of the preceding preparation, and may be used as a substitute. Generally it is an extemporaneous prescription, the lemon juice being saturated by ammonia, in the mode I have directed with regard to potash, in the neutral mixture.

#### EUPATORIUM PERFOLIATUM.

This is a native vegetable. Combining within itself a vast diversity of properties, it is susceptible of being applied to numerous purposes. By different modes of exhibition, it proves tonic, emetic, purgative, diuretic, and actively diaphoretic. It is in the last view that it now interests us.

To catarrhal affections, in the early stage, this medicine is said to be adapted. The people of the country prescribe it freely in such complaints, and repose no slender confidence in its powers. Not the least memorable application of the article, was of this nature. Many years ago, we had throughout the United States, a species of influenza, which, in consequence of the sort of pain attending it, came to be denominated break bone fever. The eupatorium, acting as a diaphoretic, so promptly relieved this peculiar symptom, that it acquired the popular title of bone set, which it retains to the present moment. The more common name, however, is thorough wort.

My own experience will not permit me to say much of it in rheumatism. Yet from analogy, which is corroborated by reports I have received from several respectable practitioners who have tried it, I can entertain no doubt of its being beneficial.

It has been stated, that in one of our epidemics, the eupatorium was successfully prescribed. Encouraged by former experience, during the yellow fever of 1798, in this city, when the sweating plan of treating the disease was so eagerly pursued, it was again recurred to, and strenuously recommended. Nor was it overlooked in the management of our still more recent epidemic, the spotted fever. It, on the contrary, came into very general use, and received the strongest attestations of many practitioners.

To several of the forms of dropsy, it is alleged to be applicable. Whether it be so, I cannot say from personal knowledge. The physicians of this and the neighbouring states, are in the habit of prescribing it, in these cases. It is presumable, from the general qualities of the medicine, that it would render most service in the forms of the disease, generated in

marshy districts. Dropsies of this sort, commonly wear the intermittent type, and are successfully treated, in many instances, by an union of the tonic and diaphoretic remedies.

It is, moreover, said, that the eupatorium is beneficial in some of the chronic cutaneous affections, and particularly in a species of herpes, incident to the people of the southern states. That it should prove so, was, indeed, to have been anticipated, from its active operation on the surface.\*

## ASCLEPIAS DECUMBENS.

This is the title of a very beautiful and valuable plant, which is peculiar to the United States. To the southward, it is found most abundantly, though it is scattered throughout the country. It is known by the vulgar titles of swallow-wort, butterfly weed, and pleurisy root.

As far back as the earliest recollection extends, the root of the asclepias has been employed in popular practice, as a sweat in catarrh, rheumatism, the inflammatory fevers, and, above all, in pleurisy. No medicine has, perhaps, an equal reputation among the people of the southern country, in these cases, and especially in pneumonic inflammations. Nor are

<sup>\*</sup> Tonics.

there wanting some respectable practitioners, who repose much confidence in it.

My experience with this medicine is sufficient to enable me to speak with some degree of confidence of its powers. As a diaphoretic, I think, it is distinguished by great certainty and permanency of operation, and has this estimable property, that it produces its effects without increasing much the force of the circulation, raising the temperature of the surface, or creating inquietude and restlessness. On these accounts, it is well suited to excite perspiration, in the forming states of most of the inflammatory diseases of winter, and is not less useful, in the same cases, at a more advanced period, after the reduction of action by bleeding, &c. The common notion of its having a peculiar efficacy in pleurisy, I am half inclined to suspect, is not altogether without foundation. Certain it is, that it very much relieves the oppression of the chest, in recent catarrh, and promotes expectoration in the protracted pneumonies.

As a tonic, it has sometimes been prescribed in autumnal fevers, and still more so, in debilitated states of the stomach, attended with flatulence. It is supposed to be so serviceable in the latter case, that it is designated by the term wind weed, or wind root, in domestic practice. The powder of the root, in the dose of half a drachm, is preferred, when the medicine is directed with this view. But in other cases, a strong infusion is directed, of which as much may be drank as the stomach will retain.

Of late, I have understood, that another species of this plant, the asclepias syriaca, or silk weed, or milk weed, has been found to have nearly the same properties; with this addition, that it is narcotic, and affords much relief in asthma, in old coughs, and even in pulmonary consumption. As one of the latescent plants, it is not improbable, that this may, in part, be true.

I have now enumerated the chief articles, usually to be met with in the class of diaphoretics. But, in addition to these, there is a set of medicines, which indisputably have a close relation to the surface, as is evinced by their influence over the cutaneous affections. The medicines to which I allude, though they produce little or no perspiration, cannot, perhaps, be more appropriately introduced, than in this place, and I shall, therefore, proceed with their history.

## SULPHUR:

No one is entirely ignorant of the efficacy of sulphur in the diseases of the skin. The only comment I shall make on this trite application of the remedy, is, that it is necessary, in some of these cases, to use it in the shape of an unguent, as well as to give it internally. We direct, particularly in psora, or itch, the surface of the body to be anointed with the ungular sulphuris of the dispensatories, while the powder is exhibited in small doses. Without the external application, it proves inert;—so much so, that I have great doubts myself whether it be of any service. Being, in this way, exceedingly disagreeable and inconvenient, several other remedies are, at present, substituted in private practice, which I shall hereafter mention.

On this subject, I shall further observe, that I have found nothing so speedily to cure tinea capitis, as an ointment made of an ounce of sulphur and lard each, with an addition of two drachms of sal. ammoniac. No cutaneous disease is more difficult to manage, than this species of eruption is sometimes. I have known cases of it to baffle the united skill of some of the ablest practitioners. But, since using the above ointment, I have been uniformly successful.

It is worthy of recollection, that Rosenstein, a writer held in some esteem, has said, that when eruptions are repelled, they may again be restored to the surface, by the use of sulphur: in epilepsy, and other convulsive disorders, thus brought on, the practice has been found, according to him, exceedingly beneficial.

