

The French practice of medicine : [tr.] with occasional notes and observations illustrative of the treatment of diseases in the climate of North America / by Xavier Tessier.

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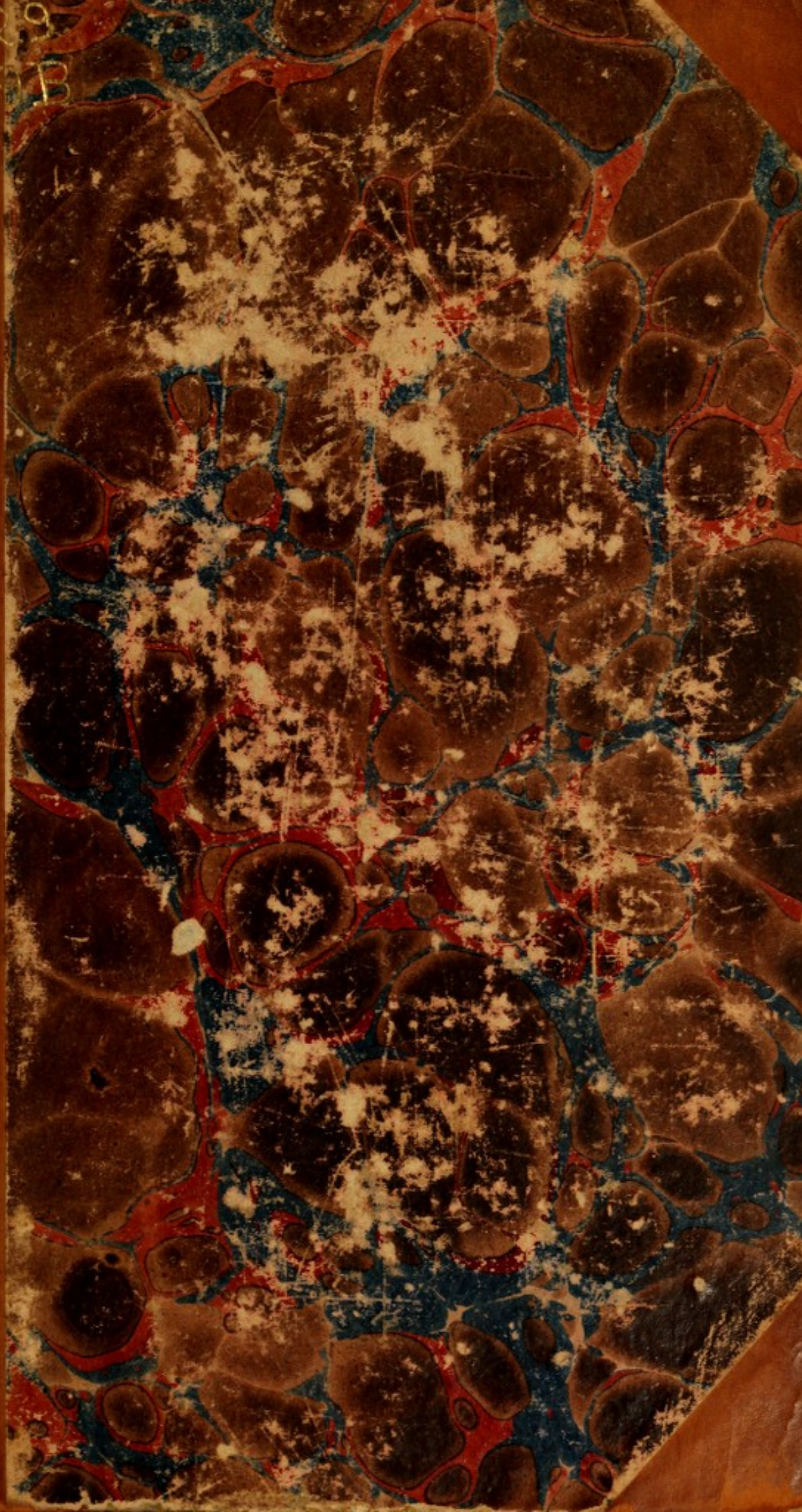
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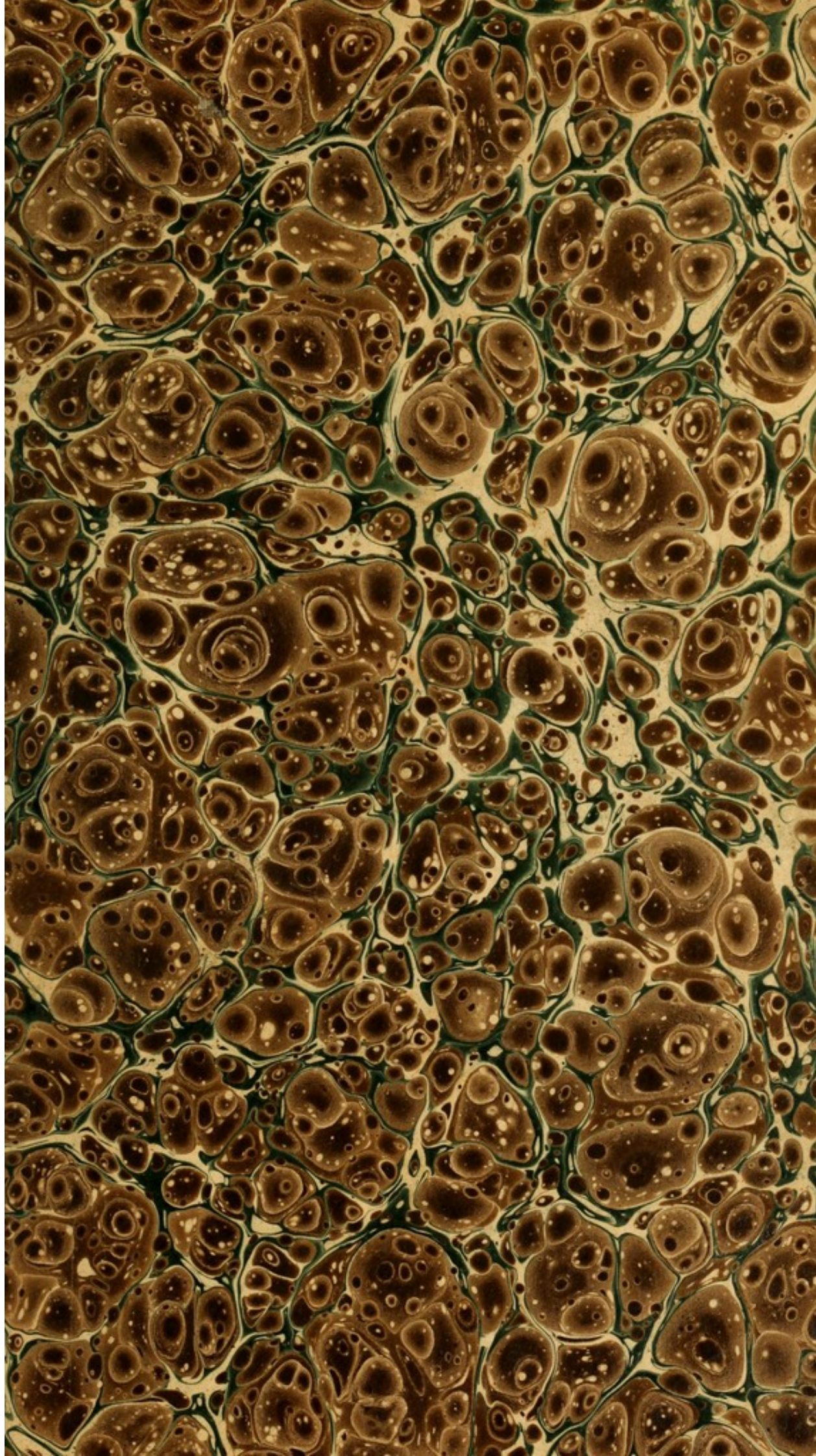
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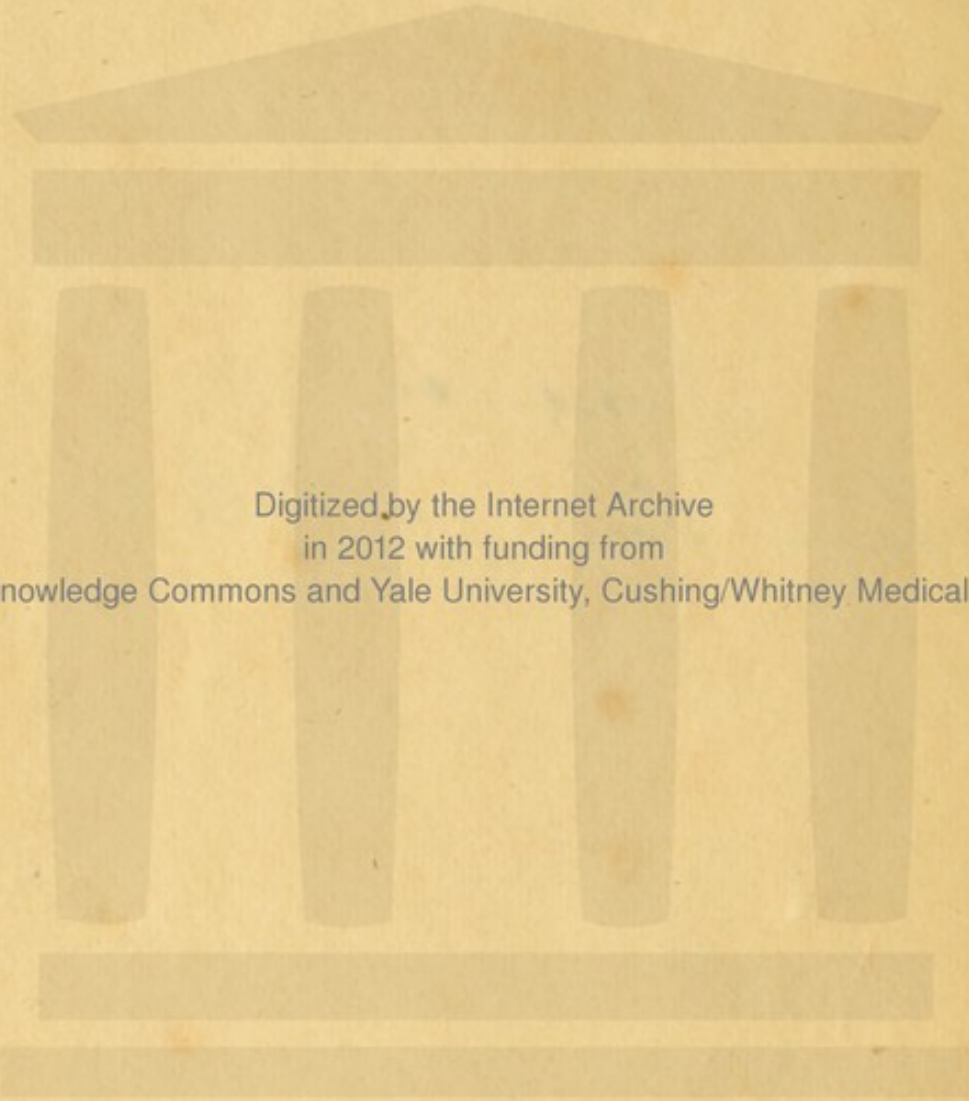
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Presented by
Dr. Lewis Herrmann of the U. S. Army.

Presented by
Dr. James Thompson
to the Acad. Club

CREATION
OF
THERAPEUTICS

OF L. J. B. B. B. B.

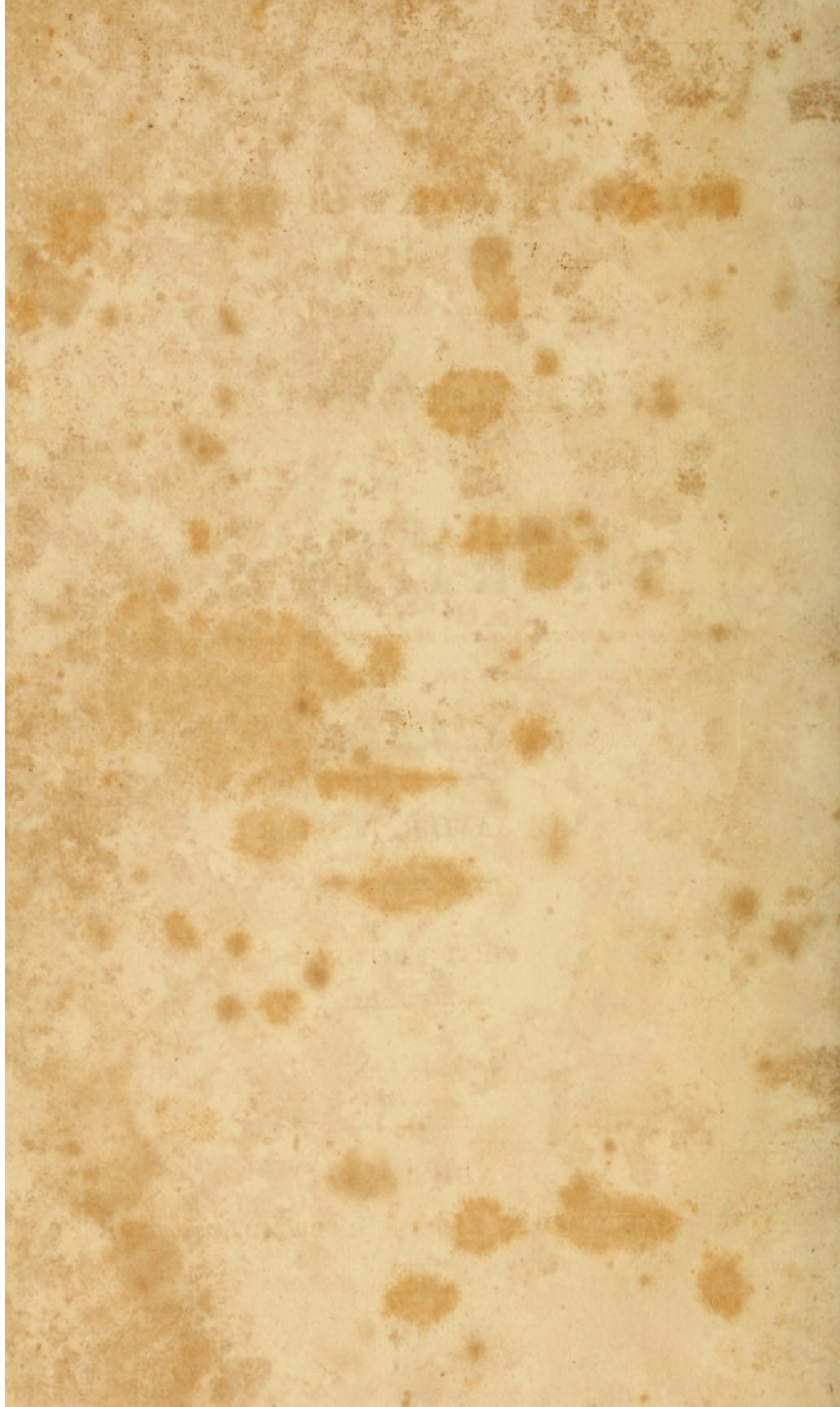


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TREATISE
ON
THERAPEUTICS.

BY
L. J. BEGIN.

VOL. I.



*Lewis Stearns, M.D.
U. S. Navy.*

THE

FRENCH PRACTICE OF MEDICINE :

BEING A TRANSLATION OF

L. J. BEGIN'S TREATISE

ON

THERAPEUTICS :

WITH OCCASIONAL NOTES AND OBSERVATIONS ILLUSTRATIVE OF THE TREAT-
MENT OF DISEASES IN THE CLIMATE OF NORTH AMERICA.

BY XAVIER TESSIER.

FIRST EDITION.

VOL. I.

NEW-YORK:

PUBLISHED BY E. BLISS, 123 BROAD-WAY.

1829.

Southern District of New-York, ss.

BE IT REMEMBERED, That on the 22d day of December, A. D. 1828, in the fifty-third year of the independence of the United States of America, Elam Bliss, of the said district, has deposited in this office, the title of a Book, the right whereof he claims as Proprietor, in the words following, to wit:

"The French Practice of Medicine, being a translation of L. J. Bégin's treatise on Therapeutics, with occasional notes and observations illustrative of the treatment of diseases in the climate of North America. By Xavier Tessier. First Edition."

In conformity to the Act of 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 time therein mentioned." And also to an 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."

FRED. I. BETTS,
Clerk of the Southern District of New-York.

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TO THE
OFFICERS AND MEMBERS
OF THE
QUEBEC MEDICAL SOCIETY,
AND OF THE
SOCIETY OF SCIENCES AND ARTS
IN CANADA.

FELLOW-CITIZENS
AND FELLOW-MEMBERS,

THE zeal and wisdom you have hitherto evinced in placing the Institutions you represent upon a footing so respectable, give you a lasting claim to the gratitude of all our countrymen. The flattering recompense you have held out, and so impartially distributed to successful attempts in the cultivation of scientific and useful pursuits, bids the fairest prospects to improvements that will be a proud monument of your perseverance and philanthropy. Your generosity has prompted you, in many instances, to notice my feeble contributions to the organization of the establishments under your care, yet I feel pleasure in bearing public testimony to your exertions, and confessing that your most important labours have been achieved since my short absence from you.

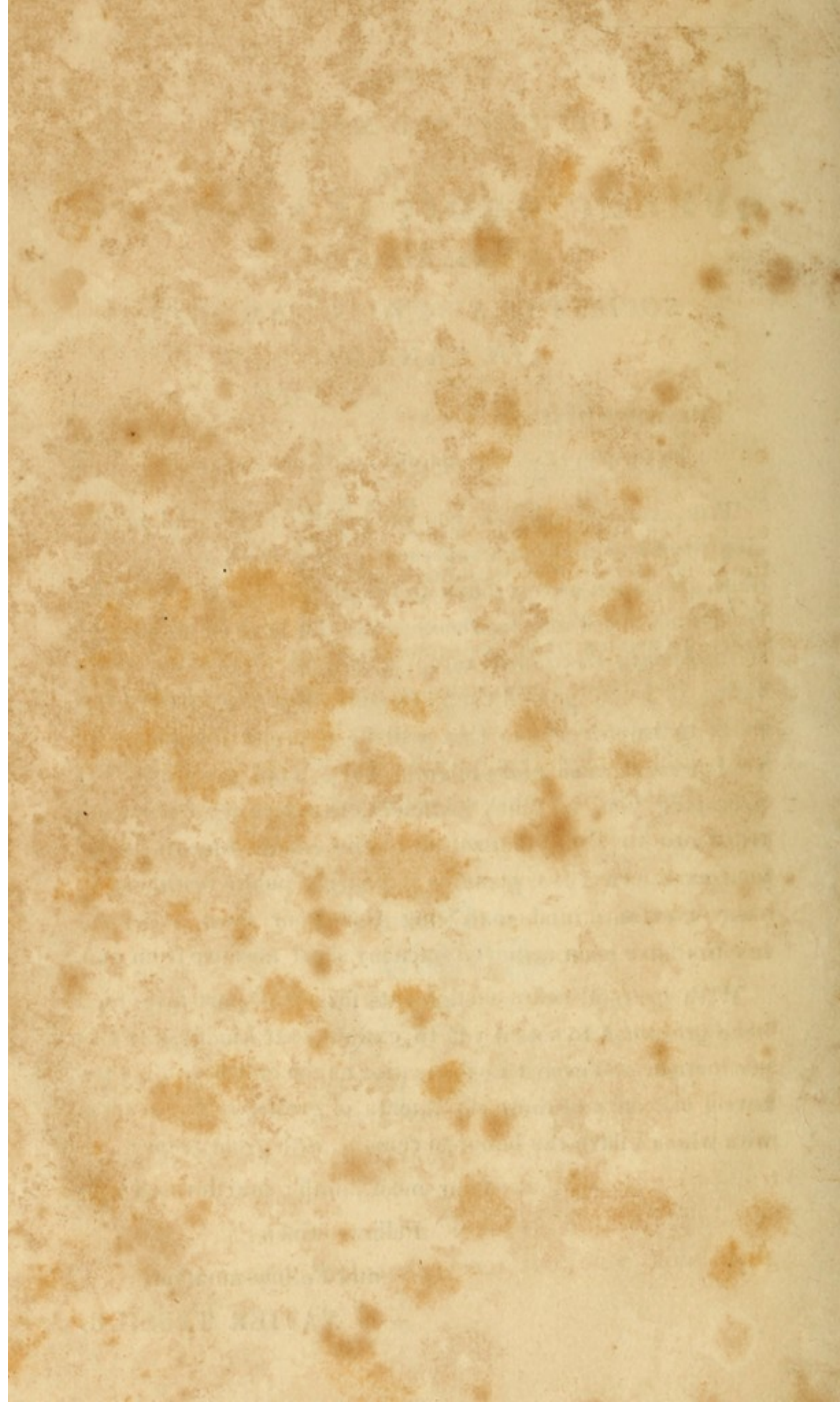
With grateful acknowledgments for many past favours, I have presumed to solicit you to extend your kindness to this production, and accept its dedication as the only becoming tribute I can offer of those sentiments of gratitude and esteem with which I have the honor to remain, with great respect,

Your most humble and devoted

Fellow-citizen

and Fellow-member,

XAVIER TESSIER.



PREFACE.

THE name of M. Broussais is now echoed with much enthusiasm throughout Europe, and has become familiar to every practitioner of medicine in this country. If we except the imperfect account of his doctrine contained in the Medical Journals, and the translation of his Physiology by Dr. La Roche of Philadelphia, his practical precepts are lost to those unacquainted with the language of the celebrated reformer; yet, the immense treasure of information he and his partisans have contributed, and the complete regeneration they have achieved in the science of medicine, must soon be deemed both an essential part of medical education, and a necessary qualification for the practice of the healing art. No work, however, has yet been published in the English language to convey that information.

Within a few years past, I determined to undertake the task; and the work of M. Bégin, which is universally considered the ablest production of the physiological school, having appeared about three years ago, I conceived that the interest of the cause would be better consulted by its translation than by one of my own compilation. It was, certainly, no little presumption for a man to write an English book, who, but ten years before, was totally unac-

quainted with the language ; yet I confidently hope that my knowledge of the original, my native tongue, has made me less liable to mistake the meaning of the author, and may somewhat compensate for the gallicisms and unpolished style of the English version. This, however, is my only apology.

The Treatise on Therapeutics by M. Bégin has the advantage of being fitted to the understanding not only of the young student, but also of literary men in all professions. For this reason, it has been honoured with a review in one of the most respectable Journals on this continent, the *Southern Review*, with which I cordially concur in the following sentiment. “Our literary men are, the most part, deplorably ignorant of every thing relating to physiological and medical science. They learn nothing of it at school or college ; and unless they be intended as practising physicians, one of the most important branches of knowledge is to them like a forbidden treasure.”

As a recommendation of this work to the medical student, I will again quote the same Journal.

This book “has fair pretensions to be considered the best elementary work on the subject with which we are acquainted.” Again ; “—we are well persuaded that no one can attentively read this work without being the wiser for the perusal, and therefore we recommend it without scruple or hesitation.”

X. T.

New-York, February, 1829.

INTRODUCTION.

After the lapse of ten years of dissertations on the causes and nature of diseases, it becomes necessary that medical men should submit to the test of a severe analysis, the mode of acting of the various medicinal and dietetic means they prescribe for their cure.

It is in vain that therapeutics has heretofore attempted to shake off the yoke of empiricism. The wisest men are still reduced to the alternative of accumulating, without much choice or criticism, those observations which appear either to proscribe or call for different remedies, leaving the reader ignorant of the modifications imparted to the tissues, and without a guide to distinguish the cases in which credited or condemned remedies are to be employed or rejected. Schwilgué as well as M. M. Alibert and Barbier d'Amiens, have, indeed, attempted to shed some light on the effects of the various remedies, but they have not been able entirely to solve the problem. A treatise on Therapeutics, written under the dictate, and in the spirit of the new medical doctrine, was necessary in the present condition of medicine, forming, as it were, the complement of that revolution which is now operating among us,

But was this task to be attempted by one of the youngest disciples of the physiological school? Will not that man be deemed presumptuous, who, before being ripened by years, presumes to tread a path heretofore reserved to talent matured by experience? An ardent desire of being useful is my only apology; for, before engaging in this arduous undertaking, I was not insensible of its extent, nor of the obstacles which my personal situation added to those inherent to my subject.—Study, meditation, and a private practice, which is always limited, compared with that of hospitals—a comparison of the various results obtained by practitioners of opposite persuasions, and deduced from a trial of all the different curative methods;—such elements are undoubtedly far from being adequate to establish the foundation of a book like the present:—such are, however, the only sources from which I have been able to collect materials.

I am far from thinking that I have exhausted the subject—solved all questions—conquered all difficulties: but I will feel happy if, amid all the obstacles by which I was surrounded, I have succeeded in paving the way through which abler men will be led to more important discoveries. My warmest anticipations will be realized, if I succeed in directing towards the advancement of physiological therapeutics, a part of those researches which have hitherto been exclusively bestowed on pathology; and should this book give rise to inquiries and discussions beneficial to our art, and to humanity, I will hold myself highly compensated for my labour.

Candour compels me to acknowledge, that I have derived important materials from the present state of therapeutics: this science has made immense progress within a few years; but they are, as it were, implicit, and the consequence of the improved state of pathology, and of the introduction of physiology into its study. To mention this circumstance, is to

record the most important service which M. Broussais has rendered to every department of medical science.

There will not be found in this book any of those discussions which have arisen between that celebrated teacher and several physicians, pupils of his school, who have imbibed, and still follow his principles. Such unpleasant debates cannot find admittance in a book exclusively intended to treat of science, and to point out the fundamental truths of the new therapeutics. What M. Broussais has already done for that department of medicine; those truths he has proclaimed on the effects of irritants and of local bleeding; his mode of treatment in chronic inflammations, and pretended essential fevers: these labours, I say, can never perish, and it would not become me to question their importance or utility. It gives me particular pleasure, therefore, to state, that few men have ever done so much for medicine as M. Broussais, who has given the first impulse to that progress which tends to elucidate every department of science. If others outstrip his discoveries, and improve them, as he has himself been benefitted by the labours of his predecessors, it is to be accounted for by the impossibility of one man embracing the whole sphere of truth; for the human mind never pauses in the career of its researches, and, as one of the greatest philosophers of modern times has said, "those who come after, mount on the shoulders of their predecessors, and discover a more extended horizon."

I think it necessary to make this avowal, at a time when personal debates and scientific opinions are so universally confounded, and when few can observe a proper medium between a systematic and passionate opposition, and a blind enthusiasm, which adopts, without investigation, all that is calculated to excite admiration.

The tribute of justice I here give to M. Broussais, I have

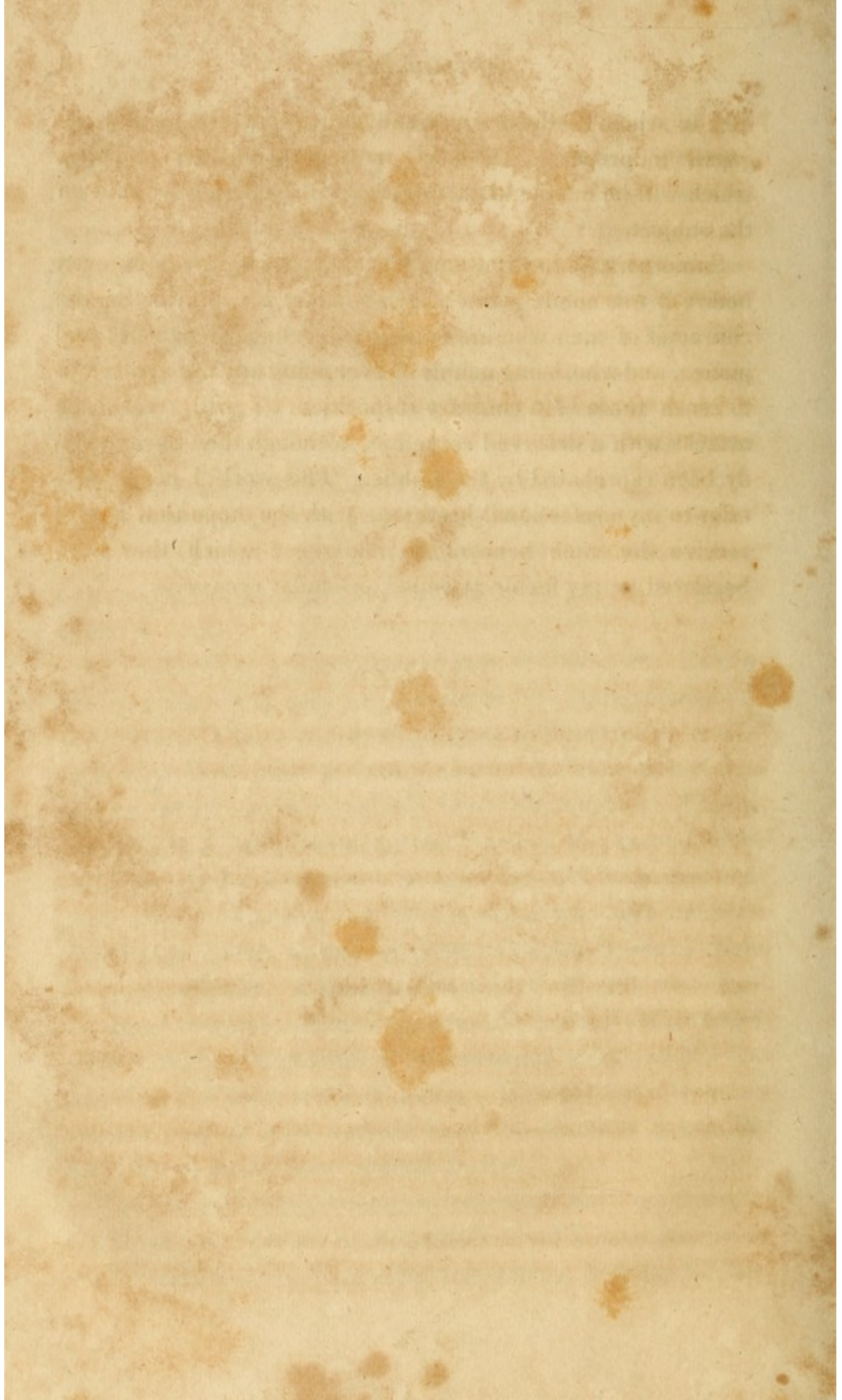
never failed to bestow on other physicians, especially on Schwilgué, M.M. Alibert, Magendie, Orfila, Barbier d'Amiens and others, from whose labours I have derived the most essential benefit. Their writings have been a fruitful source of important observations and facts, from which I must have amply drawn in order to obtain the suffrages of my readers. I have neglected no opportunity of submitting their opinions to the test of physiological analysis, and of pointing out what appeared to me judicious in some, and profitable in others; but, in this performance I have not shrunk from making ample justice of those vague recommendations and exaggerated eulogiums, which are to be found in a great number of general treatises, and especially in private memorials, concerning the efficacy of almost every pharmacological agent.

I have little more to say on the plan of this work. In the first section, which may be considered the prolegomena of therapeutics, I have collected all generalities relative to remedies, to their mode of acting, and to the various circumstances which ought to modify their employment. Direct antiphlogistic medications are the object of the second division; the third is devoted to the application of stimulants on parts actually diseased, and the fourth, to revulsive medications which operate in removing the irritation to others than the parts affected. I have prefaced each chapter with physiological remarks, which I consider the basis of all precepts relative to the employment of therapeutical agents, and to the knowledge of their mode of acting. It would have been an endless task to have entered into the minutiae generally met with in all ordinary medical works.

The special natural history of remedies I have not thought to belong immediately to therapeutics, and I have the more readily avoided dwelling on that department, because M. Ra-

tier, to whom medicine is already much indebted, is now engaged in preparing a special treatise on *materia medica*, which will be more satisfactory than all I might have said on the subject.

Some persons have attempted to depreciate my book even before it was made public: such conduct is well worthy the character of men who are deaf to all feelings of decency and justice, and who, being unable of ever doing any thing, attempt to crush those of a contrary disposition. I will treat such attacks with a deserved contempt, although they have already been reprobated by the public. This work I confidently offer to my professional brethren, with the hope that it will receive the same benevolent indulgence which they have bestowed on my feeble attempts on similar occasions.



TREATISE
ON
THERAPEUTICS,
ARRANGED ON THE
PRINCIPLES OF THE NEW MEDICAL DOCTRINE.

BOOK I.

GENERAL PRINCIPLES.

CHAPTER I.

OF THE RELATIONS EXISTING BETWEEN THERAPEUTICS AND
THE OTHER BRANCHES OF MEDICINE.

The science of therapeutics has for its object the treatment of diseases. During a long period of time, it was almost altogether isolated in the vast dominion of medicine. United with *materia medica*, founded on empiricism, and not unfrequently directed by ignorance and routine, it only consisted at first in the study of the properties of medical agents. Its precepts were consigned in those lists which, being placed immediately after the history of each medicine, contained the confused and often ridiculous enumeration of the disease it would cure, or of the effects it was calculated to produce.

The fanciful obstinacy of the ancients to separate from each other the various branches of the science of man, prevailed in the schools up to a very recent period, and was one of the principal obstacles to their improvement.* The physiologist,

* This is unfortunately too much the case in the present day. Not long since, an able surgeon in America expressed to me, in all the frankness of a friendly conversation, his doubts respecting the real utility of medicine

the pathologist, and the therapist, had but few principles common to them all ; they differed in doctrines, in opinions, and even in language ; their manner of observing and studying man, his functions, his diseases, and the operations of remedies, were not altogether analogous. Amid such theories and principles which varied like the objects of their researches, physicians must have been constantly exposed to imbibe erroneous ideas ; and medicine remained, if not in its infancy, at least in a deplorable state of imperfection : each of them having an exaggerated conception of the importance of his labours, those who made a particular study of some

compared with that of surgery. Such an opinion, however, is neither singular nor remarkable in such a man. It is natural that we should be strongly prepossessed in favour of our own favourite study and occupation ; and I view this circumstance as having greatly benefitted humanity, by contributing powerfully to the improvement of the healing art. Public patronage, which is perhaps a greater inducement to exertion than pecuniary compensation, or than the satisfaction of having relieved the sufferings and often saved the lives of our fellow creatures, is more easily secured by the brilliancy of formidable operations, than by the secret and obscure manœuvres of the physician. Indeed, such is the apparent mystery accompanying the practice of medicine, that the physician can seldom demonstrate that his treatment has cured a disease, to the satisfaction of others than his fellow professional men.

I have just said that popular favour is the most powerful stimulus to exertion, and it is that which is generally the most sought for, especially by the younger part of the profession, as more gratifying to the feelings and ambition of youth. The vulgar cannot distinguish between the performance of operations, which is a mere mechanical art, and surgery, which is called, and is indeed a science. A man may be an eminently skilful operator, and at the same time a very indifferent surgeon, and vice versa. Memory, dexterity, and boldness is all that is required of the former, whilst the latter, besides those qualifications, must possess knowledge and judgment. Hence that prevailing predilection in young men to distinguish themselves in the mechanical part of our profession, resulting from a desire to open a more brilliant career, and gain more extensive patronage. The vulgar will always give more credit to the operator who has successfully, though perhaps uselessly, amputated a limb, than to the surgeon who has saved it ; for in this case, nature will be brought in for a share of the credit which the operator has all to himself.

In this point of view, I consider the separation of operative surgery from medicine to have been somewhat prejudicial to the interest of science, notwithstanding that surgery, properly so called, has thereby done more for the relief of suffering humanity than otherwise.

Although these remarks are not in strict conformity with the sense of the author, as applicable to the various branches of medical science, I presume to claim in this place a privilege, which I may take occasion to exercise hereafter, of introducing my own observations, as often as I may think necessary to the understanding or further elucidation of the subject, however irrelevant they might at first appear.

branch of the healing art, treated each other with a degree of contempt which they all equally deserved, because none applied themselves to uniting and comparing the result of their experience with that of others, which method alone constitutes true science.

That state of things has almost entirely been exploded, yet traces of it are to be found, prevailing to such a degree as to warrant the necessity of pointing out its inconvenience, and of adopting a more philosophical course of enquiry.

Man is one; his functions and diseases are subjected to the same laws: all the medical sciences should, therefore, be co-ordinate, united, deduced from one another, and forming, as it were, but distinct chapters of a great work, the plan, course, and principles of which should bear, throughout, the strictest uniformity. Divisions of this nature are indispensable for their proper study, in as much as they present successively to the mind the various elements which constitute the science of medicine; their importance diminishes in the inverse ratio of our proficiency, and they would be altogether useless, if the mind were capable of embracing, at the same time, the whole and the details of science. Physicians ought to be well convinced of this truth, that if there be such things as physiology, pathology, and therapeutics, those three sciences have the same doctrines, and are founded on the observation of analagous phenomena; and that those facts which constitute the dominion of the two former, serve as the basis on which to establish the precepts of the latter.

Physiology is the study of man in the state of health; it points out the laws that regulate his functions. Pathology enquires into the causes which alter the texture, or derange the action of his organs; it institutes researches into the nature of such alterations, and describes the phenomena which accompany such derangements. Therapeutics comes next: proceeding from those preliminary notions, it establishes the indications to fulfil, and determines the methods to follow, in order to enable the living organism to recover its normal state. This science differs from *materia medica* by its end, and the object of its researches. Whilst the one is occupied in collecting and describing the bodies in nature which may prove useful to the physician, indicating at the same time the physical characters and chemical compositions which they ought to present, in order to be endowed with the highest possible degree of activity, therapeutics, on the other hand,

observes man in the state of disease, and lays down the rules according to which it is necessary to proceed to the employment of those means which reason indicates, and the utility of which has been consecrated by experience.

From these considerations, it follows, that therapeutics may almost be looked upon as the link which unites medical science, properly so called, to the natural and physical sciences, which are considered accessory to medicine. Indeed, on the one hand, the study of the immediate or secondary actions of medicinal substances, and the precepts regulating the employment of other curative agents, can only be founded on the most positive and accurate notions of anatomy, physiology and pathology; on the other, the knowledge supplied by the naturalist, the physician, the chemist and the apothecary are also indispensable to determine the nature, and point out the most useful preparations of the substances of which therapeutics directs the employment.

In the actual state of science, a special treatise on therapeutics may perhaps appear at first superfluous. In describing diseases, physicians, and especially those who have imbibed the truths of the physiological doctrine, indicate, it is true, the curative means they require, and even indulge in lengthy discussions on the relative efficacy of the other methods which may be brought in opposition to that doctrine. But their precepts are given in a general manner, and pathologists suppose the methods to be known, sooner than to develop the rules of their application; in a word, the therapeutical knowledge they convey is scattered, isolated, and insufficient to guide the practitioner at the bed side of his patient. It becomes necessary, therefore, to unite these data, and class them according to their analogies, and to point out both the mode of action of the different medicinal bodies, and the circumstances in which the physician is to apply them, as well as their most appropriate and useful forms and doses. Lastly, it is of the utmost importance, after having determined the curative indications which the diseases present, to unfold the laws according to which it is necessary to proceed, in order to apply, in the most rational and safe manner, the various therapeutical methods:—such is the object of the present work.

CHAPTER II.

OF THE MEDICATING POWER OF NATURE.

In the state of health, all vital actions possess a proper degree of energy and vivacity; they succeed each other, and connect themselves with such regularity, that the organs, exercising a reciprocal sympathetic influence appropriate to their wants, contribute together in maintaining equilibrium between the functions.

But when the animal organism receives the impression of a morbid agent, this equilibrium is deranged, and another series of actions is developed which tends to produce opposite results. The physician has no longer before him a body, the various parts of which move regularly, and in a manner to insure the preservation of the whole, but a machine altered in one or several of its works, and which, thereby, presents unusual phenomena, and draws with more or less rapidity towards its ultimate destruction. This is not the place to enquire into the nature of the lesion constituting the disease; it is sufficient to indicate, in a general manner, its effects on the organic functions. Authors have spoken at great length of the activity which the living economy exerts when labouring under disease, towards the re-establishment of health, or in other words, of the preserving and medicating powers of nature. They have succeeded in consecrating the doctrine of a force constantly in action to expel or destroy the causes of disease, and in presenting it as an infallible dogma, although facts and reasoning militate with equal force against it, and against the precepts to which it has given birth.

All the followers of Hippocrates have admitted this truth, that the animal organism is endowed with a disposition tending to expel morbid causes, resist this action, and restore within itself the harmony of its functions. These ideas are just, and often sanctioned by experience, but they cannot be applied to all cases. In order to be correct, it would have been proper to have placed the following facts by the side of the others. It not unfrequently happens that disorders in the functions often have a tendency to increase; and the vital actions altered in the tissues acquire, in many subjects, a manifest propensity to produce phenomena, which ultimately

result in the disorganization of the parts affected, and in the loss of life. What becomes, in those cases, of the medicating powers of nature? What reliance can we place in its resources, when we see the living organism, disordered by the lesion of one of its parts, hasten to its own destruction? How often are not these preserving critical efforts followed by new affections more dangerous than the original disease? If in the course of a slight gastro-enteritis, or of an acute pulmonary catarrh, an epistaxis or a sweat should come on and cure the disease, the partisans of the doctrine which I oppose will not fail to attribute those results to the marvellous operation of a protecting nature; but if, on the contrary, a mortal congestion on the brain should supervene, or the local irritation persist and pass to a chronic state, they will not conclude from these facts against the autocratism of the genius watching over the animal economy. The latter circumstance is, however, more frequent than the other. Far from being neglected or overlooked, they ought to have great weight with those who wish to trace the history, rather than the romantic records of medicine.

It is then absolutely necessary to acknowledge as true, that in all cases where the animal organism is disturbed, the affection tends either to disappear spontaneously, with or without crisis, or to persevere and determine, by means of the sympathies, other disorders more or less dangerous, terminating in the destruction of the parts affected, and not, unfrequently, of the life of the patient. The animal machine, like all others in which a derangement occurs, may resume the regularity of its actions, or it may be impeded more or less suddenly, according to the violence of the obstacle and to its consequent effects on the principal or secondary functions.*

* The reader may be struck with the apparent similarity existing between these propositions and those of all other physiologists. All have nearly laid down the same premises, although in different words, but few have ever agreed in their inferences. It is evident that this general law of the animal economy, intended to be substituted by the author for the old established doctrine of the *vis medicatrix naturæ*, is little more than that same force of nature expressed in other words. But, from what is to follow, it will be seen that M. Begin does not so much pretend to deny the idea of a power residing in the tissues, and contending against diseases, as that of giving it a separate existence independent of the physical properties of the animal fibre in a state of organization. We all know to what errors this mistaken idea has led in practice, and it is the just object of the author's censure in this chapter; but as his expressions may be susceptible of further extension than

Such is the truth, and such the consequence of known facts. He labours in vain who endeavours to embellish the doctrine with the charms of diction and of brilliant images: such pictures may indeed be poetical, but they certainly fail in accuracy.

These errors would be of little importance, and I would hardly notice them, if, limiting their influence to medical speculations, they did not lead to such dangerous consequences in practice. Some say we must guard against counteracting the process of nature, and contradicting its efforts; the most serious symptoms are sometimes the effects of nature itself, yet they are to be respected, because they are the consequence of its conflict with the disease, which will eventually effect a cure. These assertions convey false ideas, and in most cases the precepts they inculcate are totally inadmissible.

At the commencement of a disease, it is always impossible to determine positively whether nature will alone be able to perform a cure; and in the expectation of its effort, are we to neglect the means calculated to produce a more speedy recovery? This is the whole question.—Those who entertain such a profound respect for the medicating faculties of the animal economy, should have indicated the means by which it might be possible to recognize those diseases which it is proper to leave to the care of nature, and which will be cured by a crisis; on the other hand they should have cautioned the practitioner against an inaction which will allow time for the disease to be more deeply rooted, and followed by the most deplorable consequences. Such distinctions were more necessary to the comforts of the patient than the vague and eternal declamations echoed in every age, in utter defiance of facts and reason.