At one period, and that not very remote, the several preparations of sulphur were among the remedies most in vogue, in the management of catarrhs, asthma, whooping cough, &c. Confidence was, indeed, so great in its virtues in these pectoral affections, that it acquired the appellation of anima pulmonum, the soul of the lungs. To what extent this high character is deserved, I am not prepared to pronounce. Certainly the practice does not want the support of authority, and if we advert to the properties of sulphur, we can hardly be altogether incredulous. Distinct from other qualities, it is confessed to be diaphoretic; and, perhaps, as much as any article, has the effect of opening the surface, which always relieves the lungs.

To alleviate or remove those painful spasmodic contractions of the muscles, denominated cramps, sulphur is much resorted to, and, most generally, it is advised to grasp a roll of brimstone, during the paroxysm. How far this popular expedient is salutary, I cannot pretend to say, though I have done good, in numerous instances, by recommending pads of sulphur to be worn on the part prone to such attacks, while, at the same time, the medicine is taken internally. I once had under my care, a man, who, for years, had been subject to cramps of the abdominal muscles, recurring several times in the day, and so violently, as to draw him double, attended with a degree of pain, scarcely to be endured. As he had tried almost every other measure, I suggested the use of the pad, which, while on, always prevented an attack, and on taking it off, the cramps speedily returned. By wearing it, however, for some weeks steadily, he was completely cured.

The sulphur is a well-known remedy in paralysis, and I am inclined to believe, from what I have seen, that it ought not to be disregarded. On a former occasion, I dwelt at some length, on the efficacy of purging in this disease. Yet it does not appear to me, that we are to ascribe all the effects of sulphur to this property. Many other articles, which much more effectually evacuate the bowels, are not so useful, and, indeed, I am not quite sure, whether we do not sometimes attain as much, when the sulphur operates not at all as an aperient. I speak of the weak and protracted states of the disease.

I shall not repeat here, what I formerly said, of the utility of the medicine in gout and rheumatism. It will be sufficient merely to mention, that, in proportion as I employ it, especially in the latter disease, my confidence in its powers is strengthened.\*†

\* Cathartics-tonics.

† We have lately had the practice revived of treating disease by the fumes of sulphur, and the success attending it seems so great as to require, that it should not be overlooked. The earliest application of the remedy was by Glauber, who, however, restricted it to the cure of psora or nearly similar affections, and, it is said, that, ever since his time, it has been continued, more or less, by the German physicians.

By the celebrated Frank, of Vienna, we had, some years ago, a distinct recommendation of the practice in itch; which, probably, led M. Galés, of Paris, to engage in the inquiry, as he has since done, with great ardour and success.

To him belongs the credit of contriving the apparatus for the convenient administration of the fumes, as well as for determining the utility of the measure in a great variety of other diseases. Connected as he is, with a large hospital, he has had the most ample opportunities of testing the remedy: and the result of his numerous trials is, that it has a complete control over the whole of the chronic cutaneous affections,

## GUAIACUM OFFICINALE.

This is a tree indigenous of the West-Indies. The wood, and gum resin procured by exudation, are the

as psora, tetter, tinea capitis, prurigo, to which may be added, atoni gout, rheumatism, palsy, &c.

Committees, appointed by several of the most respectable medical bodies of the French metropolis, to investigate the statements of M. Galés, have reported entirely in favour of their accuracy.

The same ground has, within a few months past, been gone over by Dr. Emerson, of this city, and with results strongly confirmatory.

He tells us, in a well written communication on the subject,\* that his expectations of the efficacy of the fumes, have been more than realised, and that, he thinks, besides the diseases in which it has already been successfully tried, he has reason to believe, that it will be useful in prurigo formicans, a most intractable affection,—in all the forms of scrofula,—in secondary and Pseudo syphilis—in various kinds of ulcers, chronic hepatitis, amenorrhæa, chlorosis, and chorea sancti viti, &c.

The weight of Dr. Emerson's character entitles these representations to much respect, and would, by me, independently of all other evidence, be received with confidence.

Being in fumes, much more minutely divided, than in any other state, it is presumable, indeed, that sulphur might prove more active than when applied by frictions, or in any other shape or mode. To the small portion of acid which is formed in the process, I cannot ascribe any share of the effect.

In the application of the remedy, the patient is enclosed up to the chin, naked, in a case or chamber, into which the fumes are introduced, and this operation is continued for an hour, or longer, if it be comfortably endured.

<sup>\*</sup> Vid. Philadelphia Journal of the Medical and Physical Sciences, No. V.

parts employed in medicine.\* Guaiacum is a warm stimulant, proving, for the most part, diaphoretic, sometimes, however, diuretic, and even purgative, in large doses.

It was orginally introduced as a remedy in the treatment of lues venerea, and for a long time enjoyed uninterrupted confidence. Before the discovery of the utility of mercury, it was, indeed, among the chief means employed in this disease. But, whatever may be its powers, in relieving some of the symptoms of the secondary stage of the complaint, it is, probably, inefficient in syphilis itself. This has long been the settled and concurrent opinion of the ablest practitioners.†

\* Mr. Hatchet has lately demonstrated, that this is a substance sui generis.

† "When I have exhibited the decoction of guaiacum in pains of the bones, as they are called, confining the patient, at the same time, to the bed, and enjoining a diet consisting of fluids only, I have rarely seen any beneficial consequences result from the use of it, except where it acted as a sudorific; and, in this respect, I think its qualities manifestly inferior to antimony, or volatile alkali. In several instances, after persisting in a course of it during four or five weeks, I have not gained any material advantage; and I have remarked, that when the dolores ostocopi were not connected with some morbid alteration of the structure of a part, this medicine was of little avail. When the strength and vigour has been reduced by a successful mercurial course, with confinement to the house, and where a thickened state of the ligaments, or of the periosteum, remains, or where there are foul indolent ulcers, these sores will often heal, and the enlarged membranes will subside, during the administration of this decoction.

"The decoction of guaiacum will often suspend the progress of certain secondary symptoms of lues venerea, for a short time; such as, ulcers of the tonsils, venereal eruptions, and even nodes; but I never But, though we are compelled to withdraw our confidence in the anti-venereal powers of guaiacum, there are, unquestionably, some other purposes to which it may be applied. To the subdued forms of rheumatism, it is thought singularly applicable, and, perhaps, is more employed in such cases than any other remedy. The ordinary dose, however, is wholly insufficient. Not less than half an ounce, and often an ounce, of the tincture should be prescribed, and the proper time for its exhibition, in these cases, is on going to bed at night. Its effects are very much promoted, by co-

saw one single instance, in which the powers of this medicine eradicated the venereal virus. It has been recommended by many people, to combine guaiacum with mercury, with the intention of improving the specific powers, and of counteracting the injurious effects, of that mineral: the advantages to be derived from this compound mode of treatment, are by no means well established; for guaiacum is certainly no antidote against syphilis; nor have any proofs been given to the public of its meliorating the action of mercury. When the decoction is given during the mercurial course, it sometimes seems to improve the health; but, as it is very liable to produce complaints in the stomach and bowels, the palpable inconveniencies surpass the uncertain advantages connected with it; and, as no previous course of the decoction renders the disease milder, nor authorizes us to rest satisfied with a smaller quantity of mercury than usual, it will seldom happen, that a satisfactory reason can be assigned, for giving the two medicines to a patient at the same time. In concluding this chapter, I would farther remark, that I have given the decoction of guaiacum, with the best effects, to a great number of patients, in cutaneous diseases, in the ozana, and in scrofulous affections of the membranes and ligaments; and, it appears to me, that it is equally efficacious in such morbid alterations, which are not at all connected with the lues venerea, nor with the mode of treating it. as in those cases for which it has been the most highly celebrated."

Pearson on the Effects of various Articles in the Cure of Lucs Venereus

pious draughts of any warm beverage. Given in so large a quantity, and with the auxiliary means suggested, it seldom fails of producing diaphoresis, and of affording essential relief to all the symptoms.

In the arthritic affections, the guaiacum has also been used. It was first resorted to in these cases, by a writer, who proclaimed its efficacy in so confident a tone, that it excited, for a time, a good deal of attention throughout Europe. But when it came to be more generally tried, these high expectations were not realized, though it is still considered a useful remedy, in some of the irregular shapes of the disease. Wandering gout not unfrequently displays itself in the stomach, in form of colic, or some other painful spasmodic affection, and here I have often prescribed it with advantage, to alleviate the pending paroxysm, as well as a preventive to its recurrence.

More than once, I have insisted on the close connection which may be traced between a disordered condition of the stomach, and many of the complaints of the eye. Exactly as I inquire, observe, and reflect on this subject, so have I increased reason to confide in the correctness of this view. Every practitioner has probably seen inveterate cases of ophthalmia, proceeding altogether from a gouty or rheumatic state of the stomach, and which will yield only to remedies addressed directly to this viscus, among which sulphur or guaiacum I have found most effectual. But we have another morbid affection of the eye, of gastric origin, hitherto not sufficiently noticed,

where, though no external inflammation exists, or so slightly as hardly to be perceived, there is great sensibility, with intolerance of light, sometimes very acute lancinating pain through the ball, though, more generally, the sensation is that of a dull, obtuse ache, attended with much heat and aridity of surface, which, whatever may be its nature, is wholly independent of the cause above mentioned, though it is still very successfully treated by guaiacum. Cases, such as I have described, are not of very common occurrence. But I have had several under my own care, or in consultation, and never knew one to be cured, or even much benefited, by any means, except the remedy I have just mentioned.

Though more decidedly operating on the surface, guaiacum occasionally proves actively diuretic, so much so as to remove dropsical effusions with much success. I am told by Dr. Gibson, that he greatly relies on it in these cases, and he thinks he has found it particularly beneficial in ascites. The volatile tincture he prefers, and in the dose of a table-spoonful.

Guaiacum is prepared in different modes. The wood may be made into a strong decoction, of which a quart or more should be daily consumed. Of the substance, improperly called a gum-resin, there are two officinal tinctures, the one, a simple solution in alcohol, and the other, with an addition of the carbonate of ammonia. The last, or volatile tincture, is decidedly preferable. The dose, in most instances, of these tinctures, is about a tea-spoonful, to be oc-

casionly repeated. Now and then, where there is much excitement, the resinous substance is directed in powder mixed with loaf-sugar. Ten or twenty grains are the average quantity taken at a time.\*

#### DAPHNE MEZEREUM.

The mezereon is a shrub, growing on the Alps and Pyrenees. The bark of the root, which is only used, is acrid to the taste, and aromatic in odour, having all the essential properties of guaiacum, and has been converted pretty much to the same purposes in practice. It is a stimulating diaphoretic, and, occasionally, also proves diuretic and purgative: is a common remedy in rheumatism, in chronic cutaneous affections, and was formerly employed in syphilis. Its reputation at present, in this latter disease, rests on the same foundation, as the preceding article.† It is rarely prescribed, except in some compound decoction.

<sup>\*</sup> The Chelsea Pensioner: "An Empirical remedy for the rheumatism is well known under this name. It is said to be the prescription of a Chelsea pensioner, by which Lord Amherst was cured. The following is its composition:—

<sup>&</sup>quot;Gum guaiac. 3i.—Powdered rhubarb 3ij.—Cream of Tartar Zj.—Flowers of sulphur 3ij.—one nutmeg finely powdered, made into an electuary, with one pound of clarified honey. Two large spoonsful, to be taken night and morning."

Paris's Pharmacologia.

<sup>† &</sup>quot;From all that I have been able to collect, in the course of many years observation, I feel myself authorized to assert unequivocally, that

## SMILAX SARSAPARILLA.

The fortune of this article has been exceedingly fluctuating. When originally introduced into the

the mezereon has not the power of curing the venereal disease, in any one stage, or under any one form.

"If a decoction of this root should ever reduce a venereal node where no mercury has been previously given, yet the patient will by no means be exempted from the necessity of employing mercury, for as long a space of time, and in as large a quantity, as if no mezereon had been taken.

"With respect to the power it is said to possess, of alleviating the pain, and diminishing the bulk, of membranous nodes, nothing peculiar and appropriate can be ascribed to the mezereon on these accounts; since we obtain the same good effects, from sarsaparilla, guaiacum, volatile alkali, blistering plasters, &c. Nevertheless, venereal nodes which have subsided under the use of any of these articles of the materia medica, will appear again, and often with additional symptoms, if a full and efficacious course of mercury be not submitted to. It has, indeed, been alleged, that mezereon always alleviates the pain occasioned by a venereal node, and generally reduces it, where the periosteum only is affected; and that it seldom fails of removing those enlargements of the periosteum, which have not yielded during the administration of mercury.