This question naturally leads us to notice the problem so long in agitation in therapeutics, whether we are to prefer the acting or the expecting medicine. The pretended advan-

he appears to give to the opinion he proffers against it, I may perhaps be allowed to enlarge so far as to say, in the spirit of the doctrine he advocates, that what is to be understood of that force of nature, is nothing but that same property which constitutes organic life. When an irritating substance is brought in contact with a sensible tissue, what we call reaction, is perfectly identical with that power in virtue of which the part recovers its natural tone when that obstacle is removed. The difference here is not in the nature of the action, but in its degree of activity. It is as much a physical absurdity to suppose a property acting exclusively in diseased organization, as to imagine temporary form in matter.

tages of the latter formed one of the subjects on which ontologists have indulged their romantic pen with the most complacency. On enquiring more closely into the subject, it is found to amount to this simple question: whether we are to induce any change in the functions whilst the organs which execute them are affected. Now, it is evident that, in this shape, the problem cannot but be resolved in the affirmative. Again, in all diseases, the issue being uncertain, and the crisis producing sometimes very serious consequences, it would be dangerous, and consequently inhumane, to leave the body a prey to disorder and pain until the period of the crisis, whilst we possess more sure and speedy means for the recovery of health. I know of no other medicine than that which is constantly acting, but which varies the strength and nature of its remedies, according to the nature and intensity of the disease. Sometimes this medicating action is violent and must be executed by means of the most energetic substances; at other times, it is, on the contrary, confined to removing the cause of the disease, to the judicious use of dietetic and other simple and gentle means; but the object is constantly to induce a change in the actual condition of the patient. In this view, the physician endeavours to impart to the vital actions a rythme and a direction capable of annihilating the impulsion communicated by the disease.

These principles are not in opposition with the precepts of those great physicians whose maxims have been sanctioned by experience. Thus, when in an acute disease, indications of a salutary effect are exhibited, or when the irritation is carried to the kidneys, the skin, or the lower extremity of the digestive canal, it is evident that a judicious physician will confine himself to assisting nature in that process. If the symptoms have no intensity, and if the patient is so situated that the disease can disappear spontaneously, we are undoubtedly to abstain from the use of all energetic measures. Yet, in such a case, the physician is not inactive; he observes, he operates, he modifies the organism, by directing and promoting the tendency to recovery.

It is no longer necessary, at the present time, for the judicious physician to determine whether he is to perform the part of a spectator, or whether he is to be active in the treatment of diseases; but he has to decide how, and to what degree of energy, experience and judgment will direct him to act in the variety of cases. Here the problem presents itself

under a more scientific aspect; it includes the whole science of therapeutics; and it is to the discussion of its different departments that the practitioner is to bestow the greater part of his time and attention.

If the opinions of those who oppose the physiological doctrine were still enjoying some credit—if all good observers had not rejected their humoral and Breunonian systems, I would raise my voice against their pretended expectation.—Indeed, it was not before administering one or two emetics, and often more numerous purges, that in mucous and bilious fevers, for instance, they expected the issue of the disease, the phenomena of which they described as being the combined result not only of the primary affection, but also of the sanguinary remedies which they had prescribed.* It was

* This practice of prescribing evacuants in the generality, and especially at the commencement of fevers, and for which the author is pleased to give nearly the exclusive credit to Brown and his followers, forms such an essential part of the treatment of fevers in Great Britain and North America, and has been found serviceable in so many cases, that I fear their apparent total exclusion may for some time retard the universal adoption of the French practice in that respect. There is hardly a case of fever, in which some purgatives are not called for, and followed with some beneficial effects. I will take occasion to offer some remarks hereafter, when speaking of the individual treatment of fevers; but it may not be unseasonable to enquire generally how far the difference in constitutions, arising from different climates, habits, physical education and mode of living, may operate in varying general rules according to such circumstances. Man is the same in all climates; his organization is every where similar, and governed by the same laws; yet, in the same latitude, and under the same general circumstances, the same remedy will sometimes produce different results. Although this remark may not be strictly applicable to general therapeutical principles, which are founded on the immutable laws of physiology, yet I wish to ask this general question, whether those circumstances may not make the difference in the irritability of individuals of one country and those of another, nearly proportionate with the degree of activity of medicinal agents.

According to the new medical doctrine, the immediate action of all remedies is stimulating, although their secondary or remote effects may be debilitating. This is the case with purgatives; but the same rule applies equally to all other ingesta, even to common water, except in an inferior degree, and it might perhaps be advisable to enquire whether any and what proportionate difference exists between the irritable and delicate nerves of an inhabitant of the south of Europe, and those of the frozen regions of Canada; and whether that proportion is at all commensurate with the relative superior activity of jalap over common water. We know that the inhabitants of different climates do not experience the same effects from identical substances; but this difference is merely in the degree, for a purgative will open the bowels of a Pantagon as well as those of an American lady. Hence the physiological physicians assume that their doctrine is applicable to man in all climates and conditions.

while treating a severe gastro-enteritis with lemonade, wine, light punch, and diffusible stimulants under all shapes, that those pretended expecting physicians were making their observations. Their descriptions were written under the apparent dictate of nature itself. Under the incumbrance of an infinite multitude of private observations and of new diseases, to which the continual abuse of excitants was daily giving birth, medicine became a chaos which all the art of nosographers was never able to unravel. Mistaking both the proximate cause, and the seat of a great variety of pathological affections; confounding primary with secondary indications, the physician was constantly acting in the dark, and keeping up, or exasperating the disease, at the same time that he was attempting to supply nature with the means of returning victories from a conflict in which she experienced a greater resistance from the treatment than from the disease. But, I say it again—those ideas, although still advocated by a few at the present day, have altogether passed away: sound medical philosophy has exploded them from its dominion, and, whilst the physiological doctrine is advancing so rapidly to

I have seen purgatives produce the happiest success in the hospital practice of two distinguished physicians of Quebec, Drs. F. Blanchet and C. N. Perrault: the former combining the course adopted by Laennec with the general practice in the United States, the latter following the method of Dr. Hamilton, of Edinburgh, whose principles he had imbibed during his residence in that city; and if I may be entitled to express my own opinion, I am bound to acknowledge that I have obtained considerable benefit from the same practice. It must be confessed, however, that their employment may occasion more mischief than the method recommended by our author, though it should fail to produce the desired effect. In many cases, I have observed no material change in the disease, or a series of disorders in the nervous system as is generally found to constitute what is called a typhoid type, after some days of a continued or remittent fever, so prevalent in the summers of southern latitudes, where little attention is paid to cleanliness and regimen.

Without anticipating what is to be said in the course of this work, I will content myself with observing that, although the use of purgatives has often proved beneficial in the generality of cases, humanity is much indebted to the physiological doctrine for having pointed out a less objectionable course of practice which, with the modifications it may receive from a fair trial in America, will materially diminish the catalogue of chronic diseases, and lessen the bills of mortality. To say the least in favour of the present system of medicine, we may feel confident that, situated as we are beyond the reach of the national prejudices existing between the various countries of Europe, it will demonstrate the fallacy of a great number of favourite ideas, and establish the practice of medicine upon a more solid foundation than heretofore.

perfection, it would be useless, not to say fastidious, to return constantly back, and reproduce arguments which have never been satisfactorily answered.

CHAPTER III.

OF THE BASIS OF CURATIVE INDICATIONS.

Improvement and success in the treatment of diseases have been the constant object of the labours of physicians in all ages, and the term and end of all medical theories ; yet therapeutics is, of all the departments of medicine, that which has the most effectually resisted the influence of systems, and produced the most powerful arms against them. This singularity cannot be a matter of surprise to a judicious mind. It is easy, indeed, in the solitude of a library, to give to facts an arbitrary interpretation. With the aid of an extensive erudition and a subtle mind, it is possible to advocate and support all sorts of opinions, if not by means of sound reasoning, at least in a manner calculated to dazzle and subdue weak and superficial observers. The case is altogether different at the bed-side of the patient. In the presence of nature, it is much less necessary to discuss than to act ; and clinical results will plead more eloquently in favour of the skilful practitioner than the most brilliant discourses. He who, instead, of relieving, aggravates the disease ; who loses, instead of curing his patient, can never succeed in establishing the doctrines which have led him to such deplorable results. Therapeutics is the corner stone of all theories ; it is by the number of his cures that we are to decide the merits of a practitioner.

Scholastic writers have divided therapeutical indications into indications, properly so called, contra-indications, co-indications, contra-co-indications, &c. They have also studiously distinguished the *indication*, or the object to be attained by means of medicinal actions, from the *indicating*, that is, the disorder calling for medication, and from the *indicated*, or the remedy by which we are to operate the change required by the condition of the patient. But I find I have already dwelled too largely on useless distinctions, which have long been buried

under the dust of the books containing their fastidious explanation.

The basis of curative indications have varied as much as the medical theories of which they were the consequence.—Thus, we have seen the humorist engaged in correcting the acrimony of the humours, or evacuating, after their coction, those which he supposed to have determined and kept up the disease. The mechanic directed his measures towards re-establishing freedom in the vital actions, and in the permeability of the vessels. These hypothetical ideas have long shared the fate of the systems which gave them origin.

The errors of Brown have had a great number of partisans ; and, until very lately, enjoyed a general credit. But physicians, enlightened by the physiological doctrine, have shown that, in disease, the weakness and languor of the external organs, as well as the prostration of muscular strength, are most commonly the result of the irritation and phlogosis of the internal organs. M. Tonmasini has even demonstrated that weakening causes generally produce diseases which are characterized by an increase of irritation. It is evident, therefore, that those two indications, of rousing the dejected strength, and of weakening the too great energy of vital actions, cannot be fulfilled without danger, if we content ourselves with considering the whole of the economy, since we thereby overlook the actual condition of the affected viscera, and are constantly exposed to making an improper use of stimulants, in cases where antiphlogistics alone can be followed with happy results.

This inconvenience has been so deeply felt that most of the physicians in Italy, Germany, and England, have already attempted to modify the Brunonian system, and by gradually admitting the local nature of diseases, to divest it, as much as possible, of what constitutes the dangerous tendency of his practice. But the physiological doctrine of the French is, to this day, the only one which has completely attained that end.

The partisans of the autocratism of nature, considering the symptoms of diseases as the expression of a conflict between the morbid causes and the organic powers, recommend supporting the latter, in order to ensure their triumph over the enemy. This doctrine, beside its being founded on erroneous ideas of physiology and pathology, presented, under a practical point of view, the inconvenience of prescribing to

the physician, either inaction, or the use of stimulants, which are still more pernicious. The expecting method, from which Hippocrates never deviated, was still less repugnant to the spirit of an age in which anatomy, physiology and pathology, were utterly unknown; but now that those sciences have made such wonderful progress, we ought to avail ourselves of the immense stock of knowledge which they have bestowed on our art, and not carry it back to its cradle, and confine it to the timid attempts of its infancy.

Some modern empirics have dared to assert that we ought to direct our attention solely to the most prominent and dangerous phenomena of morbid affections. But who does not see that the *medicine of symptoms* is absurd in principle, and pernicious in its consequences? How, indeed, can a wise practitioner apply the same treatment to a cephalalgia sympathetically determined by gastritis, as if it were the consequence of an encephalitis? The idea of wasting our efforts against the prostration of muscular strength in fevers, without attending to the gastritis, of which it is the consequence, is a medical nonsense too manifest to warrant a longer refutation of the doctrine which promulgates such precepts.*

* The most extraordinary doctrine that has perhaps ever been advanced in any age, is that which is now prevailing in Germany. As our author makes no mention of it, and as it is little known in this country, I will take the liberty to explain it in a few words. Its founder was Dr. Hahnemann who first promulgated it some twenty years ago. It consists in administering remedies calculated to produce a series of symptoms precisely similar to those constituting the disease. According to the views of this physician, the symptoms thus artificially produced take the place of the natural ones, which will thereby be driven away, and as they are the effect of remedies, they will also subside as soon as those remedies are discontinued.

The principles of therapeutics in this doctrine, are to be sought for in the relation existing between the known effects of remedies on the constitution and the symptoms of the disease; hence there can only be three methods, viz: *opposition*, *heterogeneity*, and *similitude*; this last method, which is called *homœopathic*, is the only and the most efficacious one. It is explained in the following manner: "When the specific effects of a remedy are perfectly similar to the natural disease, they reach the organs that it has affected; but as two similar diseases cannot exist simultaneously in the same point, and as artificial, are more intense than natural affections, the latter give way and the former are substituted, which themselves soon disappear. Reaction is here salutary, because the homœopathic remedy acting on the organism exactly like the existing disease, this last will react in an opposite direction, that is, in favour of health."—(*Quebec Medical Journal*, No. 7, 1827)

No mixture nor combination of remedies can ever be admissible, because it would be impossible to trace the effects of the medicinal substance and its

The physicians of our day have thought it best to consider diseases as groups of symptoms more or less multiplied, to which they oppose curative means warranted by experience. This mode of observation is that which M. Pinel has consecrated in his *Nosographie Philosophique*. It was generally approved of, and it had the beneficial effect of disentangling French medicine of the mechanical, chemical, and humoral

relation with the existing symptoms. The remedies must also be given in very small doses.

Another doctrine, which is not mentioned by our author, is the one called the doctrine of polarity. It is much more philosophical than that of Hanne-man, and if not altogether admissible as a practical doctrine, it is certainly such as will prove highly interesting, and perhaps useful, in the application of some of its principles to the laws of organic life.

This doctrine has prevailed for some years past in the schools of Vienna, Beste, and Pavia, and appears to be totally unknown in France and England, if we may judge from the general silence on the subject. A highly interesting new publication, the *Journal des Progrès*, has given the first account of that system, and I am greatly indebted to that Journal for my knowledge of it.

The system of polarity is the basis of Artmann's general pathology, and of Hildebrand's *Materia Medica*, both of which are highly valued. According to its tenets, all phenomena in nature take place in consequence of *reaction* and *repulsion*, from which arise *contraction* and *expansion*. Attraction checks repulsion, as contraction checks expansion, and *visè versà*; the result of these two powers constantly in action is *indifference*, and the conflict itself constitutes *life*; and all those varieties of causes and effects in nature are produced by a different proportion of the *polar* forces.

If these attractive and repulsive forces enter into a conflict, so as to become sensible in some point of the universe, and from a certain *something* composed of parts, a *quid* accessible to our senses, then these forces produce what we call matter. All phenomena in nature are reducible to motion, the predominance of the contractive force produces *oxygen*, whilst that of expansion gives rise to the *inflammable principle*; thus oxygen is the antagonist of heat.

All bodies, therefore, have motion, and motion is life—*ergó*, there is no death in nature from dust to man. We deny life to minerals, because their motion is not accessible to our senses; but they differ from animals only in that respect; bodies are, therefore, divided into *Criptobiotes*, whose life is obscure, as minerals, and *Phœnerobiotes*, whose life is manifest, such as animals.

All the functions of our body are explained, in this doctrine, by the action of these two powers. I will confine myself to giving the process of digestion, from which the reader may derive some idea of all the others, which are carried on by the same mechanism.

Digestion is neither a solution nor fermentation, &c. In food, phlogistic generally predominates; the gastric juice, on the contrary, which may be called acid in man, from its property of coagulating albumen and milk, and preventing putrefaction, contains the contractive principle, which, being brought in conflict with the other albuminous substances, is coagulated, dissolved again, and converted into a sort of gluten, and then into an acidulated chyme,

theories with which it was still infested. Its adoption, however, was not without danger in practice, as it retained a strong impression of the system of Brown, which, on several points, served as a foundation to the work of the illustrious nosographer. In order that they should become the object of therapeutical indications, and never mislead the practitioner, it would be necessary that these groups of symptoms, which are the characteristics of diseases, should always be similar, and succeed each other in the same order. But this is not the case; nothing is more changeable and varying than the morbid phenomena. They vary according to the constitution, the age, the temperament of the patient, and the means employed for his cure. If they cannot be traced to the organs which they point out as being affected, the exterior phenomena of diseases rest on no solid foundation, and leave vague and figurative ideas on the mind of the practitioner. A small number of those symptoms are almost fundamental, and always make their appearance when one or another organ is affected; but accompanying them we also witness sympathetic phenomena, which are accessory, infinitely variable, and the result of the relations established by the agency of the nerves between the various organs. Now, physiological medicine alone teaches us to distinguish those two orders of symptoms from each other. Every one knows, that without

This may give an idea of the doctrine of polarity, which is seen to be little more than the old chemical theory of medicine, under a new dress. Although the opinion as to the formation of matter, is altogether absurd, some useful application ought perhaps to be made of the contractive and expansive forces, to some of the simplest organic functions. Indeed, I find that a late writer in Germany explains the process of abortion on nearly the same principles.—But I have already said more about theories than can be allowed in a book exclusively practical.

M. Dutrochet has lately read before one of the learned Academies of Paris, a memoir which might be considered the offspring of this latter doctrine; and if these bodies have bestowed upon his theory so much credit for invention and ingenuity, it can be accounted for in no other way than by their neglect of their scientific neighbours. The explanation which M. Dutrochet gives of the process of nutrition and of organic functions by electrical agency, is certainly his own; but the idea was derived from the doctrine of polarity, whether M. Dutrochet is or is not acquainted with this doctrine; for it must be acknowledged that little of it is known beyond the schools wherein it is taught, although it is said to have furnished very important results. We are indebted to M. L. Martinet, who has travelled on the continent of Europe in search of medical knowledge, for what we are enabled to collect from various sources on that amusing subject.

this knowledge, ontologists have always confounded them, and directed their remedies against the remote effects of an irritation which alone ought to have commanded their attention. There is no practitioner, who, having practised according to nosography, has not frequently treated fevers, pains, hypochondriasis, without suspecting the existence of a gastrointestinal irritation; who has not considered debility as the fundamental phenomenon of diseases really inflammatory—in a word, who has not treated hemorrhages and inflammations, pretended to be passive, by means of tonics, empirically administered under every shape and form.

What have been the causes of errors so dangerous in the treatment of the most frequent diseases? They are the results of obstinacy in rejecting all theoretical explanation, tending to investigate the living economy, and determine the extent of affections in the viscera, whilst by a mere examination of external objects, the nature, the causes, and the seats of diseases were altogether misunderstood.

It would be acting blindly to prescribe remedies solely from the manifestation of this or of another series of symptoms, since we do not yet know the condition of the organs, or the nature of the disorder on which we operate. Many other inconveniences have resulted from this vicious mode of conduct and reasoning; indeed, the most acute diseases being only characterised after more or less time, and as their species or genus could not, in many cases, be ascertained until after the death or after the cure, it followed as a consequence that the diagnosis itself was without a solid basis, and that in most cases the physician was unable to say whether the disease was an adynamic or a simple inflammatory fever, or to distinguish an ataxic from a bilious fever of great intensity. How could he then adopt a treatment for a disease which was not well characterised? This uncertainty and anxiety increased when energetic remedies occasioned new phenomena, which, intermeddling with the original series of symptoms, changed, as it were, the character of the disease. These phenomena were then carefully noted, and presented as a new affection heretofore unknown. Every man had pretensions to similar discoveries, and as they were of frequent occurrence, medicine was soon incumbered with the weight of particular histories of sporadics and epidemics, forming a mass of diseases which retained none of their natural characters.

But some writers daily repeat, with as much incoherence of ideas as obscurity of style, that the art has already so far succeeded that, in some diseases, it enables us to determine, by the nature of the symptoms, that of the remedies required; and that in order to effect a cure, it is only necessary to know how the organs are affected, and how remedies operate. According to these new empirics, the science of medicine shall have arrived to perfection when we can place the name of a remedy by the side of the series of symptoms which it is calculated to cure. If such assertions were well founded, therapeutics would be but darkness and routine; and, as the ultimate object of studies is directed to that department of science, it would follow that anatomy, physiology, and pathological anatomy, are useless to the physician. The knowledge they impart can only be directed to the patient; but, in that case, no solid indication could be established. Possessing no idea of the causes, nature, and seat of the disease, or of the operation of remedies, the practitioner would be unable to make a judicious choice of them, or determine their real effects. The whole practice would be subjected to the dictates of empiricism and of simple nomenclatures of symptoms and receipts, including, both for the physician and others, all the secrets of the healing art.

Barthez imagined to decompose this group, ordinarily complex, of morbid phenomena into secondary groups, called *elements*. Dumas extended and developed this idea, which serves as a foundation to what is now designated under the name of *The doctrine of the school of Montpellier*. The partisans of this doctrine assert, that a pathological element is a simple disease, or a group of particular congenerous symptoms, keeping pace with each other, referrable to particular sensible causes, having their appropriate course, periods, crisis, and therapeutical methods, leaving traces on the body after death, and often characterized after recovery, affecting indifferently one organ, system, or tissue, although capable of including in a particular, and sometimes exclusive manner, several of them: in a word, an element, according to the doctrine of Montpellier, is an affection *sui generis*, a true disease; for one, two, or three isolated symptoms do not constitute a disease.

It would, indeed, greatly simplify the theory and practice of physic, if it were possible to substitute for the immense varieties of diseases of our nosological tablets, a certain number

of elementary affections, susceptible of including, by their different combinations, all those which can afflict mankind. It would be much easier, indeed, to remember ten, twenty, or forty elements, and make them serve as a basis to all the therapeutical indications, than to bear constantly in mind the descriptions and treatments of all the diseases indicated by authors. But to present this labour as the only legitimate result of clinical observation and of analysis applicable to medicine, is an exaggeration which all the subtleties of the most pretending metaphysician can never justify. The founders, as well as the partisans of the doctrine of Montpellier, in reducing the number of diseases, have neither thrown more light on their etiology or diagnosis, nor improved their treatment. Among the elements, some, like plethra, are much less diseases than predispositions; others, such as nervous erethism, pain, are nothing more than the effect of the irritation of the nervous system. Others again, such as fevers, spasms, may be the result of all sorts of irritations; whilst several, among which we are to include malignity, periodicity, are to be referred to special modifications in the intensity, or in the succession of the morbid phenomena.

In order to afford solidity and usefulness to this system, it was necessary to have indicated what plausible relations could exist between the nature of each element and the therapeutical indications to which it gives rise; but this is altogether impossible. Spasms, they say, require calming and anti-spasmodic means; but in what do these spasms consist, and which is the organ affected? How, and on what parts do these means operate? It was necessary to have solved these questions in order to give existence to their theories. What would then be their answer, if we were to ask what relations exist between malignancy and excitants, such as wine, valerian, camphor, bark, cascarilla, &c.? Can malignancy exist by itself, independent of all local affections? Can we rationally consider it a disease?

In the system under consideration, the state of the diseased organs cannot be ascertained, and there is no other means of establishing therapeutical indications than by the symptoms. The practitioner, in following this doctrine, acts empirically, and is busily engaged in combating mere abstractions, and imaginary groups of symptoms, instead of imparting a rational modification to the diseased organs. He is in the same condition as the partisans of nosography, except that he de-

composes diseases into smaller series of phenomena. Finally, in order to give a correct idea of the practical errors to which that doctrine may lead, it is sufficient to say that, according to its tenets, hydrophobia, hypochondria, ileus, and other similar affections, are susceptible of being treated by camomile, valerian, camphor, musk, castoreum, volatile alkali, which *destroy*, they say, *the spasm in a direct and specific manner*.—Among the number of diseases arising from debility, are to be found mucous, bilious, and typhoid fevers, &c.; and those complaints are then to be treated by tonics, which *increase the energy of action*; by excitants, which *increase the action itself, and may develop the radical powers*; lastly, by the analytic regimen.⁽¹⁾ The elements, wherever they may be seated, are to be treated by identical means, and there is nothing in the system which they constitute that can indicate when they are idiopathic or symptomatic.

I will conclude my examination of a system which finds its security in the darkness with which it is surrounded; its partisans escape refutation by saying, that it is not entirely developed, and that, notwithstanding the errors with which it is replete, we cannot but admit as correct the general principles on which it is founded.

But let us return to the discussion of the principles to which we are led by the attentive observation of nature.

Curative indications can have no other rational basis than a thorough knowledge of the nature of diseases. The first and most important practical point to be established, is the nature of the complaint with which the organs are affected. In order to solve the question, we are to make a diligent enquiry into the causes of diseases, and the laws of pathological physiology; and it is only after all obscurities have been banished from his mind, that the practitioner is competent to determine what are the indications to fulfil. Their fundamental object must be to put a stop to the disorder introduced in the organic functions, and to destroy the alteration with which the tissues are more or less deeply affected. Indeed, it is evident that, this being achieved, the phenomena arising from the organic lesion will disappear with their cause. Should any of them still exist, they are the result of irritations which have become independent of the primary affection, and are to be treated accordingly. Thus, we may sometimes combat

(1) *Doctrine générale des maladies chroniques*, par Dumas, Paris, 1824.

successively, or together, both the primary and the secondary or sympathetic affections, producing all the morbid phenomena.

The nature of the disease, or that sort of vital modification determining the external morbid appearances, is to be the constant object of all therapeutical indications. Let the disease occur in old people or in children, in men or women, in strong or debilitated habits, the principles of treatment are the same. The causes of diseases, their seats, individual circumstances, and the various organizations of individuals, may indeed afford material changes in the treatment, but the indications they require, are only secondary, and subordinate to those arising from the nature of the complaint itself. They may induce the physician to give the preference to certain medicinal agents, under different shapes and means; but they can never operate so far as to vary the nature of the treatment in contradiction with that required by the changes produced in the rythme and intensity of the organic actions. Thus, an acute and violent phlegmasia must be treated by anti-phlogistics, whatever be its cause, its seat, the strength or debility of the patient, his age, his habits, &c.

These principles are so evidently founded on the nature of things that I will not dwell longer in their defence. They lead us to a knowledge of the relations existing between medical practice and physiological and pathological theories.—They impress on the mind clear and positive ideas, excluding the deplorable arbitry and empiricism which have so long kept medicine in a state of imperfection. In a word, they enable us to calculate the choice of remedies, and the action of pharmaceutical agents. In adopting them, and improving their consequences, we may expect to render medicine an art, the theory of which will be founded on reason and observation.

In the empirical practice, all experimental researches on the *modus operandi* of remedies are altogether useless, and medicine is reduced to a frivolous display of superfluous opinions and theories, which are obnoxious at the bed-side of the patient. The dogmatic part of science, indeed, may present some appearance of exactitude, and assume the shape of a system, but the art is blind and conjectural; and the most learned physician errs, unguided, in the midst of difficulties by which he is constantly surrounded. On the contrary, if we follow the path of the physiological doctrine, we recognise

the organs as well as the phenomena which accompany the normal exercise of their functions; we trace the impression of the morbid causes, and appreciate and calculate their effects; the action of remedies is demonstrated by the phenomena which they produce; and by endeavouring to improve that doctrine, we have reason and experience to guide our tracks, and the results of our observations add powerfully to the interest of science and of humanity.

After having examined, in a general manner, the rules which are to serve as the primitive basis of therapeutical indications, let us study the circumstances which, by modifying those indications, improve them, and adapt them, as it were, to the diseased subject. This study, far from being speculative, is altogether practical. We are never to forget also that the physician is constantly bestowing his care on individuals, and that the precepts which are to direct him, and which are to be constantly perspicuous, will possess a much greater utility, as they can be applied to a greater number of particular cases.

CHAPTER IV.

OF THE CIRCUMSTANCES WHICH CONTRIBUTE TO MODIFY INDICATIONS IN THE TREATMENT OF DISEASES.

These circumstances relate, on the one hand, to the age, temperament, sex, profession, habits, strength or debility of the patient; on the other, to the causes, the seats, the intensity, and the periods of diseases.

SECTION I.

Modifications relative to Age.

A great number of errors have been circulated on the subject of the diseases which occur in the different stages of life, and of the therapeutical means which they call for. The most remarkable among them is that which attributes the

diseases of children to the humours, and especially the mucous, whilst those of old people are supposed to proceed from a decrease of vital energy, and a general debilitated state of the organism: this, however, is not the case.

It is important to remember, in the observation or treatment of diseases in young subjects, that their sympathetic functions are more active and susceptible than in adults:—owing to the predominance of their nervous system, the irritations with which they are affected may easily be complicated with unusual phenomena, and with violent over-excitements of the brain and its membranes. The stomach and intestines being then endowed with a greater vital energy, and exposed to the most powerful causes of disease, their irritation is very frequent, and generally forms a complication of almost all phlegmasiæ; the state of their alimentary canal is, therefore, more entitled to our special attention than that of adults and old people. At the first periods of life, irritations are more rapid in their progress; the secretions furnished by irritated mucous membranes, have a singular tendency to coagulate into anomalous membranes, in a manner to obstruct the passages in which they are situated. Croup is a frequent example of this sort of complication: indeed, it would appear, from the facts adduced by that celebrated pathologist, M. Cruveilhier, that the mucous membrane of the intestinal canal, is more liable in children than in adults to become soft and disorganized, in passing to the gelatinous state.

These peculiarities are to be carefully noted, as of great practical importance. When evacuations of blood are indicated, they are to be proportionate to their feeble organism, without, however, falling short of that quantity which may be required by the violence of the symptoms, and by the rapidity with which congestions are liable to take place. In children, derivatives act with more energy and efficacy than in adults, owing to the greater susceptibility of their nervous system, and to the facility with which their irritations can be displaced.

With regard to diet, whatever may be said to the contrary, children may be subjected to it as well as adults; and the negative means, so often resorted to with advantage in the treatment of irritations, sometimes produce in children unexpected effects. I might, if the fact was not so well established, relate twenty cases of gastro-enteritis, acute or chronic, with a development of the ganglia of the mesentery.

or complicated with nervous phenomena, which, after having been kept up, or even exasperated by improper treatment, have experienced relief, and subsequently been cured, by the influence alone of a severe diet and lenitive drinks.* As children are much less capable of abstinence than adults, it is evident that it acts on them with more energy, and more quickly. It is equally true that children are fed with much more alimentary matter than adults: barley water, diluted syrup of mucilage, and all other drinks of the same nature, which afford no nutrition to the latter, are a real food for the former, and it becomes, therefore, necessary, in many cases, to give them with care, in moderate quantities, and sometimes to interdict them altogether.

Owing to the delicacy and susceptibility of their organs, the diseases of children are to be treated with remedies administered in small doses, and in a more simple manner than those of adults. Tonics and good regimen produce extraordinary good effects in a few days; in other cases, gradual evacuations of blood, derivatives more or less energetic, abstinence properly regulated, gentle lenitives and light narcotics, are generally sufficient to effect a cure. Violent emetics, drastic purgatives, and those remedies called heroic, such as the *argentum nitratum*, the acetate of lead, &c., are to be proscribed; they are too repugnant to their delicate tissues; and nature, who has not yet been perverted by vicious habits, and by the use of excitants, requires means as simple as herself.

With regard to chronic diseases in young people, it is to be observed, that the body not having acquired its full growth, the physician may often, by dietetic means alone, diminish

* The author no doubt alludes to what we call diseases of the mesenteric glands. We know that this disease has heretofore been found to resist all methods of cure, and, indeed, I might say that we are not settled on any plan of treatment against it. Supporting the constitution by means of injections is what is now most generally depended on, and yet this process of treatment possesses no influence on the disease. Diet, therefore, may prove serviceable, since it is true that in such cases, the appetite is often voracious, and this circumstance will generally be found most conducive to the effectual operation of diet and regimen in this as well as in other cases where it may be resorted to. But the affection occurs most frequently in tender infants, who seldom take other food than the most gentle drinks; the only diet to which can be submitted will then be a complete abstinence from all ingesta, except perhaps small quantities of water from time to time. (*Vide Carreaux*, Part I., Sect. II. Chap. VII.)

the violence of vital actions in the affected parts, change the direction of organic functions into others more salutary, displace the seats of irritations, and nullify, with time, the predominance of certain organs, so as to restore the harmony of the whole. This dietetic medicine is the most rational and efficacious against scrofula, rickets, dispositions to pulmonary consumption, &c., and is entitled to more attention than has heretofore been bestowed on it.

Towards the decline of life, when the intensity of the vital functions have diminished, and when the organic actions are but imperfectly performed, other physiological considerations present themselves to the practitioner; he is not to consider the diseases of old people as arising always from debility.—Some, indeed, have that character, and are the consequence of the exhaustion and gradual wasting of a body which has been long in motion: then the strength diminishes; nutrition is languid; the motion of the organs is slow, difficult, and accompanied with a deep sense of prostrate vigour, whilst the pulse is calm and feeble, the temperature of the skin diminished, without any external manifestation of local irritation. In those cases it is necessary to have recourse to highly nutritive food easy of digestion, good wines, and rest which is only to be interrupted by gentle exercise. But in the greater number of old people, diseases arise from irritations, slowly developed in the tissues, in consequence of the long continued reiteration of organic actions. Thus, the genito-urinary organs, after an excitement of thirty or thirty-five years, may become the seat of disorders more or less considerable; vesical catarrhs, varicose tumours at the neck of the bladder, slow and schirrous tumefactions of the prostate and testicles, gravel and calculi formed either in the kidneys or lodged in the bladder, dilatations sometimes extensive of the veins of the testicles, such are the diseases of those organs incident to old people. On the other hand, there will be found in the alimentary canal, chronic gastritis, ascites, disorganizing tumefactions of the liver, schirrous engorgements of all the viscera, obstructions in the vena portarum, which are all referable to the above-mentioned causes. The respiratory organs are not free from disorders of a similar nature; pulmonary catarrhs, chronic pleurisies, and pneumonies, will often be met with. The heart becomes the seat of dilatations, which produce asthma, dyspnæa, angina pectoris, all which seem to be the exclusive lot of old people. Organic degenerescences, trans-

formations of serous and mucous tissues into fibrous and cartilaginous productions, and of fibrous organs into cartilaginous and bony tissues, as well as the effects slowly and gradually brought on by the frequent and incessant repetition of vital excitements, proclaim the progress of age. The same causes acting on the brain, but particularly through its sympathy with the irritated stomach, will also give rise to apoplexy, palsy, and other similar complaints.(1)

The plan of this work cannot admit of long pathological details relative to the diseases of old people. Yet the doctrine which I present, is so contrary to that of physicians of the present day,(2) that I will say a few words in its behalf.

All physiologists are aware that even the normal action of living organs never takes place without the development of a vital excitement proportionate to the intensity and duration of that action. During the first years, this excitement disappears completely, during the interval of rest, and the parts preserve their texture and properties; but as the congestions become of more frequent occurrence, particularly if an abuse is made of the action of the organ, they leave in the part affected traces more or less considerable of their presence. The affected tissue is at last over-excited in a permanent manner, its organisation is altered, and the slow and chronic irritation to which it is a prey, receiving a constant increase of strength, local and general phenomena will manifest themselves, but frequently at an epoch when the disorder is already so deeply rooted, that it is no longer possible to effect a cure.

These phenomena bear the greatest analogy with those observed in the organs which are the seat of intermittent irritations. These, by their frequent repetition, determine a permanent over-excitement, and a more or less profound alteration of the tissues in which they are situated. It is in this

(1) Vide *De l'influence de l'estomac sur la production de l'apopléxie*, par L. T. R. A. Richond, Paris, 1824.

(2) "The diseases of old people, says M. Alibert, are the result of a general dissolution of strength, which produces all the chronic diseases to which they are liable, such as the various forms of catarrh, asthma, gout, rheumatic affections, anasarca, ascites, palsy, marasmus." (*Thérapeutique*, t. 1er. p. XXIII.) This opinion has been reproduced in the writings of almost every physician of the present day.—(*Note of the Author.*)

manner that are produced those engorgements of the mesenteric ganglia, those developments and varied degenerescences of the liver, after long protracted tertian or quartan fevers. Who has not seen the succession of several pulmonary catarrhs determine phthisis and disorganisation of the lungs on subjects otherwise healthy?

This is also the case in physiology, which also enables us to trace the gradual and almost insensible transition from the normal state to that of disease. Every day, indeed, the physician has an opportunity to witness, after an over-exercise of the articulations, of the genital organs and of the stomach, the rise and progress of irritations, which, at every action somewhat considerable of the part affected, acquire an additional degree of intensity, and call for medical assistance. This mechanism is in every respect evident, and it is only necessary to mention it to convince every one that it is the expression of what takes place in the process of nature.

We may then consider the following proposition fully established as one of the most remarkable laws of pathological physiology: that the diseases of old people are for the most part the result of chronic irritations, occasioned in the organs by the long repeated and continued stimulations which accompany the normal exercise of their functions.

From these considerations therapeutics derives the most useful precepts. They teach in what manner the moderate enjoyment of sensual pleasures, and reasonable exercise in our labours can prevent the diseases of old age, and ensure the enjoyment of health. But when those complaints have once been developed, their treatment is the same as in adults, with this exception only that the use of antiphlogistics, of diet and of bleeding, should be commensurate with the debilitated state of the subject. The viscera, in an advanced age, are less susceptible and irritable, although more habituated to excitants than adults; they are less sensible of their impression even to a larger dose, and their use is not unfrequently called for in cases where it might prove prejudicial in the prime of life.

SECTION II.

Modifications relative to temperaments.

One of the Physicians who have most contributed to the triumph of the physiological doctrine, has very properly observed that, in order to fix the theory of temperaments, it was necessary to attend to the principles laid down by Cabanis and Halle, and enquire whether they have not neglected to study the effects of the predominance of certain organs not less important than those on which they have bestowed their attention. (1) I think I have not deviated from this maxim, when I have demonstrated that, in his organization, man is susceptible, 1st, of modifications produced by the increased action and development of the nervous, lymphatic, and sanguiferous systems, modifications which extend to all parts of the body to which these systems spread their ramifications, which become apparent in all the tissues, and impart a special character to the functions; 2nd, of modifications which being limited to the predominance of one organ or of a set of them, and acting only through sympathy, produce effects which can be more or less appreciated by their effects on other parts than those in which they are situated.

This opinion appears to me so consistent with observation, and founded on such incontrovertible evidence, that, whatever objections may have been urged against it, I cannot but consider it perfectly correct. In bringing it forward under its true colours, I had no other object in view but to point out the mechanism according to which the predominance of the sanguiferous, nervous, and lymphatic systems exert such a considerable influence on the whole of the functions, and of the living economy. I have thought it my duty to give a satisfactory explanation of an undeniable fact: What I have said on that point is less an innovation than an improvement which I was desirous to add to the ideas of physiologists

(1) *Pyrétologie physiologique*, deuxième édition, Paris 1824, in 8vo. page 19.

who have the most successfully treated of the doctrine of temperaments.(1)

Let a plethoric man have the red capillary system universally more developed, more irritable, more liable to acute inflammations and hemorrhages than others; let the lymphatic subjects have their living tissues softer, more abundantly supplied with white fluids, less susceptible of irritating impressions, more liable to become the seat of latent, chronic phlegmasiæ, and of diseased organic transformations; let the nervous temperament be more sensible and susceptible than the two former, and let the sympathies possess in them a greater degree of activity: all these facts are perfectly in the order of nature; the phenomena which characterize them are not arbitrarily laid out, or we might as well call arbitrary all the results of observation.

But some will say that, in this enumeration, the characters of the nervous temperament are confounded with the effects of a predominance of the encephalic organs, and those of the sanguiferous temperament with the phenomena resulting from an increased activity of the heart, lungs, stomach, genital organs, &c. This objection is easily refuted: indeed, because the brain frequently exerts a predominant action in nervous temperaments, it does not follow, on the one hand, that this is always the case; and on the other, that, even in such cases, the other portions of the nervous system may not possess that increase of development and of energy. Who does not know that the brain often predominates in plethoric or lymphatic subjects? These reflections are equally applicable to the heart, the lungs, the stomach, the genital organs, which may become the habitual seat of vital concentration, and of a too energetic action on subjects of all temperaments. It is also urged that in that case, the nervous or plethoric excitability is extended in the same degree to the whole economy, and that it is always less considerable in some particular parts than in the others; but I have never pretended that in such temperaments all the organs

(1) This theory has finally been adopted by many, some of whom have copied it in the *Principes généraux de physiologie pathologique*, without giving credit to those from whom they had borrowed. In attributing it to M. Broussais, M. Goupil has committed a double error; because, far from that professor having first expressed the idea, he has not yet adopted it.—*(Note of the Author.)*

were *equally* susceptible of, or disposed to irritation. I have only established the fact that they were more so than other temperaments, and this appears to me incontrovertible.

Another objection which has often been brought forward, is, that in the assemblage of living tissues, it is impossible to separate the capillary blood-vessels from those which elaborate and carry the white fluids, and both these sets of vessels are confounded together with the extreme ramifications of the nerves. This difficulty may appear of some weight at first, but it is not insolvable. It is not necessary that anatomical analysis should separate and point out the elements of capillary blood vessels, lymphatics, and nervous ramifications in our tissues, as completely isolated, in order to conceive how the one may predominate over the others. Observation alone is sufficient to demonstrate the fact; for characteristics of each of these different temperaments are not only impressed on the face of the individual, but they are to be traced to all parts of the body. Let an isolated limb be placed before an experienced anatomist, he will immediately recognise from the skin to the centre of the bones, the traces of that sort of temperament which characterized the individual from whom that limb had been severed. If, on the living subject, a part of the body be exposed to the operation of stimulants, various morbid phenomena will take place according to the temperament of the individual. How can it be said, therefore, that this group of particular phenomena is arbitrary, or that we confound the results of the predominance of action in remote organs, with the modifications of the whole living organization which is then explored.

The plan of this work does not admit of my entering into longer details on this important point of pathological physiology; I hope I will return to the subject on another occasion. It is at present sufficient for me to have pointed out the idea we are to entertain of the two orders of modifications which the living economy is susceptible of presenting, and to have demonstrated that the objections which have been opposed to that theory are not altogether incapable of being overthrown. Let us now examine the influence which the consideration of temperaments and of idiosyncrasies are to exert on the treatment of diseases.

In plethoric subjects, inflammations and hemorrhages are most commonly accompanied with a general intense vascular excitement; the pulse becomes hard, full, frequent; the fe-

ver is violent; the white tissues sometimes acquire a manifestly red colour; the whole of the sanguiferous system is agitated. Congestions then threaten the parts to which the sympathies direct and concentrate the vital actions; in some individuals the principal viscera are so highly excited and gorged with blood, that their functions are rendered languid, and the organic powers almost annihilated. In this condition, general and copious bleedings are indispensable;—they afford a prompt and infallible diminution of the most urgent symptoms; the subsequent treatment must chiefly consist in the abstinence of all solid food, in the use of dilutent drinks and of the most powerful antiphlogistics.

Irritations generally occasion, in nervous subjects, the appearance of phenomena which are varied, uncommon, and more or less alarming, the consequence of too violent radiations directed on the principal viscera: there is, indeed, no proportion between the violence of the irritating cause and that of its effects on the constitution. The symptoms of local irritations are frequently little apparent, but a violent pain, spasms, convulsions, or other accidents of the same nature, will come on very rapidly. In such cases, the reaction is evidently more nervous than vascular: amid the greatest derangements, the pulse will remain almost quiet, and the circulation of the blood will not appear disturbed. We are, therefore, to insist more on the use of lenients, rest, tepid baths, and light narcotics, than on general bleeding, which may then increase the nervous susceptibility and its baneful consequences.

This practice differs widely from that daily prescribed by a number of physicians in those pretended malignant fevers and in nevrosis, which they treat by means of violent stimulants, under the pompous appellation of anti-spasmodics.—Debility, in those cases, is but apparent, and the means most calculated to destroy the local irritation, are at the same time the most efficacious to re-establish calm and harmony in the organization: thus, we find local bleedings generally the most useful, when combined with the other means above mentioned, and it should be had recourse to in the greater number of cases.

The lymphatic temperament imparts to the vital actions, both in health and disease, a sort of dulness, which many have mistaken for debility. Irritations then have no character of intensity, and appear to confine themselves to a few

sympathetic effects, which are also rare and hardly perceptible. Neither the pulse, the digestive organs, nor the brain, appear violently affected by the other irritated viscera ; all is calm in the living economy, notwithstanding the local affection which invades, and perhaps destroys one of its parts. In subjects thus organized, irritations are easily perpetuated, as they seldom present such serious accidents as to call for early attendance; they have a decided tendency to pass to the chronic state, to affect the white vessels, to alter the nutritive process, and promote the formation of new tissues, which soon destroy themselves with more or less rapidity.

In those cases, the physician must guard against being misled by the want of considerable local heat, and by the little excitement of the circulation: he will, on the contrary combat the irritation by general anti-phlogistics, emolient applications, gentle but repeated local bleeding, and by permanent derivatives. The latter can never be applied without inconvenience to external organs thus irritated, before the parts have become pliant and insensible to pressure.—When the disease is seated internally, it is of the utmost necessity to insist on emolients and derivatives, until the external phenomena arising from the local affection have entirely disappeared.

The predominance of actions, which is limited to one or more organs, such as the heart, the lungs, the liver, the stomach, the genitals, the muscles, the articulations, &c. has the constant effect of converting those organs into as many centres, towards which all the sympathetic irritations converge, and in which they make their appearance. Stimulating agents, although they may operate on remote parts, never fail to be felt by the most sensible and irritable organ. Thus, in subjects where the stomach and kidneys are the seat of a predominant vital action, a violent moral excitement, a damp cold, or any other cause of a similar nature, will be sufficient to create a more or less acute gastritis or nephritis.