"That some instances of success, in cases like these, may have fallen to the share of those who make the assertion, it would not become me to deny; but I have met with few such agreeable evidences of the efficacy of this medicine. I have given the mezereon in the form of a simple decoction, and also as an ingredient in compound decoctions of the woods, in many cases, where no mercury had been previously employed, but never with advantage to a single patient. I have also tried it in numerous instances, after the completion of a course of mercury; yet, with the exception of two cases, where the thickened state of the per-

materia medica, it was thought a sovereign cure of the venereal disease. But, in a short time, it lost nearly all reputation. By Sir William Fordyce and Mr. Hunter, its use was once more revived as one of the best remedies in the sequelæ of syphilis, whether proceeding from a remnant of contamination, or the abuse of mercury. It again sank into discredit, at least as an anti-venereal medicine, in which it continued, till the late notions relative to syphilis were started, on which occasion, it was brought forward with, perhaps, a higher appreciation of its powers than it had ever before received.

riosteum was removed during the exhibition of it, I never saw the least benefit derived from taking this medicine.

"In a few cases of anomalous pains, which, I suppose, were derived from irregularities during a mercurial course, the mezereon was of service, after I had tried the common decoction of the woods without success; but, even in this description of cases, I have always found it a very uncertain remedy.

"I have made trial of this vegetable in a great number of scrofulous cases, where the membranes covering the bones were in a diseased state, and I am not sure that one single patient obtained any evident and material benefit from it.

"The late Dr. Cullen, whose reports may justly claim attention from all medical men, when treating of the mezereon, in his Materia Medica, says, 'I have frequently employed it in several cutaneous affections, and sometimes with success.' It were to have been wished, that the professor of medicine had specified what those diseases of the skin were, in which the mezereon was sometimes employed with success: for, if I except an instance or two of lepra, in which the decoction of this plant conferred temporary benefit, I have very seldom found it possessed of medicinal virtue, either in syphilis, or in the sequelæ of that disease; in scrofula; or in cutaneous affections." Pearson.

As it is my intention hereafter to go into this subject pretty fully, I shall now make no further remarks concerning it.

By every description of practitioners it is prescribed in venereal and scrofulous sores of an ill condition, in cutaneous affections—in ordinary and venereal rheumatism, and to restrain the undue action of mercury, or correct its consequences.

That it displays the properties of its associate articles, and, perhaps, generally in a higher degree, seems to be the prevalent opinion, at the present moment. Like guaiacum, it sometimes proves diuretic, and may be used accordingly.\*\*

- \* What Mr. Pearson thinks of its antivenereal powers, sufficiently appears from the following passages:
- "1st. Is the sarsaparilla root, when given alone, to be safely relied on, in the treatment of lues venerea?
- "The late Mr. Bromfeild, my predecessor, and, during some years, my colleague at the Lock Hospital, has given a very decided answer to this question: 'I solemnly declare,' says he, 'I never saw a single instance in my life, where it cured that disorder without the assistance of mercury; either given at the same time with it, or when it had been previously taken before the decoction was directed.'
- "My own experience, during many years, coincides entirely with the observations of Mr. Bromfeild. I have employed the sarsaparilla, in powder, and in decoctions, in an almost infinite variety of cases; and I feel myself fully authorized to assert, that this plant has not the power of curing any one form of the lues venerea.
- "The sarsaparilla, indeed, like the guaiacum, is capable of alleviating symptoms derived from the venereal virus; and it sometimes manifests the power of suspending, for a time, the destructive ravages of that contagion: but, where the poison has not been previously subdued by mercury, the symptoms will quickly return; and, in addition to them, we often see the most indubitable proofs, that the disease is

It is also be prepared in decoction, and exhibited in similar doses. But it is now more commonly prescribed in combination with various other substances. Having ascertained that the virtue of this article is in the bark of the roots, which is very perishable, it will be right to select such specimens as are sound, and with the cortical covering preserved. The sarsaparilla has, I learn, been discovered in the western states. That to be had in the shops, is imported from the Spanish West Indies.

making an actual progress during the regular administration of the vegetable remedy.

"The nature of that benefit which many persons actually obtain from sarsaparilla, when they are afflicted with the lues venerea, will form a subject of discussion hereafter; in the mean time, I shall proceed to treat the second question, connected with the inquiry before me.

"2. When the sarsaparilla root is given, in conjunction with mercuty, does it render the mercurial course more certain and efficacious?

"In replying to this query, it is necessary to observe, that the phrase to increase the efficacy of mercury,' may imply, that a smaller quantity of this mineral antidote, will confer security on an infected person, when sarsaparilla is added to it; or, it may mean, that mercury would be sometimes unequal to the cure, without the aid of sarsaparilla. If a decoction of this root did, indeed, possess so admirable a quality, that the quantity of mercury necessary to effect a cure, might be safely reduced, whenever it was given during a mercurial course, it would form a most valuable addition to our materia medica. This opinion has been, however, unfortunately falsified by the most ample experience; and, whoever shall be so unwary as to act upon such a presumption, will be sure to find his own and his patient's expectations egregiously disappointed."

Pearson.

## LAURUS SASSAFRAS.

The sassafras is indigenous, and may be found every where within our territories. The tree, in all its parts, is medicinal. Generally, however, the bark of the root, or the flowers, are selected for the purpose, both of which are highly aromatic, and agreeable to the taste. As a decoction, the sassafras may be taken freely, though the best mode of prescribing it, is in a strong infusion, with the addition of sugar and milk. Thus prepared, much of it is consumed as a substitute for the cheaper teas, by the poorer people of the country. Endued with the same properties, sassafras is applicable to all the cases in which the medicines already enumerated are used. Together with these, it enters as an ingredient into the decoctum lusitanicum, or famous Lisbon diet drink.\*†

- \* Rad. sarsaparillæ, ligni sassaf., santal. rub., guaiac, āā 3iii., Cort. rad. mezereon 3i., Semin. coriand. 3vi. Coq. in Aq. font. Hxx. ad. Hx. Sumat H ss. ter quaterque in dies. To this formula, some one of the antimonials is sometimes added.
- † Godfrey's Cordial. The composition of this nostrum is as follows:—Take and infuse Zix. of sassafras, and of the seeds of carraway, coriander, and anise, each Zj. in six pints of water—simmer the mixture till it is reduced to four pints—then add Hoiv. of treacle, and boil the whole for a few minutes: when cold, add Ziij. of the tincture of opium.

Paris's Pharmacologia.

## JUNIPERUS SABINA.

Though not a native, the savin is cultivated in many parts of the United States, and flourishes well.

Baffled in my attempts to cure some of the forms of chronic rheumatism with the ordinary remedies, I was early led, in consequence of my speculative notions as to the powers of this medicine, to experiment with it in this disease. During the period which has subsequently elapsed, I have prescribed it very extensively, both in public and private practice. The result of my numerous trials with it is such, that I hope it will not be deemed the language of enthusiasm, when I declare, that I hold it to be entitled to be placed among the very best of the remedies in chronic rheumatism. Yet, for its successful application, it requires a nice discrimination in the selection of the proper cases. My enlarged experience with the medicine, has taught me some degree of certainty in its use. It is still, however, not easy, by any general description, to impart the same sort of tact or knowledge. Those who are conversant with clinical practice, must have remarked, that in some of the cases of rheumatism, there is a coldness of the surface, and especially of the lower extremiConnected with this state of the system, we have also tumefaction and rigidity of the joints, amounting, sometimes, even to the loss of motion, accompanied by pains excessively acute, which are always aggravated by the vicissitudes of weather, and even by the slight exposure, arising from any accidental withdrawing of the covering during sleep. Cases of this description are readily to be met with in all the large receptacles of the sick, and especially in the severer climates, which continue for a great length of time, with no material variation, completely resisting the ablest concerted plan of treatment.

No doubt can exist, of the condition of the parts, under such circumstances. It is manifest, that the circulation is carried on languidly, from the debility and exhaustion of the extreme vessels, by which they are thrown occasionally into spasms, whenever, indeed, external heat, or internal stimuli, do not contribute to invigorate their action, and support the natural tone. That the pain, in this case, is produced by a species of irregular convulsive motion, and not by inflammation, is conclusively proved, by the well known and universally acknowledged fact, of the complaint rarely going off by any one of the usual terminations of this latter process. The joints in rheumatic limbs will often appear puffed, or swollen, for several months in succession, without effusion, suppuration, or scirrhus taking place in the slightest degree.

Conformably to the pathological view which I have presented, is my practice. No one, in this case, thinks of cold or other applications of similar tendencies; but, on the contrary, every practitioner, whatever may be his theoretical notions, concurs in recommending the very opposite course. By the common consent of all, the treatment is made to consist of the various vesicating or rubefacient remedies, while we endeavour to rekindle the general excitement, by pouring in camphor, ammonia, turpentine, cantharides, the seneka, the arum, the mezereon, the sarsaparilla, the guaiacum, with an infinity of combinations, of which opium constitutes the basis.

Endued with properties, such as it is known to possess, it was reasonable to presume, that the savin would prove serviceable in the precise form of rheumatism which has been described.

The primary action of the medicine, or, at least, its sensible action, is, to heat and stimulate the whole system, producing, particularly, a glow on the surface, with much itching, now and then miliary eruptions, with sometimes a slight perspiration, which, however, seems to be extorted by the mere force of excitement. The pulse, which, previously to the exhibition of the medicine, is commonly small, weak, and accelerated, now becomes full, active, and comparatively slow. No portion of the body seems, indeed, to escape its wide pervading operation, every function being more or less invigorated, and especially

some of the secretory offices, as the urinary, the catamenial, and, perhaps, the seminal.

Contrary to a very uniform law of the animal economy, by which it seems to be ordained, that the vigour of the arterial and lymphatic apparatus should be in an inverse ratio, we have here indisputable evidence, in the speedy removal of the chalky dispositions, and of the various morbid growths incident to the disease, of absorption being actively promoted. After some days continuance of the savin, either from the mitigation of the disease, or the positively tonic power which the medicine exerts, the situation of the patient is very considerably improved, as relates to his strength, appetite, rest, and general sensations.

Encouraged by the success which attended the remedy in the preceding description of cases, I have been induced also to apply it to the cure of what is denominated syphilitic rheumatism. The difficulty often experienced in the management of this form of the disease, is universally confessed. My conviction is, that hitherto we have entertained very wrong views, as to the nature of this obstinate and distressing affection. To me, there is the strongest reason to suspect, that, instead of proceeding from a remnant of venereal contamination, it has its cause in the abuse of mercury. Nor am I singular in this opinion, though I take to myself the credit of having first promulgated it in this city, and of most steadily acting upon it in practice. Either view of the case warrants the remedy. Those practitioners who retain the ancient prejudices on the subject, conduct the cure of the disease chiefly by medicines of nearly similar properties. It was, indeed, by this very analogy, that I was originally led, in some measure, to extend my prescription of the savin; and the advantages which I derived from it were so conspicuous, as fully to confirm all my anticipations.

Few persons, perhaps, are more sensible than myself, of the illusions which naturally arise with respect to new remedies. The sources of error here are numerous, and so seductive, that an entire escape from them rarely happens. It is possible that I, also, may be deceived in the present instance, and have stated too strongly the powers of this article. But so far am I from believing it, that I shall venture the prediction, that, at no distant period, all my observations will be established, and the medicine enhanced, by a more extensive practical application of it.

That the savin is prescribed in gout, I have already learnt. By professor Hufeland, one of the most distinguished men now on the continent of Europe, who seems to have introduced it on this occasion, we are told, that it imparts tone to the alimentary canal, and removes the nausea, acidity, and flatulence, incident to the atonic state of the disease. Nor is it, according to him, less useful in arthritic head-ache.

By some other practitioners, it is recommended as having done good in podagra, or regular gout, averring, that it alleviates the pain, and breaks the force of the paroxysm. Of my own knowledge, I can say

nothing of its efficacy under such circumstances, though I should presume it to be a very inappropriate and hazardous remedy. To rheumatic gout, a mixed state of disease, it will probably be found to be better suited.