With regard to the sympathetic affections occasioned by local irritations, it must be remembered that, as they consist in a disorder of the functions, and in a derangement more or less prominent of the sensibility and action of the parts, these disorders soon degenerate into a manifest alteration in the texture of those parts themselves. It is a great practical error, to consider the sympathetic irritations of living organs as of little consequence, and of easy cure. Far from being

constantly unaccompanied by any material injury to the tissues, subordinate to the primary affection, those irritations often penetrate into their substance, where they become idiopathic by themselves, and disorganize the parts. Autopsy has demonstrated that, in violent gastro-enteritis, a few days will suffice to give opacity and thickness to the arachnoides, which is not unfrequently found covered with pus. The same takes place in sympathetic irritations directed on the pleura, the peritoneum, the synovial membranes, the brain, the lungs, and all the other organs.

The knowledge of idiosyncrasies, or of the local predominance of action and susceptibility in different subjects, is useful to the therapist, in as much as it leads him to the discovery of the special direction which the sympathies assume. The physiologico-pathological notions which he derives from it, will enable him to explain why, in certain cases, all the impressions acting on the system, appear to be directed more to one organ than to another. During the course of a disease, the practitioner should give particular attention to the predominant viscera, that he may not confound the symptoms which belong to them with those of the primary morbid affection of which they are the consequence. Lastly, with regard to the employment of remedies, he must apply himself to removing all over-excitements which may have a tendency to take place in the organ whose actions and sensibility are under a constant degree of exaltation. Sometimes, however, when that organ is less important, and situated externally, it may become a salutary place of revulsion in dangerous irritations of the viscera. Thus, in gouty subjects, or in those who labour under frequent attacks of rheumatism, or of cutaneous eruptions, irritations induced in the articulations and on the skin may afford essential benefit, by relieving the viscera from their irritation which may have left other places, and been transferred to them.

Irritations, determined by the play of sympathies, deserve more attention than has generally been given to them by practitioners. I believe we may establish as a fixed principle, that whenever those irritations have acquired a certain degree of intensity, and have existed for some days, they require the same treatment, by emollients, &c. as if they had existed independent of any primary affection, and in the same manner as the latter. Thus, we are enabled to pursue the

irritation wherever it makes its appearance ; we wear it out, as it were, and extinguish it in whatever place it may resort to, and from whence it may irradiate to other parts.

We have hitherto confined our observations to modifications determined in the animal economy by a predominance of action, limited to certain organs, or extended to systems, which pervade the whole body. Much has lately been said on the effects produced by the debility of organs, or, in other words, by their insufficiency of action. Physicians have almost strove who should say the most against neglecting to attend to that kind of debility, which, according to their ideas, determine important phenomena, and require special treatment. These assertions may have some foundation ; but it is worthy of remark, that those who have most dwelled on it, have not particularized their observations. We know what effects are produced by an over-excitement of the stomach, of the kidneys, of the lungs, &c. and we are yet acquainted with but very few of the phenomena occasioned by their astenic condition. The general effects of that condition in certain organs, is characterized by languor in the vital actions, and in the functions of the debilitated organ, which languor is sometimes transmitted to other organs, not through the sympathies, but by the privation of the nutritive materials. In the generality of cases, at the same time that those organs are weakened, others enjoy an increase of excitement and energy, in such a manner that the economy becomes the seat of an unequal repartition of strength, which must be diminished by a decrease of the predominance of action in the over-excited parts, and increased in the others ; in this case, the physician is not to consider exclusively the one or other of those conditions ; but he must embrace the whole of the economy, and restore the harmony between its different parts, giving strength to the latter, and abstracting it from the former.

But in acute diseases, debility is but a secondary effect of the local over-excitements, which affect and weaken, through sympathy, the vital action of the other organs. The principal indication then consists in reducing the inflammation. and harmony will soon be spontaneously restored.

SECTION III.

Modifications relative to Sex.

The practitioner is to bear constantly in mind that the constitution of women is more susceptible than that of men, and that they possess an important organ which, when affected, often induces modifications and complications in the others diseases : this organ is the uterus. During the greater part of their life, it is the seat of a special function, a periodical stimulation, accompanied with hemorrhage, the course which is neither to be stopped nor promoted without great caution, when it has been deranged or obstructed by some morbid causes.

The presence of the uterus in women is the cause of the difference generally exististing between their diseases and those of men; a difference which calls for notable modifications in the employment of therapeutical agents.

This organ, from the age of puberty to that when the menses disappear, is, in most women, a predominant organ, an active centre of the sympathies; it participates of almost all external impressions, and modifies them. Its monthly irritation, and the loss of blood which it occasions, have become necessary to the organization. As long as both are regular, they contribute in a great measure to preserve the living economy from a great variety of disorders to which its susceptibility is evidently exposed. When an irritation takes place, and interrupts the menstrual course, its intensity becomes greater as the vital actions and materials, which were directed to the uterus, concentrate in the parts affected. The progress of inflammations is then rapid, and the affected tissues, which are now more abundantly supplied with blood, have a great tendency to yield hemorrhages supplementary to the menstrual evacuation.

In the treatment of the diseases of women, the practitioner has to fulfil a two-fold indication, 1st, not to disturb the regularity of the menses, 2d, to promote their return if they have been suspended in consequence of the existing pathological affection. The indication which presents itself at first is to oppose energetic measures to the irritations which may have been substituted to that of the uterus, or have caused it to,

disappear. A copious bleeding, by relieving the irritated brain, lungs, or stomach, is frequently sufficient to bring on a sudden and critical evacuation of blood through the vagina. In other cases, whilst we are attending to the cure of the local irritation by anti-phlogistics and leeches, the application of some stimulants to the region of the uterus, will call the fluids to that organ, and, by promoting a hemorrhage, produce a salutary derivation. Watery or aromatic fumigations towards the vagina, are frequently useful. It is in this way that the healing art, founded on pathological physiology, gives energy and a suitable direction to the disordered vital actions.

The affections subsequent to parturition, or which complicate its results, are always occasioned either by an increased irritation of the genitals, or the mammæ, or by that of other organs sufficiently excited to pervert the normal exercise of the vital actions. The first of these accidents is ascertained by the heat, pain, and dryness of the genitals; the second is characterised by the dulness of those organs, which coincides with the violent excitement of the parts affected. The first indication is then to oppose an effectual resistance to the over-excitement wherever it exists. When the genital organs are without excitement, and, as it were, inert, nature concentrating her forces in other places, we may, during the application of anti-phlogistics to other affected parts, direct towards the vagina or the mammæ, such stimulants as will be sufficient to awaken their sensibility, and induce a congestion of which they ought to be the seat.*

Such are the modifications called for in the treatment of diseases by the difference of sexes. If we except the circumstances just mentioned, all pathological affections in women are to be treated as those of other subjects. Their

* The treatment of diseases of lying-in-women, especially of puerperal fever, or peritonitis, has lately undergone a remarkable modification in London, and one which, if it be at all admissible here, will be ranked among derivatives. I mean the use of turpentine, both internally and externally. Two very eminent physicians of Quebec, whose practice is the most considerable in the province of midwifery, Drs. Painchaud and Morrin, have frequently related to me a vast number of cases, wherein they positively assert that, previous to their knowledge of that remedy as applicable to cases of peritonitis, they lost several patients, by following the ordinary plan of practice, whom they might probably have saved by the employment of turpentine. The reports of hospitals of lying-in-women in Great Britain lately show that the list of mortalities is materially diminished since that discovery.

constitution, with the exception of those circumstances, differs from that of men, by their possessing less vigour, and by the greater excitability and more exquisite sensibility of their nervous system. In this respect, many considerations relative to children, to nervous temperaments, and debilitated subjects, are applicable to women. Moreover those diseases are always the same in their nature ; and, whether the physician is called to witness those anomalies incident to the age of puberty, or to that of the cessation of the menses, he is always diligently to enquire into the causes which have disturbed the general harmony of the functions, and establish the indications to fulfil on the known laws of physiology.

SECTION IV.

Modifications relative to the strength or debility of the subject.

How vague and superficial are the notions presented by authors on the causes, the character, and the effects of the various conditions of strength and debility of the human frame ! How many fatal errors have resulted from them in the treatment of diseases ! Let the sound principles of pathological physiology be our guide ; they will point out the path in which our predecessors have been misled, and enable us to avoid it.

Languor and debility may exist in healthy as well as in diseased subjects. In all cases, it is susceptible of extending to the whole body, or to some of its parts.

The privation of food, breathing a damp impure air ; living in a cold atmosphere without the benefit of light, are as many causes which weaken vital actions. The body becomes pale, with a bluish taint, soft and indolent ; the motion of the heart is small, languid, feeble, and hardly sufficient to carry the blood to the extremities of the limbs ; the bloated and sometimes œdematous appearance of the lower regions, point out the want of energy in the vessels destined to return the fluids from the tissues to the centre of the circulation. The tongue is broad, pale, and often loaded with white mucosities. Should the body persevere in this condition, labour may become difficult and even impossible, and the subject

is condemned to absolute rest ; but it seldom arrives to that degree.

Now, in subjects thus weakened, all organs, all tissues present unequal traces of debility ; several of them are even highly disposed to irritations. Thus, the skin not performing its proper functions, and the lungs being loaded with the materials which it ought to have elaborated, this latter organ is often over-excited, and becomes the seat of a latent chronic irritation which ends in its destruction. The stomach and intestines, brought in contact with unwholesome food abounding with excrementitious substances which render the assimilating process long and difficult, contract a greater or less degree of irritation. The lymphatic ganglia of the mesentery, participating of that state, are tumefied and suppurate in many cases. The external parts being little animated, the viscera enjoy a relative increase of action, and become more or less susceptible. Lastly, if the mass of blood be greatly diminished, if the muscles be weak, we generally observe a turgescence of the white fluids, and an unusual development of the elaborating organs ; all these appearances constitute what we have denominated the lymphatic temperament, and a disposition to scrofula.

But the most common cases of astheny, are those which we daily meet with in practice, in constitutions which have only become diseased in consequence of some irritation, more or less deeply seated in the organism. To this class we are to refer persons of all ages, sexes and conditions, who complain of a weak and delicate chest, of a dull and debilitated stomach, and whose nerves are irritable. It is in such cases, that, mistaking the nature and causes of the disorder, the vulgar, and even some of the profession, will have recourse to stomachic bitters, and excitants of all kinds, which have no other effect but that of increasing the local irritation, and of hastening the disorganization which it tends to operate.

In debilitated subjects, the susceptibility is always increased ; the equilibrium between the different organic actions, being less firm, is more easily destroyed ; excitants are less easily borne, and deep and violent irritations are rapidly established.

In strong constitutions, acute irritations suddenly produce a general sympathetic over-excitement more or less considerable. The skin becomes red, turgid, and sometimes covered with eruptions. The pulse is accelerated, hard, resisting,

and of a varying size, according to the mass of blood sent through the arteries by each systole. Heaviness and pain in the head, numbness in the limbs, vague and contusive pains along the spine, disposition to delirium, to spasms and convulsions, designate the extent to which the nervous system participates in the impulse which the local irritation gives to all the organic actions. There is no organ but what is warmer, more excited, and whose vital actions are so intense as to dispose it in a great degree to irritation.

An excess of vigour in the constitution of the patient may prove an obstacle to the progress of this general over-excitement of all the living parts. If the blood be too abundant, the heart will find more difficulty in propelling it to the remote parts, and it will accumulate in the internal organs.—Hence an internal sense of uneasiness, of oppression, and sometimes of suffocation. The strength appears exhausted, and the patient experiences that indescribable anguish which seems to be the special characteristic of the invasion of violent and mortal diseases. This condition, which internal inflammations alone produce, is ascertained by the local symptoms of the disease not being commensurate with the general phenomena which accompany them; there seems, indeed, to exist a palpable contradiction between the vigour of the subject and the mildness of the external symptoms, whilst the oppression and weariness of the patient are carried to the highest degree.

To this debility, which is hardly more than apparent, and of which instances are to be found at the commencement of inflammations of the lungs, is to be added that which is sometimes the result of intense gastro-enteritis. The first evidently arises from obstacles in the circulation; the second is specially determined by the sympathetic action of the inflamed alimentary canal on the nervous system. Thus, in violent gastro-enteritis which has not been properly treated, or has been exasperated at the time of invasion, the muscular strength disappears, the tongue becomes brown and fuliginous, the products of all the secretions are altered, but the skin is acrid and burning, the pulse is small, hard, quick, and frequent. Now, in these cases, if the subject be vigorous, if all the parts have retained a good plight, and if the disease have only been a few days standing, we may reasonably infer that the existing debility is the result of the disorder induced in the nervous system by the local irritation, and consequently

in all those parts which are under the immediate dependence of the cerebro-spinal system.

These are instances wherein subjects, otherwise vigorous, may assume the appearance of weakness, or a state of debility occasioned by the influence exerted by the local irritation on certain organs. But, if the inflammation continue, after a certain length of time, the organization evidently sinks into such a state of exhaustion, languor and debility, that all the vital actions appear to be on the verge of destruction. The external tissues then instead of being turgent, warm and coloured, are weakened, and the temperature is diminished; the skin becomes of an earthy greyish hue; the marasmus makes alarming progress; the eyes, sunk in their sockets, appear livid, and secreting a particular thick fluid; the pulse is weak, trembling, small, and sometimes slower than natural, and hardly perceptible; the whole fabric sinks under the approaching dissolution. This state, which is kept up, determined and constantly aggravated by the local disease, also arises from the disorder and exhaustion experienced by the organs when they have for a long time laboured under over-excitements. This bears a striking analogy to what takes place after great exertions. Long continued febrile excitement, pain, and loss of sleep, are the powerful causes of that general prostration, which comes on with more or less rapidity, according to the vigour of the constitution, the importance of the parts affected, and the intensity of the disease.

In debilitated persons, we seldom observe that internal oppression mentioned above, and which is the consequence of the resistance offered to the free development of the general over-excitement by the too great mass of blood. But the debility induced by the disorder of the nervous system is very frequent in them. The stimulation of the principal organs, the fever, the external turgescence, have less intensity and duration; they are soon followed by prostration. It must be remarked, however, that the reason why their febrile excitement is generally moderate, is the same as that which causes their debility by exhaustion to appear later than in robust habits. The organization, labouring under a less violent exertion, is not so soon exhausted, and the strength, although less considerable, being less exerted, can be preserved much longer. Thus we see many debilitated subjects resist more effectually the effects of gastro-enteritis, and of all other inflammations.

The therapeutical consequences derived from these principles are easily conceived; their importance should never be doubted nor misunderstood: the vulgar, and even a great number of physicians, believe that debilitated subjects are always more weakened by morbid causes, and that diseases are always occasioned by that circumstance. This idea has given rise to the theory of passive inflammations and hemorrhages, and has suggested the necessity of treating them with tonics. Some have gone further, and thought that the weakest organs are most liable to disease, and we are to use every means to fortify them. Let a man have his chest narrow, lengthened, and liable to be affected by the least atmospheric variation; or let another experience an inconvenience after taking animal food, or a hearty meal, the general cry will be, that the lungs in the former, and the stomach in the latter, have lost their tone, and both are put under the use of excitants.

The practitioner who follows the dictates of sound pathological physiology, takes a totally different step: in debilitated subjects, he seeks to give a proper degree of energy to the organic actions by means of a generous diet, moderate exercise, and all other ways calculated to invigorate the constitution. If one organ is then more irritable than the others, he removes from that sensible part all excitants which might still add to its predominant action; and whilst he leaves it in a state of absolute rest, he stimulates the remote parts, in order to elevate their action to a degree sufficient to restore the equilibrium. In this manner, we may succeed in reducing susceptibilities whether congenial or acquired. If a chronic inflammation exist, and keep up the debility, the same rule is to be applied, viz: to oppose the local irritation, whilst directing towards remote parts the vital actions which have so long been predominant in the part affected.

During the course of diseases, the general over-excitement requires the use of bleeding from the veins, proportionate to their intensity, the strength of the subject, and the nature of the diseased organ. Experience alone teaches us to make neither too free nor too sparing a use of bleeding: if the development of the febrile excitement be impeded by the too great abundance of blood, the evacuation of this fluid is again called for. But when reasonable doubt is entertained of the existence of that condition, which is not unfrequently the case, we are to commence by small bleedings, observing

attentively their effects, and retarding them, if under their influence the pulse rises and the over-excitement displays all its energy. In this manner, the judicious practitioner leaves nothing to hazard; he interrogates nature, and investigates the real state of the disease, in order to oppose a constant and effectual treatment.

When debility arises from exhaustion, we are to abstain from general bleeding, which would have the inconvenience of increasing general debility, without a direct diminution of the irritation of which it is the effect. Leeches are then to be applied as near as possible to the part affected, resuming their application, and increasing or diminishing their number according to circumstances. In robust constitutions, they sometimes operate in raising the pulse and external heat, and promoting a general reaction, which is, indeed, frequently such as to require phlebotomy, when the day previous, it would have been highly injurious. But when exhaustion has made more considerable progress, we are to abandon all evacuations of blood, and have recourse to the most powerful derivatives combined with local emollients. In this manner we still combat the disease, but without increasing the debility which has become the immediate cause of danger.

SECTION V.

Modifications relative to professions.

The knowledge of the occupation or profession of the patient is more useful to the pathologist who seeks to discover and destroy the causes of diseases, than to the practitioner whose business it is to cure them. In order to ascertain the seat and nature of the complaint, it is often necessary to be acquainted with the nature of the ordinary occupations of the patient. It is important, for instance, to the physician who has under his care a case of violent colic, with tightness and hardness of the abdomen, to know whether the subject has not been exposed to saturnine emanations, or does not habitually handle substances containing a certain portion of lead. But, as I have already stated, this investigation relates rather to the study of the causes of diseases, than to that of curative indications.

SECTION IV.

Modifications relative to habits.

The influence of habits is not less extended than powerful over the actions of the animal economy. It is always important for the physician to be possessed with a knowledge of them : they are often converted into real wants ; and, when of long standing, the organism cannot bear their sudden privation of what gratifies them.

The principal habits which the therapist is to consider, relate to the regimen, dress, and particular appetites or desires of subjects. Thus, a man accustomed to take food in great quantity cannot, sometimes, be suddenly and entirely deprived of them, without experiencing uneasiness and wants which interfere in the treatment of diseases. Those who make a long and free use of ardent spirits, cannot be suddenly deprived of them ; we are only to diminish their strength and quantity. It would even be dangerous to act otherwise, and several well authenticated facts prove that inflammations would be less frequently mortal in certain drunkards, if they were allowed a small proportion of wine and water during the disease. (1) In a word, it is, to a certain degree, necessary not to disturb long acquired habits, as our interference might add another derangement to that already occasioned by the disease. It is proper to say, however, that these considerations are always subordinate to the danger and violence of pathological affections.

These reflections are applicable to habits in the mode of dressing. Some persons are accustomed to keep themselves more covered than others, whether the whole or only part of the body, such as the head, the chest, &c. ; such particulars, although apparently void of importance, should not escape the notice of the practitioner, and it is always improper to disturb or remove the impressions which our organs have been accustomed to receive.

Habit renders our tissues incessantly less sensible to the ac-

(1) Nouveau Journal de Médecine, t. vii. p. 281.

tion of excitants with which they are brought in contact ; it follows, therefore, that medicinal substances, when administered during a long time, gradually lose their effects, and require to be increased ; it is even proper to discontinue them for a length of time so as to allow the tissues to rest, and recover their susceptibility. We know that the most poisonous substances may become harmless by habit when they have been gradually increased. It would be highly improper to avail ourselves of this fact for making an immoderate use of the most active remedies ; for if it is admitted that our organs can be rendered insensible to the operation of the most active stimulants, it is equally true that they may become irritated under their influence, and finally tend with great rapidity to their utter destruction. The expert physician will always guard himself against such exclusive propositions, the result of imperfect and superficial observation. His duty in administering stimulants for any length of time, is to watch their effect attentively, in order to increase their strength and quantity, if they prove useful, or to suppress them altogether, if they should produce dangerous irritations. This rule is one of the most important in medical practice.

SECTION VII.

Modifications relative to appetites.

The inclination or reluctance that solicits or repels the use of external agents, frequently afford to the practitioner useful admonitions. A person may never have been able to use a certain drink or food ; this peculiarity should be known, in order that the practitioner may avoid prescribing them. In some constitutions, emetics will occasion great sickness, but no vomiting ; in this case, should vomiting be essentially necessary, it is to be promoted either by ipecacuanha, or by tepid water taken in large quantity. It would be tedious to enumerate all the circumstances of this kind. We may say that there are but few persons who have not some partiality or reluctance for certain foods or medicines, with which the practitioner should be made acquainted : the non-observance of this rule has given rise to a number of serious accidents.

The special appetites occasioned by the state of the affected parts, equally deserve the attention of the therapist.

They sometimes occasion a desire for dangerous substances, which it would be dangerous to indulge; but the sufferer is often driven by instinct to place himself in the most convenient situation, in order to make use of certain ingesta which are best calculated to relieve pain and cure the malady. It is very difficult to indicate in what cases these appetites are to be satisfied or resisted. They are almost one of the symptoms of disease; the expression of what the organism requires for its own relief. But, in the same manner as all the internal actions brought on by diseases are not always salutary, all appetites arising under such circumstances cannot always be indulged. The physician who acts prudently will not, however, entirely resist them, whatever be his theory. Persons labouring under acute gastro-enteritis, have too long been cruelly over-heated, when their internal sensations loudly called for cool acidulated drinks; various patients have also been, for too many years, confined under bed-cloaths and in unventilated rooms, and their body subjected to the operation of sudorifics, in spite of the instinct which led them to desire diluting drinks and a pure cool air; in a word, the errors resulting from an obstinate resistance of these desires and appetites, have been so long prevalent, and followed with such unhappy consequences, that the wise practitioner should never be deaf to these calls, which seem to proceed from nature herself.

In such cases, he is to compare the state of his patient with the known effects of the desired substances, and if he find that they may indeed be useful, he may prescribe them, even in preference to others; if the reverse, the patient is to abstain from them. But if the remedies prescribed do not procure the relief of the patient, it is often useful to retrograde, listen to the patient's instinct, and be somewhat more lenient, taking care, however, to indulge only those substances and in a manner that, should they prove hurtful, the consequences may be speedily and timely obviated.

Favourite theories should never carry us so far as to persist in the employment of remedies evidently useless, or under the influence of which the disease is aggravated. However sound his principles may be, and whatever confidence he may entertain in the benefit of certain medicines, the physician should never cease to improve by observation; his most important duty in the treatment of his patients, is to observe, step by step, the results of his prescriptions, investigate all

the phenomena they determine, and if they be found evidently unfavourable, to have recourse to other methods. It is the strict observance of these principles that constitutes the true philosophy of medical practice; for nothing can be more pernicious than the conduct of a physician, who, adhering incessantly to the preconceived idea of a disease, and of its cure, perseveres in his plan, in spite of all its consequences, and of the rapidity with which the patient is driven to destruction.

SECTION VIII.

Modifications relative to the causes of diseases.

Nothing is more important to the practitioner than a knowledge of the causes of maladies. In many obscure cases, the symptoms being light, or when several organs present morbid phenomena at the same time, it is highly important to refer to the cause of the pathological affection, in order to recognize the part first affected, and discover the principal organ diseased. This research requires, on the part of the physician, great sagacity in questioning the patient and by-standers, and a no less judicious reserve, in order that he may not be led to believe all their stories. Practice alone will teach how difficult it is, generally, to obtain the truth from the mouth of patients, relative to the causes of their complaints, or to the manner in which the invasion of the disease has taken place. We do not, indeed, expect from them the details of complicated, obscure circumstances which escape the notice of ordinary persons, but simple and evident facts that cannot but be known to him who has experienced them. According to authors, it would be a very easy matter to refer to the commemorative circumstances of diseases, yet no kind of investigation is more obscure and liable to error: such is the propensity that most persons of the world have to conceal the real causes of their maladies, or to accompany their description of the first symptoms with some extraordinary and marvellous circumstances.

But in many cases, although the nature and seat of the complaint be equally well known, it is also important to refer to its cause which, indeed, after giving rise to the complaint, may still continue to operate, and constantly increase the disorder. As soon as this cause is ascertained, the whole force of therapeutics is to be employed against it, and its destruc-

tion will be followed by that of all the other phenomena that it had occasioned. For, if our means were only directed towards these phenomena, and not towards the cause, we might, indeed, diminish their violence, but never obtain a radical cure.

Physiological medicine here affords the most useful notions to the practitioner. It teaches us to neglect certain occult hypothetical causes that occupied a great share of the attention of our predecessors, and which they attempted to reduce by the most injurious remedies. Hence, the ideas of the pretended alteration of humours, of a genius in rheumatism, gout, herpetic affections, &c. to which the acute and chronic affections of the viscera were so often attributed, have been totally exploded. The evident causes of diseases have now become the object of our attention in their treatment; thus, when the intestines contain substances which keep up or increase their irritation, they are to be evacuated by means of gentle remedies, possessing the least possible stimulating property; when parts are irritated by the presence of any foreign body, it is to be immediately extracted. In a word, when the cause of the complaint still exists after the physician has been called in, he labours to remove it before attending to its effects.

In a few cases, which form an exception to the general rule, it is proper to subdue the violence of the symptoms before destroying the cause. This happens whenever the remedy indicated to destroy the cause of the disease, is susceptible of increasing the disorder which is already carried too far.—Thus, in cases of putrid and offensive matter, or of worms lodged in the alimentary canal, we are to allay the irritation, before proceeding to the employment of purgatives or of vermifuges. In complicated fractures, we are sometimes compelled to postpone the complete reduction until the inflammation has subsided; for the motion necessary to be imparted to the limb, in order to operate its natural conformation, would be followed by accidents still more dangerous.

The whole attention of the physician is often required to enable him to discover the real causes of the disease before him. A few months ago, I was called to a woman labouring under oppression, a dry and frequent cough, and a painful sense of suffocation recurring at intervals: besides these symptoms, there was a continual head-ache, the conjunctiva was injected; the pulse was full, hard, and not much accele-

rated. Since two months, her menses had disappeared, in consequence of a violent moral affection. A copious bleeding, warranted by her vigour and youth, caused a subsidence of the cerebral symptoms; the menses appeared; but the pectoral symptoms continued. During ten or fifteen days, I directed my treatment against what I considered to be an irritation either sanguineous or nervous, of the bronchiæ, but without success. At last, in one of my visits, whilst conversing with my patient, I observed her executing that motion so remarkable which accompanies a difficult and painful deglutition; on my enquiring whether she often had to perform that motion, she answered in the affirmative. I then proceeded to examine the mouth; a slight irritation existed about the pharynx and tonsils; the uvula was elongated, filiform, and descended along the base of the tongue as far as the epiglottis. The true cause of the disease was now disclosed; the protruded appendice of the velum palati was immediately carried off in the usual way, and all the symptoms disappeared. Circumstances of this kind are not unfrequent; the physiological doctrine, in unfolding the origin and nature of a vast number of symptoms heretofore considered as essential affections, has diminished the catalogue of diseases, and rendered their treatment more methodical and efficacious.

SECTION IX.

Modifications relative to the seat of diseases.

It is difficult to conceive how physicians who have pretensions to reason, can yet maintain that the notions derived from the knowledge of the seat of diseases, are of little importance at the bed side of the patient, and almost useless to therapeutics. Those, indeed, who advocate this paradox, are neither observers, nor practitioners. Their speculations are the offspring of the silence and meditations of the cabinet, and not the result of clinical practice.

On arriving near his patient, the first duty of the practitioner is to ascertain what organ is affected. His researches on the commemorative circumstances of the disease, his explorations of the derangement of the principal functions, and all investigations necessary to the diagnostic of the various morbid conditions, are directed to the knowledge of the parts

primarily affected. In order to acquire a correct and complete idea of a malady, it is essential that we should become acquainted with the nature and mode of operation of the morbid causes, by means of which we are enabled to trace the impression of those causes on one or several organs, and to determine the connexion existing between the disorders and the phenomena which have been successively developed. Then only is the practitioner competent to establish the indications resulting from the nature of the case, and the most proper remedies to be employed; for then only can he bring to his mind all the various modifications which the organs must undergo to recover their normal condition.

Without an exact knowledge of the parts affected, how can he successfully treat that multiplicity of sympathetic diseases occasioned in some remote parts by a chronic gastritis? How is he to apply proper remedies to a palsy or to convulsions arising from the primary or secondary affection of the brain and its membranes: the fundamental basis of therapeutics, and of pathology, evidently consists in the knowledge of the seat and nature of maladies.

It is not only necessary to know the place occupied by the parts affected, in order to direct the use, either of topics, or of local bleeding, called for by the disease, the precise organ must also be ascertained, in order to apply appropriate means of cure. Thus, in inflammation of the membranes, we are not to carry general bleeding to the same extent as in those of the parenchymata; an absolute abstinence is more imperiously called for in irritations and phlegmasiæ of the alimentary canal than in those of other organs; digitalis, so useful in the disorders of the circulation, cannot be successfully given in pneumonia; blisters with cantharides are injurious in irritation of the bladder: in a word, in whatever circumstances the practitioner may be placed, he can never proceed with method and certainty, unless he knows precisely which is the organ implicated.

In this age, which is already so rich in facts and discoveries, and which will undoubtedly be ranked among those which have given the most salutary impulse to science, pathological anatomy should be the constant guide of the physician. The knowledge of the symptoms is so intimately connected with that of the diseases of our organs, that whenever we observe the first, the others immediately present themselves to the mind. As articulated sounds can only strike

our ears in as much as they convey some ideas; symptoms also can only be appreciated by their indicating the pain existing in an organ and the nature of its affections. It is in vain that some have ventured to oppose this happy alliance of pathology with the study of organs after death, by saying that anatomical dissections can only show the ultimate termination of disease. This objection might have some weight if death never took place before a disease has run through all its periods; but this is not the case. Inflammations, for instance, may kill the patient in a few hours, or in a few days, even in some months and after an unlimited number of years. Observation has even taught us to calculate, in given circumstances, what space of time will be required for irritated parts to secrete pus, to cover themselves with false membranes, to ulcerate, to lose their transparency and their normal texture. In practice, it is even sometimes possible, by means of an attentive calculation of satisfactory probabilities, to determine, with some degree of precision, by the duration of a disease, by the violence of the symptoms and their modifications, what is the actual exact state of the parts affected. Nay, we know how far pathological anatomy, thus cultivated and brought in contact with pathological physiology, bids fair to affording certainty in the practice of medicine, and how unreasonable are the vague declamations of those cross-grained genius who labour to depreciate that science.

SECTION X.

Modifications relative to the intensity of diseases.

Independent of all other circumstances inherent either to the disease or to the patient himself, the intensity of the pathological affection frequently induces a striking variety in the administration of medicinal agents. Thus, when phlegmasiæ are too violent, they are to be treated by copious and repeated bleedings, and absolute abstinence; in a word, by energetic measures commensurate with the energy and danger of the complaint; no expectation, no half measure, no groping is then allowed; the art is to oppose the disease with power and activity. The case is widely different in less urgent cases, where the power of the organism alone is ade-

quate to eradicate the disease. We may here confine our interference to diet, lenient drinks, emollient topics, and rest of the part affected ; and, with this treatment, time will restore harmony through every part of the living economy. A due proportion between the energy of the remedies and the strength of the subject and violence of the complaint, is the most intricate part of medical practice, and one which requires the soundest experience and the most exquisite medical tact.

SECTION XI.

Modifications relative to the periods of diseases.

Since the days of Hippocrates to the present time, physicians have generally advocated the vague and irrational precept that the treatment of diseases is to vary according to their periods. No rigid mind can read without disgust what ontologists have written on that subject. Some modifications are undoubtedly necessary in the treatment, as the disease progresses, and undergoes successive changes in the parts affected, in those which have successively sympathised with them, and in the whole of the organic actions.

It cannot be questioned that different means are to be employed at the commencement of a gastro-enteritis than when it has produced a prostration of the vital actions ; that, in phlegmon, it is necessary to vary applications, according as there exists only a tumefaction in the blood vessels, or when pus is already accumulated in the parts ; in a word, there is in the greater member of acute phlegmasiæ, a period of opportunity which it is necessary to distinguish in order to proceed to a successful application of proper remedies. These truths, which ought to be the object of the unremitting meditations of all practitioners, stand much above controversy. But what application can we make of them to particular cases ? What are those modifications which they call for in the treatment of diseases ? These are the queries to be answered, when we attempt to go beyond the insufficiency of general rules, and establish precepts truly useful in practice.

At the commencement of the greater number of irritations, it is almost always necessary to cause the abortion of the local congestion resulting from them ; if, on the one hand, we re-

move the cause of the disease, and, on the other, we make a good general or local bleeding. By this means, we are sometimes enabled to cut the disease short; in other cases, its intensity is considerably subdued, so that the same means, continued for a few days, will carry it off altogether; or abandoned to itself, it will be driven away by the sole power of the organism. The vulgar are in the habit, in the commencement of pulmonary catarrhs and gastric irritations, to take large doses of alcoholic substances or sotorifics, at the same time that, being warmly clothed, they endeavour to promote an abundant perspiration*. Physicians have somewhat imitated this practice by giving the tartarized antimony in that stage of the diseases above mentioned. These perturbing measures may, indeed, succeed, when causing a violent excitement externally, or an abundant secretion through the skin or the kidneys; they displace, as it were, the irritation, and produce an artificial crisis. But, in ordinary cases, they fail; nay, the excitement they promote increases the intensity of the disease in the affected part, and diminishes its susceptibility to the action of those rational means, and thus add additional dangers to those already occasioned by the disease. A judicious physician will carefully avoid such barbarous

* I have myself had many opportunities of ascertaining the beneficial effects of that mode of treatment, when the disease is confined to the bronchiæ, provided there exists no acute irritation. It is unnecessary to say that my remark applies merely to what we commonly call *colds*. We are never more in accordance with common sense, than when we can oppose the agency of a cause contrary to that which has produced a disease. There is no law in the human economy which contradicts this proposition. Colds always arise from suppressed perspiration on the surface of the body, either in consequence of a sudden change in the atmosphere from dryness to moisture, or from the sudden passage of a state of perspiration to a lower temperature of the skin; or they arise from the immersion of the extremities in cold water. Now, it is palpably evident that warm diffusive stimulants, as most diaphoretics are, will prove to be competent to the removal of the effects arising from the morbid cause, especially in our northern latitudes.

These persons reason rather too mechanically who pretend to confine the use of stimulants to those circumstances where the vital powers in the parts affected stand below par. Such a theory amounts to a revival of the old exploded hypothesis of the astenic condition of diseases. The physician knows too much of the difficulties and danger attending the protracted state of organic debility of certain diseases, to be willing to adopt a course of conduct calculated to produce, by an obstinate debilitating treatment, what practice has taught him so justly to dread. But I will return to this subject in another place.

practice, which, if it succeed in a few cases, will not fail to make a much greater number of victims.

When irritations have not been subdued by the first rational means, their use is to be persevered in, proportionately with the declining strength of the subject. At last, the time comes when we are forced to put a stop to bleeding, and confine ourselves to emollient topics, derivatives and other similar remedies, which, without debilitating the patient, tend to subdue and displace inflammations.

It is a general rule of great practical moment, that a disease produced by irritation, to whatever stage it may have arrived, never changes its nature, and constantly requires therapeutical means calculated to destroy the over-excitement of the parts affected. This proposition is self-evident: it allows a modification of the treatment, according as the diseased tissues or the whole economy experience more or less rapid changes, and permit the employment of means adequate to the state of the disease. But it is incompatible with those methods according to which, the course of the malady being divided into several sections, each is to be treated by different and often opposite means. Thus, sound practice will reject as absurd, those precepts which direct the use of emetics at the commencement of nervous or bilious affections, followed by purgatives, and, if putrid symptoms appear, by tonics and stimulants. In order to adopt such principles, the nature, the seat and the results of the disease, must be entirely disregarded; they require a submission to their dictates, and a neglect of the condition of the organs in which pain is unmercifully exasperated.*

* The reader must not be alarmed at this singular proposition, which some might perhaps maliciously compare with the ludicrous answers of *Argan*, who is made to say in a favourite piece of Molières, that in all diseases, the same means are to be used, whether the patient is relieved by them or not. The precept here given may appear objectionable in some cases, especially in diseases which run through their course with rapidity; but when we reflect on the view which the partisans of the physiological doctrine take of the nature of diseases, as they affect identical tissues in an identical manner, it appears rational that, if there exists a mode of opposing an effectual check to their progress, that mode is to be persevered in, as long as the disease remains the same in its nature. This appears too consistent with common sense, to be absurd in science. But, as diseases are liable to dangers during their progress, that is to say, as they may alternately affect various tissues or organs, dissimilar in their nature, property and functions, the treatment requires to be so modified as to be applicable to all those conditions. The physiological

Nothing can be more dangerous than the rule laid down by authors, of having recourse to tonics as soon as the over-excitement of the vital actions begin to subside. In this respect, they seem to be apprehensive that fever, agitation and other similar accidents, should disappear too soon; by stimulating the organs, their action is accelerated, the remaining strength is consumed, and the event is sooner brought on when the subject will sink under those pains, convulsions and anguish, which their treatment has either kept up or induced. When, owing to bad treatment at the beginning, or to the intensity of the disease, which has baffled the most appropriate means, gastro-enteritis continues unabated, we seldom see it, in the hands of the physiologist, terminate in those adynamic fevers, accompanied with fetid excretions, black and fuliginous tongue, or a general disposition to putridity. There is hardly one instance then of ataxic fevers accompanied with furious delirium, hydrophobia, spasms, convulsions, which are so frequently met with in the practice I reprobate. By means of a rational antiphlogistic treatment, we can cure a much greater number of diseases; and when these prove fatal, life is prolonged, the sufferings are less intense, and death never assumes that formidable train of symptoms indicating torture in the principal viscera.

SECTION XII.

Modifications relative to Climates.

Man constantly retains the impression of the climate in which he was born. His physical organization, his moral habits, his various degrees of susceptibility, all in him is modified by the country he inhabits. The philosopher, the naturalist and the physician, read with an equal interest the history drawn by Hippocrates of the characters of the various nations known in his days; and such is the perfection of his descrip-

doctrine is, however, consistent with itself in this respect; and, as it considers all diseases to be produced by irritation, the antiphlogistic and debilitating treatment is uniformly recommended. This subject is of material importance in practice; and without the principle alluded to, the french doctrine would have no solid foundation. It is, therefore, worthy of all our attention, and should be submitted to the test of experience.

tions, that the celebrated author of *L'Esprit des Lois* has not been able to improve them.

In a medical point of view, however, we are enabled to penetrate more deeply than heretofore into the analysis of the effects of climates on the human organization. We know, for instance, that, in the cold damp plains of Holland, the skin performing its functions but imperfectly, the lungs which are to make up the deficiency, are disposed to those chronic and disorganizing irritations constituting phthisis. Deprived of the beneficial influence of the sun, and subjected to a sort of *tiolement*, the body, in those countries, is puffed, loaded with white fluids, and becomes the seat of an evident predominance of action and developement in the lymphatic system. The sensibility is obtuse, accompanied with slow determinations of the mind, and a dulness, incapacity and unwillingness to move.

Those who inhabit the equatorial zones are exactly the reverse. Their tissues are almost reduced to their solid elements; the nervous system is very susceptible: it is not *feeble*, as some have pretended, but successively impressionable. Hence the muscular organs have comparatively less vigour, and the voluptuous Asiatic is irresistibly drawn to prefer to the fatigues of bodily labour, an idle and sedentary life to which the fertility of the climate and the variety and plenty of its productions, seem to invite him. Heat invites to action, the habitual stimulation of the skin excites, through sympathy, the internal and especially the digestive organs; the muscles are almost totally deprived of strength and activity. With a similar organization, the imagination must predominate over all the other intellectual faculties; lust and pleasures become hourly wants, and excess in their enjoyment weakens and rapidly wears out a constitution which already possessed neither vigour nor energy.

If we compare those people living in the midst of idleness, of voluptuousness and of plenty, with the rude, indigent and enhardened inhabitants of the North, we may easily explain why the former have always been a prey to the latter, and how the generations of the poles are irresistibly drawn towards equatorial regions, where they soon become enervated and lost. With an obtuse nervous susceptibility and inactive sympathies, the inhabitants of hyporborean regions are characterized by the unshaken equilibrium of their functions, and by

the facility with which they endure the fatigues of labour and exercise, and all the excesses of intemperance.

We may also add, with Hyppocrates, that whatever climate they inhabit, the characters of nations are always modified by the configuration, the fertility, and the productions of the soil. In northern as well as in southern regions, the natives of mountainous and almost barren countries, who derive their subsistence from hunting and by hard labour, are strong, nervous, almost ungovernable, jealous of their liberty, and always ready to defend it. Those, on the contrary, who have few wants, and to whom a fertile soil furnishes an abundant and easy subsistence, are dull, idle, and easy to enslave. The labour required for the satisfaction of our wants is, above all other circumstances, the most conducive to the enjoyment of a vigorous constitution and of health; and it cannot be denied that those conditions more generally exist in temperate and cold climates than in more southern latitudes.*

It is evident, therefore, that the practice of medicine must vary according to the disposition of the inhabitants among whom it is exercised. The physician may then have a two-fold mission to accomplish: the first is to administer relief and care to the natives of the country he inhabits; the second to preserve foreigners from the diseases peculiar to that country. How often have victorious armies been devoured by the inclemency of the countries which the inhabitants could not defend? How often have not conquerors, in the midst of their victorious trophies, been destroyed in detail, and compelled to abandon a soil washed with their blood, and covered with the bodies of their comrades?

With respect to inuring foreigners to a country, we are to preserve their organs against the impression of the climate, when its influence has been studiously examined and understood. Thus, inhabitants of southern latitudes, when transplanted in cold and damp climates, must keep their body warmly clothed, and endeavour to preserve themselves from bronchitis and pneumoniæ to which they become much exposed; they are to indulge gradually and moderately the use

* We may lay down, as a general rule, that whenever people have to labour hard in order to provide for their wants, they will be found to possess physical activity, moral energy, courage and health; and that, on the contrary, those whom the climate supplies with all the necessities of life, will become dull, enervated, weak, and exposed to an immense variety of diseases.

of warm and somewhat stimulating drinks ; their diet should consist of animal food, with a tolerable good use of spirituous liquors. Complete sobriety, temperance, and vegetable food, are, on the contrary, necessary for those who pass from a cold to a warm latitude. In marshy places, abounding with intermittent, simple or pernicious fevers—in those climates which are devastated by plague, yellow fever, cholera morbus, dysentery, it is necessary to avoid the action of the deleterious miasmata, to approach only by degrees the focus of infection, to avoid intemperance and all other excesses which, by increasing their susceptibility and irritating the digestive organs, evidently predispose to endemic complaints.

Independent of these general rules, therapeutics is also greatly modified, with regard to the influence of climates. Thus, the inhabitants of the north, owing to their vigorous and less sensible organization, will take with impunity large doses of the most powerful stimulants ; sometimes also, their habit of indulging in their food and spiriuous drink, does not allow them to bear an absolute and continued abstinence, to which it might even be dangerous to submit them : this assertion has frequently been verified by our experience among Polish and Prussian soldiers. The variable and susceptible constitutions of the south, on the contrary, seem to require only the use of diet, diluent drinks, and gentle lenients. The diseases of the latter seem to consist chiefly of slow and chronic irritations of the stomach, liver, and intestines, which are often accompanied with nervous symptoms and hypochondriasis. In warm latitudes, the gastro-hepatic system, and in cold and damp climates, the organs of respiration, call for the special attention of the practitioner. Violent and well-marked inflammations, are more frequent in the cold and dry regions of the north, where general and plentiful bleedings are necessitated, as much by the vigour of the constitution as by the violence of the symptoms.