In no application of the savin which I have hitherto made in this disease, was I able to perceive any immediate advantage from it. The system must be fully under its impression, before the disease begins to yield, even in a slight degree. Commencing with twelve or fifteen grains of the powdered leaves, three times a day, my rule is, gradually to increase the dose, till some positive effect is manifested, to produce which, three or four times the quantity I have mentioned, are sometimes demanded. Nor ought we too suddenly to withdraw the medicine in despair of its being useful. To accomplish a cure of protracted rheumatism, especially, it must be continued for several weeks. No matter how trivial the improvement from it may be, at first, we should not be discouraged. The extraordinary success which I have seen result from the long and steady exhibition of the medicine, entitles me to recommend, very confidently, an imitation of the same course.\*

<sup>\*</sup> Emmenagogues.

# SECTION XVII.

Of the external means of producing Perspiration.

By simple friction, long continued, a pretty copious discharge of perspiration will take place. The usual means, however, to effect this purpose, is heat, applied either through a dry or moist medium. By the ancients, a vast deal of refinement was introduced into this process, and among the Oriental, as well as some of the European nations, even now, it constitutes one of the most expensive luxuries. These splendid establishments contain, or did contain, a series of contrivances, by which temperature might be conveniently graduated to every exigency. We claim no such arrangements, and are content, for this purpose, with a few simple means, exceedingly rude and defective. It is the common practice, where we wish to induce sweating by stimulating the surface, to resort to heated bricks, or bottles filled with boiling water, which are put to the soles of the feet, or some other portion of the lower extremities. Co-operating with these, the patient is covered with more than an ordinary quantity of clothing, and warm beverages are liberally exhibited.

In cases demanding a prompt and profuse diaphoresis, the local applications I have mentioned, should also be placed between the thighs, on each side of the trunk, and under the arm pits, the effect, in this way, being greatly increased. It will, however, sometimes, be found more convenient to substitute, in place of bricks or bottles, bags, filled with hot salt, or oats, or sand, or ashes. These are readily accommodated, on account of their softness and flexibility, to the shape and contour of the part, and, of course, prove more comfortable, and are especially adapted to relieve topical pains.

We sometimes direct vapour or steam in place of dry heat, and, in the inflammatory cases, it is safer and more efficacious. Of this indeed, there can be no doubt, and under such circumstances, it ought always to be preferred. The cases in which this application is more particularly useful, are the incipient stages of inflammatory fever, and in all other states of the system, where sweating is indicated, though the propriety of inducing it by stimulating medicines, may be questionable. Nor is it less easy of attainment. There has lately been invented a very simple machine for the purpose. But if this cannot be had, we shall do nearly as well by pouring vinegar or ardent spirits on hot bricks, and, while the vapour is escaping, in-

troduce them, wrapt up in flannel, under the bed clothes. Three or four applications of this sort, will speedily cause a relaxation of the surface, and bring out an abundant diaphoresis. Nearly the same effect is occasioned by immersing the whole body in a bath, the temperature of which should be so high as to produce a decided sensation of warmth. The natural temperature of the human species is about ninety-eight degrees, but, owing to the cooling process constantly taking place on the surface, it is here considerably lower, and hence we feel the sensation of warmth, at several points below animal heat. It is this circumstance, which renders it difficult to adjust a precise standard, though, perhaps, we may not err much by fixing it from ninety-two to ninety-six degrees.

A bath of this description is stimulant, increasing the force and activity of the circulation, and particularly in the extreme vessels, rendering them full and turgid, and inducing a state of redness approaching to inflammation. These primary effects, however, are counteracted, in some degree, by the relaxation and perspiration which speedily follow, and to promote which, the patient, after being carefully wiped dry, is to be replaced in bed, and to take some warm drink, such as any one of the various herb teas, or lemonade, or wine whey, as the case may be.

From the extensive sentient surface exposed to the impression of this remedy, it must be productive of very positive effects, and hence is prescribed in a variety of cases. But, owing to the intimate connec-

tion subsisting between the alimentary canal and the surface of the body, it has been found more especially useful in the affections of the stomach and bowels, whether of an acute or chronic nature. Few remedies are, perhaps, more recurred to in the spasmodic affections of the intestines, and by no means unfrequently in enteritis, cholera, and dysentery. The inordinate irritability of the stomach in gastritis, is sometimes allayed by the warm bath, and its efficacy is fully attested in several of the forms of dyspepsia, and not less so in the atonic fluxes. Nephritis affords another instance in which the remedy is greatly employed, and I may add, dysmenorrhæa, or partial and difficult menstruation, as being very often relieved by it.

Of the chronic complaints to which it is most applicable, the weaker states of rheumatism, and paralysis, may be named. Each of these cases is marked by great deficiency of temperature, a pallid skin, and other evidences of a debilitated circulation, and here the power of the bath may be improved, by adding to it salt, mustard, or Cayenne pepper, as well as by raising its temperature several degrees higher than the point I have mentioned. Nor should frictions afterwards be neglected.

Efficacious, however, as the warm bath proves, under the preceding circumstances, in adults, it is infinitely more so, when applied to children, and may also, in them, be more safely extended to the treatment of the febrile, and indisputably so to the convulsive affections, being here very generally followed by tranquillity and sleep.

But it often happens, that a bath cannot be procured, and when this is the case, a pediluvium or semicupium is the ordinary resource. Even this partial bathing is salutary, both as a diaphoretic, and as means of exciting a counteraction, and especially in some of the chronic complaints of the head. The utility of it, when directed with this view, may be greatly heightened by dissolving in the water any of the stimulant articles recently enumerated.

To some cases, a bath of less warmth than the one I have mentioned, is better suited. This is called a tepid bath, and is generally directed of the temperature of about ninety-degrees, though, from the different susceptibilities of persons, this cannot be definitely fixed. It will hence be right, always to consult the feelings of the individual, and so to regulate the bath, that it may impart a slight, but an agreeable sensation of warmth. In the chronic affections of the skin, this sort of bathing is mostly prescribed. But it is admirably calculated to recruit the energies of the system, when exhausted by fatigue or watchfulness, and has, sometimes, been found not less advantageous, in some forms of protracted rheumatism, gout, paralysis, chorea, and other convulsive or spasmodic complaints.