I will confine myself to these few observations ; not that I might not add many more on the modifications which therapeutics undergoes in different climates ; but proceeding further, I might perhaps go beyond what is positive and demonstrated by a scrutinous observation. We must also say that the physiological doctrine, having given a new impulse to the study of medicine, it is desirable that ultimate researches should be instituted, in order to ascertain positively what are the organs on which the principal climates exert their influ-

ence, and in what manner those organs are modified by each locality. As soon as this is accomplished, we will be possessed of a correct medical geography, of proper means, and be enabled to avoid and neutralize the deleterious influence exercised by the various countries in the world.*

* Every man who feels a share of that interest which humanity requires from those entrusted with the relief of its sufferings, must experience a desire to contribute his share of observation to the accomplishment of this important object. Wherever civilized nations have carried what they consider the benefit of civilization, they have never failed also to carry among them new infirmities. The most remarkable are those resulting from irregular and disorderly habits. Fevers are indeed becoming so common that every climate will soon have its own peculiar fevers, besides all the train of diseases of their fellow creatures. Those fevers, in warm latitudes, are generally accompanied with congestion on the liver; or, speaking the language of the Broussaisian doctrine, they are most commonly gastro-hepatitis, whereas, in more northern regions, they affect the intestines in preference. This is all we know of the modifications of diseases by the climate; but it is important to ascertain whether that difference exists with regard to the organs affected in the same disease.

It must be remembered that M. Broussais denies the existence of essential diseases, which are to be always ascribed to irritations in the stomach and intestines. In all the varieties of remittent and continued fevers, an attentive examination might afford the means of placing the question beyond the reach of controversy, if we had those of ascertaining whether the stomach and intestines are as uniformly affected in other climates as they appear to be in some countries of Europe. But I will not anticipate what I will have occasion to say hereafter on this subject. It is sufficient for my present purpose to call the reader's attention to this question in a general point of view, as being one of the most important which can ever be agitated in medicine, and in which so many lives are deeply interested. It may not be out of place to make some mention here of a new fever, at least one which has but lately been observed at Havana, in the island of Cuba. From some scattered and incomplete accounts of that complaint, it appears to be a species of rheumatic fever, or, speaking the language of physiological medicine, an affection of the stomach with sympathetic phenomena in the synovial and nervous systems. In most cases, the patient is suddenly attacked with pains in the head, back, and limbs, and sometimes in the extremities of the fingers and toes; a slight degree of fever soon follows with soreness over the body, which bears a strong resemblance to acute rheumatism. These subside in two or three days, with or without treatment, which consists in drinking warm lemonade or orange water as plentifully as the patient can take.

I have no doubt that, after an attentive examination, this complaint will be found to be the same as those slight indispositions so commonly met with in warm seasons, and especially in the Southern States, and in the West Indies, arising from foul stomach and suppressed perspiration, and to which a tropical climate cannot fail to impart a greater degree of violence.

It is seldom fatal, except when it assumes or degenerates into the more formidable shape of some of the ordinary diseases of those latitudes. In

SECTION XIII.

Modifications relative to the particular circumstances in which the patient is placed.

Independent of the circumstances hitherto indicated, there are others, no doubt less important and more individual, but which are nevertheless entitled to our consideration, and ought also to engage practitioners to modify their treatment. Thus, we are to give great attention to the moral disposition of the patients, who, sometimes exasperate their sufferings by unnecessary anxiety and agitation; and, ignorant of the danger attending the complaint, will refuse to submit to the treatment. In the change of seasons, medical preparations must be appropriate to the changes they impart to the living organism: during the heat of summer, cool acidulated drinks, and in winter, a tepid and emolient beverage is the most proper.—If the patient should be confined in a close apartment, this must be ventilated or purified by means of chloric fumigations. In a word, nothing should be foreign to, or neglected by the practitioner. His solicitude for all that concerns his patient will add much to his comfort, increase his confidence, and promote a speedy and easy return to health.

Without allowing himself to be dazzled by systems, the physician must examine attentively both his patient and the circumstances in which he is placed; have due regard to sex, age, and strength; to habits, occupation, and the parts affected, as well as to the violence and periods of the complaint; proceeding from these data, he will establish the indications to be fulfilled, and the plan to be adopted. In this manner, he will not be controuled by theories, but by the anatomical, physiological, and pathological notions he possesses, in order to acquire a correct knowledge of his patient, and make a judicious choice of the remedies to be employed.

But it is not sufficient, for the treatment of the disease, that he should be acquainted with what relates to it and to the patient himself; he must also possess accurate ideas of the

Cuba, it is called Dengue or Dunga, a word which implies nearly the same meaning as what we have lately denominated *Delirium tremens*, to which it also bears a strong resemblance in many cases; and it is more frequently met with in intemperate persons.

remedies, and of their mode of operating; for these are the implements which nature has bestowed on our art for the relief and cure of suffering humanity.

CHAPTER V.

OF REMEDIES.

SECTION I.

General Considerations.

All natural substances, susceptible of producing a visible action on the living organs, and which are capable, in certain cases, of favouring the return of the functions to their normal state, constitute what we call medicinal substances. This appellation has, however, been more specially given to those substances which, being properly prepared and divested of their inert or deleterious principles, are disposed in a manner to possess the greatest possible utility in therapeutics. The idea of a remedy implies that of a disease which it is calculated to cure. All medical substances are not medicinal agents, since some only serve to dietetic and others to surgical purposes; but they all fall under that denomination, whenever they may be used in the cure of diseases. It is evident that a substance which could never be used in therapeutics, cannot properly be called by that name.

From these considerations it follows that no absolute line of demarcation can be drawn between food, remedies, and poisons. The condition of the living subject, the affection more or less serious of his organs, may render injurious and even mortal the most harmless alimentary substance, or impart a salutary and curative property to the most violent poison. The time is no more when it was believed that, among the various bodies in nature, some possessed the exclusive property of nourishment, others, that of curing diseases, and others again, the much more dangerous faculty of destroying

the vital powers. In the living species, what is an article of food for some individuals, may be a poison for others. The physician must understand how to derive usefulness from all objects around him. After establishing what indications he has to fulfil, his next and only step is to make a judicious choice of those articles of which experience has consecrated the efficacy, without enquiring into what class of alimentary, medicinal, or topical substances that article belongs.

Nearly all bodies in nature, in as much as they exert a more or less energetic action on the living organs, may be useful in therapeutics. The ancients, however, confined themselves to the use of the most ordinary substances, and the most simple preparations; abstinence, a few vegetable decoctions, blood-letting, a wise course of dietetic measures, composed nearly all their *materia medica*. But a much greater number of medicinal agents was soon substituted, and substances the most active, disgusting and incongruous, mixed and prepared under an infinite variety of shapes, soon incumbered their pharmacology, and composed those barbarous mixtures, some of which have been handed down to the present age, to the shame of former times. Quackery on the one hand, credulity on the other, ignorance in all, the illusory effects of the marvellous, the prevailing fashion for *arcana*, all, indeed, contributed to give rise, propagation, and multiplicity to an infinite number of remedies, formulæ, and secrets.

Under this vicious direction, *materia medica* became a scientific monstrosity, which all true physicians despised, and in which a reformation was evidently and loudly called for. But how imperfect is yet that reform, which was commenced at the same time in all parts of Europe, with the view to exclude from the number of therapeutical agents, all useless substances and unaccountable preparations! What an immense task remains to be performed for those, who, enlightened by observation, philosophy, and a sound physiological doctrine, will admit in therapeutics none but substances that have stood the test of experience, whose effects and mode of operating are ascertained and well understood.

Notwithstanding immense reforms, we have not yet so far progressed but that it is still necessary to be rather too severe than too indulgent: in a word, the evil is to be attacked at its root. For, if we leave among remedial agents, substances, the action of which is neither ascertained or understood, we perpetuate the vague and imperfect state of therapeutics: a

multitude of remedies is soon substituted for those that have been proscribed, which are said to be as beneficial as those that have been retained. If, on the contrary, it were possible to demonstrate to all practitioners, that the very great majority of the bodies and compositions employed, are useless, and often more injurious than serviceable, they would be induced to confine themselves to the use of those means alone which are truly efficacious, and successively submit the others to the test of experience, in order to ascertain their properties. Hence, materia medica, divested of its false outward richness, would always proceed on safe grounds; and if its dominion, from its being at first very limited, extended but slowly, it would at least possess this considerable advantage, that it would contain no agents but those that are well understood both in their nature and their operation on the organs.

SECTION II.

*Of the operation of remedies.**

The observing practitioner must consider, in the operation of remedies, 1st, the immediate and local effect they produce on the part with which they come in contact; 2d, the motion, more or less intense, they impart to one or several functions, or even to all the organic actions; 3d, the state in which they leave the living body after their operation has ceased; lastly, the influence they exert on the course and termination of diseases.

This analysis appears to me more complete, and therefore more useful than that of Schwilgue and of Mr. Barbier.—Both these writers, the former of whom is not sufficiently quoted by the latter, confound, under the title of the immedi-

* A great deal of time has been lost in discussions on the operation of remedies, and the question is yet at issue, and will perhaps never be satisfactorily explained. Fortunately for us, however, it is more essential to ascertain what are the real effects of remedies on the constitution, than to understand the laws regulating their operation; and whilst so much remains to be known of the difference which disease or health, in one or several organs of the body, imparts to the specific action of remedies, it is perfectly idle, not to say injurious to the cause of science, to lose so much of our time in fruitless attempts at discovering the mode of their operation, which, I say again, will probably baffle our most scrupulous enquiry.

ate effect of remedies, or of medication, the whole of the alterations which pharmaceutical agents determine, either in the parts on which they are made to operate, or in the other portions of the living economy; but there is neither analogy nor relation between these two orders of phenomena. The former is the result of the impression made on the part to which the medicine is applied; they may be well marked or scarcely sensible without the latter following the same progression, and vice versa. In many cases, some contribute most powerfully to the therapeutical effect; in others the cure is specially owing to the remote modifications induced in all the living parts.

With regard to the state in which remedies leave the animal economy, although it has been overlooked by all pharmacologists, it is undoubtedly entitled to the most serious consideration of the practitioner. For instance, after the operation of narcotics has ceased, the living organism sometimes remains in a state of debility and prostration, which it is necessary to foresee, and which, in some cases, may prove injurious.

These observations are no doubt sufficient to justify the innovation which I have thought expedient to introduce in the study of medicinal actions.

SECTION III.

Of the immediate and local effects of remedies.

Medicinal bodies are not distinguished from all other substances in nature, by any special, virtual, and unknown force of action on living organs. The admission of such a force, the existence of which would establish a line of separation between remedies and all other substances around us, is a philosophical heresy, of which it is unnecessary to demonstrate the futility, in as much as all good observers, at the present day, reject with energy all ideas of those occult powers which our predecessors had spread throughout the world.

A modern writer who has powerfully contributed to the success of pharmacology in the present age, has very properly observed that it is possible to imagine an irritating remedy coming in contact with a sensible surface, so as to produce a multitude of pricking particles which wound and torment it.

Hence, the sensible effects of remedies would be nothing more than a reaction of the living powers against aggression. The tissues might be seen contracting in order to avoid a painful contact, and all the organic functions accelerating by synergy, their activity, as if to avoid the impression of the cause that excites them. According to this system, the acting power of remedies is derived from the opposition existing between the chemical materials constituting the substance, and the living part to which it is applied; the mixture of their particles with those of the fluids and of the organs, determines, by its influence on the vitality of the parts, those variations that are manifested in their motion, their state, and their functions.(1)

Such is the doctrine which the name of its author has caused to be admitted almost without examination, and yet can we imagine any thing more hypothetical than those pricking faculties—those imaginary chemical oppositions and attempts to avoid stimulating impressions? Nothing in this language or in these ideas can be demonstrated either by observation or by reason; these suppositions are blended into one another, and do not possess that severity which ought to characterize all medical theories.

Remedies are, in this respect, confounded with all known animal, vegetable, and mineral substances, and differ only from each other by the degree of violence and duration of their effects on the living tissues with which they are brought in contact. This property is common, except in intensity, to all bodies in nature. Their operation can neither be explained by the hypothesis of a chemical combination always incompatible with the state of life, nor by their mechanical influence on the living organs, nor by a tendency to penetrate into the organized tissues, and unite with their principles; in a word, their operation is totally unknown in its essence. The phenomena indicating the effect of remedies are the result, on the one hand, of the impression the living body has experienced from the foreign body, and on the other, of their mode of feeling and motion subsequent to that impression.

We may thereby conceive how therapeutical agents, although they may by themselves constantly produce the same impression on the tissues, determine various results according to the susceptibility of the organs, or to their inert or irritated

(1) Barbier, *Traité élémentaire de Matière médicale*, t. I. p. 64, 2e édition.

state. In theory, as well as in practice, we are never to separate these objects. Thus, two scruples of sulphate of soda, which in a healthy subject would have but a slight purgative effect, may occasion a violent stimulation, and serious accidents, when administered to a person of an irritable habit, labouring under an inflammation of the digestive canal. In both cases, the impression is the same in its nature, the stimulation of a living surface; but the latter is differently disposed from the other, and will, therefore, constantly present analogous variations in the phenomena resulting from that impression.

If the remedy be employed in small doses, and on external or unimportant parts of the animal body, its effects will generally be limited to the surface or tissue to which it has been applied. Thus, a lotion containing a few grains of sulphate of zinc, applied to the conjunctiva, will not extend its action beyond the affected eye. An emolient injection through the urethra, will only affect the internal membrane of that canal, &c. But it is to be observed that this effect, which is but local in health, or when the complaint is not violent, is susceptible of becoming general in acute diseases. Let stimulants be applied to an irritated eye, the local pain, general agitation and febrile excitement, will be increased; let the inflamed part, on the contrary, be relieved, the effect will be communicated to those sympathetically affected. In this manner, the most remote and even useless parts of our economy, will, when diseased, acquire great influence; and remedies, apparently inactive when applied to them, will produce not only local effects, but also remarkable general phenomena, which it is always necessary to foresee, sometimes to avoid, and often to promote or render more active.

Another consideration deserving to be attended to, is that, if all the living organs possess a particular faculty of being affected by foreign impressions, and of reacting on them, the same substances will not produce the same effects in all. The skin, the conjunctiva, the nose, the ear, the mouth, the gastro-intestinal surface, the genital and urinary passages, the interior of the bronchiæ, the cavities of serous membranes, when in contact with substances of a similar nature and energy, will present different local phenomena, more or less intense, and accompanied with unlike symptoms. Vinegar, for instance, which produces but an acid sensation in the mouth, and almost none in the stomach, if applied to a serous surface would ex-

cite the most violent pain and inflammation, &c. It is to be remembered that the action and effects of remedies are ultimately executed by the tissues with which they have come in contact, and are liable to change according to the nature of those tissues, their sensibility and vital energy.

SECTION VI.

Of the secondary or general effects of remedies.

I call secondary those remote and more or less general phenomena occasioned by the action of remedies, since they are constantly the result or consequence of the application of therapeutical agents to the living surfaces. There are various ways through which this medicinal action can be propagated. They may be reduced to the following: the sympathies, the absorption of the elementary particles of remedies, the continuity and contiguity of the tissues.(1)

The greater number of cases in which medications extend from their principal seat to other parts, are unquestionably owing to the sympathetic relations which unite all the organs of the living body, and make them participate in the affections of one of them. The nerves are the immediate agents through which these transmissions take place. They first carry to the brain the impressions received at their extremities, which are thence irradiated through all the nervous ramifications, occasioning more energetic actions, either in the whole constitution, or in some of the principal viscera.

The sympathetic effects of medicines are generally relative to the degree of local action which they promote. They manifest themselves almost immediately after that action has commenced, and increase and terminate with it, whether the remedy has been decomposed or propelled by the action it has promoted, or whether its impression has been gradually weakened by its continuance. The sympathies excited by the action of remedies are always elective, that is to say, di-

(1) Revulsion is generally added as a fourth medication; but it is evident that it only consists in drawing toward the part to which they are applied the vital actions which had concentrated in others, and it only operates through the agency of sympathies, continuity and contiguity of the living organs. I will make mention of it hereafter. (*Note of the author.*)

rected towards one or several organs whose functions they excite or modify. Their effects vary, either according to the medicated organ which excites them, or to the nature of the impression of the remedy on that organ. If, for instance, we take into the stomach wine, opium, camphor, oxymel of squills, hermes mineral, digitalis, it is demonstrated that these different substances will produce special sympathetic effects on the nervous system, the urinary organs, the internal surface of the ærian tubes, and on the heart. The same organ may then become the source of a number of sympathetic medications; in other words, the impressions made on one organ by the different medicinal substances are susceptible of being transmitted more specially to one or several others. Nay, more, some medicinal substances in contact with a living surface, may sympathetically excite organs, the tumultuous motions of which may then be lessened and rendered less energetic by another impression. Thus, aromatic substances increase the force and frequency of the motion of the heart, which are diminished by digitalis.

All organs are not equally fit to become the center of sympathetic actions. Those that are the most important, and endowed with a greater degree of sensibility, are better adapted to that office. Among these the stomach and intestines hold the first rank, followed by the other divisions of the mucuous membranes and the integuments. It is on the surface of these organs also that all medicinal substances are applied.

Another consideration no less important is that the effects sympathetically produced by remedies, vary according to the inert or the exalted state of the nervous system, and as the organ on which we operate, is either weakened, irritated or healthy. If the nervous irritability be diminished by long continued fatigue, the most considerable doses of stimulants will prove harmless. M. Dupuy has ascertained that by dividing the pneumo-gastric nerves of a horse, he was able to administer such large doses of *nux vomica* as would inevitably have produced instantaneous death, had not that operation been performed. Should the gastric irritation have subsided, it is expedient to increase the dose of medicines calculated to act by means of the sympathies. If, on the contrary, the stomach be irritated, its sympathetic influence on other organs is perverted: digitalis ceases to moderate the action of the heart; anxiety, vertigo and giddiness, follow the administra-

tion of camphor and of all other excitants called antispasmodics; the vital action of the stomach is exasperated by all those substances, and the sympathies it exhibits prove no more than the sufferings of that viscus.

The effects of the absorption of the elementary particles of medicinal substances, is generally confounded with the exercise of the organic functions, from which it is frequently difficult to distinguish them. There can be no doubt that this absorption takes place in many circumstances. In therapeutics, it is much less important to enquire whether it takes place through the lymphatics or the veins, than to ascertain what conditions of the remedies or of the organs can best promote that absorption, and what influence this process will exert in the production of the phenomena resulting from the operation of the remedy. Observation and experience furnish but few facts on this subject.

The result, however, of the most accurate researches, proves that mineral substances are amenable to the assimilating process of living organs, and that they are either repulsed by them, according to the experiments of MM. Piedeman and Gmelin, or more readily absorbed without their substance undergoing any alteration; that animal matter, on the contrary, offering but a feeble resistance to the dissolving power of the organization, is most generally destroyed by the tissues with which it comes in contact; lastly, that vegetables hold the intermediate rank between the other two. This will explain why mineralogy supplies us with numerous heroic medicines and violent poisons, whilst materia medica derives less active agents from the vegetable, and particularly the animal kingdoms. We must, however, observe that certain vegetable substances, such as the colouring matter of madder, the odorous principle of camphor, alcohol, the essential oil of lemons, &c. are generally taken unaltered into the blood, and thence distributed to all the secretory organs.

The energy of this absorbing power varies in different organs, and according to the degree of activity which disease imparts to their functions. Thus, during certain affections of the nervous system, such as tetanus, the assimilating power of the stomach appears increased to such a degree that it will receive and dissolve enormous doses of opium without producing any narcotic effect. If, on the contrary, that medicine be injected through the veins, in the same disease, it will produce its usual effects. It has been long established that,

when thrown up the rectum, in cases of nervous irritations, liquid opium will produce more effect than when given through the mouth. These facts seem to indicate that the absorption of the particles of medicines is sometimes indispensable for their operation. But under what circumstances does this necessity exist? This is a question which physiological experiments have not yet decided, although it is of the utmost importance.

It is to be remarked, however, that when injected into the veins, medicines which possess an elective action on certain organs, produce exactly the same effect when injected into the veins, as if administered through the mouth or introduced into the skin by friction; thus emetics, purgatives, narcotics, diuretics, will not fail to affect their particular organs. Castor oil itself, as Dr. E. Hale had dared to ascertain it on himself, when thrown directly into the veins, operates immediately on the gastro-intestinal mucous membranes; colic pains, and alvine evacuations soon take place; an oily and nauseating taste is perceived at the mouth; all, in a word, indicates the special action of the remedy on the alimentary canal.

The most important knowledge for the therapist to possess, is much less whether such absorption can take place, than to ascertain the phenomena by which it is characterized, and the share it has in the production of medicinal effects; when and how it is expedient and possible to prevent, or diminish its activity. The solution of these problems would, if I mistake not, have a great influence on the practice of medicine, point out the mode of operation of the various remedies, and enable us duly to appreciate their effects.

Until further observations shall have thrown additional light on this interesting topic, we are bound to believe that medicines are absorbed, and that the effects they produce are the result of the passage of their particles into the circulation, when their action is slow, and that when increasing by degrees, this action is brought in relation, not with the violence of the impression it produces on the part to which it is applied, but with the quantity of the substance employed and the supposed energy of the inhaling vessels. Of all the parts composing the human body, the skin is that which affords the greatest facility for administering medicines by absorption, owing to the extent of its surface and the force and perseverance with which it is possible to operate on its tissue. If it be true that the membrane lining the alimentary canal is provided with

absorbing orifices more numerous and active, this advantage is counterbalanced by a more exquisite sensibility, a greater and more variable susceptibility, and above all, by that assimilating power which modifies, and frequently alters the nature of the substances that are brought in contact with them. The assertion of M. Barbier, that the digestive powers are efficacious only when they act on sugar, starch, mucilage and other alimentary substances, but that they refuse to act on resin, and all other articles which possess a medicinal property, is altogether incorrect. No positive fact, no accurate experiment can justify it; or rather it is in direct contradiction with facts and experience. We are as far from the truth in pretending that remedies possess no property which they may not lose in going through the stomach, as if we were to admit, with the partisans of medicinal injections in the veins, that all substances taken through the mouth, are constantly destroyed, and lose their medicinal properties in consequence of the modifications imparted by the assimilating powers.

The observing practitioner will avoid both these exaggerations, until repeated experiments shall have indicated the mean term of their union. But if it be true that, in many cases, the digestive organs alter the nature of the remedies applied to their surface, we cannot, on that account, be warranted in injecting them through the veins, because that operation, as will be seen hereafter, is always laborious, and attended with such pain and danger as frequently to compromise the life of the patient. The skin, with or without its epidermis, the rectum, and perhaps the internal surface of æreal tubes, are as many parts through which we may introduce medicinal substances, with as much certainty that they will separate speedily, and with greater security, than through the nervous system.

The continuity and contiguity of the tissues do not afford such important means of administering remedies as the other two which have just been examined, and which enable us to generalize the action which was at first local. We operate by continuity when, by stimulating part of a mucous membrane, we determine an excitement which extends to the whole surface of the organ; thus the irritation of the rectum, by means of suppositories, will be sufficient to promote an abundant secretion and accelerate the contractions of the superior parts of the intestines. We act by means of contiguity when applying leeches to the abdomen in peritonitis, or cataplasms

to the skin which covers an inflamed organ. It is evident that the extent of action produced by such mechanism is always limited, and that we cannot but consider it as the local effect of a topic extending somewhat beyond the surface it covers, or a little more deeply than the tissue with which it is brought in immediate contact.

The secondary or general action of remedies presents still greater varieties, and is subjected to more numerous causes of uncertainty than their immediate or local effects. The only circumstances which modify their primary action are the power of the remedy and the susceptibility of the organs; but their general effects are subordinate to both these circumstances, to the activity of the sympathies, the energy of the absorbents, and the nature of the disorders existing in the organs. Nothing is more variable in medicine than the sympathetic influence of medicinal actions. Let a remedy be taken through the mouth, and thereby placed in immediate contact with the mucous membrane of the stomach and intestines, its effects on the stomach will be scarcely sensible; at a small distance it will occasion pain and gripes; at a still more remote distance, it will increase the frequency of the pulse, the heat of the skin, and a febrile excitement of more or less duration. If the stomach be sound, the sympathies will assume their natural course; but if vitiated, all the sympathies will concentrate in the exacerbation of the gastritis. When we administer a substance which is to be absorbed, such as mercury, by fumigation or friction, its general effects will vary prodigiously in different subjects, although the dose and the circumstances under which it is administered be the same in all. It has been very improperly said that the immediate effects of medicinal substances are always identical; the only actions they never fail to produce are the stimulation or the weakening of the tissues; but the manner in which those tissues react on the impression they receive, and still more so, the part which the whole organism takes in that impression, are subjected to infinite varieties, and give rise to phenomena the most unconnected, and often the most unexpected.

SECTION V.

Of the state of the organism after medications.

The most simple medications, even on the best disposed subjects, always leave behind them in the living organs traces of their existence which are necessary to be known by the practitioner. Thus, after the internal use of irritating substances, the digestive canal generally retains a state of susceptibility and a slight tinge of irritation, which should be removed either spontaneously or by means of remedies, before the patient resumes his ordinary food and drink. An emetic, even when it is properly administered, always irritates the stomach, and occasions a degree of over-excitement which bitter liquids and broths will never fail to increase. Narcotic substances, given in moderately high doses, frequently induce in the brain a state of numbness and stupor, susceptible of becoming injurious, and which must be foreseen and averted by the practitioner. General bleedings always increase the relative action of the nervous system, and this effect, which is sometimes of long continuance, is a contra-indication of their employment, in the course of diseases complicated with violent spasms or convulsions.

The long continued application of emollients may sometimes induce a state of relaxation and languor in the tissues, which will often impede the normal exercise of their functions, and call for the use of corroborating and tonic medicines.

These considerations, which might be extended still further, will, no doubt, be sufficient to point out how necessary it is, in the practice of medicine, to foresee in what state a medicinal substance, after its immediate or secondary effect, will leave, either the tissue which has received its impression, or the parts that are contiguous to, or in continuity with it, or even the whole organism which it has modified.

SECTION VI.

Of the therapeutical effects of remedies.

Truths follow each other in succession, and it not unfrequently happens that one will be discovered before those of which it is the consequence. Thus, Bichat, Schwilgué, and

particularly of late, M. Barbier, of Amiens, led by their reflections and researches out of the circle of pathological hypothesis, which were still enjoying credit in their days, have presented sound and accurate ideas on the mode of operation of medicinal substances. There was but one step from those ideas to the true knowledge of diseases themselves, in order to elucidate their theory: this, however, remained to be accomplished by others. The physiological doctrine, in overthrowing that of ontologists which had hitherto disfigured the history of the diseases incident to our nature, was only capable of completing the revolution which was beginning to operate in materia medica and pharmacy.

From what has been said in this chapter, and from our knowledge of the nature of diseases, we can no longer credit those occult, mysterious, unaccountable properties, by which remedies were reputed capable of directly destroying, and of annihilating morbid causes. It has been properly observed that those properties have been most loudly proclaimed by botanists, chemists, and by authors on natural history. The ignorant physician and the vulgar are those who place the greatest confidence in them, and preach up with zeal and good faith the virtues of all new remedies. On the contrary, the practitioner who is in the habit of observing the uncertainty of the therapeutical effects of remedies—who has been often frustrated in his expectation; who is acquainted with the seat, the intensity, and the frequent complications of the affections of our organs—who consults the lifeless remains of those whom he has not been able to cure, soon begins to lose the good opinion he had hitherto entertained of the power of pharmaceutical agents; he simplifies his practice every day, and is sometimes led by scepticism into the opposite extreme, which is, however, much less dangerous than that of his ignorant adversaries.

It is evident that medicinal substances can have no other effect on the living organs than those above-mentioned, which are either local, or extended more or less to the other parts of the animal economy. Their action may sometimes remain null, at others become favourable or injurious; the former effect will take place if the remedy be inactive, and its action insensible; the latter will occur if, being more considerable, it diminishes or increases the morbid affection and the violence of the symptoms. This influence includes nothing that is either occult or mysterious; in order to understand it and

trace its mechanism, it is only necessary to know in what the disease consists, and what sort of impression the various remedies employed exercise on the living tissues. This process is always simple and easy; and if, in many circumstances, the mind cannot acquire a correct idea of those two propositions, it is owing to a want of knowledge of the nature of the evil, and of the exact operation of the remedy; this deficiency, however, is in the art itself, and requires the aid of further observations than we possess at present. In this alternative, the physician must institute new enquiries, consult pathology and pharmacy, and endeavour to derive from them the knowledge required to rectify his judgment.

In order to admit the existence in medicine of a virtue or property directly and specifically susceptible of destroying diseases, it would be necessary to consider all morbid affections as the result of occult principles, *sui generis*, which the organism itself labours to resist and expel. Such a system is no longer tenable, and pathology is now purged of all beings of this kind. If a similar property resided in medicinal agents, these, when distributed according to their properties, could only prove efficacious in those diseases against which they would possess a specific power; but daily observation destroys all such illusions; it shows that emollients, for instance, will, according to circumstances, increase strength, arrest the succession of febrile excitements, and dissipate congestions. If such opposition existed between the nature of each medicine and the disease in which it is administered, the remedy, employed in all varieties and at all epochs of the corresponding affection, ought to cure it, or at least constantly diminish its violence. This, however, does not take place: here, a febrifuge will increase the intensity of the fever, and approximate its accesses or exacerbations; there, a pretended tonic will increase the debility, and hasten the epoch of the resolution of the forces; in another case, a stomachic or antispasmodic augments the irritation of the bronchiæ or the violence of the nervous symptoms; in a word, we meet every day with those imaginary properties and substances exasperating the symptoms, which, from their denomination, they were expected to have cured.

The classification of remedies by their therapeutical properties, is, therefore, not only impracticable, but it has been, and in the actual state of pharmacology is still every day, followed by the most fatal consequences. How often have

inattentive physicians, dazzled by the imposing words of tonics, febrifuges, aperitives, &c. prescribed substances which have proved injurious? In the opinion of some practitioners, the name of a disease carries with it that of a remedy; the one being ascertained, the other is soon discovered; the condition of the subject, the state of his organs, the mode of acting of the remedy, are circumstances unworthy of all his attention, and which are not unfrequently laid aside altogether. Should the event prove either successful or fatal, the conscience of the empiric is equally peaceful and composed; he has applied to the disease a remedy of an opposite character—what better could he have done?

It follows from what we have said, that *materia medica* furnishes no remedy whose curative effect is uniformly the same in all circumstances. There exists no absolute and constant anti-spasmodic, febrifuge, diuretic, narcotic, nor any other kind of specific. These ideas must be left to the vulgar and to nurses: therapeutics, and above all, that which is derived from physiological knowledge, must be built on different foundations.

The organs, by reacting with a more or less extended and durable energy on the impression received from medicinal bodies, give rise to all the phenomena which characterize the different modifications. Their action is either in harmony or in opposition with that of the disease against which the remedy is directed, and hence tends to diminish or increase the violence of the complaint. The curative effect of a remedy may, therefore, be considered eventual and remote; it is the consequence, and the result of a change induced in the living organism by the pharmacological compound, and arises from that change being such that the morbid action is thereby stopped or diverted, and that the part affected resumes its normal state.

Curative effects are always subordinate to the immediate or secondary action of medicinal substances, of which they may be considered the natural consequence; and a remedy cannot operate with efficacy, unless it produces on the organization a manifest impression characterized by well marked phenomena. It is always by the power of the physiological changes induced in the vital actions, that we are to judge of the therapeutical efficacy of medicines. Mineral substances, some products derived immediately from animals and vegetables, and those remedies called heroic, which may easily become poi-

sonous, are almost the only substances whose reality of action cannot be doubted. Therapeutics tend to limit itself to depletion and lenitives, and to nearly all active agents in proper doses, according as the cases in which they are indicated are more strongly characterized. The first of these means will be employed directly against irritations, and will diminish the violence of vital actions; the others will serve as derivatives, producing irritation and operating special effects, such as narcotism, purging, vomiting, &c.

The choice of pharmacological agents is, therefore, evidently founded on the knowledge of their action on the economy; whilst the nature of that action must be compared to that of the disease, and to the mechanism according to which its symptoms are produced. All stimulants are susceptible of becoming febrifuges; the strength may be roused by all those means which give energy to the vital actions; and it is only requisite to ascertain the circumstances which call for one or another class of remedies.

From what we have said above, it will appear evident that the immediate or secondary physiological phenomena, occasioned by medicinal substances, are never invariably the same. Thus, an irritating medicine will always operate in the same manner; but, according to the state of the part with which it comes in contact, it may produce very different phenomena both locally and generally: under its influence, the organ it stimulates will perform different and even contrary actions. Purgatives, for example, frequently occasion vomiting, and, reciprocally, emetics will, in many cases, only produce purging. If there be such variety in those phenomena, how uncertain must be those definitive or therapeutical results which we intend to excite! If we cannot be positive that a given substance will not produce some unexpected excitement, how can we foretell, with some degree of certainty, the effect its action will have on the course of the disease before us.

It is evident that a pretension of this sort would be utterly absurd, if we did not possess the means of ascertaining, on the one hand, the state of the living organs in the patient, and the approximate degree of their susceptibility; and on the other, the nature of the impression produced by each medicine, as well as the force of that impression according to the dose, form and degree of concentration of that medicine. The nature of the remedy remains always the same; and it

is not difficult to determine its proper dose, and all the circumstances produced by its preparation : one of the elements of the problem is then easily established. The other presents much greater difficulties : indeed, we must take into account the age, sex, temperament, idiosyncrasy of the subject, the state of all the organs, the degree of violence of the disease and of the general and local disorder ; in a word, all the modifications that may exist either in the whole or in each of the individual parts of the organization. But if this problem were known and decided, the immediate and secondary action of the remedy, as well as its therapeutical effects, might be calculated and foretold with almost an entire certainty ; error in the prognostic would only arise from the ignorance of the practitioner. Again, the action of a medicine frustrates the expectation of him who makes use of it when it has been improperly prepared, and when it has been altered by long standing, or decomposed by other agents : it will also forsake him when the disease is more intense, the strength more or less considerable, and the susceptibility greater or more obtuse than he had at first anticipated.

It is sufficient to have pointed out the causes of error in therapeutics, in order to show how difficult it is, on this subject, to arrive at positive and constant results, as well as the course we are to pursue to obtain that end. By simplifying at first the medicine intended to be used, we may remove in a greater degree the difficulties of determining the impression they produce. If we administer them in the first place, to healthy persons, whose age, temperament, sex, idiosyncrasy, and regimen shall be determined, we may, by noticing the state of the atmosphere, the time when the subject has taken his last meal and the nature of his food, trace the action of the medicine either to the organ to which it has been applied, or on the whole economy. Experiments on living animals will, in that case, prove very useful, in order to ascertain first that the substance is not poisonous, and for the purpose of observing its effects when given in a dose that might prove dangerous, and even mortal. In the latter case, the examination of the dead animal, by indicating the parts affected, enables us to ascertain with accuracy the state of the diseased organ, and the manner in which the remedy has produced that disease.

After having frequently repeated those experiments for the purpose of ascertaining the real physiological effect of the

remedy, let it be administered through other parts of the body, varying also the dose and preparation, and it will be observed what influence those circumstances possess, the living subject being the same and in conditions analogous to the action we are endeavouring to understand.

This being accomplished, let the substance employed remain the same, as to its dose, nature and preparation, but the subjects be varied; let it be administered to adult men, to women, children, old people, persons of a plethoric, lymphatic or nervous temperament, and let the variation be noted which will result from those changes in its mode of operating. Its therapeutical effect is next to be ascertained, beginning the experiments in simple, well-marked diseases, of which the seat and degree of violence be accurately known, and an account is to be kept of its operation, either in effecting of cure, or in its immediate or secondary effects. The series of experiments performed in the state of health are now to be resumed, that is, the remedy being the same, vary the subject, the seat, and intensity of their disease; or, the patients being all in the same conditions, endeavour to ascertain under what shape, and in what dose the medicinal agent produces the most powerful and the most beneficial effects.

Such is the manner in which we ought to proceed in order to continue or rather to begin anew the history of therapeutics. This process would be long and difficult, but it would have the most beneficial influence on the certainty of medicine, and on the interest of humanity. In treating diseases with remedies thus well understood, it would be easy to determine in doubtful cases, according to the treatment that has proved the most beneficial, the nature of the latent affections of our organs which it has heretofore been generally impossible to discover. The practitioner who would be able to trace such a history of only two or three medicinal substances, would render a more important service to science and humanity, than by writing the most voluminous collection of private observations, which are often as useless in practice as they are tedious to read. Considering the immense labour necessary to be performed, what opinion can we form of those who pronounce so inconsiderately on the properties of medicines, on the diseases they are calculated to cure, and on the infallibility of their effects, which experience reprobates. It is for the most part, to the influence of those voluminous observations, which are neither complete nor accurate, and

when the conditions the most calculated to indicate the mode of action of the remedies are omitted, that we are to refer the causes which have the most powerfully contributed to the vague, uncertain and infant state of therapeutics.

SECTION VII.

Of the parts through which remedies are administered.

There are two principal surfaces by means of which we may administer remedies: the first is the skin, the second is the gastro-pulmonary and urino-genital mucous membranes. Before we proceed to the choice of one of them, it is necessary to determine positively what effect is intended to be produced, the state of the organs, and the length of time that the treatment is to be continued. Should it be necessary, for instance, to administer stimulants, to which the subject has long been accustomed, and which only act by absorption; we ought, particularly if the digestive viscera be sensible and irritable, to prefer the skin or one of the divisions of the mucous membranes which are of little importance. Under those circumstances, mercury may be administered in syphilis by means of cutaneous frictions, fumigations or glysters; the muriate of gold is employed in frictions on the tongue, &c. In this manner we possess the twofold advantage of producing the desired therapeutical effect, without exciting the susceptibility of the gastric viscera.

In the greater number of cases, however, the mucous membrane of the stomach and intestines, owing to its extent, its susceptibility and the energy of its absorbing vessels, afford the safest mode of communicating medicines to the body. This membrane receives the greater part of the remedies prescribed; and the physician will be successful in his attempt if he can duly appropriate their nature to the various degrees of vitality, and carefully watch their effects that they may not prove more injurious than useful. When the stomach is irritated, medicines may be given by the rectum where they are absorbed with remarkable rapidity. Irritating and derivative actions may, in general, be excited on that organ with a greater energy and less inconvenience than on the interior of the stomach.

The mucous membranes of the vagina, urethra, meatus auditorius, Eustachian tube, and conjunctiva, will seldom be-

come the seat of medicinal actions, except when they are themselves diseased, and such cases generally belong to surgery.

To the process of medicating through the skin, must be added that of applying remedies to the denuded surface of the integuments, and especially to the reticular substance after the removal of the epidermis. Physicians have long been acquainted with the fact that the granulating surfaces of wounds are endowed with great power of absorption, and that medicines, when placed in immediate contact with solutions of continuity, propagate their action with rapidity to the whole economy. They have observed that mercury applied in this manner, soon produces salivation and the cure of syphilis; preparations of arsenic applied to ulcers have been absorbed, and have occasioned death; cantharides used in blisters often stimulate and inflame the neck of the bladder, MM. Chiarenti, Alibert, Pinel, Duméril, Brera and several others have introduced with success, by means of cutaneous frictions, purgatives, diuretics, bark, and other medicinal preparations. MM. Ant. Lembert and A. J. Lesieur have availed themselves of these facts, in order to administer, through the denuded skin, nearly all the remedies susceptible of operating by absorption. Substances introduced in this manner, by what they have called *emplasto-dermique*, must be very active under a very small bulk; when they are too highly irritating, they may be incorporated with cerate or jelly; if they dry up the blister, they must be mixed with blistering ointment. By this process, the physicians above mentioned have succeeded, by means of the acetate of morphia, in procuring sleep to a number of sick, in alleviating rheumatic pains of old standing, and in curing chronic and obstinate pulmonary catarrhs. By means of the sulfate of quinine, they have speedily cured intermittents, either tertians or quartans, which had resisted the employment of bark and quinine given internally. A violent neuralgia about the temples, complicated with hysterics, was cured by the application of the acetate of morphia combined with assafœtida. A case of tetanus, occasioned by the application of the nux vomica on a blister, was almost instantaneously cured by substituting the application of the acetate of morphia; from this case we may anticipate some degree of success against several tetanic affections, through the *emplasto-dermique* process. Lastly, musk, digitalis, acetate of lead, have succeeded, by this means, in dis-

cases of the heart, pulmonary congestions, and in those affections denominated asthmatic.(1)

Whenever a remedy is given internally, its action is composed of an excitement of the gastro-intestinal membrane, and of the absorption of its particles; in the same manner, when operating by the emplastic method, we are to take into account the irritation produced on the skin by long continued blisterings. These topical applications alone have often been sufficient to cure nearly all the diseases enumerated by MM. Lemberg and Lesieur, but we are not to place too much reliance on the efficacy of diuretics, sudorifics, and especially of incisives administered in this way. This observation is not intended to operate against a method which is still scarcely known; my intention is merely to engage those who may resort to it to analyse its effects, and to guard against attributing to the absorption of remedies, what might perhaps be the result of the irritating and derivative action of the blister.

We have already mentioned that some have gone so far as to inject medicines through the veins; but when we reflect on the dangers attending that operation, we cannot hesitate in rejecting it altogether. Some cases, absolutely mortal, can alone justify that perilous measure, such as tetanus, which has become general, and has baffled all other remedies, hydrophobia, and other affections of this kind. But we should be gratuitously compromising the life of the patients submitted to those unwarrantable experiments, by attempting to administer through the veins, purgatives, vermifuges, and other insignificant remedies; the accidents against which these remedies are directed had better be left to themselves than be cured by such means.

CHAPTER VI.

OF THE ORGANS AND FUNCTIONS WHICH ARE SUSCEPTIBLE OF BEING MODIFIED BY REMEDIES.

Therapeutical agents can exercise their influence on all the tissues, as well as on all the actions of the animal economy.

(1) Archives générales de Médecine, t. v.

Attempts have been made at distinguishing from one another the changes they operate on the solids and fluids composing the human body as well as on the organic actions; but those researches are yet in their infancy. The knowledge they have imparted is but vacillating and imperfect, although sufficient to create the wish that attentive observers may bestow a serious attention on the subject.

It will always be difficult to determine to what extent medicine may induce changes in the constituting materials of the blood and lymph, and still more so to establish what share these changes may contribute towards the therapeutical effect which has been produced. The mechanical and chemical theories directed towards the means of rendering the blood more or less fluid, more acid or alkalescent, have sunk into contempt; but modern doctrines have not afforded a substitute for those hypothesis, and the wisest men cannot but avow their ignorance in that respect.

We must return to this principle, that all medicinal substances only act in the same manner as all other modifying causes by which we are surrounded. If, by their agency, the vital actions resume their normal state; if the composition of the liquids and solids be modified; if the tissues acquire growth and vigour, and be the seat of a more active nutrition, these effects are the result of the impression made by therapeutical agents on the living organs, and of the new direction imparted to their action. All seems to enforce the belief that the presence of medicinal particles in the blood, bile, urine, lymph, and other recrementitious and excreted fluids, are but secondary phenomena, possessing no direct influence on the final result of the medication. These phenomena ought not, certainly, to be neglected; their study may throw additional light on the use and mode of acting of the remedies; but until observation and experience shall have pointed out in what they consist, their importance should not be exaggerated.

There is no tissue in which the author of remedies cannot operate. Thus the skin resumes its white, smooth and even aspect, after having been covered or thickened by scabs, pustules, &c. the muscles which were pale, thin, soft and weak, recover their colour, volume, firmness and strength; membranes of all kinds, after having been made relaxed or rigid, will, when properly treated, return to their normal condition; the bones themselves, when altered or softened by cancerous affections or rachitis, may again assume their former density.

and solidity. The results of irritations, such as ulcers, obstructions of the lymphatic or blood vessels, anormal productions, &c. may disappear, or at least relent their progress, under proper management.

With regard to the functions, there are none but what the therapist can either moderate or accelerate, or restore to their regularity. Digestion, absorption, secretion, circulation, respiration, nervous actions, and nutrition itself, are under his controul. But he cannot so easily modify the process of composition or decomposition of the organic tissues. In this respect, we may divide therapeutical actions into two classes, according 1st, as they are sudden and rapid, and tend to check the acute, morbid process, the continuance of which might compromise the life of the patient; or 2d, as they possess a slow and lasting character which brings them in relation with the most serious and deep-seated disorders of the organic actions.

In general, the former only modify the functions immediately submitted to the influence of external agents, such as digestion, respiration, circulation, &c. Their use is most frequently limited to diminishing or strongly exciting organic actions; and when the disorder has disappeared, the whole resume almost spontaneously their natural healthy state. When the physician has thus cured the disorder which existed in the principal functions, by more or less active means, the economy may be left in a state of debility, but it tends spontaneously to restore itself to the condition in which it was previous to the invasion of the disease.

The latter are chiefly designed against chronic diseases, which have more or less deeply altered the whole constitution. In order to be successful, the practitioner must here operate slowly, but with perseverance. In these cases, it is necessary to examine more deeply than in others; the physician must act on the nutritive actions, renew, as it were, the frame of the constitution, overthrow its habits, draw from the irritated organs, or concentrate in the debilitated parts, the increase of the vital actions. Those changes are only effected after a longer or shorter period of time; the new impressions to which the tissues are subjected, can only overcome by degrees those which have, for several months or years, occasioned, kept up, and confirmed the disease. The physician must always endeavour, in those cases, to spare the remaining strength of the patient; his judgment must provide a

regimen capable of maintaining the organic powers without increasing the local disease ; finally, it is indispensable that his remedies should be so directed and connected together in their actions, that they may check the progress of the disorder, without bringing on a total exhaustion of the living actions.

I cannot conclude these observations without pointing out the errors of that practice, according to which our predecessors accumulated in the stomach substances of the most contrary nature, in the belief that each of them tended to reach its destination, and produce on one or another organ, the effects that were expected to result from their employment. These errors have long been buried in oblivion. We must, however, guard against falling into the opposite extreme, and ascribing too local an effect to the impression of medicinal agents. One organization should not be substituted for another. Experience has demonstrated that there is some truth and foundation in the system that remedies especially direct their course towards the diseased organs, even when they are applied to other parts ; in this respect they may be said to be susceptible of reaching the place of their destination. This fact may be easily accounted for. We know that a part which is inflamed, or simply irritated, becomes more susceptible of impressions, and more disposed to be modified by medicines, than the others. Thus, in plegmonous inflammations, if we administer stimulants internally, the pain will be increased, as well as all the other inflammatory symptoms, although the other parts of the body may not experience any effect from the remedy. On the contrary, should diluents be given, or bleeding performed, their effect will be especially visible on the parts affected. In the same manner, sympathetic actions are more particularly felt on the irritated organs, which they modify in preference to all others. The knowledge of these phenomena is important at the bed-side of the patient ; the physician should notice them, not with a view of sanctioning a routinous, empirical, or ontological practice, but for the purpose of directing in a more certain and methodical manner, the administration of medicines.

CHAPTER VII.

Classification of therapeutical actions.

The affections of our organs consist in the increase or diminution of vital actions in the tissues. Morbific causes produce their deleterious effect on the morbid economy by stimulating those tissues, or by debilitating them more or less. We have several times said that therapeutical agents do not act on the organism in a manner different from all other external bodies. Like all other substances, therefore, they are susceptible of being divided into two great classes, excitants and debilitants. The excitement and depression of vital actions, indeed, constitute the only means we possess of modifying the living organs in the state of disease.

A very important question now presents itself which deserves to be attentively examined. Are there no specific diseases? And is materia medica to be divested of the remedies which have been considered as possessing a special property to cure them? This problem is entitled to our consideration.

If the term specific diseases be meant to express affections which neither consist in the excitement or depression of the vital actions, but in a lesion occult and *sui generis*, I believe we cannot admit their existence: and by a necessary reciprocity, we must reject the theory of medicinal actions, of mysterious properties, and every influence which could not operate by means of the stimulation or depression of the living tissues. In both these respects, there exists no specific disease or remedy. I had before left that question undecided; but new reflections have presented themselves to my mind which enable me to solve it at present in the sense of these remarks.

But if the ontological specificity is to be banished from pathology and therapeutics, we should not overlook those facts on which it appeared to rest its foundation. Experience and daily observation teach us that, among physical bodies, some operate specially on certain organs or tissues, which they always stimulate in such a manner as to produce constantly the same effects. Thus, vaccine virus, the matter of syphilitic ulcers, miasmata, emanating from subjects affected with rubeola, variola, &c. are as many irritating causes which

generally occasion phenomena identically the same in all cases. This property of constantly acting in the same manner, and on the same organs, is also met with in some medicinal substances. Sulphur, for instance, seems specially to stimulate the skin; the ointment of tartarized antimony produces, on that membrane, an eruption similar in every constitution; digitalis moderates the motion of the heart;—narcotics act generally in the same manner in all cases on the nervous system; the nitrate of potash on the kidneys; iodine on the lymphatic vessels; mercury on the salivary glands, &c. Here we must evidently acknowledge a speciality of action; in other words, an irritation or debility constantly produced in the same manner, and on the same parts, but there is no specific effect in them; that is to say, those substances do not produce modifications which would be neither excitement nor debility in the parts which are the seat of the stimulations occasioned by them.

This distinction is evidently very important; it is substituted for the erroneous, obscure, and mysterious ideas of specificity, such as admitted by ontologists, and proceeds from the theory as simple as it is natural, of the identity of the seat and type of excitements produced by certain agents, either morbidic, or medicinal.

We must, however, remark that should the animal organism be not possessed of certain requisite conditions, these special irritations will not be developed, or will change their character, and finally may be occasioned by other agents than those which usually produce them. Thus, a person who has been once vaccinated, will be unable to exhibit a second time the phenomena resulting from vaccination or from the small-pox. Ulcers reputed syphilitic, may, although very seldom, originate from connexion with persons free from that disease; or healthy subjects will sometimes expose themselves with impunity to the venereal contagion. The same variation is observed in the action of remedies whose mode of stimulating the organs seems the most constant. Syphilis, for instance, may be perfectly well cured without mercury; many preparations, more or less stimulant, may prove a good substitute for bark; herpes and psora are every day cured without sulphur; finally, with the exception, perhaps, of the vaccine virus, which is a constant preventive against variola, there is no irritant which in its therapeutical employment, cannot be supplied by others, and which can, therefore, be properly

called specific, according to the general acceptance of the word.

Every practitioner must bear in mind that, if the greater number of diseases belong to the class of irritations, *materia medica* presents almost no other remedies but irritants for their cure. This singularity deserves the whole attention of the therapist. In order to derive some benefit from that mass of stimulants in infinite varieties, medicine opposes their action directly to that resulting from the disorder; at other times it applies them to other parts than those that are diseased, and thereby displaces the irritation. This last mentioned process is called *revulsion*: the school of *Rasori*, in Italy, ignorant of the *revulsive* action of nearly all the irritants they employ, have considered them as direct counter-stimulants. We will presently see that large doses of emetic, drastic purges, and a great many other substances of the same kind, can only prove beneficial when the digestive canal being sound, or very slightly irritated, the *revulsive* process of medication might be acted on it without danger.

Whatever may have been the varieties of the classifications relative to therapeutical agents, they may all be reduced to those which are founded on the medicinal properties of remedies, and to those which rest on the observation of their physiological or therapeutical actions. But neither of these divisions is admissible in the present state of science. Indeed, it has been demonstrated that the curative results of medicinal substances are subject to great variations according to the condition of the patient, and to the periods of the disease.—The immediate or secondary effects of those substances are, themselves, too complex, variable, and, I might almost say, too uncertain, to form the basis of a methodical classification, every part of which would be strongly characterized. It is evident, that amongst tonics, there are many substances which only act on the internal surface of the digestive organs; that the emollient and temperating actions, advocated by some authors, may be produced by the same remedies; that purgatives and lenitives are only separated by a slight dissimilarity, and by the degree of their action, which is frequently such as to escape notice, and which varies according to the susceptibility of the subject.

We must then abandon all those arbitrary divisions, and classify therapeutics in the same manner as pathology. After dividing medications into two great classes, that of stimula-

tion, and that of *sedation* or *debilitation*, we will examine both these actions according to the modifications we wish to determine by their agency in the whole of the organic actions, or in part of them, or only in one organ or tissue. Next to the history of direct medications, that of indirect medications or revulsions will be considered. It will then be proper to indicate general rules for their employment, as well as the benefit or inconvenience attending, in some cases, on revulsions to the skin, the digestive canal, the brain, the muscles, &c. In this manner the whole circle of therapeutics will be brought into view.

In adopting this course, nothing can be omitted; and if there should remain some degree of uncertainty on the mode of operation of any substance or medicating process, there will be no difficulty, after a closer examination, in referring them to their proper place. Again, should new substances, or medicating means heretofore unknown, be discovered, they will of themselves take their rank among those we already possess. In a word, this classification appears to me founded on the very nature of things; it is not susceptible of being altered by any modification that might take place in *materia medica*, but will also present to the mind correct ideas, in as much as the ultimate effect of a plan of treatment will always be an operation on the organs, whether stimulating or debilitating, and medications will be, in all cases, either direct or revulsive.

GENERAL VIEW OF THERAPEUTICAL ACTIONS.

THERAPEUTICAL
ACTIONS.

They may all take place, 1st, by the immediate action of pharmacological substances on the living tissues; 2d, by the continuity of the parts; 3d, by the continuity of the organs; 4th, by sympathy; 5th, by the absorption of medicinal particles.

But they are finally referrible to the following medications.

DEBILITATIONS,
They may be :

1st, Limited to the surfaces on which the remedy operates, which are :

{ The integuments,
The organs of the senses,
The genito-urinary organs,
The organs of the respiration and voice,
The digestive viscera,
The serous membranes,
All parts accidentally denuded.

2d, Extended to one of those three great systems.

{ The blood,
The nerves,
The lymphatics.

3d, General, or involving every part of the living economy.

DIRECT STIMULATIONS.

{ They are susceptible of the same divisions as debilitating medications.

REVULSIVE, OR INDIRECT
MEDICATIONS.

{ They are always local and may be applied to

{ The skin,
The secretory organs,
The cellular substance,
The organs of locomotion,
The digestive viscera,
The brain,
All parts denuded by solutions of continuity.

All these medications may easily be combined with one another : dietetic means are often added to pharmacological agents, and compound medicines are thereby produced, every part of which must be directed to one and the same object. Those complex actions constitute what pharmacologists designate by the name of therapeutical methods, a denomination which, in order to be preserved, must be duly appreciated.

Compound medications, when properly administered, constitute, perhaps, the most powerful agents that medicine possesses for modifying the animal economy. But their employment requires great skill and experience, in order to obtain from them all the benefit they are calculated to afford. They should never be resorted to without absolute necessity : the most simple, and often the safest mode of proceeding in therapeutics, is to employ simple remedies, in a state of purity, or which have undergone preparations without altering their nature. We should carefully guard against administering compound formulæ, and still more against introducing remedies through different parts of the body at the same time.—In the midst of additional associations of medicinal substances, and of the reciprocal reaction of their principles, it will become extremely difficult, if not impossible, to recognize and trace the effects of each identical substance. Our experience will thereby become imperfect, and our practice, far from being founded on observation and reasoning, will have the character of empiricism.

But when, in the course of a disease, we discover several indications to fulfil ; if several means appear adequate to attain the same end, we are then to determine the mechanism according to which every medicinal agent will operate, combining them in such a manner that they may not prove in opposition to each other. It is in this way that revulsions are promoted and rendered more certain by the use of bleeding and a long continued application of cold to the part affected. The effects of tonics are increased by the addition of succulent food, a moderate exercise, tranquillity of mind, breathing a pure, dry, and moderately warm atmosphere, &c. Physiological medicine preserves and commands the strictest regularity in all sanctioned methods, but does not proscribe associations of medicinal agents ; it only requires that the physician should know the property of each of the remedies employed, and their operation on the system, that he may not

act blindly and without an end, nor leave any thing to chance, which might prove fatal to the patient.

Such are the general rules which are to guide our practice; they equally exclude both that systematic simplicity which dreads the employment of the most simple medicinal combinations, and that disgusting, routinous polypharmacy, which accumulates in its formulæ, without either choice or reason, substances and compositions of the most opposite and contrary nature.

These considerations will form the basis of the subsequent divisions of this work. After having successively presented the simple and isolated medications of whatever nature they may be, we will lay down the rules according to which we are to proceed to their operation, and to the connexion of the various principles which constitute their actions. In this manner, we will proceed from what is simple and easy, to that which presents more numerous difficulties and complications.

BOOK II.

OF DEBILITATING MEDICATIONS.

CHAPTER I.

GENERAL CONSIDERATIONS.

The indication which consists in diminishing the too great intensity of vital actions in irritated organs, is that which most frequently occurs in practice. In order to produce this result, medicine possesses means which are as certain as their effect is rapid and strong. These means may be divided into two orders; the first, which may be considered more efficacious, consists in removing all stimulants which are not necessary for the support of life, diminishing the action of others, and even abstracting a more or less considerable quantity of blood, which fluid is a powerful excitant for the living tissues in a state of irritation; the second includes those medicinal bodies which pharmacology designates by the appellation of emollients, and of relaxing, temperating, and allaying agents, &c.

To these two orders of medication, we must add compression, which moderates the flow of blood towards the parts affected, and cold, the energy of which is perhaps not sufficiently understood and employed in practice.

Debilitating medicinal substances, which are frequently confounded, in medical language, under the general denomination of antiphlogistics, present varieties, in their mode of operating and their composition, which it is important to notice. They cannot be equally successful in all subjects, and in all cases where they are even indicated. The substances

properly called emollients, occupy a conspicuous place among all the rest. They derive their medicinal properties from containing a great quantity of soft, insipid, viscous, and alibile principles, such as mucilage, sugar, gum, starch, fecula, gluten, &c.

We must also separate from those substances another species of debilitating medicines, which are all characterized by the presence of acid principles, which, united with sugar and feculæ, or almost isolated and extended in a great quantity of water, also produce debilitating effects.

The properties of the substances belonging to both orders are much increased by the addition of water, especially when that liquid is raised to a temperature of twenty four or thirty degrees of Réaumur. Water is, indeed, a substance essentially relaxing and debilitating; and although we increase its efficacy by the addition of mucilaginous or acid principles, it nevertheless constitutes a vehicle, without which those principles themselves would not have a beneficial effect, or would create a violent irritation in the parts, as is observed when acids cease to be largely diluted.

Let us now examine the mode of acting of the substances above mentioned.

Mucilaginous and gummy emollients, when applied to the living tissues, penetrate and dilate them, and reduce their susceptibility, as well as their intense redness, and the force of their actions. They are eminently useful in all cases of inflammation: when put in contact with the irritated tissues, they never fail to alleviate pain and restore the tone of organic actions. Acid antiphlogistics, on the contrary, are almost never applied with success on irritated parts; this is at least what is observed when they are applied externally; and if it be true that in cases of gastric irritation we administer lemonade, it will be seen that this beverage does not so generally succeed as well as mucilage and gums. Remedies of this kind seem to act especially on the circulation of the blood, reduce its excitement, and precipitate its motion; they have a tendency to diminish the heat and general turgescence attendant on febrile excitement. Owing to their possessing these properties, several authors, and particularly M. Barbier, have ranked them as a separate class called temperating medicines. With respect to water, it seems to have no other effect but to dilate and expand the particles of the blood, so as to lessen its activity on the tissues, and render it

less stimulant. When applied immediately to the parts, in the shape of fomentation, bath, or sometimes in affusion, its effect is analogous to that of emollients, and leaves no traces of stimulation, as is the case with acids even the most diluted.

These are the only explanations by which we can arrive at a correct idea of the mode of acting of the various orders of debilitants. It is not likely, for instance, that mucilaginous and gummy principles resist the action of the digestive organs, so that their particles being absorbed, pass into the blood, and are carried with it to all the parts, which they soften and relax. Such an hypothesis must be excluded from the dominion of therapeutical physiology. If emollients extend their action from the surfaces to which they are applied to the whole of the organism, it is owing, first, to their power of lessening local irritations, and thereby allowing the sympathetic excitement to subside, and all the increased actions to resume their normal type; secondly, to the influence which the relaxed tissues exert by continuity, contiguity or by nervous communications, on more or less distant organs. Aqueous particles, and perhaps those of acids, alone penetrate by absorption into the circulation, so as to modify the composition of the blood, as well as its action on every part of the body.

Cold is never used in therapeutics but through the agency of water, the temperature of which is brought below that of the atmosphere, or to the state of snow or ice.* The effects of cold have been the theme of endless discussions, on which a proper study of the laws of living organism has alone been able to shed some degree of light. According to the state of

* Cold has lately become a very useful therapeutical agent, and is very extensively employed especially in cases of fever. Dr. Currie of Liverpool, is generally known as the first who attracted the attention of medical men to the benefit which may be obtained from its use, although it had been resorted to long before him, but never to that extent, and to the same variety of cases in which he has been so eminently successful. It will be seen in another part of this work that M. Begin's mode of administering it, is susceptible of improvement, and of being applied to a greater variety of cases.

Whilst speaking of the general employment of cold, I may take the liberty to mention here, that ice has been several times used in the United States, and subsequently in some parts of Europe, for the purpose of allaying excessive vomiting in cases of violent irritations of the stomach, and with admirable success. I have myself used it in such cases with considerable benefit, and to me it appears beyond doubt that it might be found serviceable in a greater variety of circumstances than heretofore, without being attended with any of the evil consequences which might be apprehended from the irritation of the stomach, or from extreme general debility.

vigour or of debility of the patient, and the intensity, extent and duration of its action, cold is either an useful tonic, a powerful irritant, or a great debilitant. Its impression may even cause death, by checking all motions in the organs and the course of the liquids. But we are to consider it in this place as a mere debilitating agent.

The practitioner must never forget, that the stimulating property of cold is solely owing to the vital reaction it determines in the part to which it is applied, and that this reaction is proportionate in its vigour to the degree of cold contained in the substance employed. We may then conclude that its application should be so continued as to destroy in the tissues to which it is applied, both the irritation existing in them, and their disposition to react against its impression. This practical rule is of the highest importance ; and, should it be neglected, cold will increase, instead of diminishing the congestions or phlogosis which it was intended to remove.

Snow, ice, or water, at the temperature of zero, which the human body would not sustain long without the extinction of life, if it were general, may be applied on more or less extensive regions during hours, days, and even weeks without interruption, or danger. Some parts of a delicate texture, and placed in particular circumstances, such as portions of intestines filled with stercorous matter, might be deprived of life by the too immediate and continued application of ice. It would appear that the thin and membranous tissues of those organs does not possess a sufficient degree of vital energy to resist the two-fold impression produced on them from outside within by the cold, and from within outside by the intestinal contents, which would immediately bring down their temperature in harmony with that of the outward body.

The primary object of cold is to condense the tissues, draw their elements closer, and increase their thickness and solidity. The skin is clutched and covered with asperities occasioned by the projection of the bulbs of the hairs, and that of the sebaceous follicles. The parts covered with cold topics turn pale, owing to the contraction of the vessels, which cease to admit as many red particles of blood, and in which the circulation becomes less active. Accompanying these phenomena, the local nervous action is diminished, sensibility lessened, and a notable numbness is felt in the parts that have grown cold. We must not think, however, that this state is continued during the whole time of the application ; for, soon

after the first impression has been received, and although it may still continue to act with equal force, a re-action always takes place in all the parts submitted to the operation of cold; the blood is propelled towards it with renewed and increased vigour, the parts become more or less red and painful, and experience a sensation of intense and even burning heat. But these secondary symptoms are not of long duration; they disappear gradually, and the debilitating action is soon re-produced. Then the tissues remain pale, cold, and hardly sensible; the action of the capillaries is diminished, the irritation is suspended, and soon disappears entirely. The state of constriction and condensation which had existed at the beginning also subsides; the tissues, as if tired of their contraction, become inert, relaxed and feeble. To the action of cold is then subjoined the emollient and relaxing effects of water, which serves as a vehicle to the former.

These changes, produced by cold applied to the tissues or to the skin which covers them, appear diametrically opposed to those determined by stimulants. In this respect, cold applications constitute one of the most efficacious debilitants we possess. They are employed in two opposite circumstances; the one, when there exists no tumefaction nor irritation in the parts, and when it is only necessary to prevent those accidents, as in contusions, sprains, &c.: the other, when the irritation and phlegmasia have already made their appearance. In either case, we may cover the parts with pounded ice wrapped in a bladder, piece of parchment, or of oiled cloth—or rather plunge them into a vehicle filled with cold water, if the shape, function, or situation of the parts will permit. If the subject be young, robust, plethoric, I would recommend bleeding immediately after the accident; the results of which are intended to be obviated by those topics, in order that the reaction which they tend to excite be impeded or at least lessened.

It is useless, no doubt, to insist on the necessity of changing the liquid when it gets warm. When the irritation already exists, the precepts just laid down must be still more strictly observed, as they become more indispensable. We are not then to resort to cold applications before having somewhat subdued the local irritation, and the disposition to reaction, by means of general and capillary bleeding. Derivatives may often be advantageously combined to these two orders of remedies, as they tend to produce the same results.

In almost all cases, in order to avoid the too sudden and too irritating action of an intense cold, it may be well to precede their employment by the application of water, the temperature of which will be lessened, until ice itself be used. In this manner, the irritated tissues are gradually cooled : they experience no sudden change, and do not operate any violent and dangerous reaction against the topic applied to them.

The compression of inflamed parts is seldom resorted to in therapeutics, and is, indeed, deserving of little confidence. By compressing the tissues in which irritation calls a greater quantity of blood, a mechanical resistance would be offered to the development of the vessels and to the turgescence of the organs, without destroying the cause of the impetus of blood to the part. This process may perhaps diminish the intensity of inflammation, by expelling the blood from the over excited parts; but it will also be liable to produce all accidents resulting from a strangulation of the vessels, which are an increase of pain, of inflammation, of fever and even gangrene. The most methodical compression used in such cases, which consists in covering with a moderately light bandage not only the parts irritated, but those above and below, possesses no real advantage over capillary blood-lettings, and exposes the patient to dangers of which the latter are entirely exempt. In the present state of science, it would be almost ridiculous to apply that treatment to erysipelas, phlegmon, whitlow, &c.

But if compression be in those cases useless and even injurious it may be employed with efficacy and benefit in many cases of chronic irritations of external parts. Thus surgeons frequently resort to it with advantage in ulcers of the legs, dilatations of the veins, &c. Some English practitioners have proposed it against schirrhus and cancerous swellings of the breast and of the lymphatic ganglia; but if some doubtful success has been obtained, numerous accidents have been produced by that treatment; and we cannot hesitate to give a decided preference to more proper modes of proceeding.

Such are the elements which compose, as it were, the debilitating medication. In order to ensure its good effects, we must, first of all, maintain inactive either the diseased organ alone, if its affection be isolated and without influence on the rest of the economy, or that organ itself and as well the whole body, if the sympathies are highly excited, and if general phenomena manifest themselves. Physiological reasoning

and medical experience equally tend to demonstrate the excellence of this precept, which has never been properly urged by authors. The motions necessary to the exercise of the functions, are the most immediate and active stimulant for the tissues, and one which will the most infallibly exasperate irritations. These motions are necessarily accompanied with an evident congestion of blood, an increased temperature, an acceration in the occillations of the capillaries, and a more or less intense nervous excitement. There exists a remarkable analogy between this state of the organs and inflammation, of which it appears to be but the first stage, and in which it always terminates, when the organs are fatigued beyond certain limits. It will, therefore, appear evident that excitations of this kind must be highly injurious to the tissues when already irritated or inflamed, and that they must increase the severity of the symptoms.

This rule of maintaining in a state of absolute rest the parts intended to be debilitated, admits of no exception. Its employment is sometimes sufficient to subdue moderate irritations in the tissues, and owing to its non-observance, emollient and depleting remedies have often failed in affording relief. It is worthy of remark that, in this respect, inflammations of organs which cannot be reduced to a complete inaction, are more difficult to cure than when they can be subjected to absolute rest. Thus, inflammations of the stomach are generally not so tenacious, and have not the same tendency to pass to the chronic state, as those of the lungs. Our efforts would be frequently more successful against diseases of the heart, if it were possible to keep that organ for some time in a state of absolute rest. Every practitioner must have witnessed the difference resulting from the agitation or tranquillity of mind in diseases of the brain. I am aware that the difference of temperaments of organic texture contributes powerfully to those various results; but it is the least we can say of this circumstance of rest or action in irritated parts, to acknowledge that it possesses a great influence on the success of their treatment.

In many cases, it is important to place the over-excited organs in such a situation that they be not clogged nor compressed, and that the blood may experience some difficulty in reaching and penetrating them. Thus, in cerebral congestions, the head must be kept elevated. Inflamed limbs must be so placed on cushions, that the affected part be more ele-

vated than the rest, and so as to facilitate the return of blood through the veins.

Next to rest and a proper situation, a more or less severe diet, or even an absolute abstinence, when joined to general and local blood-letting, tepid baths, breathing a fresh and damp air, are the most active debilitants. It is only necessary to mention them here, as we will hereafter treat of their use and mode of operating.

Emollients and temperating medicinal substances are very numerous: nearly all emollients, properly so called, are derived from vegetables. Among them we distinguish the immediate insipid viscous principles, such as mucilage, fecula &c. The emollient plants most commonly used, are marsh-mallows, mallows, borage, bugloss, beet, the leaf and flower of mullein, grand consol, lungwort, dogs' grass, liquorice, and wild poppy. Among the fruits, seeds and feculæ, jujubes, dates, figs, dried raisins, linseed, sweet almonds, barley gruel, rice, the seeds of the *cucurbitaceæ*, hold the first rank.

Animals furnish, as emollients, gluten and all the parts in which it is contained in large quantities, such as the white substance of veal, the flesh of turtles, frogs, snails, &c.—Milk, whey, the yolk of eggs diluted in water, are also among the emollient substances derived from all animals,

Among the acidulated antiphlogistics, those which are prepared with citric, acetic, oxalic, and tartaric acids are generally preferred to the mineral acids in solution which are sometimes substituted for them. Several fruits, the lemon, the gooseberry, the pippin, acid prunes, and the barberry, belong to the same order. The acidulated tartrate of potash, boric and boracic acids, acidulated mineral waters, are also frequently used for the same purpose.

Fixed oils and fat have also been ranked as emollients, but they cannot be useful against hardenings and rigidities of the fibrous and muscular tissues, unattended with inflammation. They are used in frictions, in cases of ankylosis, or stiffness of the tendons and ligaments; but the application of fat substances to inflamed parts is generally injurious, for they soon become rancid, and then irritate the parts in contact with them.

It has been repeatedly urged, that we are not to persevere too long in the external or internal use of emollients, in the treatment of diseases. They are said to weaken the tissues, to relax them as well as their vital energy, and to keep up a

sluggish, clammy, and indolent tumefaction, determined by the obstruction and diminished contractility of the capillaries. These objections are not without some foundation; and not unlike all other excesses, that which consists in carrying the use of debilitants beyond what is necessary, may also be improper. But daily experience teaches us that the continuance of those means after the irritation has subsided, is much less injurious than their untimely suppression, followed by the use of those stimulants called resolatives and astringents.

Finally, it is not so much my object to discuss general assertions, which every one interprets according to his own private ideas, as to determine, from positive signs in all diseases, the cases in which debilitants are indicated, and the phenomena which point out the necessity of substituting other remedies to them. If it were possible to designate all the modifications which can affect the tissues, at the different periods of their disease, and to determine their external manifestation, pathological physiology would be much improved, and the science of indications would rest on a more solid basis. Other precepts, more special, and consequently more useful, would be substituted to those common-place warnings against making too free with this or another remedy. It might be possible, for instance, to establish, not empirically, but from attentive observation and exact theory, the period in every disease when it is proper to administer one particular remedy, or to substitute another to that which has already been used. Every effort of the practitioner ought to be directed towards the introduction of this degree of certainty in the practice of medicine.

CHAPTER II.

OF LOCAL DEBILITATING MEDICATIONS APPLIED TO THE TREATMENT OF EXTERNAL DISEASES.

In this first division, we include the remedies applicable to affections of the skin, of the subcutaneous parts, and of the tissues accidentally laid bare by solutions of continuity.

These medications almost exclusively belong to surgery, and are, therefore, to a certain degree, foreign to this work. But as the mode of operating of debilitants on the skin is susceptible of throwing some degree of light on what takes place when they are given internally, it may not be uninteresting to enquire into the modifications they impart to the vital actions of internal parts.

The cutaneous tissue is an inextricable compound of red and white capillary vessels, intermixed with nervous ramifications, expanding in papillæ at its surface, and of sebaceous cryptæ, which, although more abundant in some parts than in others, nevertheless exist in all. A cellular tissue, dense, close, and almost fibrous, unites those various elements, and gives to the membrane, the thickness, density, and resistance which it is necessary it should possess, in order to protect the parts it covers against the impression of external bodies. An inorganic, thin, and permeable layer extended on its surface, protects that membrane itself, against the constant actions of external agents, which thereby occasion less violent and painful impressions.

Thus constituted, the skin is an organ eminently sensible, through which an uninterrupted process of absorption and exhalation is carried on. It contains secretory follicles, and is endowed with very active, varied, and energetic vital powers: the most intimate sympathetic relations connect it with the lungs on one side, and with the gastro-intestinal membrane on the other. It is also united to the genital and urinary organs, and to the brain, by other sympathies, which, although not so close as with the former, do not fail to be increased by disease. In a word, its irritations are sometimes carried suddenly to the heart, which is thereby excited and its action increased in vigour and rapidity.

Emollients are sometimes used externally in the form of lotions, fomentations, general or partial bathing, cataplasms and embrocations. Cold may be applied to the skin through most of these preparations.

In case of intense inflammations, accompanied with violent and burning pain, such as erysipelas, the skin can seldom bear the continued contact of cataplasms, flannels, or even of linens dipped in emollient decoctions. We must then confine ourselves to washing the parts frequently with mucilaginous tepid water, and covering them in the intervals of the lotion, with a dry soft cloth, to preserve them against the impression of

the atmosphere. But when the symptoms are violent, or when the inflammation involves the subcutaneous tissues, fomentations, cataplasms, and local bathing are very useful. The greater the heat is, the more frequently are emollient applications to be renewed, and a greater attention given to compounding them with substances of a difficult acid fermentation. Fomentations and bathing with the decoction of the root of marsh-mallows, cataplasms made of the crumbs of bread boiled in that liquid, are very proper topics in all cases of intense and deep seated inflammations of the external parts of the body. The bud of a poppy added to the emollient plant, gives to the decoction, a property of alleviating pain, which is often useful in painful muscular irritations.

Bathings, employed against external irritations, must be used at a temperature of from twenty to twenty-four degrees. In order that they should be as useful as possible, it is necessary that it be continued for some length of time, and that the diseased parts be allowed to remain in it until they be relaxed and completely relieved. Three, six, and even twelve hours will sometimes be requisite. If, in many cases, emollient bathings do not afford all the relief anticipated, it is owing to the patient leaving the bath at the moment when it was only beginning to operate. It should also be remembered, that the immersion of diseased parts into a liquid denser and warmer than the atmosphere, often occasions, at first, a stimulation somewhat violent, and a reaction which must be expected to subside before any material benefit is perceivable. These phenomena appear sometimes so serious and protracted, that they would seem to require the discontinuance of the bath. But the practitioner must not be discouraged; with some perseverance, these slight accidents will soon disappear, and be followed with the happiest results.

With regard to the refrigerent method, it may be resorted to with success in external inflammations; it generally consists in the application of cold water to the parts affected, or about the region in which the diseased organ is situated. M. Reuss mentions that, in the beginning of whitlows, he has plunged the finger into melting ice or very cold water, until the temperature of the finger was considerably diminished. This medication repeated several times a day, has speedily checked inflammations. Notwithstanding, however, the facts related by the German practitioner, it will always be found more proper to apply cold continually, than by intervals between

which the irritation resumes its vigour, and sometimes becomes more considerable. Cold water is highly beneficial in extensive but superficial burns; it prevents the invasion of inflammations resulting from contused wounds, and those of articulations, &c. as surgeons have often ascertained since the observations published on that subject by the celebrated Percy.

When administered in the manner indicated in the preceding chapter, the refrigerent method might be advantageous in many cases of articular irritations, rheumatisms, herpes, &c. Inflammations of the tonsils have been checked by means of compresses dipped in cold water, and incessantly renewed round the neck, and of pieces of ice allowed to melt in the patient's mouth. Might not some herpes be painful and disposed to become corroding, by the application of very cold and continued emollient decoctions?

We are not, however, to place unbounded confidence in that agent; it would be improper to imitate some German practitioners who have made it a sort of panacea; but its action on the living tissues is too powerful not to produce some salutary effects. Physicians ought to combine it, more frequently than they do, with leeches on irritated parts, and I have no doubt that by this combination we might be enabled to arrest the progress of numerous inflammations, which cannot always be checked by the ordinary means. It is desirable, indeed, that accurate observations on the effects of this medication should be collected and submitted by competent physicians to the test of experience.

External inflammations are not to be treated simply by means of tepid or cold emollient applications. A more powerful agent exists, which must constantly precede the others, which always prepares or secures their good effects, and which is sometimes sufficient to destroy irritations, and to dispense with the use of tonics. This agent, formerly used too sparingly, and with too much timidity, consists in local or capillary blood-lettings, the operation and effects of which it is now proper to explain.*

* Whatever opinion may be entertained with regard to the general adoption of the physiological doctrine in all its bearings, we must confess ourselves highly indebted to its promoters for having pointed out the extensive benefit which can be derived from those sorts of application in a great variety of cases, particularly in the treatment of external diseases. Five or

Two processes are generally adopted, in order to produce those evacuations of blood. In the first, leeches are applied in greater or less quantities on the diseased part, or in its vicinity ; the other consists in the use of cupping, with scarifications, during the operation of which, incisions are made through the cutaneous vessels of the dermis, in order to let out various quantities of blood.

Each of these processes excites on the living parts irritations on the one side, and a more or less considerable depletion on the other. Leeches, by diving the cutaneous tissue, first occasion some pain ; the blood runs towards every puncture to which the animal is attached ; the surrounding skin becomes red, and an ecchymosis of a few lines in diameter is perceivable around the punctures. These seldom penetrate beyond the rete mucosum ; although, in young children, they have sometimes reached the sub-cutaneous veins, or extreme ramifications of the arteries, and thereby produced serious accidents.

The quantity of blood suddenly drawn by leeches, is not so considerable as the generality of practitioners believe. From accurate and frequently repeated observations, it follows, that every animal does not draw more than one or one and a half drachms of that fluid. But the sort of hemorrhage which follows their application, is somewhat indefinite, and may be very considerable, especially if it be kept up by suitable means. During this loss of blood, the pain and irritation subside and disappear ; the capillaries communicating with each puncture, seem to have acquired a decided tendency to carry and empty their contents in those orifices. There is no puncture of their size and depth which can discharge as much blood. It has

six leeches was formerly considered a powerful application, whereas the partisans of M. Broussais's discoveries employ them in five or six times that quantity. There is little doubt but that such numerous punctures, especially in cases of internal inflammations, must, besides their depleting effect, produce a degree of derivative irritation which, combined with results that can be obtained from both cupping and blisters, saves great sufferings and uneasiness to the patient, and is generally free from accidents, particularly from those attendant on the repeated application of blisters to mutilated surfaces. Such is indeed the extent of the benefit it has produced in the practice of the French physicians, that leeches have become a very considerable and profitable branch of import trade in that kingdom. In buboes and inflammations of the testicle, they have surpassed any other mode of treatment I ever had occasion to employ, and in no other case have I ever obtained such decided benefit from them.

sometimes happened, that when left to themselves, they have occasioned serious and even mortal hemorrhages. Robust men in the prime of life, have been reduced to such a degree of paleness and debility, that they appeared on the verge of dissolution. I have seen the blood run through a double matress and a straw bed, from the application of twenty-five leeches to the abdomen. Young people do not resist so well as others, hemorrhages of this nature. M. Pelletan relates the case of a child six years old, who died from the loss of blood, after the application of six leeches to the chest; the female attendants had done no more than wash off the blood as it flowed. It might be possible to quote several other observations of this kind.

These accidents, however, ought not to deter the practitioner; for they seldom occur, and might always have been prevented by a proper attention to the application of leeches. I might have remained silent on that circumstance, but it is not proper to dissimulate the advantages and inconvenience of therapeutical means. Phlebotomy has sometimes produced fatal results, yet no one has ever thought that it should be excluded from medical practice on that account.

At last, the flow of blood arising from these punctures, ceases. A solid coagulum is formed in their cavity and their surface, which offers an efficacious resistance to the hemorrhage. The irritation produced by the solutions of continuity seems to resume its course; a sensation of heat and itching is felt around the puncture, and becomes almost intolerable, especially at the axilla and anus, where the natural friction of the parts tend to increase it. The skin becomes red and somewhat tumefied, and each puncture forms the centre of an inflammatory disc, which, uniting with the adjacent ones, covers the whole surface of the part with an inflammatory crust more or less extensive. This inflammation generally terminates by resolution; but when the punctures have been irritated by rough linen, or other foreign bodies, or when the subject is disposed to suppurations, it is not uncommon to witness the appearance of boils, small abscesses, or pustulous eruptions, whose contents ooze out for a length of time.

Such are the local effects resulting from the application of leeches. These are, 1st, a more or less violent pain, and a determination of blood towards the part exposed to the action of those animals; 2d, a loss of blood, the quantity of which varies, and which is determined, first, by the animal

filling itself, and afterwards by the irritation it has occasioned, as well as by a sort of impulse communicated during its action to the capillaries; 3d, a secondary inflammatory irritation, for the most part moderate, but sometimes sufficiently extensive to bring on suppuration, and even partial disorganization of the subcutaneous cellular tissue and of the skin.

Cupping and scarifications occasion analogous phenomena; with this remarkable difference, however, that the loss of blood is not so great, not so easily kept up and continued, and that the cutaneous irritation, either during or after the operation, is more intense than that resulting from leeches. In a word, the former process is less depletive, and more stimulant than the latter, which has thereby obtained a decided preference over the other.

The therapeutical effects of capillary bleeding are very remarkable. They are derived from the phenomena indicated above, and it is necessary they should be well known in order to be enabled to make a judicious choice between leeches and cupping, according as either the irritation or the loss of blood is most urgently called for.

The irritation occasioned by leeches on the parts to which they are applied, draws the blood from the neighbouring vessels, which are thereby relieved of their contents, and lose their tension as well as their vital energy. This effect is adequate to the number of animals employed, the force of their suction, the deepness of the punctures, and the continuance of the flow of blood after their removal. The depletion, when moderate, does not extend its influence beyond the contracted limits of their operation, or of the adjacent parts. Should the frequency of the pulse be diminished, the integuments lose their redness and turgescence, and harmony returns in the whole of the organic functions; these happy results are to be ascribed to the diminution of the pain and local irritations, and to the sympathies being less disturbed by the diseased organ which has itself been relieved. Evacuations of blood through the capillaries are never sensible in the large vessels, except when they have been so abundant as to affect the arterial system. To their local action is then added a general depleting effect more or less remarkable, and the results of both these orders of bleeding are simultaneously manifested in the patient.

From these considerations we may easily deduce the rules by which we are to be guided in the use of capillary blood-

letting. Leeches, and especially cupping, always occasion a local tumefaction, and a more or less violent irritation; they are, therefore, not to be resorted to when the inflammation is intense, the patient robust, and the vascular system in a high degree of excitement, except after having reduced, by one or several general bleedings, the excessive violence of the vital actions. Without this preliminary step, leeches applied about the affected part would almost inevitably increase the impetus of blood to the seat of the disease, and increase the irritation. The pain occasioned by the punctures, and the subsequent over-excitement, have induced practitioners to apply leeches only to the neighbourhood of the inflamed part, where the skin is sound, and not involved in the disease. The sensibility of the parts, and the intensity of their irritations, must be taken into consideration by the practitioner, and regulate his choice.

In all cases, it is always necessary that the letting out of blood from the capillaries, be sufficiently considerable to counterbalance and prevent the inflammatory process which is apt to follow that operation. This precept admits of no exception. When the disease is intense, and the number of leeches is not sufficient, it is not uncommon for them to prove inefficacious, and even to increase the symptoms. We must, therefore, guard against this disappointment, and apply them in such quantity that they will prevent the subsequent stimulation otherwise occasioned by the punctures.

Let the punctures bleed freely for some time, after the removal of the leeches, by washing them occasionally with lukewarm water, exposing them to the steam arising from that liquid, and by subsequently applying cupping glasses, if possible; in this manner capillary evacuations will be rendered more copious and thereby more beneficial. A smaller number of leeches used in this way will procure more extensive evacuations than a greater number whose punctures would be left to themselves. It is requisite also to diminish the subsequent irritation, by covering the part with fomentations, and emollient cataplasms, which will complete the relaxation of the tissues and prevent the consecutive development of an unfavourable tumefaction.

By attending to these two conditions, of allowing the punctures to bleed freely for some time, and of covering them with emollient topics, leeches are always followed with happy results, whenever their use is indicated; and we may not only

apply them very near the inflamed parts, but even on those parts themselves, as M. Gama, of Strasbourg, has successfully tried it in the most serious cases.

What has been said of the accident which may result from the application of leeches, must warn the practitioner against neglecting to determine the precise time when the evacuation should be stopped, and what means are necessary to suppress it. This time varies according to the number of leeches employed, the strength of the patient, the violence of the disease, and other similar circumstances. The application of a dry or burnt linen is generally sufficient to stop the hemorrhage. But in debilitated, nervous or lymphatic subjects, whose blood abounds with serum and whose capillary system is irritable, these topics may prove ineffectual. One of the most proper means to be had recourse to, in that case, is a thick compress, much heated, applied burning hot on the punctures, and kept for some time in contact with them; in very serious cases it may be necessary to resort to cauterisation. The person who has applied the leeches must never take leave of the patient, especially a child, without having previously ascertained that the punctures are perfectly secure against the recurrence of hemorrhage.

Almost every species of irritation capable of affecting the external tissues, may be successfully treated by local capillary bleedings and emollient applications. The greater part of their alterations resulting from the continued excitement of the vital actions, frequently disappear under the influence of the same treatment. By directly lessening the stimulation of the organs, and relieving them of their redundant quantity of blood, capillary depletions have a tendency to reduce morbid actions, and to determine the absorption of foreign substances or of accidental productions, which the disordered process of nutrition has generated. They must hold the first rank among the debilitating pharmacological agents used in medicine against local irritations.

Although at first applied exclusively to parts recently and violently inflamed, leeches have gradually been used with no less advantage against all sorts of chronic irritations. Let us now consider a few of the most important cases in which they produce beneficial effects.

In erysipelas and phlegmon, the use of capillary evacuations has been so generally adopted, that it is unnecessary to dwell again on the advantages they possess over all other

means in those diseases. Phlegmonous erysipelas, a much more serious affection, frequently terminating in gangrene of the subcutaneous cellular tissue and of the skin, is as successfully treated by renewed applications of leeches as any of the above mentioned diseases. The antiphlogistic method is then the only one which is sanctioned by sound physiological principles, and if a blister placed on the center has sometimes succeeded, it was by concentrating the irritation to one point, thereby occasioning violent pain, and exposing the patient to all the consequences of an aggravation of the disease. This measure is justifiable only in debilitated, lymphatic subjects, in whom the progress of the irritation is slow, accompanied with lividity of the parts, and tending to a rapid termination by gangrene. In these special cases, blisters have frequently succeeded in the hands of M. Dupuytren, who has introduced that practice at the Hotel-Dieu.

Cutaneous eruptions, the sympathetic results of acute gastro-enteritis, such as variola, rubeola, scarlatina, &c. have the effect, when they are intense, of reproducing the fever which their developement has caused to disappear. Daily observation demonstrates that the febrile excitement, secondary to eruptive gastro-enteritis, is always commensurate with the intensity of the external phlegmasia from which it arises. Hence it has appeared rational to reduce this inflammation, or at least to attempt diminishing its violence, by means of leeches applied to the parts where it is more strongly manifested. M. Broussais, who first demonstrated the advantages of this practice, never fails, when the variolic eruption begins to appear, to apply leeches to the neck, in order to subdue the violence of inflammation in the face, and he has generally observed the secondary fever run through its course without malignity or any serious accident. In the most simple cases, when the cutaneous inflammation is not intense, emollient lotions, frequently applied to the pustules, are sufficient to moderate the tumefaction, tension and pain, and to facilitate dessication of the cuticle.

Boils are successfully treated, in their beginning, by means of capillary blood-letting about their bases. This will seldom be found sufficient to destroy the inflammation, and arrest the mortification of some fasciculi of the sub-cutaneous adipocellular tissue; but it will prevent that burning pain and considerable tumefaction which are often manifested. The irritation being diminished, the discharge will be free, and the disease will very rapidly terminate. I have been induced to

suspect that, in many cases, furunculi, treated in this manner, have less tendency to make their appearance in several places, than when suppurative plasters or other irritants are applied to them, which prolong their duration and allow other parts of the skin to be sympathetically affected.