Though the application of heat to the surface, in the mode which I have described, will very generally excite sweating, it does not do so uniformly. There

are, indeed, circumstances in which it is ascertained rather to impede than facilitate the process. This is most conspicuously so in the early stage of typhous fever and in scarlatina, not to mention other diseases. These cases are attended by great heat of surface, which is aggravated by all the means I have enumerated, as designed to create perspiration, and to reduce animal temperature. In this state of the system, cold will more effectually remove the constriction of the cutaneous vessels, and is, therefore, the appropriate remedy. The ancients were well acquainted with this fact. Celsus directs large draughts of the coldest water in ardent fevers, and dwells with great emphasis on the highly beneficial consequences. "The patient," says he, "falls into a sound sleep, the heat remits, and a free perspiration ensues, though he had previously suffered much from thirst, heat, and restlessness."

In the fluctuations of medical opinion, this practice seems to have been rejected, or at least lost sight of, for many centuries. Nearly a hundred years ago, however, an attempt was made to revive it by a writer, who entertained such extravagant notions of its efficacy in the inflammatory fevers, that he denominated water the *febrifugum magnum*. But the remedy did not gain much ground, antecedently to the appearance of the celebrated work of Currie, since which time its utility has been fully confirmed by the concurrent experience of many of the most distinguished practitioners in various sections of the world.

Yet, I suspect this mode of treating disease has not been very generally adopted in the United States, certainly not to the same extent as in Britain, and her colonial dependencies in the East and West Indies. This may, in part, be owing to our attachment to the lancet, and other directly depleting remedies, which, to a certain degree, operate in a similar way. But I am persuaded that we have not done justice to the practice. Cold ablutions are sparingly used in our autumnal fevers, to allay heat of the skin, and ice is habitually applied in all the inflammatory attacks of the head. Not much more is done with it by us. But in the European hospitals which I attended, nothing was more common than to see patients, in the early stage of typhous fever, placed under a shower bath, or to have water dashed upon them, and nearly the same course was pursued in scarlatina, and in the whole of the complaints, in short, where a heated surface exists. The effect, most commonly, was a free perspiration, followed as is usual, by highly beneficial tendencies.

It is obvious that a remedial process so active as this, must not be rashly or indiscriminately employed. The precautions requisite to be observed in its use, have been clearly indicated in the work to which I have alluded. It is said by Currie, that affusion with cold water may be resorted to, "whenever the heat of the body is steadily above the natural standard, when there is no sense of chilliness, and especially when there is no general or profuse perspira-

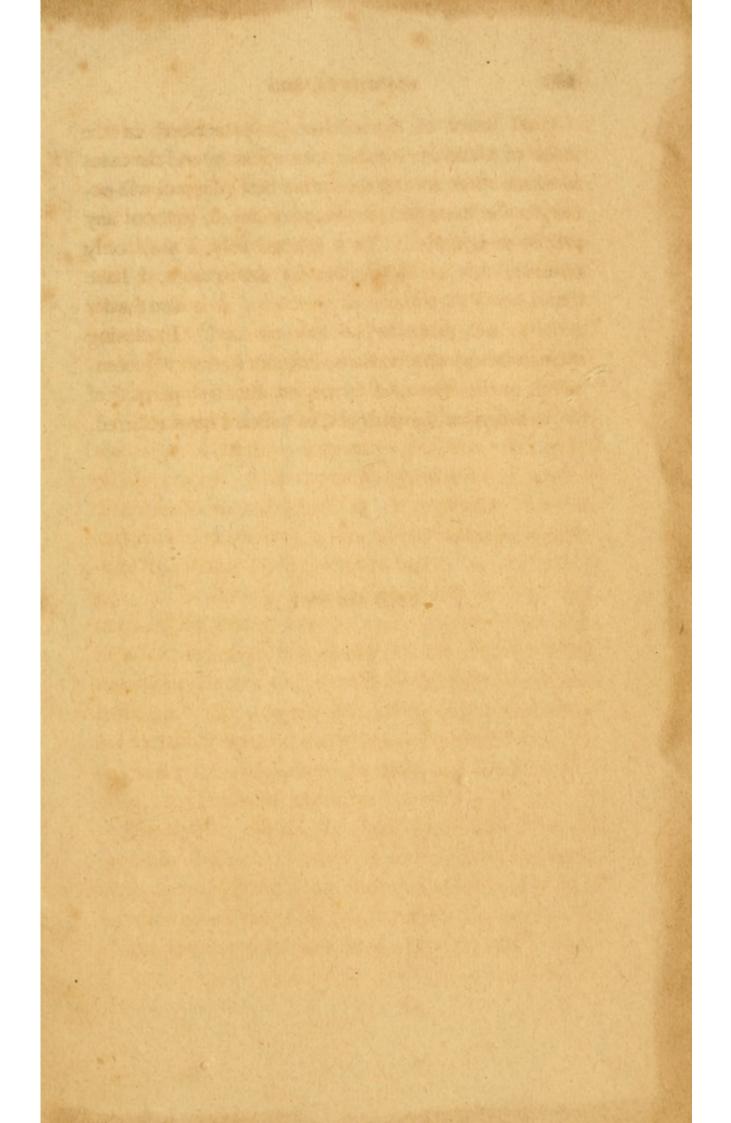
tion," to which, however, must be excepted, the cases attended with much local congestion, and particularly of the lungs. The principle on which he supposes the remedy to act, is merely by the abstraction of an excess of heat from the surface. But, a very different view has been taken of this point, by Jackson, a writer, who, if he is sometimes seduced into apparent extravagance by an ardent enthusiasm, is eminently distinguished by the force and originality of his opinions in theory and practice.

Cold applications to the surface, he maintains, on the contrary, are a power, making a strong and general impression on the system, by which the existing morbid actions are subverted, or essentially changed, and which, according to him, is effected independently of the reduction of temperature. In prescribing the remedy, all which he insists upon, as important to be attended to, is, what he calls the evidence of a susceptible condition; and where this is wanting, he attempts previously to restore it by frictions, the warm bath, &c. Considering also, a very highly excited or inflammatory state of the system as not well suited to the remedy, he advises venesection, and other evacuations, as preliminary measures.