The anthrax is composed of a collection of furunculi, and is to be treated in the same manner. One of the most distinguished practitioners of Lyon, informs us, that for the last three or four years he has not used incisions in this disease, but solely confined himself to the application of some leeches, at its commencement, emollient topics, and a regimen appropriate to all inflammations. A constant observation has convinced him that these simple means are, in all cases, preferable to others, and that it is the same case with these affections as it was with gun-shot wounds before the restorer of French surgery had entirely changed their mode of treatment.(1)

Of all cutaneous inflammations, the ring-worm is one which physicians seem to have applied themselves to exasperate by means of the most energetic internal and external stimulants. The irritation is seated on the secretory follicles with which the skin is abundantly supplied, and gives rise to the formation of scaly layers, more or less dense, thick, or adherent, which have formed the basis of classifications altogether insignificant for the therapist. Numerous facts have proved that herpetic eruptions of all kinds are more speedily and radically cured by the continued employment of local capillary blood-letting, when the irritation is violent, and by emollient applications and a light severe diet, than by all the preparations of sulphur, which are so abusively and so frequently resorted to. These preparations are, however, useful; but I have often ascertained that they can never be serviceable before the local stimulation has been subdued by means of antiphlogistics, and before the disease has arrived, without pain or intense redness, to that stage in which the solids do not appear to possess a sufficient degree of vital action to eicatrize. These principles, with respect to the local treatment of herpetic eruptions, have been proclaimed by several practitioners, and especially by M. Alibert, and are now adopted

(1) *Compte rendu de la pratique chirurgicale de l'Hôtel-Dieu de Lyon pendant six années.* Lyon, 1824, in-8.

by the most respectable part of the profession. Indeed, it is difficult to conceive how some men can give the preference over them to routinous and empirical practices, which have so frequently proved injurious.

One of the most serious evils arising from the unreasonable and continued application of stimulating substances on eroded and herpetic integuments, is the transformation of their solutions of continuity into corroding cancerous ulcers. These disorganizing affections, extending with more or less rapidity to distant parts, generally kill the patient after the most cruel sufferings. By destroying the surface of those ulcers to a certain depth by means of the arsenical paste, they are rather severed from the body than cured, and this measure is not always practicable, efficacious, nor free from danger; on the contrary, daily observation proves that cutaneous corroding eruptions, even in an advanced stage, are susceptible of being cured by local bleedings, emollient applications, in a word by antiphlogistics, combined with counter-irritants, continued with perseverance. To all the facts of this kind published by MM. Fallot, Pons, Lallemand, Maréchal, and Treille, we must add those of M. Fêtu, and other military surgeons.(1)

Chronic tumefaction, with hardening of the skin and cellular substance, which seems to constitute the first stage of elephantiasis, would appear to me to derive more benefit from local bleeding, rest, emollient baths, and the application of a compressing bandage, rather than from stimulants, which are generally employed against all the varieties of leprosis.

To these diseases of the external parts of the body, we must add those resulting from the inoculation of certain virus, such as the venom of the viper, carbuncle, and the disease called *charbon*. In these cases also, inflammation is the principal character of the disease; but it is accompanied with a deep affection of the nervous system, and a manifest tendency to mortification. It has been proposed to confine their treatment to the use of emollients and local blood-letting; but this method is not so certain and beneficial as the one which has been sanctioned by experience. It is undoubtedly improper to carry the use of stimulants too far, but more so if we prescribe them altogether. Thus, we are to reduce the excess of inflammation by local bleeding and emollient applications,

(1) Mémoires de Médecine, chirurgie et pharmacie militaires, tom. XVI.

whilst administering internal stimulants in the bite of the viper, and cauterising with butter of antimony the gangrenous centre of the carbuncle and pustule maligne. We will return to this subject when speaking of external medications.

These are some of the external affections, against which the antiphlogistic treatment is daily resorted to with the greatest success. The skin, as well as the tissues which lie immediately under it, are easily operated upon by debilitating agents. We may, at our discretion, maintain them in a state of absolute rest, and prevent their contact with any foreign body ; bathe them for hours and days ; cover them with relaxing topics, and lastly, we can, with the most immediate, and consequently the most beneficial effects, let out their redundant blood which seems to be a direct cause of their excitation and degenerescence. Thus, practitioners have been able to cure, by a wise and persevering course of antiphlogistics, and by the counter-irritating stimulants which are to be hereafter mentioned, many chronic inflammations and schirrous tumefactions bordering on cancer. We may consult, on this point, the experience of the most enlightened practitioners, which will prove that this method has cured more cancers than the most renowned specifics. We know what success Pouteau derived in these cases from the most absolute regimen, and the exclusive use of water for drink and diet ; another practitioner no less celebrated, Thédén,(1) relates several cases to the same effect ; and since the physiological doctrine has been universally adopted, observations of this kind have become so numerous that all practitioners have had more or less frequent opportunities to observe them.

It is a pathological fact necessary to be mentioned in this place, as possessing a very material influence on the treatment of diseases of the skin, that most of them are sympathetic affections of gastro-intestinal diseases. The mucous membrane of the alimentary canal is so intimately connected with the skin, that irritations in the former frequently determine the same affection in the latter. We have seen, in their acute stage, the eruptions characterising variola, varicella, scarlatina, rubeola, furunculus, and erysipelatous inflammations, anthrax, and other similar affections, arising from the

(1) *Progrès ultérieurs de la chirurgie*, Bouillon, 1777, 12me.

existence of gastro-enteritis, by which they had been brought on, and were then kept up. The chronic species of herpes, of different kinds of ulcerations, and of hardenings in the skin or cellular substance, are, in many subjects, the result of the same internal disease. These complications may easily be ascertained by the co-existence of symptoms of gastritis with those of the external affection. By exasperating the former, we increase the intensity of the latter; for both seem to be in a perfect state of mutual dependence. The practitioner must, therefore, be well convinced of this truth, that the principal seat of the disease is in the viscera, and that these must consequently require the most active remedies.—If he should content himself with topical treatment on the part affected, his attempts would prove useless, and have no other effect than to palliate the disease for a short time; after which it would appear with more violence and obstinacy than before. In all diseases of the skin or cellular substance, we must pay particular attention to the state of the stomach and intestines, which not unfrequently require more active medicines than the external affection. Generally speaking, those eruptions disappear speedily and spontaneously, when the visceral irritation has ceased; and in the most obstinate cases, nothing more than the most simple topical treatment will be necessary.

As affections of the alimentary canal frequently attack the skin, so do debilitants given internally, manifest this effect on the integuments. Hence these internal medications should be added to the topical remedies whose action they will facilitate and ensure.

Cutaneous irritations, ulcerations, and degenerescence of the skin, are sometimes also complicated with internal affections of the blood, or lymphatic vessels, as may be observed in scurvy, syphilis, scrofula, &c. In such cases there exists no general disease, but merely a multiplication of irritations to several organs by sympathetic agency. The attention of the practitioner must be directed to all the parts affected; and it is generally requisite to combine the use of counter-irritants to the local treatment, as well as of those means calculated to operate a strong modification in the organic actions, and restore harmony in the process of nutrition. Such is the course we ought to pursue in order to be successful in our treatment of diseases, and of their numberless complications.

CHAPTER III.

Debilitating medications applied to the organs of the senses:

The eye, ear, and nasal cavities, are subject to a great variety of affections which almost exclusively belong to surgery. M. Demours is one of those who have most clearly established this truth, that the greater number of diseases of the lachrymals, of the eye and eyelids, are the result of ancient and deep seated inflammations, which must first be cured, before any attempt is made against the former, which will afterwards disappear almost spontaneously. We know that the illustrious A. Louis had already proved the beneficial effects of emollient fumigations in lachrymal tumours. MM. Paris, Guillaume, and Vassillières, young and distinguished surgeons of our army, have observed a great number of lachrymal tumors, recent and old, several of which very voluminous, and on the eve of bursting, which were all cured by local blood-letting, emollient applications, and revulsives. M. Béelard has left several observations of a similar success. Inflammation, ulcers, and fistula of the conjunctiva and cornea, hernia of the iris, and internal irritations of the eye, are no longer followed with such injury to the sight, since the antiphlogistic treatment is now resorted to with more vigour and perseverance than heretofore.

M. Itard had demonstrated the advantage of revulsive purges against diseases of the ear ; but reasoning and experience convince us that in all the disorders of the acoustic organs, emollients and capillary evacuations of blood, are not less beneficial. They are even to be preferred, and to be first administered, in all cases where the disease is accompanied with violent pain, redness, swelling, and other symptoms of extensive irritation. Among the facts which appear to justify that doctrine, those related by M. Maricheau Beaupré, one of the most distinguished surgeons of our military hospitals, must hold the first rank.

Considered as a whole, the nasal cavities constitute an important organ, the whole or part of which may become affected with acute or chronic inflammations more or less violent. The former constitutes what is called coriza, the treatment of which is never attended with difficulty. The latter gives rise to impediments in respiration or to an abundant discharge

of mucus, sometimes to erosions of the mucous membrane, to caries, and even necrosis of the bones. In these cases also, stimulants always increase the irritation, and sometimes render its consequent accidents incurable. Emollients, on the contrary, in the shape of fumigations, leeches to the nostrils or within their cavity, and revulsives, are always successful. In a case which might be called chronic *rhinitis*, this mode of treatment has effected a radical cure; in another case, it has proved sufficient to cure all the disorders produced by an abuse of stimulants, and those still more serious consequences which would have resulted from their continuance.

I do not consider here the organs of the senses as a part of the nervous system: in that respect they are susceptible of debilitations and excitements, which will be taken into consideration when speaking of medications appropriate to the nerves, of which the organs of the senses are, as it were, the appendices.

CHAPTER IV.

Debilitating medications applied to the genito-urinary organs.

No part of the human body is isolated, or independent of the others. The genitals present to the practitioner and the physiologist, a series of sympathies which connect them to the most important viscera. The sympathies have lately been somewhat neglected, and they ought to have shared some of the attention which has been devoted to those of the stomach. The organs of respiration and voice, the alimentary canal, the integuments, the muscles, the bones themselves, and above all the brain, are connected with the genitals by the most intimate correspondence of vitality and action.

We all know that at the age of puberty the larynx is considerably developed, the voice acquires force and extent, and the chest becomes larger and more prominent. We are also acquainted with the modifications occasioned in the structure and vigour of the pectoral organs by the loss of the testicles in young people. Chronic inflammations of the lungs, in many phthysical subjects, increase the susceptibility of the genitals, and their desire for coition.

With respect to the digestive organs, the genitals send to, and receive from them, a great variety of impressions. In

Chronic gastritis, there is generally no desire of venery, which is the reverse of what takes place in phthisis. The immoderate excitement of the genitals is generally accompanied with that of the stomach and intestines, and sometimes determines violent gastro-enteritis, or obstinate and dangerous diarrhea.

The genital organs are so intimately connected with the nervous system, that they seem to be but a dependence of the latter. The generative functions are performed under the influence of cerebral excitement, and the disorder of the imagination is the most frequent cause of the aberrations which sometimes occur in those functions.

Puberty is known to possess considerable influence on the development of the muscles, bones, and all the parts of the fibrous system. Every practitioner must have observed how the itch, herpetic and chronic cutaneous eruptions, often contribute to increase the violence of venereal desires. Mr. Jourdan, and several writers after him, have demonstrated that we are to ascribe to those sympathies, and not to a pretended syphilitic virus, the affections of the skin, the mucous membranes, periosteum, bones, and other organs, in consequence of irritation primarily fixed on the organs of generation.

It is sufficient to glance over the whole of these sympathetic relations, in order to conceive how vague and insignificant is the denomination of anti-aphrodisiacs given to remedies calculated to diminish the habitual state of orgasm of the genitals. These excitations probably depend much less frequently on the primitive over-activity of the genital system, than on the stimulation of some other part of the body. It is evident that in such cases, we must look for, and destroy the remote cause of the disorder present.

Among the debilitating drinks, some appear to act directly on the genitals. Barley, sweet almonds, and cold seeds, prepared into emulsions, hold the first rank; the root of nenuphar (*nymphaea alba*), formerly so much extolled as a powerful anti-aphrodisiac, has now fallen into such complete and merited disrepute, that it is useless to mention it: its bitter and slight astringent taste, as well as its rubefacient property, proclaim its irritating effect, and, therefore, exclude it from the class of debilitants.

All acute irritations of the genital organs, whether they determine nervous symptoms, as in nymphomania et satyriasis; whether they merely produce inflammation and local conges-

tions, are to be treated by means of debilitating applications and of blood-letting. Leeches, in nymphomania, as M. Boisseau observes, should be applied rather to the malleolæ than the entrance of the vagina, owing to the itching and excitement attending their punctures, which would increase the morbid irritation of the parts.(1) It might be possible, however, to place them either at the hypogastrium, or about the loins, in order that their action should be more immediate on the uterus and ovaria. A whole bath, or a sitting-bath, being tepid, continued, emollient and repeated several times a day, are then of great utility, and might disperse the morbid irritation, as well as that arising from the punctures, should the leeches be placed at the vagina. Soothing injections, such as that composed of compound tincture of opium, one drachm to every pound of the decoction of musk-mellons, or the decoction of two buds of poppies and a drachm of the stalks of morel in one pound of water, with the addition of ten to twenty grains of extract of opium, are very serviceable in those cases. Some benefit might also be derived from the application of cold permanent fomentations to the hypogastrium, mons veneris and vagina in women, and to the penis and scrotum in men. These applications might also be used, in certain cases, against masturbation.

Metritis, acute inflammations of the penis, testicles, kidneys, bladder, and other parts of the genito-urinary organs, in both sexes, present such striking phenomena, and their treatment should be so conformable to the precepts hitherto established, that I will not dwell on it.

The menstrual discharge may be retarded or suppressed, not only by an inflammation in some remote parts, but also by violent congestions of blood in that viscus; this state will be characterized by heaviness, uneasiness and pain at the bottom of the pelvis, and more or less violent colic pains. The physician must then have recourse to warm bath, mucilaginous drinks, and leeches to the vagina. Besides occasioning a salutary depletion of the obstructed vessels, these means are calculated to draw the blood to the surface. Stimulants are here totally inadmissible.

Antiphlogistics, employed with energy and perseverance, are still the most appropriate in cases of chronic metritis,

(1) Dictionnaire abrégé des sciences médicales, t. x.

which not unfrequently result in obstructions, ulcerations and cancers in the uterus. In these cases, leeches have been applied to the vagina and even to the neck of the uterus, by means of the *speculum uteri*, and with appearance of success. It has even been imagined to fill the whole of the vagina with linseed, flour boiled in the decoction of marsh-mallows, and to maintain this emollient cataplasm in contact with the neck of the uterus, by means of a thick pad and a towel passed between the thighs and fixed by its extremities to a circular band round the lower part of the abdomen. These attempts at extending emollient medications to an organ of so much importance, and whose diseases are always so obstinate, deserve all the attention of medical men. It is to be expected that, when timely and methodically administered, the debilitating treatment will henceforth be able to prevent the development of the cancerous affections of the uterus, the issue of which has baffled all the efforts of surgery, and generally proved mortal.

The schirrhus of the testicles calls for the same treatment as other chronic inflammations. I have shown in another place, that small and repeated applications of leeches to the scrotum, generally bring on the resolution of the disease.(1) M. Gama, chief surgeon of the military hospital of Strasbourg, one of the most distinguished surgeons of our armies, has always succeeded, by that means and by emollient cataplasms continued with perseverance, in preventing the necessity of the operation for sarcocoele.

The same course of practice ought to be followed against acute and chronic urethritis, against inflammations and tumefactions of the neck of the bladder and of the prostate gland. In all these cases, the indication relative to the employment of local debilitants is positive, and ought to be resorted to without delay or hesitation.

Most of these diseases belong to the dominion of surgery, and I ought hardly to mention them. But there exists another, on which I will enter into longer details, as the physician is called upon to direct its treatment.

The alteration of the urine, and the presence in that liquid of more or less calculi, always indicate the existence of some excitement in the kidneys, and a sort of inflammation in

(1) *Application de la doctrine physiologique à la Chirurgie*, Paris, 1820, in 8vo.

their tissue. This irritation seems to arise, in some cases, from the presence in the blood of a superabundance of irritating materials, which must be elaborated in the kidneys, and thereby call for an over-exertion in those organs of a long continuance.(1) A succulent diet, the abuse of animal food, and a sedentary life, are the ordinary causes of gravel. The indications resulting from this condition are self-evident: they consist, first, in reducing the blood to a composition more simple, less stimulant, and in better harmony with the wants of nutrition; secondly, in moderating and subduing the irritation of the kidneys, of the ureters, and of the bladder, which are often successively affected. The third indication consists in extracting the voluminous calculi stopped in the urinary passages, or facilitating their exit; this may not cure the disease, but it will aid in elaborating and dissolving the foreign bodies.

We will speak in another place of the manner by which we are enabled to alter the composition of the blood, and render it less active; suffice it to say here, that a severe regimen, the use of water, abstinence from animal food, constitute the basis of the treatment adapted to gravel; that the use of alkaline drinks may, for a time, prevent the formation of uric acid calculi; but these measures are only palliative, and the organs become habituated, and finally insensible to them. Long bathing, sitting in a bath, the application of leeches to the loins, are very efficacious, not in preventing the formation of gravel, when the blood is so constituted that they can even exist in the urine, but in preserving the kidneys from irritation, and destroying it if it has already taken place. Local debilitants are, in such cases, of the greatest utility, and they must never be neglected, although we should not place such confidence in them as to dispense with internal remedies.

I will make no further mention here of diabetes than is necessary to complete the view of what relates to the diseases of the urinary passages. This remarkable affection evidently depends on a more or less violent irritation, with increased action of the tissue of the kidneys. All that is susceptible of exciting, directly or by sympathy, a more abundant secretion of urine, may give rise to it; and in the small number of subjects who have died of it, the kidneys have always been

(1) Vide *Recherches physiologiques sur les causes, les symptômes et le traitement de la gravelle.* Paris, 1818, in 8vo.

found red, softened, filled with blood, and presenting evident traces of inflammation. These facts seem to point out the necessity of emollient fomentations and of leeches to the loins, as well as the use of the sitting bath. These measures, especially at the commencement of the disease, and in young and vigorous subjects, are, in my opinion, more efficacious than roasted meat, pure wine, abstinence from all gentle and lenient drinks, and often stimulating substances which are so empirically, I might say, so blindly administered.

Finally, the treatment of diabetes must be that of an irritation of the kidneys, which is to be treated by local antiphlogistics and revulsives; whilst at the same time endeavouring properly to modify the altered composition of the blood, whether before or after nephritis. The means of fulfilling this last indication will be considered in a subsequent part of this work.

CHAPTER V.

OF DEBILITATING MEDICATIONS APPLIED TO THE ORGANS OF RESPIRATION.

SECTION I.

General Considerations.

The organs of respiration are closely connected with the principal viscera of the animal economy, by numerous sympathies. Pulmonary irritations are sometimes propagated to the stomach or the brain; at other times, they are merely the result of a displacement of those irritations which are fixed in one or the other of those organs. Clinical observation demonstrates that the most intense and obstinate pneumoniæ, and consequently the most dangerous, frequently succeed a violent gastro-enteritis, during which the irritation, sympathetically carried to the lungs, becomes predominant in them, whilst that of the digestive canal thereby disappears. Bilious pneumonies, so well described by Stoll, were similar combinations of gastritis or gastro-enteritis, with pulmonary

inflammations. We seldom observe both irritated to the same degree, at the same time. One of them generally overcomes the other, and is the more seriously and rapidly affected in proportion to the intensity with which the one which has become free from disease, was the more deeply affected.

These sympathetic relations between the lungs and the stomach do not exist solely during acute diseases, producing metastasis and complicated irritations. The same train of symptoms is to be observed in their chronic stage. Phthisis generally terminates in gastro-enteritis. Gastritis, on the other hand, sympathetically excites that dry, short, frequent, jerking cough, which has of late years attracted the attention of medical men. At other times, it gives rise to vague pains, which are fixed either under the *mammæ*, or towards the *scapula*, or in the whole base of the chest. Finally, in subjects whose respiratory organs are irritable, chronic affections of the stomach often bring on latent *pneumoniæ*, followed by tubercles. It is to be remembered, however, that chronic irritations of the lungs more frequently produce gastritis than this does the former: it may be the reverse in acute inflammations of those organs.

Another sympathy, no less important to be attended to, both by the physiologist and the practitioner, is that which connects the lungs with the integuments. These two organs seem to perform, to a certain extent, similar functions: the pulmonary transpiration is the more abundant as that of the skin is lessened, and vice versa. Hence we may conceive that cutaneous irritations will easily operate on the mucous membrane of the lungs; that their metastasis will frequently be carried to the chest; and that, after violent excitations of the periphery of the body, cold will have the effect of propelling the fluids on the lungs, rather than on other viscera.

Various other sympathetic relations, which, though less understood, still deserve as much attention, connect the organs of respiration, and especially the lungs, with the external fibrous tissues, the articulations of the limbs, and even with the muscular system, as proved by the facility and frequency of their metastasis on the pulmonary tissue, and the pleura.

With regard to the sympathies of the lungs with the heart, they undoubtedly depend as much on the connexion existing between their functions, as on sympathies, properly so called. The pleura, however, participates very often in inflammations of the pericardium, or extends its irritations to that membrane;

all pulmonary affections bring on fever with a degree of rapidity commensurate with their more immediate action on the circulation.

Diseases of the organs of respiration manifest very numerous and varied phenomena; a sense of suffocation, and a hoarse cough, accompany the inflammations called croup; a cough returning at different periods of the day, and attended with long-continued efforts, characterize the whooping-cough; aphony, or a permanent alteration of the voice, with a fixed pain in the larynx and trachea, announce what is called phthisis laryngea; the expectoration of abundant mucus, pungent pain, difficulty of breathing, &c. accompany pulmonary catarrh, as well as pneumonia, pleuritis, and other inflammations of the respiratory organs.

Placed within a cavity, enclosed by moveable and elastic, but incompressible parietes, these organs, when diseased, cannot be so immediately and correctly investigated as other parts of the body; and if we add to this circumstance the variety of accidents to which their diseases can give rise, it will not be wondered at that their diagnostic should have been so difficult until the days of Awenbrugger, and the researches of M. Laennec. In this respect, authors have been long mistaking effects for causes, and symptoms for diseases. Difficulty of breathing, asthma, and cough, have had their place in the nosological tablets, and therapeutics was overloaded with incisives, pectorals, expectorants, &c. Pathological anatomy was alone capable of demonstrating that expectoration, dyspnoea, and cough, may be the effects of divers affections, which must form the basis of all curative indications, and become the exclusive object of all medications.—The physiological physician has no longer to treat croup, asthma, whooping-cough, catarrh, difficulty of breathing, &c. but he has before him such diseases as the following: laryngitis, tracheitis, bronchitis, pneumonia, pleurisia, dilations of the heart, &c. all of which convey correct ideas to the mind, and have an evident seat which leaves the traces of its impression on the body after death.

Therapeutically considered, the diseases of the respiratory organs which call for the use of debilitating agents, may be divided into acute or chronic irritations of the larynx and trachea, of the mucous membrane of the bronchiæ, of the parenchyma of the lungs and of the pleura. To this limited number of affections, which are sometimes isolated, but more

frequently combined, we are evidently to refer, either as symptoms, or as material consecutive disorders, all those diseases and alterations which may affect the organs of respiration, and are the objects of such multiplied pathological and anatomical descriptions.

There are several means by which the physician can debilitate the organs of respiration; they are, 1st, lenient drinks; 2d, evacuations of blood; 3d, emollient fumigations, and the various substances which are sometimes used in the form of vapour; 4th, calming and sedative applications on the external surface of the chest. These medications, to which we may add rest of the affected part, are susceptible of being resorted to either simultaneously or combined in various ways, according to the indications to be fulfilled. Let us now consider each of them separately.

All lenient, mucilaginous and gummy drinks, act in a special manner on the mucous membrane of the lungs. This action seems to be sympathetic of that which those fluids exercise on the internal membrane of the digestive organs; at least, they operate so suddenly after their ingestion, that it is not probable to suppose the absorption of their particles could have taken place in so short a time. Thus, in some subjects, the acrid heat of the chest, and disposition to cough, are diminished at the very moment when a cup of infusion of mallows, or of a solution of gum reaches the stomach. The moment a pastile made of the paste of marsh-mallows is placed into the mouth, its lenient effects are immediately felt. We are not, therefore, to place too much confidence in the passage of medicinal particles into the blood, or in their immediate action on the pulmonary tissue. On the other hand, those particles are generally much altered by the digestive action of the stomach, intestines and lymphatics. But we cannot deny the possibility of a rapid inhalation of a large quantity of aqueous liquid, which perhaps preserves some mucilaginous quality, and exerts on the composition of the venous blood, and consequently on the lungs through which that liquid is carried, a more or less considerable action, which is added to, and fortifies the sympathetic influence already exercised by the stomach. The effect of both these orders of impressions, produced by emollient substances, is that the mucous surfaces of the pulmonary passages are thereby lubricated, relaxed, smoothed and relieved. Under their influence, the pain in bronchitis is diminished; the cough is less frequent, less

troublesome and dry ; they relieve the heat of the irritated parts ; and even in pneumoniæ, emollients taken into the stomach, often subdue the violence of the symptoms, and not unfrequently perform a cure.

Some of the emollients enumerated in the first part of this section, such as marsh-mallows, lungwort, wild poppies, jujubes, gum arabic, the broth of frogs and of snails, the yolk of the egg diluted in water, seem to possess a decided influence on the pectoral organs. They are generally employed in the form of infusions, decoctions, syrups and pastiles.

Vegetable acids are not proper in phlegmasiæ of the lungs : some may, however, be used to season mucilaginous substances, such as pippins, oranges, and other acidulated vegetables, when the fever is high, and the dryness of the mucous membranes and the internal heat considerable.

We must here notice the errors into which empirics have generally fallen in prescribing hot pectoral emollient drinks. These liquids should not be given cold even in the most acute phlegmasiæ, as they would thereby lose much of their soothing and relaxing property. But, when given hot, they excite the circulation of the blood and a general stimulation, and operate as diuretics or sudorifics. In such cases, when the pulmonary irritation is gentle, recent, and, as it were, superficially extended to the mucous membrane of the bronchiæ, hot drinks may displace and even remove it altogether, by occasioning an over-excitement in the kidneys or in the exhalants of the skin. They may then be considered as revulsives. But when the pulmonary affection is violent, and deeply seated, their action failing to displace the irritation, increases the disease, and becomes injurious. Sydenham had observed that the perspiration occurring spontaneously in pectoral diseases is favourable, whilst those artificially produced may prove hurtful. In prescribing warm pectoral drinks against pulmonary inflammations, the physician is not unlike the vulgar who administers hot wine in these diseases. He exposes his patient to equal chances of his either curing or increasing the disease. I believe it important, however, for the practitioner to prescribe, in cases of inflammation in the chest, lukewarm mucilaginous drinks, at the temperature of thirty or thirty-two degrees of Réaumur : if colder, they will act as excitants, and consequently be injurious, whenever they prove insufficient to operate a salutary revulsion.

These drinks should be taken plentifully, owing to their

promoting perspiration, through which part of the aqueous particles are constantly elicited, and because the lungs being in a state of irritation, the blood in passing through them, requires to be rarefied in order to produce no stimulant impression on their tissue.

The second indication, blood-letting, acts with as much energy and efficacy on the organs of respiration as on the external parts of the body. In order to be consistent with the order of this work, I ought only to mention here local bleeding; but letting blood from the veins possesses such immediate and important influence on inflamed lungs, that I cannot forbear giving them a particular attention in this place.

The lungs are to be considered as a dependence of the vascular system; their functions are intimately connected with those of the heart, and they serve as an intermediate organ between its right and left cavities. The most important of those functions is that of imparting to the venous blood, those properties which are necessary to the proper excitement and nourishment of all organs and tissues. It is evident that this conversion of venous into arterial blood, in whatever light we may view it, cannot take place without a special action of the parenchyma of the lungs, which must thereby become the seat of a more or less considerable excitation, and some degree of congestion of blood. We all know that the greater the mass and rapidity of the blood throughout the circulating system, the more will the lungs be excited, exhausted, or irritated by its more frequent passage through them. If, on the other hand, the pulmonary tissue and the mucous membrane of the bronchiæ are then in a state of acute or chronic irritation, it is evident that the febrile excitement as well as the mass of blood will thereby tend to increase that irritation.

We may, therefore, conclude from these facts, that the letting of blood from the veins has a direct tendency to lessen the activity of the functions of the lungs, by taking away a portion which these organs would elaborate in a given time, lessening the rapidity of the circulation, and thereby increasing the interval between each jerk of blood to the lungs, and each inspiration. This local effect is, to a certain extent, independent of that produced by general evacuations of blood on the whole of the vascular system. By lessening the mass of blood in the pulmonary artery, the organ is reduced to a state of rest, resulting from the diminution of its contents;

and by relieving at the same time the bronchial arteries, the irritated tissues become free from a part of that blood which nourishes them and contributes so powerfully to increase their over-excitement.

Local blood-letting never had heretofore been attended to in the treatment of pulmonary complaints; it fell to the lot of physiological physicians to demonstrate the good effects produced by this means, which was already employed with success against a number of other diseases. Leeches applied to the chest may be considered as acting locally on the lungs, such is the rapidity of their effect on those organs, and such the evident success attending their application. The close sympathy uniting the thoracic viscera with the corresponding regions of the skin, explains satisfactorily the effects of those capillary bleedings on the parenchyma of the lungs; it might perhaps also be said that by drawing a more or less considerable portion of blood into the divisions of the intercostal arteries emanating from the aorta, they diminish in a direct manner the quantity of that fluid which is to fill the bronchial arteries arising from the same trunk. This action, however, I consider as subordinate to that which takes place by the agency of the sympathies. It is, undoubtedly, by their action on the lungs, as on other organs, in relieving the irritation of the affected tissues, and lessening the violence with which the arterial blood is carried to them, that capillary blood-letting will remove local excitements and their subsequent effects.

In the treatment of diseases of the chest, warm emollients applied to the thorax must be considered as powerful auxiliaries to general and local bleeding. By drawing the blood to the surface, and promoting perspiration; by keeping up a moist, equal, and continued heat on the outside of the chest, emollient cataplasms or fomentations operate on the lungs as derivatives, and by means of the sympathies, as direct relaxing agents. Those applications are always useful; in acute inflammations of the bronchiæ, and of the pulmonary tissue, I have seen them produce a sudden diminution of pain, an evident internal relaxation, and a decided beneficial effect upon the cough. Those means must not be considered as the most powerful that therapeutics possesses.

Some precaution, however, is necessary in their employment: fomentations with several folds of flannel dipped into a decoction of the roots of marsh-mallows, after being strongly

pressed to let out the fluid, and applied burning to the thorax, are to be preferred to cataplasms. The whole chest must be covered with them in all its extent, and from one side to the other. This topic possesses all the benefit of cataplasms without partaking of their inconvenience, in as much as it is less heavy, easier to be renewed, less fatiguing to the patient, without having the same tendency to shift and get cool. Two compresses should be kept in readiness, that one may be applied as soon as the other is removed, and that the skin, which is then moist and warm, should not be exposed to the contact of the air. These details are important in practice, and we often see the most appropriate means fail, owing to the imperfect and vicious manner in which they are used.

It is difficult to act directly on the mucous membrane of the lungs. Emollients can only be used in the form of vapour, such as that arising from boiling mucilaginous decoctions.—Some sedative and narcotic plants are often added to them with advantage, as henbane, morel, poppies, &c. M. Alibert says that, in the case of a woman afflicted with violent cough, threatening suffocation, he succeeded in allaying the spasms of the respiratory organs, and relieving the patient, by having the room completely filled with the vapour arising from a decoction of marsh-mallows and other emollient plants. I have obtained the same result in two or three cases of violent cough, with acute and lacerating pain in the bronchiæ. Some cases are related where, in similar diseases, and in catarrhal phthisis, good effects have resulted from the vapour of sulphuric ether mixed with the air. Living in low damp places loaded with matter obnoxious to respiration; the atmosphere of stables and of other places filled with animals who rarify and impoverish the air, deprive it of oxygen, and overload it with carbonic acid, with aqueous vapour, and animal matter, have been extolled by a number of practitioners, but never produced any well established success, and will be advantageously supplied by the means indicated above.

Pneumatic chemistry had hardly paved the way to the valuable discoveries to which it subsequently led, when medical men entertained the hope of its affording some powerful and new mode of acting on the organs of respiration. But, in this as in other cases, stimulants were first resorted to. Little attention was given to those gazes which were susceptible of lessening the action of the lungs, and thereby diminishing the irritation seated in them. M. Marc has, however,

collected some facts which would appear to point out the advantage of recurring to that practice. The physician caused his phthysical patients to inhale air containing a greater quantity of azote than in the natural state, and in two cases there was a decided diminution in the violence and force of the pulse. One of them remained several days without fever, and his colliquative sweat had disappeared ; but a relapse, occasioned by some imprudence, banished all the hopes he had entertained of recovery. The same practitioner has administered carbonic acid, with some success, in chronic inflammations of the trachea.

These observations prove that the combination of several gazes is susceptible of modifying the action of the lungs, and of affording some relief in their affections ; but our knowledge is yet too limited on that point to lay down any precise rule relative to their employment. The immediate debilitating medications of the mucous membrane of the lungs, may then be finally reduced to the following : inhaling the vapours of relaxing and gently narcotic vegetables ; inhabiting low, damp places, loaded with animal matter, and where the atmosphere cannot be renewed without difficulty. But medicine places little confidence in the former, and has altogether justly proscribed the use of the latter.

Having examined what I might call the elementary medications by which the practitioner may lessen the vital activity of the thoracic viscera, let us now consider what application he is to make of them in the numberless diseases of the organs of respiration.

SECTION II.

Of the treatment of acute inflammations in the organs of respiration.

It is somewhat easy for the physician who possesses accurate ideas of the nature of the various affections of the organs, to apply the rules we have already laid down for their treatment.

Violent and decided inflammations of the mucous membrane of the pharynx, larynx and trachea, should be treated locally by means of leeches to the neck and parts corresponding to the seat of the affection. Emollient lotions and fomentations should afterwards be made to promote bleeding from

the punctures. This treatment, when actively employed at the commencement of those diseases, seldom fails to check their further progress. Emollient gargarisms in the various species of cynanche, and the inspiration of vapour arising from a decoction of marsh-mallows when the larynx or the trachea are affected, will always prove beneficial when added to the other means already indicated.

We are to follow the same plan when inflammations of the throat, pharynx and trachea are so intense, and the sebaceous glands so stimulated as to give rise to the formation of pseudo-membranes over the affected parts. Adults, as well as children, are exposed to that disease called by authors gangrenous sore throat; but the latter are almost exclusively liable to that form of laryngo-tracheitis, in which false membranes are produced, and constituting the croup. A close examination of facts and of symptoms clearly show, that the latter is but an inflammation of the mucous membrane lining the upper part of the ærial passages. MM. Chaussier, Nysten, and others, have observed it in adults in consequence of inhaling chlorine or ammonia; others have produced it almost ad libitum in animals, by irritating their larynx and trachea.

Here also abundant local bleeding is the most efficacious means of checking the irritation and preventing the formation of false membranes. These anormal productions are nearly void of danger in angina; but in laryngitis and tracheitis they prove an obstacle to the introduction of air into the lungs, and their presence generally brings on suffocation and death.

M. Desruelles has demonstrated (1) that there exists no false croup. We must also reject the existence of mucous, adynamic, spasmodic, nervous croup, &c. Croup is but one disease; it consists in an inflammation of the mucous membrane either of the larynx alone, or, as is more frequent, of both that organ and the trachea, or the inflammation may sometimes, though very seldom, extend to both these organs and to the first divisions of the bronchiæ. The spasms and other accidents accompanying it, are the result of the sympathy exercised on the brain by the affected parts; the adynamic and ataxic symptoms are the result of a complication of the disease with a violent gastro-enteritis. But the disease is always fundamentally identical, and requires, in all cases,

(1) *Traité théorique du croup*. Paris, 1823, in 8vo.

the same local depleting treatment. As soon as the symptoms of croup begin to appear, whatever be the temperament of the subject, and the nature of those general symptoms, we must immediately have recourse to copious local bleeding, in a quantity proportionate with the intensity of the symptoms and the constitution. We are not to be deterred by the fear of weakening the patient; but give all our attention to the imminence of the danger. The inhaling of aqueous and emollient vapours, will greatly promote the good effect of blood-letting. It is only after the violence of the laryngo-tracheal irritation has been diminished, that we may successfully employ revulsives as hereafter indicated, if the symptoms should not subside.

The inflammation of the pulmonary mucous membrane, or of the bronchiæ, also requires the use of antiphlogistics: the patient should be kept in an absolute state of rest, free from exposure to cold; he must take emollient and mucilaginous drinks; his chest must be covered with flannel, either dry or impregnated with a warm decoction of marsh-mallows. In these affections, Stoll never neglected the inhaling of aqueous vapours, which he called with truth and energy, bathing of the lungs.⁽¹⁾ Should the cough be painful, and a burning sensation felt in the chest, the treatment must be more active; leeches above the superior part of the sternum, in the pit formed by the intermediate space between the sterno-cleido-mastoidei muscles, will then be found highly serviceable. In this place, they act almost immediately on the inferior part of the trachea; the relaxation they occasion is soon propagated to the most proximate divisions of that tube. When fever, pain, and spitting of blood accompany those symptoms, the strictest diet and general bleeding are imperiously called for.

Every practitioner will be convinced of the justness and importance of the remark, that inflammations of the mucous membrane of the lungs should always be treated with greater activity and perseverance, as they are more susceptible of either producing or aggravating croup or pneumonitis, or of continuing under the chronic form, and thereby constituting incurable pulmonary catarrhs, terminating in phthisis.

It is also proper to observe that, in these cases, the antiphlogistic treatment should be persisted in, until the symptoms have entirely subsided; by having too soon recourse to

(1) Stoll, aph. 134.

tonics, excitants, and other similar remedies, the irritation will be reproduced, or its complete cure prevented, thereby allowing it to proceed until it has extended its ravages to the parts affected.

One of the most serious inconveniences arising from ancient nosologies, was that of separating, by distinct sections, diseases which have the greatest affinity amongst themselves, and which are easily converted the one into the other. The greatest resemblance exists between pulmonary catarrh or acute bronchitis, and a slight pneumonia: although these diseases appertain, the ones to mucous, and the others to parenchymatous inflammations. But the anatomico-physiological order followed in this work, connects those affections; it allows us, in describing them, to imitate the almost insensible gradation which nature itself has placed in their development.

Owing to the importance of the organ it affects, the rapidity of its march, or to its immediate or remote dangers, pneumonia is one of the most serious inflammations which can attack the human body; one which consequently requires the most prompt and active treatment, and the most conformable to a sound medical doctrine. This treatment, apparently so easy and simple in theory, is practically complicated, and surrounded with difficulty and uncertainty. If, in simple cases, in adults, where the pulmonary irritation is moderate, the equilibrium should manifest a tendency to return; and if the practitioner can then with safety confine himself to promoting the salutary effects which he witnesses, his task is often more delicate, and on his inaction, or on the means he resorts to, will sometimes immediately depend the recovery or loss of his patient.

In order to direct a methodical treatment of the pulmonary inflammation, it is necessary to determine what rules are to direct the practice of blood-letting, what other indications are necessary, and what are the most efficacious means to be employed against those pneumoniæ, called nervous, bilious, adynamic, ataxic. Although emetics in large doses are not to be considered here as debilitating remedies, I will, notwithstanding, examine their action; for, according to some persons, it has a decided counter-stimulant effect, and thus compared with the other appropriate means of treatment, it will be easy to form a correct judgment of its advantages or of its dangers.

It has already been demonstrated, that general bleeding has a very powerful local effect on the lungs; it contributes immediately to diminish the irritation which, in pneumonia, is seated in the parenchyma. The intensity of the disease, the period to which it has arrived, the age and sex of the subject, are as many circumstances influencing the treatment.

When pneumonitis is slight, recent, with little fever, but difficulty of breathing, or acute pain in the chest, ten or twelve ounces of blood from the arm will afford considerable relief, and convalescence will speedily commence. Blood-letting will then have carried away the disease. We might perhaps strictly dispense with it; but its only inconvenience is a small degree of debility, whilst, by abstaining from it, the longer continuance of the symptoms will debilitate the patient still more, and expose him to the still greater mischief of disorganization of the viscus, or of the disease assuming the chronic state.

When the inflammation is more violent, the necessity of bleeding is more pressing. Two circumstances may then present themselves; the patient may have a large, hard, and full pulse, and the skin may be warm and turgescient, or he may be weakened, threatened with suffocation, and his pulse small, deep, and almost insensible. In the first case, bleeding from the veins is urgently called for, and it must be in the quantity of twelve or eighteen ounces, taken suddenly, and from a large opening, in such a manner that the lungs may be rapidly freed from a large portion of the blood contained in them.

Experience has not confirmed, at least in this country, the dangers which Ouarin and Hildebrand have attributed to the syncope following such evacuations. It may be proper, and sometimes prudent to prevent this accident by immediately closing the veins.

The apparent prostration of strength, in acute pneumonitis, should not deter us from evacuating blood; but we cannot then resort to that measure with as much confidence and energy. I am aware that, in such cases, a large bleeding has succeeded in suddenly removing the prostration, orthopnea, and elevating the pulse as well as all the organic actions; but I am convinced that, in many other instances, this practice has increased the prostration, prevented a reaction, and proved injurious.

When a violent and extensive inflammation of the lungs has occasioned a sympathetic disorder in all the vital actions, and when the heart, under the pressure of pain, moves with difficulty, it cannot be doubted, but that a too sudden abstraction of blood will maintain the prostration of strength, and produce an unfavourable result. It is then necessary, and this precept is of the highest importance in practice, to resort only to a sort of exploratory bleeding, by making a small opening in the vein, and attentively examining the effect of the evacuation. Sometimes, as the blood flows, the patient finds himself relieved, the pulse rises, becomes stronger, and the respiration more free. With this admonition, the practitioner must persist, and substitute copious bleeding for that which he did not at first intend to carry further than a few ounces. When the evacuation does not produce that salutary result, and when the prostration continues, six or eight ounces will be sufficient, observing the ultimate effects. If, after a few hours, the pulse becoming stronger and larger, announces the rising of vital action, then bleeding may be repeated; and it is not uncommon to observe the letting of blood, continuing in its salutary effect, restore the disease gradually to its congenial state of simplicity, and effect a speedy cure.

These symptoms of pneumonitis, notwithstanding, are very serious, especially when they occur in subjects exhausted by fatigue, excess, or antecedent diseases. Should, then, the prostration of strength be great, the anxiety extreme, and the muscles trembling, we are to confine ourselves to local capillary evacuations, and afterwards to revulsives. Phlebotomy is afterwards practicable only when the pulse has risen and acquired some vigour.

Pneumoniæ, even the least complicated, are frequently accompanied with pleuritis, and a violent pain in the side, which is increased by coughing, and renders breathing laborious. In these cases, it becomes necessary, after one or two general bleedings, when pain in the lungs and pleura exists, to cover the corresponding region with leeches. This practice, sanctioned by experience, is followed by the most favourable results. M. Lermnier, who has adopted it, sometimes applied leeches before the vein is closed, in order that capillary evacuation may corroborate the action of the general bleeding.

The state of respiration, more than that of the pulse, indicates the necessity to bleed. A difficult breathing, accompanied with a crepitating and rattling noise in the throat, ur-

gently calls for evacuations of blood, which must be made in the manner and with the precaution already indicated. The benefit derived from bleeding will be in proportion to the velocity with which the blood flows, and to the thickness of the buffy coat. This remark of Sydenham and Hildebrand is confirmed by daily experience. After the first evacuation, the relief it had procured will be followed, in a few hours, by the recurrence of the irritation, of the congestion, and of the symptoms which it had before subdued. But the violence of the disease grows less and less, and bleeding is to be again resorted to. The inflammation generally returns several times in this manner, with less intensity, until it disappears altogether under this treatment.*

* Inflammation in the lungs is one of the most serious affections of the kind that can occur, if we consider its decided influence in producing consequent disorders, which are the more to be dreaded as they are totally beyond the reach of therapeutical agents.

Blood-letting is undoubtedly the most powerful means we possess of putting an effectual check to its progress; but the mode in which that remedy is to be employed to the greatest advantage, may yet be a proper subject of meditation, considering the importance of the disease.

The state of protracted debility which is apt to follow the long employment of appropriate remedies, as well as the absolute abstinence which it is so imperiously necessary to insist upon for a long period, constitute circumstances which, added to a long and difficult convalescence, are uncommonly favourable to the formation of tubercles or of abscesses.

If my judgment does not deceive me, I have observed that, in inflammations of the lungs, full and vigorous bleeding carried to such extent as to leave hardly any more strength than is necessary to the support of life, is much to be preferred to ordinary, though frequently repeated evacuations. As far as my experience has enabled me to judge of the expediency of that treatment, I think that, whenever any of the consequences to which I have just alluded take place, the worse that will occur has been uniformly abscesses, when the vigorous treatment I mention had been resorted to, and tubercles, when evacuations had not been more abundant than in other inflammations. In the former case, convalescence was shorter than in the latter, although debility appeared as great in the one as in the other. Indeed, it may not be incompatible with our knowledge of the laws of vitality, to suppose that a protracted convalescence is not so much the result of a vigorous and depleting treatment, as of the duration of a disease. Three or four pounds of blood is the quantity I generally draw, and, notwithstanding the insignificant and vague caution of authors of consulting the temperament, sex, and other circumstances of the patient, in letting blood, which saves them from the difficulty of pronouncing on any exact rule of conduct, and by means of which some practitioners, for the purpose of shielding themselves from the reproach of mal-practice, might perhaps urge the existence of such circumstances as excluded the possibility of bleeding at all; notwithstanding those circumstances, I say, I have seldom drawn less than three pounds of blood at a time. Perhaps this may be referred to the strong constitutions of the inhabitants of

Young children, as well as old people, afford no exception to the necessity of bleeding in acute pneumonitis. In those cases of inflammation of the lungs, so frequently occurring in rubeola, in consequence of the abuse of heat in their treatment, Sydenham considered bleeding from the arms as necessary, even in tender infants. He sometimes repeated the operation which, according to him, may be practised with as much safety a few months after birth as in adults. This conduct is that which the most judicious physicians of the present day have adopted, substituting, however, during the first years of infancy, leeches applied to the thorax and to the opening of veins, whenever the disease is not violent. Until the veins are fairly developed, it is somewhat difficult to obtain a sufficient quantity of blood from their opening; leeches, therefore, applied in sufficient number will draw as much blood, and the effect will extend to the lungs with as much rapidity, owing to the delicacy of their constitution.

With regard to old people, J. P. Franck bled nine times with success a man 80 years old affected with pneumonia. Old people will bear a greater loss of blood in this disease than in any other. A long experience has established the necessity of an energetic treatment at the commencement as well as towards the end, of inflammations of the lungs. This course will be as successful in old people as in adults, provided the lungs are not already the seat of some chronic inflammations of long standing.

Pringle, one of the most celebrated practitioners of the last century, had established that after the fifth or sixth day at the latest, bleeding is dangerous, and ought to be banished from the treatment. This assertion was echoed by a number of practitioners, and became a sort of axiom, the authority of which stood a long time uncontradicted. But after a mature examination of all the circumstances of the disease, the maxim of the English physician was gradually neglected. There is perhaps no practitioner at the present day who, in the em-

the northern climates of America; but I may say that in those subjects which evinced that peculiarly strong constitution, the quantity was greater.

I say again, if my judgment has not been incorrect, with respect to the variety of termination which I have observed in the varieties of inflammations of the lungs, in consequence of a difference in the quantity of blood taken from the system, I would confidently recommend further trials, for the purpose of ascertaining how far this may be sanctioned by other observations:

ployment of bleeding, does not rather consult the state of the pulse and of respiration than the age of the disease. It cannot be denied, however, that, after the first six or eight days, a resolution of the inflammation is more difficult to be obtained, and evacuations of blood must be more moderate, and less powerful, than at the invasion of the disease. But they will prove beneficial at all periods, whenever they are called for by the state of the irritation. In medical practice, an attentive observation of the symptoms is always to be substituted for those arbitrary rules, more dangerous than useful, which were originally founded on the hypothetical reasoning of the critical days.

It is proper to mention here other debilitating agents which are to be added to the employment of local and general blood-letting.

Mucilaginous and gummy lenient drinks, when administered luke-warm, are the most efficacious means of subduing the accidents generally attendant on pneumonia. Decoctions of marsh-mallows, solutions of gum, properly made sweet, and syrups composed of the same substances, should be made the ordinary drink of the patient. An absolute diet, and abstinence of the lightest broths, are indispensable, especially during the first days, and when the disease is in all its vigour. As the irritation subsides, the patient may be indulged some light nourishing substances, as the yolk of eggs diluted in water, chicken broth, &c. until convalescence being confirmed, he may be allowed some more nourishing food.

Emollient fomentations on the chest, but particularly on the region affected, and inhaling vapours of the same nature, should never be neglected in acute pneumonia. In irritable habits, it will be proper to add one or two white poppies to the linseed and marsh-mallows which are to compose the liquid and the fomentations, thereby producing a narcotic effect calculated to allay the nervous susceptibility. Two ounces of the dried leaves of morel, and four buds of poppies, boiled in two pounds of water, produce a similar, but rather more narcotic decoction, which, in some cases, is more beneficial than the former composition.

In the course of pneumonia, two symptoms are to be strictly attended to, cough and expectoration. The former, which is often so frequent, and accompanied with a painful sense of laceration internally, is generally allayed by the means already enumerated. When, however, it persists in annoying the

patient, and contributes by continual retchings in keeping up, and even increasing the pulmonary irritation, it will be relieved by potions composed of gum arabic, anodyne syrup, and some pectoral infusion. A looch made of twenty grains of gum adragant; syrup, one ounce; oil of sweet almonds, two drachms; aq. flor. aurantium, two ounces, mixed with four ounces of an emulsion composed of fifteen sweet almonds and half an ounce or an ounce of the syrup of poppies, will then be found highly beneficial. We should not, however, resort too soon to those measures, nor place too much reliance on them: prudence should always bring to mind that in pneumonia, the cough is the effect of the irritation, and we cannot expect to allay the former before the latter is subdued.

These reflections are applicable, in every respect, to expectorants. None should be given but those which have a tendency to appease and subdue the irritation; others would stimulate the mucous membrane, and turn to benefit the disease and not the patient. All pretended expectorants should never be used during the first stages of inflammation, and even at more remote periods in its course, owing to their irritating property. The circumstances in which they are proper will be pointed out hereafter.

The most important but easiest question to solve at present is, whether the principles hitherto laid down are adapted to the treatment of those acute pneumonitis qualified by the name of nervous, adynamic, bilious, atonic, &c.

There are subjects in whom the slightest, as well as the most violent diseases, determine a more or less considerable degree of excitement of the nervous system, thereby occasioning unusual accidents in the parts affected, in the brain or any other organ abundantly supplied with nerves. Pneumonix thus complicated have been, by some, designated by the name of nervous pneumonitis. It will readily be seen that by subduing irritation in the chest, the sympathetic nervous disorders to which it gives rise, will secondarily disappear. When the latter are very intense, it may perhaps become necessary to add, to antiphlogistics and depletion, such secondary measures as will diminish the susceptibility and stimulation of the nerves.

A very important organ, the stomach, participates in many cases of pulmonary inflammations. This complication of pneumonia with gastritis or gastro-enteritis constitutes one of the most dangerous diseases to which the human species is

liable. The physician must then attempt to discover which of the two inflammations is primitive, and has given rise to the other. Bilious pneumonia, or that which is complicated with gastritis, requires, on the one hand, the means indicated above, on the other, those debilitating medications applicable to the digestive canal. It is proper to insist on especially directing the treatment of that which is the most violent, and appears to exercise a controul over the others. It should be remembered that, in some constitutions, the symptoms of pneumonitis are almost illusory, and being the sympathetic product of gastritis, they disappear with it.

Should those nervous symptoms be carried far, or should gastro-enteritis complicate the disease and excite the sympathies, both these cases will constitute what some have called ataxic pneumonia. Such circumstances are necessary to be known: in the former, encephalitis is directly brought on by the inflammation on the lungs; in the latter, the irritation of the stomach and intestines serves as a medium between the other two. In the first of these complications we are to attend to the pneumonitis, previous to the nervous symptoms; in the other, we are to disseminate debilitating medications over the head, lungs, and abdomen.

Pneumonia, as well as gastritis, and other inflammations of the viscera, lead to adynamy. The lungs undoubtedly act with less vivacity on the nervous system, by means of sympathies, and draw to themselves the vital actions with less energy, than the stomach; but experience shows that their violent and extensive inflammations may bring on the most complete prostration of organic strength. The obstacle to the circulation resulting from the obstruction or hepatisation of their parenchyma, tends in a great measure to induce that state of adynamy. This sort of complication is highly dangerous, and calls for local antiphlogistics and revulsives which will be examined hereafter.

The practitioner must carefully distinguish the species of adynamy which might be called pulmonary, from that arising from a complication of pneumonia with gastritis or gastro-enteritis. In the former, the digestive canal being free from disease can admit of stimulants, which it is often necessary to employ as revulsives; in the latter, the abdomen requires the same treatment as the lungs.

I cannot conclude this article without insisting on the indispensable necessity of pursuing an antiphlogistic course of

treatment, until the local symptoms of pneumonia have entirely disappeared. In order to detect the last traces of irritation, the stethoscope affords a precious means with the use of which physicians cannot be too familiar. As long as this instrument indicates obstructions and inflammation, we are to insist on a severe regimen, emollient applications, small evacuations of blood, and mucilaginous gummy drinks. Some revulsives, as will be seen hereafter, should be had recourse to in order to promote a resolute process of the irritation ; but practitioners cannot guard too strictly against those myriads of irritants in the abuse of which our predecessors have so much indulged. They should also be warned against imperfect convalescence, and against the imprudence of patients resuming too soon their occupations. Pulmonary affections may be followed with such dangerous consequences, the irritation becomes so easily inveterate, and gives rise to such extensive disorganizations, that we cannot be too careful in curing them completely before the patient is allowed to return to his usual labour. We may assert that out of ten patients who leave the hospital with some cough and expectoration, however inconsiderable, eight or nine will one day return with incurable symptoms of phthisis.

The history of the treatment of pneumonia would not be complete, if I did not add some remarks on the use of large doses of emetic, which is considered by some as a direct debilitant.

The new Italian doctrine appears to have been invented with the view of confounding empiricism, conciliating the therapeutics of the ancients with the theory of modern times, and consecrating the following aphorism as a paradox : *similia similibus curantur*. Such is the language of a young enthusiastic partisan of counter-stimulation, which he has put forth in the name of one of the professors of clinical medicine, in the Faculty of Medicine of Paris. He passes the highest encomium on the success of emetics in acute peripneumony. (1)

M. Rasori places on the same footing blood-letting, and the most energetic stimulants, and considers the latter as a good substitute for the former, which may sometimes be

(1) Observations on the use of large emetic doses as a curative means, collected at the clinical practice of the Hôpital de la Charité, and published under the authority of Professor Laennec, par V. Delagarde.—(*Archives générales de médecine*, t. IV.)

dispensed with in their employment. His most favourite remedy is tartarized antimony. When the disease is mild, he confines himself to that remedy, but when it is more violent, he begins by bleeding, which, according to him, takes away part of the stimulus, renders the constitution more susceptible of the impression of the specific, and enables the physician to give it in larger doses. Some persons think that the Italian professor treats pneumonia with emetics alone. This opinion, however, is erroneous; for he frequently has recourse to blood-letting, and in several of the observations he has published, that operation was performed five, eight, twelve, and even sixteen times in a few days, without, however, discontinuing his favourite medicine. The violence of the disease, the force of the reaction, and what he calls the quantity of stimulant diathesis in the patient, are the circumstances which influence his treatment. Blisters to the thorax or to any other part of the body, emollient fomentations on the chest, as well as mucilaginous and gummy drinks so proper to allay the cough, are the only remedies which he rejects without exception or appeal, as being merely calculated to occasion a loss of time prejudicial to the patient. A solution of tartarized antimony, is the only drink and remedy he prescribes.

His mode of administering emetic is very simple. He dissolves the remedy into two pounds of barley water, or any other diluent drink, and gives the whole in the space of twelve hours by small, repeated doses. At the beginning of the disease, he generally prescribes twelve or twenty grains of tartar emetic, increasing the dose as the disease advances, to twenty-four, thirty-six, seventy-two, and sometimes ninety-six grains, in 24 hours. He has gone so far as to give one ounce of emetic tartar with two drachms of kermel mineral in the course of a disease which lasted a fortnight. Far from excluding blood-letting, this operation was added to the above remedies, and in the course of the first nine days, two hundred ounces of blood were drawn by repeated bleedings.

Some physicians have daringly imitated this practice. Dr. Péchier, in Switzerland; Dr. Wolf, in Poland; in France, MM. Fontaneille, Kapeler, Honor, Laennec, Vaidy, and others, have become partizans of the Italian reformer. They, however, employ emetic in a moderate dose, which seldom exceeds six, eight, ten, twelve, or fifteen grains. M. Laennec often dissolves the dose into two or three glasses of an infu-

sion of the leaves of the orange-tree, stronglyedulcorated, half a glass of which is given every two hours ; but he suppresses the remedy during the night, and differs in this particular with the professor of Milan, except in very urgent cases. Should the emetic be rejected by the stomach, M. Laennec adds one ounce of the syrup of poppies. M. Vaidy gives a spoonful every hour of a solution of the emetic in six ounces of a gummy drink.

Such are the formulæ and the manner in which high doses of tartar emetic are generally administered for the use of pulmonary inflammations. Their effects are variable. M. Rasori has generally observed, however, that if the remedy should at first occasion nausea, vomiting and alvine evacuations, these effects will soon disappear under its continuance. In some of his patients, twenty-four or thirty-six grains in twenty-four hours produced no passage through the bowels. The redactor of M. Laennec's observations says that the first doses will generally occasion either vomiting or purging ; but he recommends perseverance, for it frequently happens that the second, third, or fourth dose will check them ; finally, when the vomiting or purging is not too evident and excessive, tolerance will soon be established, and the remedy increased and even doubled, without producing evacuations. In the Rasian language, *tolerance* signifies the disposition in the living organism of undergoing the operation of the emetic without producing either vomiting or purging.

If we credit the assertion of M. Rasori or of his sectarians, tartar emetic speedily cures pneumonia, without exposing the patient to any danger. It is a sort of specific in that disease. It appears, however, from a statement published by the Italian professor himself that the proportion of deaths from that disease has been, out of a hundred, of $22\frac{20}{103}$ at the civil hospital of Milan, and of $14\frac{4}{5}$ at the military hospital, that is to say, 1 out of $4\frac{1}{2}$ in the former, and 1 out of 7 in the latter, proportions which do not appear uncommonly happy.(1)

We must regret that the partisans of this doctrine in France have not published such general reports of the results of the counter-stimulant doctrine, which would, undoubtedly, prove much more unfavourable than a direct and well directed antiphlogistic method.

(1) *Delle peripneumonie, e del curarle principalmente col tartrato stibiato.*

The administration of such high doses of emetic, and their continuance notwithstanding the symptoms they produce, require uncommon courage, or rather a temerity which keeps no account of the morbid phenomena, nor of the diseases which they characterize. Some facts will prove the assertion.

A man of weak habit, aged forty-six years, is seized with somewhat violent pneumonia. After drawing eight ounces of blood, the fever is diminished; the tongue red at its edges, white in the centre; thirst and bitterness in the mouth accompany those symptoms.—*Eight ounces of blood are again drawn: six grains of tartar emetic; pectoral drink.* This prescription is followed by prostration, debility, continuance of the fever, bloody expectoration, dryness and red yellowish colour of the lips; tongue continues of a placid red, purging during the night.—*Tartar emetic, six grains, with one ounce of syrup of poppies.* This prescription is repeated the next day, when the following symptoms appear: greater debility, anxiety, expectoration abundant and viscous; no evacuation. *The emetic is continued.* This day, the patient exhibits the following appearances: extreme debility, face pale, nose sharp, frequent cough, difficult expectoration, pulse small and weak, skin covered with somewhat cold perspiration. Notwithstanding these symptoms, *twelve grains of emetic are prescribed; and blister on the right side.* The face now becomes hippocratic, the skin is covered with a viscous fluid, respiration cavernous in all the posterior and middle part of the right side of the thorax, the tongue is red at its edges and somewhat dry.—*Twelve grains of tartar emetic.* The next day, debility somewhat less; the prescription is continued and the patient seems to improve. He recovers gradually, under the continuance of the remedy, and leaves the hospital after the lapse of forty-eight days, having regained his strength and a little flesh; that is, without having altogether recovered his health.

Such are the facts related, and such the treatment presented to the pupil as examples to follow. It is evident that the subject in this case would, probably, have been cured more speedily and without so much risk for his life, by persevering in the evacuations of blood and lenient drinks, which had at first procured him relief. When the patient has arrived to the last stage of debility, having a hippocratic face, the surface of the body cold and covered with a viscous sweat, does not the mind revolt at the idea of pursuing the course which

has reduced him to that condition? And if relief be obtained, can we not felicitate the person who has thus escaped the two-fold murderous influence of inflammation and of emetic? The following observation is not less curious.

A man aged sixty-one was enjoying good health, when he inhaled the irritating vapour arising from a piece of silver in fusion. He was immediately seized with giddiness, heaviness in the head, and afterwards with nausea and general uneasiness. The patient takes three glasses of wine which produce efforts to vomit, pain at the epigastrium, extreme uneasiness. Three days after the accident, he is admitted into the hospital. The abdomen was hard, the epigastrium painful, especially on pressure, tongue red and tending to dryness; frequent alvine evacuations of a green colour. To these symptoms were added those of a light pneumonia of the right side.—*Venesectio*, $\bar{3}$ viij. *Aq. hordei. c. saccharo. Aq. gommosa ad potum.* General prostration, delirium, respiration more frequent, dry and rough tongue, purging, increased symptoms of pneumonia. Vulgar practitioners, enslaved by doctrines universally adopted, would have then enforced the antiphlogistic regimen, and applied leeches to the epigastrium, fomentations to the abdomen or chest, and one or two blisters to the legs. The Professor, on the contrary, prescribes the following treatment:—*Repetatur venesectio; Antim. Tart. grs vj cum syr. papav. $\bar{3}$ j; Potus gommosus; Aq. hordei cum saccharo.* At four o'clock in the evening, general debility increased; involuntary evacuations of fæces, comatous delirium. Blisters are then applied to the thighs, and the patient is prevented from taking one grain of emetic which had been prepared for him. The next day, alvine evacuations are less abundant, delirium has subsided, thirst still intense, but the tongue appears soft, less dry and red, abdomen yet swollen, but more pliant, and not painful. The indication was then evident; nature, in exhibiting the effect of the remedies, seemed to point out to the physician what course he should pursue. Notwithstanding these admonitions, the following remedies are ordered:—*Emetic, grs. vj, &c; Potus gomm; Aq. hordei cum saccharo.* At 4 o'clock, consequently a few hours after giving the remedy, pulse small, frequent; tongue moist, soft, somewhat fuliginous; thirst intense; abdomen painful at the epigastrium; no vomiting, nor purging. A blister is applied to the chest; but the next day the epigastrium always painful, the pulse hardly perceptible; tongue pale and moist.

Death in the morning. On opening the body, independent of the traces of inflammation in the lungs, the stomach was slightly inflamed about the pylorus, as well as the lower part of the jejunum.

To the above cases, I must be allowed to add the following.

A woman, sixty-two years old, affected with peripneumony in the right side, is admitted at the Hopital-Necker. The debility and smallness of the pulse repel the idea of bleeding. Fifteen grains of tart. emet. are prescribed, diluted into five glasses of decoction of bark. After a few days of this treatment, the redness of the tongue, and the pain at the epigastrium increase. Instead of the emetic, six grains of *sul. ant.* are given, and the next day twelve grains. An abundant diarrhea compelled them also to abandon this remedy. The patient, however, they said, appeared to improve, when she suddenly died after a copious meal taken furtively.

I attach some importance to relating these facts, in order to oppose them to those who maintain that large doses of emetic tartar can be given with safety. The partisans of this method pretend to be founded on successful results; but what method has been entirely void of success? On the other hand, they generally combine, in the most urgent cases, both bleeding and emetic, and it remains to decide which of the two has performed the cure. Who can say that evacuations of blood are not sufficient to counterbalance the baneful effects of the emetic. In a word, we have just seen to what dangers this remedy exposes the patient, before it can effect a cure. M. Delagarde himself also observes that, when emetic tartar is administered, the inflammation does not the less run through its periods, and that the patient, rescued from the most imminent danger, is again brought to life by a sort of miracle.(1)

Let us compare the effects of that method, wherein the patient is incessantly agitated by the remedy, and placed between the danger of poisoning and that of exacerbation of the disease, with those of a direct antiphlogistic treatment. If we may credit ocular witnesses, M. Rasori cannot present a report of cases favourable to his doctrine, but by reckoning as pneumonitis all the cases of cough and pain in the chest, however slight, which may have presented themselves to him in his clinical practice, and as cases of phthisis all those acute

(1) Vide the work already quoted, page 514.

inflammations which, under the emetic treatment, have proved obstinate, and passed to the chronic state.(1)

It is evident that by thus including the slightest cases, and expelling the most severe and obstinate, the proportion of cures will be considerably increased. Again, in the return of deaths occurring in his wards, M. Rasori forms a separate class of dying patients, (*agonissants*,) in the proportion of sixty-five out of thirteen hundred and two. It is possible that, in this category, some very severe cases of pneumonia might be found, which, not being able to undergo the first attempts at treatment, must have perished soon after their entry into the hospital. By the ordinary mode of treatment, the proportion of deaths is never greater than appears in the return of M. Rasori; but we might quote a much more successful practice. The learned and respectable Hildebrand, for instance, announces that in the clinical practice of Vienna, where he prosecutes the practice De Haën, Stoll, Reinlein, and J. P. Franck, he has only lost one patient out of twenty, affected with pneumonitis, and that all the others had but a short convalescence.(2)

It is evident, therefore, that the partisans of large doses of emetic, in the treatment of peripneumony, have exaggerated the innocuous as well as the successful effects of the remedy. M. Sauthier, who has carefully followed the practice of professor Borda, at the bed-side of the sick, asserts that his method is seldom successful,(3) and that it exposes the patient to imminent dangers. The same physician asserts that the employment of large doses of emetic tartar is generally followed with vomiting, which is, for the most, injurious in pulmonary inflammations, with considerable purging, or intense gastro-intestinal irritations. In two of the cases related by M. Vaidy, the remedy produced effects similar to those which might be expected to follow the administration of a *vomi-purgative*.(4) Its action is neither safer nor more rational

(1) *Réflexions critiques sur le tableau de la mortalité du grand hôpital de Milan, comparée à celle de la clinique de Rasori*, par le Dr. J. Strambio.

(2) *Ratio medendi in scholâ practicâ Vindobonensi*, t. I, translated into French by M. Gauthier, under the title of *Médecine Pratique*, Paris, 1824, 2 vols. 8vo.

(3) Observations recueillies à l'Hôpital de Pavie, *Nouveau Journal de Médecine*, t. XV.

(4) *Journal complémentaire du Dictionnaire des sciences médicales*, t. XV.

than the operation of that poison. M. Rasori thinks that emetic directly lessens stimulation; M. Laennec asserts that it invigorates the absorbing system; M. Vaidy believes its influence extends directly to the circulation of the blood, restoring its harmony, and subduing the febrile excitement.—None of these hypotheses can stand the test of attentive enquiry, nor are they founded on judicious observations. They are all in contradiction to the experiments made on living animals, which proves that tartar emetic, whilst it stimulates and tends to inflame the mucous coat of the alimentary canal, from the cardia to the orifice of the rectum, irritates the nervous system, and produces obstructions and inflammations in the lungs, of a more or less considerable extent.(1) This remedy acts especially as a revulsive in the treatment of pneumonia, and we will have occasion to elucidate this truth, when treating of the revulsions produced on the gastro-intestinal system.

It follows from the above discussions, that the most simple, rational, and efficacious mode of treating pneumonia, consists in the employment of general and local blood-letting; in the administration of sweet, mucilaginous, gummy, and other similar drinks; in the simultaneous application of emollient fomentations to the chest, and in the means calculated to subdue all the symptoms which may complicate the disease. Emetic in large doses, exposes the patient to chances which are nearly all against him; and it places him in a perilous situation which it would be cruel in the physician not to avert, when it is in his power to effect a more safe and speedy cure by other means.

The principles above mentioned, the utility of which is founded on experience, are entirely applicable to the treatment of hemoptysis, an affection which is always attended with some irritation in the lungs, whenever the blood does not proceed from some large blood-vessel eroded or ruptured. Bronchial hemorrhages especially require more abundant evacuations than appear proportionate to their violence, to the strength of the patient, and to the quantity of blood already lost by the hemorrhage.

Cold applications to the chest are seldom proper in irritations of the viscera contained within it, owing to their effect

(1) *De l'influence de l'émétique sur l'homme et les animaux*, Paris, 1813, 8vo.

in propelling and accumulating the blood in the interior, and consequently in the organs already affected. It has, however, been had recourse to in hemoptysis, but with different results. Ice applied to the chest, in that disease, is too powerful, and may displace the hemorrhage, but will give rise to a violent pneumonia, and especially to a fatal pleurisy.

We cannot, therefore, resort to it, except at the last extremity, taking care to suppress it as soon as it appears to increase the cough, instead of relieving it. Cold drinks are infinitely more proper; it will be seen hereafter that they contribute powerfully to lessen the over-activity of the circulation. It would not, however, be proper to resort to them against hemoptysis before having, by previous evacuations of blood, prevented the irritation they might produce on the lungs.

The precepts laid down for the treatment of pulmonary inflammations, are equally applicable to acute pleurisy. The pleura forms, as it were, part of the parenchyma which it covers, and of the irritations of which it frequently participates. The treatment of pleurisy, however, requires two great modifications, in the employment of bleeding; the first is that the quantity and frequency of the evacuation are not as necessary as in pneumonia; the second relates to the use of leeches which, owing to the situation of the pleura, and to its close connexion with the thoracic parietes, will operate more immediately and efficaciously on that membrane than on the lungs themselves. Thus, after one or two general bleedings intended to relieve the respiratory organs, and to diminish the rapidity of the passage of blood through them, a considerable number of leeches, applied to the region of the pain, will produce very speedy relief. Mucilaginous and gummy drinks, emollient fomentations, cataplasms of the same nature to the affected part, and other similar means, should be resorted to at the same time.

I will conclude these considerations by a most important practical observation. In all thoracic inflammations, the treatment should be persisted in until all the symptoms have entirely subsided. The patient is never to resume his occupation before the pulse, respiration, percussion, and the stethoscope, announce the complete return of health. Unlike all the other parts of the body, irritations of the organs of respiration will be renewed, or become chronic, whenever the convalescence is not altogether complete. These organs are the most active of the whole; muscular exercise,

irregularity in diet, atmospheric variations ; indeed all impressions are strongly felt by them, and tend to exasperate and perpetuate irritations imperfectly destroyed, and to produce the most extensive disorganizations. He may be called extremely fortunate who escapes all these causes of destruction. A complete state of health, and an unlimited energy of all the vital actions, are conditions without which convalescents, after diseases of the lungs, will seldom be preserved against consecutive affections, which always prove more obstinate and more dangerous than the primitive complaints.

SECTION III.

Of the treatment of chronic inflammations in the organs of respiration.

With respect to chronic diseases of the lungs, pathology is far ahead of therapeutics. The art, otherwise so difficult, of ascertaining the different kinds of pulmonary affections, has been much more improved than the more important science of curing them. By means of the most scrupulous examination, and of ingenious processes and instruments, we are enabled to ascertain, during life, the slightest pulmonary affections ; after death, pathology describes, with uncommon accuracy and minuteness, all the details of the physical disorders of the affected tissues. But from the time that the diagnostic is established to that of a post mortem examination, what part does the physician perform ? We may consult the most eminent writers among the ancients and the moderns ; we may unfold clinical reports, but what else can we find but details of pathological anatomy ? It would seem that the professor had removed his chair into the dissecting room.

It is far from my intention to attempt to depreciate researches which have laid the foundation to the present improved state of medicine. My only wish is that therapeutics should be more seriously attended to by some physicians, and that, somewhat distracted from their anatomical pursuits, they should apply themselves to the art of curing diseases which they have otherwise so beautifully described.

But if medicine is so little efficacious in the treatment of phthisis, it has at least acquired the important knowledge of the means of putting a check to their development ; and, in this respect, it will confer a valuable benefit on humanity, if it

can only lessen the number of victims which are daily sacrificed to chronic inflammations in the chest.

In order to attain this end, the first step should consist, as we have already said, in a proper treatment of all acute inflammations of the thoracic viscera, and in our perseverance in antiphlogistics and revulsives until the entire disappearance in all the symptoms. It should not be forgotten that persons constitutionally predisposed to pulmonary affections, have not, as the vulgar pretend, their lungs weak, but merely sensible and irritable beyond what is requisite for the normal exercise of their functions. The most effectual mode of preventing the rise of phthysical complaints, consists in attending to the following directions: avoiding an over-exercise of the lungs; keeping from exposure to cold; wearing a woollen dress over the chest close to the skin; observing a light, although nourishing diet; taking gentle exercise; in a word, removing all direct stimulations from the lungs, as well as all excitations capable of reaching them, whilst carefully attending to calling towards less important organs all energetic vital actions.*

* After what I have already said on the subject of blood-letting in these complaints, it will not be necessary that I should offer any farther remarks at present, for the purpose of calling the attention of the profession to that subject. My own experience in chronic inflammation of the lungs, without the existence of tubercles or abscesses has been very limited, and I believe very few practitioners have ever observed many such cases, because it would appear that the period of the chronic termination of inflammation in all other organs, is very nearly that at which the formation of tubercles, &c. most commonly takes place. Should this prove correct, I believe blood-letting, and other direct debilitants will be found useless, if not injurious, in this stage of the disease, which may then be pronounced incurable.

Notwithstanding the extensive improvements lately made in the healing art, it is yet a question whether the palliative and almost negative treatment of the ancients in this incipient stage of phthisis, is not yet preferable to all the active and destructive measures recommended and adopted in modern times. Quinine has even been prescribed by some, and it has come to my knowledge, that a physician tried, and persisted in the use of this remedy on himself, until his entire dissolution, which, of course, speedily occurred under such treatment.

Of all the various methods which have been recommended for the cure of phthisis, I must say that none seem to be entitled to as much consideration as that of Sir A. Crichton, which consists in the employment of tar vapour, although that gentleman has, no doubt, exaggerated its beneficial effects.

In my anxiety to afford some relief in a disease which had heretofore baffled all the resources of therapeutics, I determined to give a trial to this new method, and the result of my experience has been what I had at first anticipated. In all cases of confirmed phthisis, I mean, whenever some disorgan-

In the first stage of phthysical complaints, active debilitants are indispensable. In bronchitis accompanied with constant and painful cough, frequency of the pulse and difficult expectoration, we are to resort to emollient topics to the chest, general bleeding, when the patient is strong, and leeches to the anterior inferior part of the trachea, or below the clavicles, when he is debilitated. The vapour arising from warm water, that of emollient decoctions mixed with the atmosphere, are frequently useful, whatever M. Broussais may have said to the contrary. This practitioner asserts that vapours can only swell the mucous membrane of the bronchiæ, and increase the sense of fulness and of compression experienced by the patient ;(1) but facts militate against this assertion. It is undoubtedly improper to impregnate the air with emollient vapour, where the membrane is flaccid, turgescient, filled with mucus, and where the expectoration is abundant. This measure would then prove useless and even injurious ; but the case is different in irritable subjects, where the expectoration is difficult, the cough dry and painful, the mucous membrane dry and the seat of that peculiar sensation in the throat which induces coughing. In these circumstances, experience has established the beneficial effects of a lenient calming topic. Gummy and mucilaginous drinks are also indicated, as they tend to diminish the violent irritation of the bronchiæ. Should the fever and heat run high, those drinks should be acidulated.

When the parenchyma of the lungs is affected, and when the stethoscope indicates some degree of hepatisation, local bleeding is beneficial. This carnification is more frequently

izing process had already commenced in the parenchyma of the lungs, tar vapour has afforded some very inconsiderable and momentary relief, where the fever was neither high nor continued, and where the patient was of an obtuse sensibility, and it has rather been injurious wherever the reverse condition existed. But in cases of abscesses, and particularly in vomica, by which I mean a circumscribed isolated abscess, it has proved highly serviceable. We all know that these diseases are susceptible of a spontaneous cure ; but I have no doubt that in these cases, and generally where the morbid process is confined to the bronchial ramifications, this method will be the means of averting a termination which would otherwise prove fatal.

In a memoir which I had the honour of presenting to the Medical Society of Quebec last year, on this subject, I related a very remarkable case of recovery by that method, where the disease was so far advanced, that the patient would most indubitably have perished without that remedy.

(1) *Histoire des Phlegmasies chroniques*, t. I, 3e Edition.

observable at the superior than at the middle or lower portion of the lungs ; and observation has proved that leeches applied to the corresponding region, will frequently be sufficient to cause the absorption of the extravasated liquids, and restore the thorax to that healthy condition when it gives a clear sound, and that tremulous respiratory noise announcing the permeability of the air cells.

An attentive observation, aided by sound physiology, alone teaches to proportion evacuations of blood to the strength of the patient, to his degree of susceptibility and to the obstinacy of the disease. No rule can ever be substituted for that inward sentiment originating and progressing in the physician, from the comparison of analogous cases, and from his habit of appreciating with exactness the effects of remedies. But clinical practice enables us to say that antiphlogistics and local bleeding, applied to the treatment of chronic irritations in the chest, in young irritable subjects, the strength being little impaired, have proved to be the most successful means of cure. We are to persevere in that treatment until the frequency of the pulse is diminished, as well as the dyspnea, expectoration, pain and cough, thereby indicating that the irritation has begun to subside. This is the period at which revulsives are called for.

In chronic catarrhs and pneumonia, external heat is the most powerful irritative agent we possess. It should be carefully maintained by the patient inhabiting a warm place, wearing warm woollen clothes. Rest and absolute silence are necessary to prevent the exercise of the respiratory organs. Emollient fomentations or cataplasms applied to the chest, are also very serviceable ; and such is the extent of the relief they afford, that they cannot be too long persevered in.

Chronic pleurisy requires the same treatment. Local bleedings are particularly efficacious in this disease. We ought to commence with making use of leeches, if the pain is intense, the fever high, and the dyspnea considerable ; but at a later period we are to give the preference to scarification and cupping, which draw less blood, but stimulate the skin more powerfully. A local debilitating method is also indicated here, as long as the irritation continues, and gives rise to important local and sympathetic phenomena.

It is, however, indispensable, in the cases under consideration, not to make too free a use of blood-letting and leeches, nor to debilitate the vital actions without urgent necessity,

at the time when, disorganization having already taken place, a cure becomes impossible. The constitution of the patient, the age of the disease, the extent of the dead (*tanquam percussi femoris*) sound of the chest, the signs derived from the stethoscope, and above all, the alteration of nutrition, the yellow straw colour of the skin, sufficiently indicate that condition of the disease which baffles all the efforts of art. But the inferences drawn from those phenomena are not so positive as to preclude the utter possibility of cure; and several successful cases might be related, which had been given up as incurable. In all cases, therefore, where we may perceive the least shadow of hope, we are bound to commence a methodical treatment. If the fever is not high, the patient weak, and the symptoms of irritation have disappeared, revulsives are to be immediately had recourse to, combined with local emollient applications. But when the strength is not impaired, and the fever is intense, accompanied with pain, and troublesome, painful cough, then leeches are indicated. Should they cause the morbid phenomena to subside, whilst the vital actions remain the same, we may return to them and persevere in their employment. If, on the contrary, they weaken the vital actions without producing any sensible benefit, they are to be considered as injurious, and we must have recourse to other means.

It is more generally by a severe diet, or even an absolute abstinence, than by repeated bleedings, that we succeed in allaying the excitation of the pulse, the burning heat in the palms of the hands, and the profuse night sweats, in phthysical patients. Diet can never be too severe; it debilitates much less than the continuance of fever and perspiration; and, as will be seen hereafter, it is one of the most efficacious means we possess against all chronic inflammations.

It not unfrequently happens, that, after having afforded the most flattering hopes, and procured some relief, leeches, like all other means, cease to act favourably, and the inflammation which had diminished in violence and extent in the lapse of a few days, now remains stationary, notwithstanding their continued employment. This fact, which I have often observed, is very remarkable; it may be accounted for, 1st, by supposing that the irritation, abandoning with facility the parts which it had last invaded, returns with all its might to those primitively affected; 2d, by the fact, that the means by which the irritation had been called to another place, have

been insufficient, or have not been so long persevered in as to maintain it in those parts where it had been artificially drawn. The practitioner must then pursue his treatment with increased vigour, until he has succeeded in eradicating the last traces of irritation. With this view he is to combine revulsives with a continuance of blood-letting.

We also frequently observe in practice, that a chronic pneumonia or pleuritis, threatening the life of the patient, after being checked by antiphlogistics, and on the eve of being cured, will now remain stationary, without its being possible to eradicate it entirely. There are several patients who thus remain with their lungs in a state of hepatisation, which affection has almost become altogether local. When these obstructions prove incurable, we must use every possible means of preventing their extension, as well as the recrudescence of the irritation seated in them, and the destruction of the affected tissues. We must here remark, that every return of the inflammation with a certain degree of violence, leaves behind it a sort of disorganization of greater extent, and approaching nearer to the cancerous or purulent form. In this case it becomes necessary to persevere in the use of local antiphlogistics, of revulsives, and of other means of a similar nature.

The whole of the treatment of chronic inflammations within the chest, is, for the most part, encompassed within the narrow circle of the principles above mentioned. Most of the remedies so much extolled by quackery and ignorance, against those affections, are composed of more or less irritating drugs, which cannot be noted here with propriety, and in the history of which much more is to be destroyed than preserved*

* I cannot take leave of this subject without offering some observations on the idea universally entertained, that the change of climate, from a northern to a more southern latitude, will afford considerable benefit, if not produce a radical cure. The fact of the comparative scarcity of pulmonary consumptions in the frozen climate of Canada, led me to suspect that a cold atmosphere might perhaps relieve those diseases, on the same principle that it seemed to prevent their more frequent occurrence. Without trespassing on my readers by theoretical speculations, I will endeavour to prove the truth of my remark, by relating a very singular instance which occurred in my practice, and is yet the only case of the kind on record.

A young gentleman, twenty-two years of age, of a lymphatic temperament, thin, and tall, having a long neck, depressed chest—in a word, possessing all the attributes of a tendency to consumption, had heretofore enjoyed good health, when he was sent as a clerk to some of the Indian trading posts on

CHAPTER VI.

OF DEBILITATING MEDICATIONS APPLIED TO THE ALIMENTARY CANAL.

SECTION I.

General Considerations.

The alimentary canal, being the original source of all nutritions, may be considered as the centre of the animal economy ; its affections influence and modify nearly all the functions ; its sufferings are imparted to every department of the organism. It is for its sake that the senses are always active, the brain constantly awakened, and that the muscles

the coast of Labrador. He lived there for two years, amidst all the hardships of a continual winter, without any kind of indisposition. He now returned to Quebec during the warm season. Shortly after his arrival he was affected with a troublesome, dry cough, with vagrant pain about the chest, and that peculiar tickling sensation at the glottis, which is so remarkable in the first stages of consumption. How this would have terminated, had he remained under the comparatively warm climate of Quebec, will be seen hereafter.—His stay in the city was not more than four weeks, when he set off again for Labrador. About a week after his departure, and as he approached the vicinity of the pole, he recovered his perfect health. Two years after he again came to Quebec, and the symptoms he had formerly experienced appeared as before, and continued until he repaired to his former place of residence.—During the space of six other years he came four times to Quebec, and the same symptoms never failed to come on about a week after his arrival. After remaining during ten years at Labrador, he was desirous to make his final stay in Quebec, and applied to me for advice. On hearing his narrative, I was struck with the peculiar character of a case which was so evidently in contradiction with our ideas of the influence of climates on such diseases ; and wishing to ascertain what would have been the termination of his complaint, had he remained in Quebec, on any of his former visits ; being also convinced of the propriety of his continuing a mode of life which had saved him so many times from what I considered a mortal attack, I desired him to resume, as much as possible, his former habits and regimen.

The winter was now setting in, and, as I had anticipated, his complaint did not materially increase, although the symptoms continued nearly the same. But it must be recollected that the patient, notwithstanding the severe winter of Quebec, had passed to a more southern region, the difference between the cold temperature of Quebec and Labrador being about twelve degrees of Fahrenheit.

execute all motions in the limbs. The history of its sympathies and of its pathological affections, forms one of the most interesting chapters in physiology, and in the science of diseases.

Every part of the digestive organ is not equally endowed with the same degree of susceptibility, and does not possess the same influence on the other organs of the body. The stomach and small intestines possess those properties in a higher degree than the rest. Above the cardia and below the cæcum, the alimentary canal is under the laws common to the whole organization, and presents no prominent character with respect to the sympathies which it excites.

There is no viscus which possesses such unlimited influence on all the divisions of the nervous system as the stomach; none with which the brain sympathizes more readily both in health and disease. Cephalalgia, general anxiety, a universal sensation of prostration, a gloomy or fierce delirium, are the usual attendants of acute gastritis or gastro-enteritis.—When these affections have assumed a chronic stage, the general susceptibility is increased; melancholy, mania, and other nervous symptoms indicate the influence of an irritated stomach on the principal central nerves.

The muscles, placed under the influence of the nerves,

The course of conduct above alluded to did not produce any sensible benefit; and having some reluctance at pursuing a line of practice so directly in contradiction with all the rules of my art, being also apprehensive that the disease would gain time, and consequently become more obstinate to whatever little means we possess of checking its early progress, I commenced a regular medical treatment, as I dreaded the approach of the spring, which was begining to set in.

The patient was put on milk diet, light meat, and moderate exercise; blisters were put to the chest, where the pain had become fixed, and an eruptive discharge was kept up by means of the ointment of tartarized antimony. This treatment, which I conceive to be the best adapted to these cases, was persevered in to the last, but with no apparent relief. The disease began rapidly to increase on the return of summer, and the patient died on the 20th of September following, nearly one year after his return from Labrador.

I make no comment on this case—it does not require any; the consequences are self-evident; and I presume they are such as will warrant at least the assertion that this ought to be attended to in future. Thus, for the inhabitants of the southern states, the climate of Canada might prove a very appropriate place of resort for those who may feel disposed to make the trial, whilst the cheerfulness which prevails throughout that cold but agreeable country, will greatly contribute to produce that hilarity which is always so desirable in such cases.

brain and spinal marrow, are generally affected, through the medium of those organs, in gastro-enteritis. They are sometimes seized with trembling, convulsions, spasms, tetanus; at other times they experience an irresistible reluctance for motion, a deep sense of weakness and palsy to a certain extent. The articulations, and especially the fibrous tissues and synovial membranes are often irritated in consequence of affections of the stomach and intestines, and their inflammation often alternates with that of the digestive mucous membrane, or follows its various mutations: every practitioner has observed the frequent sympathetic manifestations existing between gastritis or gastro-enteritis and rheumatism or gout.

The skin, as I have already observed, is connected with the alimentary canal by such close sympathies that its inflammations are most generally the result of gastro-intestinal over-excitements. In the acute stage, the eruptions accompanying scarlatina, rubeola, variola, varicella, are constantly preceded by an inflammation of the digestive canal; in the chronic stage, herpetic and other kinds of eruptions, as well as deep erosions of the skin, are under the dependence of the same affection. In gastro-enteritis, the heat, dryness, and acrimony of the skin are in a direct ratio with the intensity of the irritation, and with its effects on the organism. In warm countries, such as Spain, Italy, and under the equator, cold and damp nights are sufficient to occasion the most painful and intensive gastritis and enteritis. Diarrhea, dysentery, and what is called the colic of Madrid, can seldom be referred to other causes. In low, damp, and swampy places, the same causes give rise to those intermittent gastro-enterites in the explanation of which so many hypotheses have been exhausted.

The lungs are not less liable to partake of gastro-intestinal irritations. We have already spoken of bronchitis and pneumonia, sympathetically excited by acute inflammations of the digestive mucous membrane. Other forms of the same disease may give rise to gastric cough, vague or fixed pain in the parietes or cavity of the thorax. In several extensive and violent inflammations of the stomach, the diaphragm moves with difficulty, breathing is impeded, speech is laborious and interrupted, and a sort of dumbness prevents the patient from expressing his ideas.