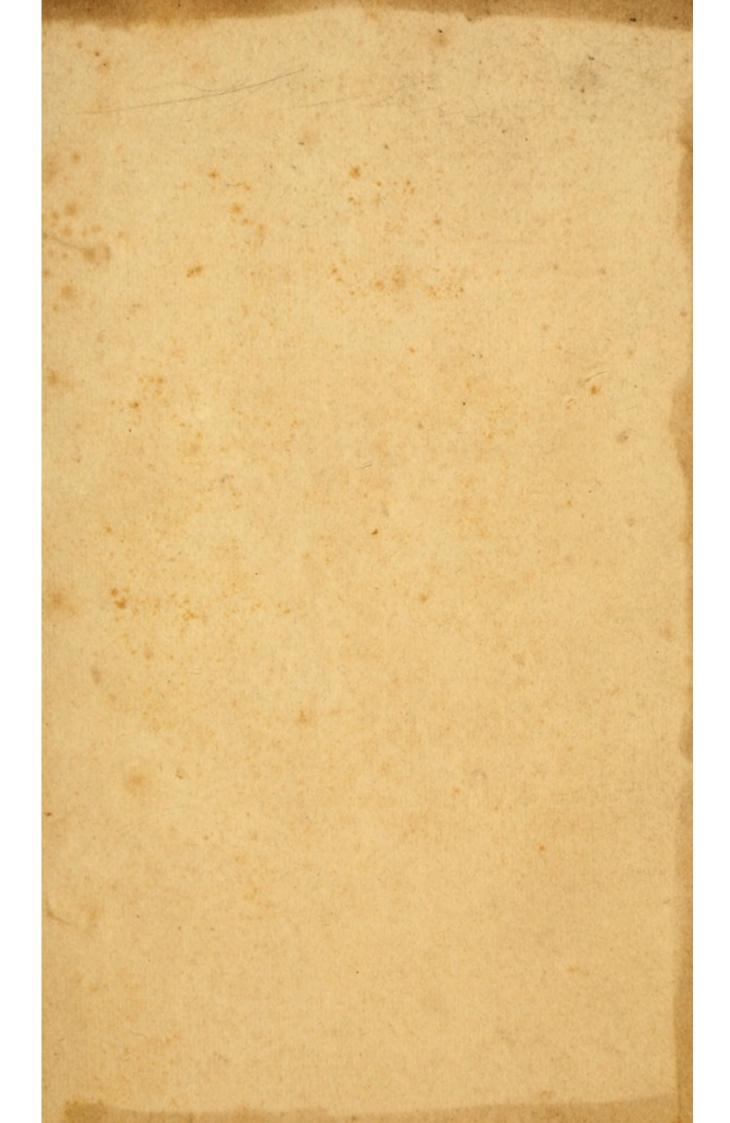
Directed in the use of these applications by the precepts of Currie, I have not ventured, on any occasion, to imitate the other course, though never for a moment have I believed, that the remedy operates simply by lessening the heat of the skin.

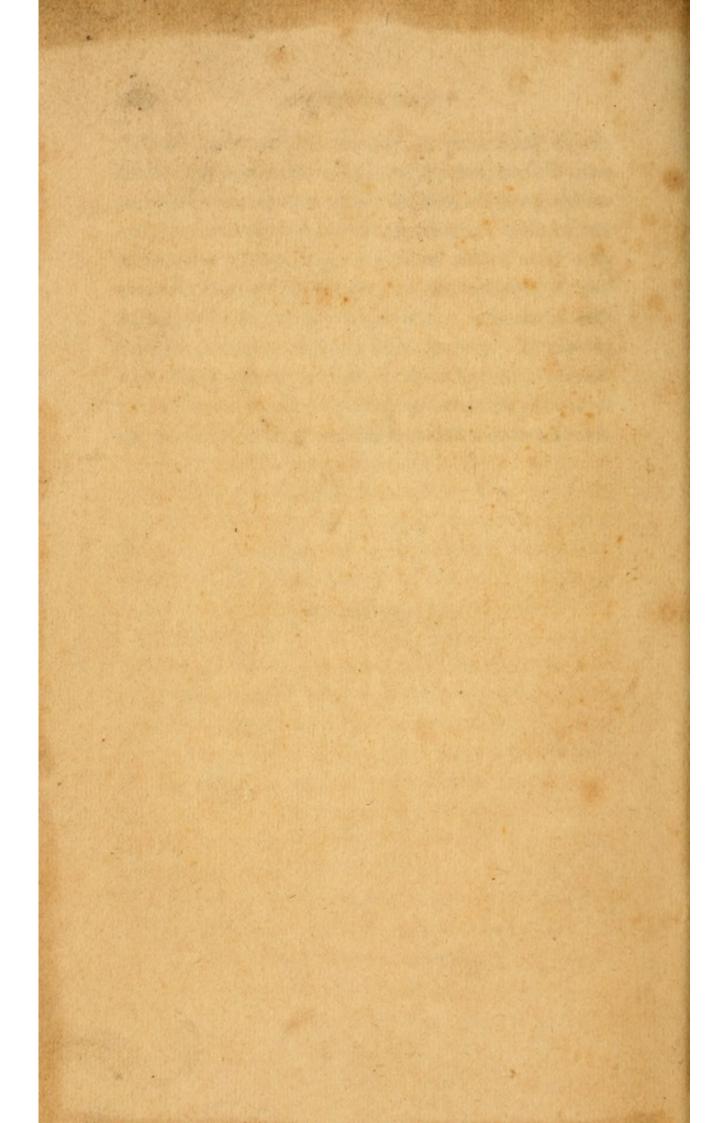
Cold water to the surface, is prescribed in the shape of ablution, aspersion, or affusion, and the cases to which these several modes are best adapted, will occur, for the most part, to the practitioner, without any precise designation. As a general rule, I shall only observe, that an application by the sponge, I have found most convenient in practice: it is also a safer process, and, probably, no less effectual. In closing these desultory observations, I cannot forbear to recommend, in the strongest terms, an attentive perusal of the writings on this subject, to which I have referred.

END OF VOL. I.



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