Gastritis constantly impairs the action of the heart. The pulse is small, hard, and frequent, in acute gastro-intestinal

inflammations ; whilst chronic irritations of the stomach frequently occasion palpitations and other accidents assuming, or even promoting the appearance of organic lesions in the centre of the circulation.

In a word, all secretory organs experience material disorders in consequence of irritations in the alimentary canal. Their process of secretion is generally suppressed in their acute inflammation ; and its sudden return, when the disease subsides, generally brings on those evacuations called critical. In many subjects the alterations of urine, of perspiration, and of mucous exudation, may be ascribed to the same causes. These also modify the process of nutrition and the vitality of the capillaries, as demonstrated by the rapid wasting of the body, the petechiæ and bloody exudations by which these affections are not unfrequently accompanied.

We ought hardly to mention here the redness of the tip and edges of the tongue, and of its mucous covering, the dryness of the mouth, thirst and alteration in the secretion of bile, generally attendant on gastro-intestinal inflammations ; these phenomena generally prove the influence of the centre of the digestive canal, or its extremities. The latter, connected with the rest of the organ by organic continuity, by direct nervous communications and similar impressions, must, indeed, experience, in the first instance, and to a higher degree, the effects of stimulations otherwise acting with so much energy on more distant parts.

Physiology, enlightened by pathological anatomy, has gradually taught the physician to recognize, amidst a multitude of various and often opposite phenomena, the gastro-enteritis which has given rise to them. It is by that science that he is taught to overlook those painful parts which first attracted his attention, and to arrive at the organ, apparently inert, which causes such disorders in the functions. This enquiry for ascertaining the diseased organs as well as the therapeutical means they require, is the peculiar characteristic of true medicine, at the present day, from what it had so long been among the ancients, and even in modern times.

The most scrupulous observation indicates that the sympathetic phenomena attendant on gastro-enteritis, vary according to temperaments and idiosyncrasies. The most sensible and irritable organs are then constantly affected. When the heart, for instance, possesses an excess of susceptibility, it will give rise to a considerable alteration of its motion, to

palpitations, a sense of faintness, and sometimes to symptoms of inflammation in the heart itself, or in the aorta. Should that predominant susceptibility be enjoyed by the lungs, cough, dyspnea and suffocation will be present; if by the brain, a general agitation, caphalagia, contusive pain in the back and limbs, delirium and convulsions, will not fail to make their appearance, and indicate the sympathetic irritation of the parts of the principal nervous system.

When at the bed-side of the patient, it is necessary to remember that gastro-intestinal inflammations generally make their first appearance at the stomach, that they extend to the small intestines only by degrees, and soon pervade their whole extent. It is also worthy of remark that those diseases are slight at first, and arrive at their highest intensity by slow and gradual progression. When the inflammation is confined to the stomach, its mucous membrane generally presents symptoms of a violent reaction, whilst the affection of the intestines seems to determine more particularly that extensive disorder in the nervous functions, and in the secretory and nutritive processes, which characterizes the highest degree, and the last periods of gastro-enteritis.

These considerations, which are evidently susceptible of further development, are, however, calculated to throw light on the therapeutic of those diseases incident to the alimentary canal. Their study leads to the discovery of the most simple, rational and efficacious methods of cure founded on clinical experience. It points out the dangers of that routinous polypharmacy which, in pretended essential fevers, opposed a remedy to each symptom, and left the main disease to its progress and fatal results. Physiology having delineated the nature, course and effects of gastric irritation, the scientific practitioner no longer doubts the necessity of eradicating them, before they reach the intestines, and especially before they have acquired that intensity which baffles the most appropriate medicinal agents.

The following are the debilitating medications applicable to the digestive canal: 1st, abstinence from all excitants, both in food and liquids; 2d, drinks susceptible of lessening vital action in the mucous membrane of the stomach; 2d, emollient applications to the abdomen; 4th, local capillary blood-letting; 5th, cold both internally and externally.

Abstinence from solid and liquid food, and from all stimulating drinks, possesses a striking influence on the composi-

tion of the blood and on all animal actions ; but it always produces at first on the digestive canal special effects which it is necessary to examine. The first of these effects is to induce in the stomach and intestines, that state of rest which I have already designated as the most essential condition to the cessation of the inflammatory process. Nature itself points out the propriety and efficacy of that measure. The stomach, when under a certain degree of irritation, ceases to call for food ; for the most part a sense of reluctance and of nausea compels the patient to abstain from it, particularly when stimulant, or of the animal kind. If, under such circumstances, it should be persevered in, it will not unfrequently be rejected through the mouth or the anus, after having occasioned uneasiness, pain and convulsive contractions of the intestines ; its presence and the action it excites will generally increase the local irritation, as well as the intensity of the symptoms accompanying the disease.

The first indication in acute or chronic gastritis, is abstinence, which, however, should not be equally severe in all cases, but appropriate to the violence of the disease, and to the wants of the constitution. Thus in acute gastritis, all nourishing liquids, such as broths, should be totally prohibited ; but in the chronic stage, it is only necessary to limit the diet, abstain from all stimulants, and prescribe gentle food, easy of digestion, which requires the least possible exertion from the stomach.

These rules are no less useful in the treatment of inflammations confined to the intestines, although the patient may not so forcibly feel the necessity of conforming himself to that direction. In cases of inflammation of the colon, the stomach continues to call for food. Its digestive process is not easy and rapid, but is also accompanied with ease and relief, as it produces a momentary revulsion of the enteritis. But if the passage of the chyme through the diseased portion of intestine occasions pain, colic and diarrhœa, the vulgar will not detect the cause of these accidents. It is, therefore, necessary, as in gastritis, either to exclude all kinds of food, or those which call for the least exertion on the part of the irritated organs.

It is of the utmost necessity to prevent and trace the effects of the non-observance of diet in the course of diseases of the alimentary canal. In many cases the physician is placed between the fear of exasperating the disease by allowing food, and the danger of causing, by a longer abstinence, the sto-

mach to become irritated by a continued absence of the materials it requires. We know that, according to circumstances, the excess or privation of the digestive process will occasion irritations in that organ. The call of the patient cannot be a safe guide for the physician. This call, which is frequently factitious, or the consequence of a desire to increase muscular strength, is sometimes itself determined by a species of irritation which its indulgence would exasperate. The only rule by which we can abide in obscure cases, consists in examining attentively the idiosyncrasy of the patient, in comparing the morbid phenomena, and in determining, from the effects already obtained, what course is to be pursued. Should gastro-enteritis be acute and accompanied with violent symptoms of irritation, there can be no doubt of the necessity of a complete abstinence, which must be also persevered in, if the disease has somewhat subsided, and appears to diminish progressively under the influence of this negative medication, though the patient might call for food; but should that call become more urgent, and the irritation appear constantly to increase, in spite of the most severe diet, a wise and prudent practitioner should allow some food, watching its effects in order to check them in time, and suppress aliments before they have proved injurious. If, in a great number of cases, alimentary substances too soon and too freely indulged, have kept up or exasperated gastro-enteritis which, in other frequent circumstances, were too superficially observed and attended to, the privation of food, when carried too far, has produced effects no less serious and fatal. I say it again, an attentive observation of the patient and of the modifying causes operating on the constitution, is alone capable of preserving us against falling into this or the other extreme.

The local action of emollient drinks in gastritis must be compared to that of internal topics put in contact with diseased surfaces. They moisten and relax in an immediate manner the irritated mucous membrane. They allay pain, dissolve and carry with them all diluting substances from the surface of the intestines. It would, however, be inaccurate to assert that all liquids given during the course of a gastro-enteritis, only operate as local bathing or simple fomentations, and that the tissues remain insensible to their action. On the contrary, those liquids always excite in the stomach and intestines a more or less considerable exertion, according to the nature and quantity of the substances they hold in solution.

In many cases, this digestion, however free, occasions uneasiness, and an evident increase of local irritation. Their composition must be as simple as the intestinal irritation is more considerable. The effects of stimulating or simply nutritive drinks, are more especially injurious in acute gastritis and irritable habits. Water, either by itself, or containing small proportions of sugar, of gum adragant, or of fresh mucilage, is the most appropriate, and the only liquid to be administered. Barley water, especially when saturated with fecula, and emulsions containing oil or a quantity of azote, are often rejected, or increase the sensibility of the tissues. I have seen, in some cases of enteritis, the most lenient drinks, and even water itself, excite an over-action of the digestive organs, and promote abundant secretions of mucus, and the disease could not be cured without the absolute abstinence of all kinds of ingesta.

We have already observed that acids are more irritating than mucilaginous and gummy substances. This remark can be usefully applied to the treatment of gastro-enteritis. There are cases, however, where acidulated drinks are more palatable, more cooling, and consequently more beneficial. This takes place when the fever is high, the general heat intense, the thirst considerable, without any increase of gastric sensibility. We also observe the propriety of acidulated drinks in gastro-enteritis, accompanied with abundant secretions of mucus or bile. In the former case, the acid particles appear to be readily absorbed, and to act directly on the blood; in the latter, they modify the irritated surfaces, and drive out with more facility the foreign materials increasing the irritation by which they had been elaborated. Those drinks are also more beneficial in the heat of summer than in cold weather. In all cases we are to give the preference to mild acids, such as the sweetest pippins, or oranges, diluted in a large quantity of water, or rather incorporated into solutions of gum or mucilage. Citric, acetic acids, or that of gooseberries, are generally too pungent, and produce unfavourable results where the stomach is highly excited; mineral acids are still more injurious. Tartarized lemonade, in the absence of that composed of vegetables, is one of the most efficacious.

The temperature of those drinks should be attended to. When too warm, they increase the general irritation, and stimulate the mucous membrane of the stomach; when too cold, they might, in some cases, determine a violent reaction

in the capillaries of that organ, and prove no less injurious. Their proper temperature is from twenty-five to thirty degrees. If the evacuation is much excited, and the atmosphere very hot, they may be taken cooler; and where the integuments are cold and shivering, and the temperature of the atmosphere low, warm drinks are advisable. The taste of the patient is generally the best criterion by which we may determine what is more beneficial to him in that respect.

Another, and the last circumstance with regard to drinks, is their quantity; they must be given in such abundance as to mitigate the internal heat, cool the irritated surfaces, subdue the energy of their vital actions, and introduce into the circulation a quantity of aqueous particles sufficient to lessen its excitement as well as the stimulating property of the blood. But, in endeavouring to fulfil those indications, we should keep in mind that the liquids taken into the stomach, often irritate it by their own weight, by the distension they occasion, and by the exertion required for their digestion. These inconveniences may be avoided by allowing the patient to drink but little at a time, and at long intervals, in order that the stomach be partly freed from the preceding dose before another is administered. The intensity of the symptoms of irritation, the sensation of comfort, of uneasiness, or of pain, experienced by the patient after each drink, must engage the practitioner to urge or lessen it. The precept so universally followed, of drinking abundantly, has, no doubt, proved injurious to a great number of patients labouring under gastro-intestinal irritations. Sometimes the most lenient beverages will occasion indigestion, from the circumstance of their being given in too great quantity at a time, or in too frequent doses. In this case they do not relax and cool the stomach, as is commonly said, but irritate it by their presence, and by the over-action required for their elaboration.

The considerations enumerated in the preceding chapter, on the employment of emollient topics, are equally applicable to fomentations on the abdomen in violent gastritis and gastro-enteritis. Their efficacy cannot be less evident in these diseases than in those of the lungs. They also operate through the medium of the sympathies existing between the mucous membrane of the stomach and the portion of integuments covering the epigastrium. We not unfrequently see the pain attendant on certain cases of gastritis, which is still greater in enteritis, suddenly disappear under their influence. They al-

ways contribute powerfully towards subduing the internal irritation, and its consequent sympathetic disorders.

We now come to that kind of medication the most strongly recommended by the partisans of the physiological school, and which some superficial minds have held up as constituting all the therapeutics of that doctrine; I mean the application of leeches to the abdominal parietes. Whatever may have been urged against a practice now adopted by the great majority of physicians, local bleeding is of unquestionable benefit in the treatment of gastro-enteritis. There is not one of those adversaries who, since the most recent publications on that doctrine, has not more frequently had recourse to it, or who can deny that his practice has been rendered much more successful by that means, as well as by the dereliction of stimulants, of which, until lately, a strange abuse was made in the treatment of pretended essential fevers.

When placed on the epigastrium, in inflammations of the stomach, leeches operate in the most powerful and direct manner on that viscus. The local evacuations they produce are always indicated whenever the pulse is raised, the heat of the skin increased, the tip and edges of the tongue red, and when there exists a considerable thirst and internal heat.—The number of those insects is from six to twelve for children, fifteen to twenty for females and persons above the age of puberty, twenty-five to thirty or forty for adults. One application is seldom sufficient; the disease generally recurs a second or third time, growing less and less, and requiring for its ultimate cure the continuance of the remedy which had been at first resorted to. By following in this manner the course of the irritation, and persevering in the treatment at its several returns, we always succeed in lessening its duration, and avoiding the dangers by which it may be followed.

Whenever the stomach is alone inflamed, or more so than the intestines, leeches should always be applied to the epigastrium. In inflammation of the duodenum, or of the liver, it is proper to place them towards the right hypochondrium; and if the large extremity of the stomach or the spleen are affected, towards the left. When irritation exists in the first divisions of the small intestines, leeches should be spread over the centre of the abdomen, and when it affects the ileum and cæcum, they are better placed on the iliac regions, and opposite the diseased organ. Should the inflammation be seated in the large intestines, and especially in the transverse and

descending portions of the colon, local bleeding should be performed at the anus. The superior hemorrhoidal arteries, as well as those that belong to the colon, originate from the same trunk; the depletion of the former must, therefore, have a powerful influence on the part in which the latter ramify. Thus distributed on every point of the abdominal parietes, the most contiguous to the inflamed organs, or connected with them by the most intimate vascular or nervous communications, leeches produce rapid and beneficial effects in all phlegmasiæ of the digestive viscera.

In some cases, cold used both internally and externally, has added to the efficacy of emollient drinks and fomentations on the abdomen. This agent may not be sufficiently resorted to by practitioners, in gastro-enteritis, peritonitis, and other abdominal affections. Water, or a gentle lemonade, given cold, might possibly produce salutary effects in cases where the epigastrium is burning and painful, the pulse quick and feverish, the skin dry and warm, heaviness and giddiness in the head. The most violent forms of gastro-enteritis have often been successfully treated by cold drinks. Cirillo, at Naples, gave two pounds of water every two hours, and prescribed a most severe diet in cases of fever; he persevered in this treatment until the appetite returned, and indicated a sensible improvement. The same course is frequently resorted to in Italy, Malta, and in several parts of Spain. Some German physicians have related numerous cases of fevers successfully treated by cold drinks; but all these facts still require the sanction of reason, which determines the seat as well as the degrees of irritations, and analyzes the mode of acting of therapeutical agents in all individual cases. In the present state of medicine, it is no longer satisfactory to say, such a remedy has succeeded against such a disease; it is also necessary to indicate the phenomena attending that disease, the part affected, the constitution of the patient, and to point out, from attentive observation or direct experiments, the effects of the remedy. Without these details it is impossible to give a new trial to the methods that have succeeded in the hands of others, the benefit of their experience is lost to the generality of practitioners, and plans of treatment, otherwise beneficial, may become highly injurious, from the impossibility of tracing the particular cases in which they have proved successful.

Whatever inference we may draw from numerous cases in favour of the employment of cold, it cannot be resorted to in

gastro-enteritis without great caution. Previous to its administration, it will be necessary to diminish the vigour of the inflammation in the affected viscera, by means of local and general bleeding. The patient's drinks shall then be gradually cooled, according to the sensibility of the patient, observing what effect they produce. Thus, gummy water or lemonade, which were given at twenty-five or thirty degrees, may be brought to twenty, eighteen, fifteen, twelve, eight, six, four, and even to zero. The dose of those liquids should be small but frequent, in order to avoid distending the stomach, and a reaction, which might prove injurious. In several cases, it may be proper to allow ice to melt in the mouth of the patient, during the intervals between the doses. But when the agitation and febrile excitement are great, water proceeding from this melted ice, will become tepid before it reaches the stomach; cold drinks are, therefore, more beneficial, as they reach the stomach in a greater quantity, and without having undergone any change of temperature.

Whilst cold is thus administered internally, it is proper to apply flannel or linen soaked with cold water on the epigastrium. This again requires a great deal of prudence to prevent any further reaction. Cold must also be applied by degrees, until we may cover the abdomen with a bladder filled with pounded ice, renewing the application when it has melted. Cold enemata might favour the action of those measures, and afford some considerable benefit in acute inflammations of the colon, with or without flow of blood or mucus. These enemata, in small repeated doses, might sometimes prove as powerful as beneficial.

I must again say that cold, which succeeds in some cases of chronic gastritis, is a remedy which, wisely administered in acute inflammations of the stomach, might favour the effect of depletion, and of internal and external fomentations. It is desirable that this therapeutical agent be submitted to further trials, for ascertaining its beneficial or injurious effects.

SECTION II.

Of the use of debilitants in acute inflammations of the digestive organs.

The stomach and the small and large intestines are the most principal organs concerned in digestion. The liver,

spleen, pancreas, mesentery and peritoneum, are but their appendices, and their diseases are subordinate to the mucous membrane of the alimentary canal. The affections of the latter must, therefore, be the first and principal object of our consideration.

In all the different species and periods of acute gastro-enteritis, the fundamental indication consists in diminishing the intensity of vital action in the stomach and small intestines. Whatever may be the sympathetic phenomena accompanying the disease; whatever modifications may have occurred in the biliary and mucous secretions, or in muscular contractions; whether or not vital pain exists in the parts affected, the indication requiring the local use of debilitating measures suffers no exception. As soon as the nature of the disease of the alimentary canal, heretofore unknown, is discovered, reasoning and clinical observation have demonstrated that their treatment is founded on the same basis, and is to be composed of the same means.

Acute irritations of the stomach and small intestines are susceptible of assuming two different forms which it is necessary to distinguish. In the first, the over-excitement is more or less intense, but simple and strongly characterized. It is accompanied with loss of appetite, dislike for food; often, but not always, with pain in the abdomen, dryness, heat and acrimony of the skin, with vivacity and hardness of the pulse, and with various degrees of cephalalgia. In the second, the inflammation is much more violent; it exerts a considerable influence on the nervous system, and consequently on all vital actions of the animal economy. Then we may observe those symptoms of prostration and of sinking, which authors have denominated adynamy, or those of uncommon irregularity in the nervous functions, the secretions, and muscular motions, the whole of which constitute what was formerly designated by the name of ataxy.

The former of these two forms comprises all those numerous varieties of gastro-intestinal excitement, which are to be observed from a simple indigestion, or an ephemeral stimulation, to those more strongly characterised irritations called, by nosologists, foul stomach, mucous, bilious, ardent fevers, &c. These affections most commonly precede those serious diseases called adynamic and ataxic fevers, which are generally no more than the result of the exasperation of the former. They are seldom primary diseases, except in those

constitutions which being exhausted by hard labour, want of sleep, ill conditioned food, excesses, or large and abundant evacuations, are already labouring under an irritation of the nervous system, and which experience, to the highest degree, the effects of gastric over-excitements.

With regard to those gastro-enteritis called typhus, yellow-fever, plague, they are the result of an impression made on the living organs by miasmata arising either from men or animals crowded in narrow confined places, or of vegetable or animal substances putrefied under the action of intense heat. The influence of putrefaction on this development is such, that the injection into the veins of a certain quantity of putrefied blood, or of water impregnated with animal matter in a state of decomposition, is sufficient to produce all the symptoms by which they are characterized. M. Dupré has seen an epidemic mucous adynamic fever, or rather an intense gastro-enteritis, arise from the use of water from swamps, where vegetable and animal substances lay in a state of putrefaction.(1) Inflammations arising from those causes have their seat in the stomach and intestines; but they assume almost instantly a remarkable character of violence, which partakes of the impression produced on the brain and nervous system.

Whatever be those distinctions, which might be shown to rest on numerous facts, and on the analysis of morbid phenomena, the practitioner, as we have already said, has to make use of debilitants in most of the digestive irritations.

After a mere indigestion, when the stomach is loaded with food which stimulates it with too much violence, warm sweet drinks, given in large quantities, are the most beneficial. By their influence, the alimentary mass is diluted and rarified, and propelled by vomiting, or through the intestines where it excites colic pains and some liquid stools. In either case, diet, diluent drinks, and rest, are to be persevered in until the return of appetite, and the disappearance of all symptoms of gastro-intestinal irritation. Leeches are required only when the stomach, having discharged its contents, preserves a certain degree of irritation, which the above means are inadequate to destroy.

(1) Notice sur une fièvre muqueuse adynamique qui régna pendant l'été et l'automne de 1822, et fit périr un dixième des habitans de la commune de Villechétive, département de l'Yonne. *Journal de Physiologi*, et, III.

When, after excessive or vicious regimen, the gastric irritation is slight, and merely accompanied with redness of the tip and edges of the tongue, with inaction and fatigue in the limbs, without great heat of the skin or febrile excitement of the pulse; in these simple and unimportant cases, an absolute diet of twenty-four or thirty-six hours, gummy drink, somewhat acidulated and sweetened, and a moderate exercise, is all that is necessary to restore the stomach to its normal condition. As the irritation disappears, it is proper to give good and easily digested food, such as rice porridge, thin and light feculent beverage: the patient afterwards gradually returns to his accustomed regimen.

Should the inflammation of the stomach be accompanied with more violent symptoms, the tip of the tongue becomes red; in its middle, and through the mucous and yellowish coat with which it is covered, we find the papillæ tumefied and red; a disposition to become dry is perceivable through all its extent; the epigastrium is burning and often painful; the skin warm, dry, and acrimonious; the pulse hard, contracted and frequent. It is then necessary to apply fifteen or twenty leeches to the epigastrium, allowing the punctures to bleed freely for some time after their removal. In subjects from seven to twelve years of age, eight or ten may suffice, and in young infants, from three to six. In all cases, the diet should be absolute; sweet, mucilaginous, and somewhat acidulated drinks, are the only substances to be given to the patient. A complete rest of both body and mind, emollient fomentations on the abdomen, mucilaginous and slightly acidulated enemata, will most effectually complete the series of therapeutical agents required for the cure of gastritis. It is exceedingly rare, that, administered at the invasion of the disease, this treatment, followed with exactitude, does not make a rapid improvement. Sometimes, however, it becomes necessary to repeat capillary bleeding; for the symptoms which had disappeared, return again, although with less intensity, after the effects of the first leeches have subsided.— This return of the disease is not unfrequently occasioned by the officiousness of those around the patient, in giving him broths, and even wine, after bleeding has ceased. Nothing can be more pernicious than this indulgence: after depletion, the stomach is more susceptible of congestion than before. It is, therefore, absolutely necessary to insist on the most complete abstinence, on the use of gentle drinks, abdominal

fomentations, and rest, until all the symptoms of irritation have disappeared, and even for twenty hours after. I deem this time indispensable to allow the equilibrium to be restored, and the gastric susceptibility to disappear, that the stomach may receive some gentle and lightly nutritive substances.

When the tongue is red, dry, and cracked, the fever high, skin acrid, eyes strongly injected, urine thick, epigastrium very painful, continual vomiting, accompanied with violent retchings, local bleeding must be more abundant than in the preceding cases. Thirty, forty, fifty leeches will be required in adults. In all cases, considerable benefit will be derived from establishing a constant flow of blood by means of fifteen or twenty leeches, which are renewed as soon as they fall, until the symptoms subside. Water, by itself, is the only drink which the patient can or should take. Fomentations, enemata, complete abstinence even from the most gentle broth, are equally indispensable. It is in these cases that cold, administered with the precautions indicated above, might produce very happy results. This mode of treatment must be persisted in until the symptoms subside and disappear; and the leeches are to be applied as often as may be called for, either by the perseverance of the symptoms, or by their re-appearance after the operation of the first bleeding.

When in women, in debilitated habits, or in those who use vitiated food, or who are submitted to the influence of a damp cold, gastric irritation is unaccompanied with symptoms of a violent external excitement; when the integuments are pale and cold, the epigastrium hardly warm and more obstructed or embarrassed than painful; when the muscular strength is considerably diminished, the pulse small, feeble, and tranquil, emollient acidulated drinks, warm and sweetened, are the most proper. The patient must be kept warm in bed, in a dry, elevated, and warm room; warm fomentations must be made on the abdomen; hot bricks to the feet, warm bath, and dry frictions on the skin, are also to be prescribed. Should local bleeding appear to be indicated by the age of the subject, and the intensity of gastric phenomena, it should be copious before the pulse has risen, and the heat of the skin increased, indicating that the vital motions have resumed their vigour, and the circulation its activity. In this, as in the preceding cases, the most absolute diet is necessary, until the return of appetite and the disappearance of all gastric symptoms.

Antiphlogistics are not contra-indicated by bilious taste in the mouth, a yellow tinge of the tongue, of the *alæ nasi* and of the conjunctiva, nor by vomiting of greenish porraceous matter. These symptoms denote the existence of irritation in the liver, and of over-activity in the secretory action of that organ; but this affection is subordinate to that of the stomach and duodenum, which being destroyed, the other will disappear without effort, and without exposing the patient to any sort of danger. What authors have called bilious, or gastric fever, is nothing else than a more or less violent irritation of the stomach, accompanied with a secondary excitement of the liver; and the means recommended against gastritis are those that are sanctioned by daily experience.

These remarks are applicable to those cases of gastro-enteritis in which the secretion of the villous coat is especially increased. Diet, and mild, acidulated drinks, are the most proper means to evacuate those mucosities from the intestines, the result of their irritation, and constantly reproducing when the vital modification from which they arise, is kept up or exasperated by improper remedies. None but blind humorists could have established those barbarous indications consisting in the expulsion of bile, mucus, saburral obstructions, and other matter by which they thought the body infected, without examining the condition of the viscera, or considering that the tissues, whose action is impaired, should alone be attended to. Let candid physicians compare the results of this method in the various kinds of acute gastro-enteritis, with those obtained by that perturbing, incendiary or evacuating treatment so generally employed in fevers, and let them decide. It is at the bed-side that the physiological doctrine is most constantly triumphant.*

Constipation often attendant on gastritis disappears as soon as the intestines, which always partake of the irritation in the stomach, resume, as well as the ventricle itself, the normal exercise of their functions. Emollient or honeyed enemata,

* As these observations of Mr. Bégis cannot be passed without a particular notice, I beg leave to refer the reader to my former remarks, where I have taken occasion to speak of the use of purgatives in fevers generally; and it is needless for me to add any thing more in this place. Suffice it to say here, that the subject is of the highest moment in therapeutics; and after a diligent enquiry and judicious trial of the method adopted by the French physicians, which is certainly entitled to some attention, let experience decide how far it is applicable to our climates and constitutions.

tepid drinks in abundance, emollient fomentations on the abdomen, are always more efficacious, and attended with less danger and constipation than the most gentle *minoratives*. In this, as in all preceding cases, the practitioner is to keep in mind that to combat the irritation is the fundamental indication; all those means which can only lessen it are useless; those which may increase it should be altogether proscribed, as they may prove injurious, especially at the commencement of the disease, and when it has arrived at its highest degree of intensity.

A fixed and permanent pain, with a sense of retraction in the abdomen, and an obstinate constipation, are to be met with in some cases of enteritis; this is the case with the colic of Madrid; it should not be confounded with that species of colic arising from saturnine preparations. M. U. Coste has shown that it is occasioned by the violent and penetrating cold of the nights which, in Spain, forms a particular contrast with the heat of the day; and its effects are the more pernicious as the people neglect to keep themselves warmly clothed after sun-set. This disease, far from being peculiar to Madrid, is frequently met with in all southern latitudes, and especially in those places where atmospheric variations are as sudden and considerable as in the capital of Spain. The treatment of this form of enteritis has been found by M. Coste, and by the best physicians of our army, to be the same as that of all other intestinal irritations. It consists in immersing the body into a warm bath during four or six hours, twice a day; in emollient fomentations on the abdomen, diluent enemata, and mucilaginous drinks. These are the most efficacious and even the only means by which the patient is to be preserved from those acute inflammations and chronic intestinal disorganizations, which are to follow that disease, when empirically treated by means of stimulants or purgatives.(1)

Cholera morbus has the greatest affinity with the colic of Madrid. The causes of both these affections appear identical, and several of their symptoms are precisely the same. In both cases, there is a violent pain in the abdomen, prostration of strength, general debility, cramps in the muscles and calf of the legs, contraction of those of the face, &c.; but in the latter disease, the stomach is at rest; there is no alvine.

(1) *Mémoires de médecine, Chirurgie et Pharmacie militaires*, tome XVI

discharge, and the intestines appear retracted and motionless; whilst in cholera the vomiting and purging are incessant. This last mentioned affection is more sudden and more dangerous than the other. Delon relates that in cholera, the Hindoos apply red hot iron to the feet, and give a decoction of rice, which is undoubtedly as efficacious. From the observations lately made in India by M. Gravier, we might suppose that cholera-morbus is always the result of a very violent inflammation of the mucous membrane of the stomach, and often of the œsophagus; that general bleeding is highly serviceable when there is a violent excitement of the pulse; and that in more moderate cases, rice water, with an addition of gum, and gently acidulated, given as a drink, and in the form of enemata, will generally perform a cure.(1) To this method we may add emollient applications to the abdomen, cutaneous irritating frictions, long sitting in a bath, &c.

These means frequently succeed; but experience shows, that in many cases, and in the hands of a great number of practitioners, opium combined with sulphuric ether has produced the happiest effects. This contradiction is only apparent. We are to resort to antiphlogistics when the patient is vigorous, the phlogosis of the intestines announced by dryness and redness of the tongue, the heat of the skin increased, and the pulse high. Opium, antispasmodics, with warm baths, and frictions on the skin, on the contrary, are more proper in nervous, weak, and almost cold habits, where the circulation appears on the eve of being extinct, or where the excess of irritation in the digestive mucous membrane has been reduced by antiphlogistics. Practitioners in warm countries, and health officers of the navy practicing in India, who have imbibed the true spirit of physiological medicine, can alone elucidate this apparently obscure therapeutical question. Cholera is so seldom met with in our countries, and is so far from possessing the same degree of intensity as in India, that we cannot lay down, from our observations, any positive rules on the most proper mode of treatment.(2)

(1) *Relation d'une épidémie de cholera-morbus observée dans l'Inde*, Strasbourg, 1824, in-4to.

(2) This sheet was about being struck off, when I received the excellent memoir of M. Keraudren on the cholera-morbus of India. This learned practitioner says that the disease generally begins by a state of spasm which calls

A blind empiricism has for a long time established the routine of an incendiary treatment for that peculiar sort of colic, occurring in painters, in consequence of saturnine emanations. This affection, however, is nothing more than enteritis, accompanied with very violent pain, spasmodic contraction in the muscular coat of the intestines, retraction of the abdominal parietes, and obstinate constipation, announcing a special action exercised by lead on the digestive canal. The routine of practice adopted at *La Charité* against this disease, is at present given up by nearly all enlightened physicians; others have modified it; and purgatives, of which that treatment was composed, are never employed but in more moderate and less and frequently repeated doses than were prescribed by Dubois de Rochefort, who had already much diminished the violence of the primitive treatment practised by the monks of *La Charité*. Bordeu, De Haen, Stoll, and Tronchin, have spoken of the beneficial effects of antiphlogistics in this disease; and physicians at the present day constantly add to the stock of observations establishing their efficacy. It is no longer contested that they are to be resorted to whenever the belly is painful to the touch, or where some degree of febrile

and concentrates all vital actions in the viscera.* The patients are cold, sunk down, their breathing slow, and almost deprived of pulse. They frequently die during this period, and in a few instants; at other times, they recover with the same rapidity; and, in a great many cases, they assume the characteristic signs of gastro-enteritis. As long as they remain under the influence of spasms, and the coldness of the skin and insensibility of the pulse announce an approaching dissolution, M. Keraudren, from the facts observed by MM. Huet, Lefèvre, Deville, Saint-Yves, and other physicians in the navy, prescribes a mixture of laudanum, or solid opium and ether, (liquid laudanum and sulphuric ether, or liquor of Hoffman, *aa* X to XX drops, in one or two ounces of a sweet mucilaginous ptisan, taken by spoonfuls,) whilst by means of cutaneous frictions, warm baths, sinapisms, and other revulsives, an attempt is made to call the organic actions to the surface. Camphor and rectified spirits of wine, recommended by the physicians of Manille, are to be proscribed; mucillaginous drinks are the most proper to promote the action of opium and of antispasmodics, whilst they check inflammation in the digestive canal. This treatment has often been successful; but when the pulse rises and the skin becomes warm, without a subsidence of the symptoms, M. Keraudren adds that recourse is to be had to the whole range of antiphlogistic means recommended in gastro-enteritis. It is impossible, at present, to say any thing in addition to the wisdom of these precepts. Time and other observations will alone enable us to determine what modifications should be made in the treatment of those affections.—(*Note of the author.*)

* *Du choléra-morbus dans l'Inde ou du mordrechi*, par P. F. Keraudren, Paris, 1824, in 8vo.

excitement exists: and they are to be accompanied with leeches round the navel, absolute abstinence and mucilaginous or gummy drinks. It is also impossible to admit that those medications, which are useful when the disease is intense, would be insufficient or injurious when it is less violent; debilitants must, therefore, be considered as constituting the only rational treatment of the disease in question. To the above means it will be proper to add long bathing, emollient fomentations on the abdomen, and mucilaginous acidulated or honeyed enemata. During the subsidence of the symptoms, prudence requires perseverance in the treatment, in order to obtain a complete resolution of the irritation. Mucous and sweet gentle purgatives may be given towards the end of the disease, when constipation alone remains after the cessation of pain and of the retraction of the abdomen indicates the disappearance of irritation and spasm.

These principles are applicable to the therapeutics of all sorts of poison. The substances by which they are produced always occasion a gastro-enteritis, which alone constitutes or aggravates in all constitutions, the dangers attending the ingestion of poisons. When these are still lodged in the primæ viæ, which they continue to irritate, or undergoing the process of absorption, the primary indication is to expel them, either immediately, or after operating on their decomposition by appropriate chemical agents. Thus, vegetable substances, such as albumen, feculæ, mucilages largely diluted in water, will convert the deuto-chlorine of mercury into a less injurious salt, producing no other effect than a mere purging; alkalines, such as magnesia, combine with and neutralize acids; acids, in their turn, combine with caustic alcalies, &c. But a certain number of experiments, formerly made at the military hospital of instruction of Strasbourg, have convinced me that we are not to trust, in many cases, to the chemical decompositions of poisonous matter, in order to check or destroy the effects of poison. The action of a great number of corrosive substances on the stomach is so rapid, the impression they produce on the mucous membrane is so great and so sudden, that all means of this sort are generally useless, or at least are entitled to but a limited confidence. It is almost unnecessary to observe that in all chemical decompositions operated in the stomach, we must carefully guard against transforming the toxical ingredient into another venomous substance. A thorough investigation into the result of the

various combinations produced by reactives, will always put the physician on his guard against such gross errors.

M. Dupuytren has contrived an instrument for extracting poisons from the stomach, which is merely composed of a sound introduced in the œsophagous, or of a gum-elastic tube, probe-pointed, and round at one of its extremities, the other having a screw susceptible of being adapted to the end of a common large syringe. M. Juker, in Germany, had a similar idea, and even made the experiment on himself. A particular syringe has been invented in England by M. Reed, for executing that operation, which Sir A. Cooper afterwards repeated successfully. In order to draw, by means of M. Dupuytren's instrument, poisons from the stomach, it is necessary to introduce it carefully until it reaches that viscus, and the syringe is then adapted to its extremity. A diluent and somewhat mucilaginous liquid, or simply tepid water, is injected gently into the stomach, in order to dilute its contents. The piston is then raised, and the liquid drawn up more or less completely. This double operation may be reiterated as often as may be judged expedient; it is unattended with any inconvenience, but is only applicable when the liquid is still within the stomach. In most cases, however, the physician is called in at a time when his efforts can be useful in merely combatting the inflammation of the stomach, or the disorder of the nervous system produced by the poison, which is then partly absorbed.

M. Dupuytren's apparatus is especially applicable when the patient cannot vomit; but when this is not the case, tepid water taken in large quantities, or a titillation of the throat by means of the hair of a quill, are more prompt and safe than the syringe, especially where the poison consists in fragments of arsenic, or any kind of food which is not susceptible of being diluted in water, and, which might refuse to come up through the tube or approach its extremity.

After the poison has been dissolved or expelled by the most gentle and speedy means, the only thing that remains to be done is the treatment of acute gastritis occasioned by the poison, according to the rules above-mentioned.

Worms in the intestines act on their mucous membrane only in the same manner as other irritating bodies. The symptoms they produce are exactly those of gastro-enteritis, more or less intense, and this consideration is to be attended to in the treatment. All those remedies prescribed to destroy

or expel them, are, to a certain extent, active irritants, and should be used only when the over-excitement of the alimentary canal is in itself inconsiderable. But should the irritation be violent, it ought to be subdued before recourse is had to anthelmintics. There is more danger in powerfully stimulating irritated viscera, than in allowing worms to remain some time within their cavity. It is proper also to mention that, in paving the way to vermifuges by means of mild temperating drinks, we promote their action, and obviate the dangers attached to their stimulating effects.

All the various forms of gastro-enteritis which have just been mentioned, may, according to their violence and the susceptibility of the patient, produce adynamy and ataxy; I mean a general prostration of strength, or unusual and violent nervous phenomena. The treatment of these affections is replete with numberless difficulties. Should the disease be an ordinary gastro-enteritis, tending to assume adynamic symptoms, the active and rational means already indicated will, undoubtedly, check their course and prevent that fatal termination. The antiphlogistic method is here so beneficial that in the hospitals where it is resorted to, it is extremely rare to see intestinal inflammation terminates in adynamy; whilst in other institutions, the returns of cases are crowded with bilious fevers or violent catarrhs, which are but gastro-enterites which have been misunderstood or exasperated.

But finally, when inflammations of the alimentary canal do not give way to evacuations of blood, complete abstinence of all aliment and other exciting substances, and to appropriate drinks; and when, notwithstanding that treatment, the patient sinks, and the internal irritation persists and progresses, what should be the conduct of the physician? The most attentive and enlightened experience directs him to persevere in the antiphlogistic treatment, and attempt to moderate the violence of the symptoms. In such difficult and dangerous cases, the fundamental indication consists in allowing the disease to run through its periods, preventing its increase, and diminishing its intensity, since it is no longer possible to impede its progress. Gummy and gently acidulated drinks, emollient fomentations on the abdomen, leeches applied to the epigastrium, to the groin, or to the anus, act most directly and efficaciously on the diseased parts.

From my experience, I have come to the conclusion that we ought no longer to make use of copious bleeding, when

gastro-enteritis continues its course after the first days, the pulse becoming weak, small, and frequent. These symptoms indicate that the inflammation is extensive and deeply seated, and will be of long duration. It is then necessary to preserve the strength of the patient, whilst diminishing, on the other hand, the local irritation by diet and emollients; but should an improper use be made of leeches, the patient, as I have already said, might be speedily exhausted, and might sink in a few days under the two-fold influence of abundant evacuations, and of an inflammation which such means had rendered the constitution unable to resist. This consideration is of great importance in practice: it imposes on the physician a reserve which few of the enthusiasts of our days are capable of observing.

Tumefaction of the abdomen is one of the most remarkable phenomena attendant on gastro-enteritis which has become uncommonly intense. Every thing appears to confirm the belief that this is owing to the inflammation extending to the lower extremity of the small intestines, and especially to the neighbourhood of the caput coli, where it seems to excite an abundant secretion of gas—the valve preventing their evacuation. Leeches applied to the anterior region of the right ilium, emollient fomentations and clysters, are the most proper means of combatting this phenomena, which has too long been ascribed to the atony and passive inflation of the intestines.

Tympanitis, like simple meteorism, is an effect of intestinal irritation. The secretion of gas seems to be constantly going on in the intestines; but the mechanism of their formation, as well as their object, are not yet well understood, and are susceptible of acquiring great energy. M. Briche-teau has seen several instances of tympanitis, proceeding from a contraction of some portion of intestine, or to other obstacles preventing the course of the fæces. Should symptoms of irritation exist, they are to be counteracted by blood-letting from the abdomen, emollient fomentations and general bathing; and afterwards promoting the evacuation of the stercoral matter, and the contraction of the distended portions of intestine, by purgative enemata. The first step is always to examine whether any hard scybala exist in the rectum, which are not the most unfrequent causes of tympanitis. When those means have been employed without success, and the disease assumes the chronic state, large blisters on the

abdomen may be highly useful. Perforating the intestines, by means of a trochar plunged through the parietes of the abdomen, has been advised by some ; but that dangerous operation is inadequate to the cure of the organic lesion occasioning the production of gases. The intestines sympathetically irritated during hysteric fits, may sometimes be distended by gas, but this affection is only transitory, and disappears with the paroxysm of the uterine over-excitement.

To the direct antiphlogistic treatment already indicated, we may add, in gastro-enteritis complicated with adynamy, the use of cutaneous revulsives. M. Broussais says that he has almost completely abandoned their employment, owing to their frequently renewing redness of the tongue, acrid heat of the skin, and frequency of the pulse. But it will be seen, on the one hand, that these reproaches are without foundation, and on the other, that among them some are to be found which do not possess that inconvenience.

Gastro-enteritis combined with ataxy, is seldom any thing else than gastro-encephalitis. The nervous phenomena, on which so much has been said, are always the effect of irritation in the brain or its membranes, and not unfrequently in the medulla oblongata and spinal marrow. In these cases, M. Broussais does not sufficiently attend to the cerebro-spinal over-excitement, and confines the disease too exclusively to the digestive canal. Experience shows, however, that leeches to the neck, to the temples, or behind the ears, and cold applications to the head, when resorted to at the first appearance of ataxic symptoms, will soon remove them, and restore the affection to the simple condition of a gastro-enteritis. The special treatment of the cases under consideration is limited to the addition of these means to those already indicated.

These are also the only precepts to follow in the treatment of gastro-enteritis, proceeding from the deleterious effluviæ of animal or vegetable substances in a state of putrefaction. The prophylactic rules to be observed in such cases are, to avoid their influence by a strict attention to diet ; to keep sober ; to abstain from all those causes which may occasion intestinal irritations. Should the disease ultimately break out, the patient is to be removed from the infected spot, into wider and more airy places, free of all incumbrance. Breathing a pure and salubrious air is here the most effectual part of the treatment ; sprinkling the apartments with solutions of chlorate of soda or of potass, of which M. Labarraque has de-

monstrated the disinfecting properties, should take the place of all fumigations, in cases of infection in hospital wards, privies, &c. Their action is more powerful than that of chlorine disengaged in a dry state; they may be renewed as often as is requisite, and they possess the immense advantage of occasioning no stimulation in the thoracic viscera.

The patient being thus placed in conditions of salubrity, and free from the further action of deleterious miasmata, it is proper to treat their gastro-enteritis in the manner already indicated. The most efficacious means to arrest the progress, or diminish the violence of the symptoms of yellow-fever, plague, and typhus, consist in local bleeding from the abdomen, emollient fomentations, gummy drinks acidulated with orange or lemon juice. M. Fournier Pescay, one of the physicians to whom humanity is most indebted, whom two countries contend with equal pride to call their own, having sacrificed to the one the services of his younger days, whilst conferring on the other the benefit of his long experience; M. Fournier Pescay, whose fate is blended with that of the old and of the new world by equally sacred ties, makes use of no other method of treatment, and his practice is crowned with a degree of success heretofore unknown in the country he inhabits.

If these diseases, especially when they are epidemic, prove frequently mortal; this circumstance is to be ascribed less to the treatment than to the intensity of morbid causes, also to the general consternation, and to the impossibility of preserving patients against murderous conditions, bearing with equal weight on entire populations and the whole extent of provinces. These epidemics, once fully established, are almost beyond the reach of human power; emigration is the only efficacious means to be opposed to their ravages, until a change in the atmosphere, and the dispersion of the population, have destroyed their activity and put a stop to their fury.

It is somewhat uncommon to see the stomach and intestines alone affected in gastro-enteritis arising from miasmatic effluvia. In most cases of typhus or plague, the irritation affects the digestive canal, the brain, and the lungs. These complications require that the physician should disseminate local blood-letting, and emollient applications on each of those seats of inflammation. Should revulsives be then indicated, they must be applied at some distance from the affected part, such as the abdominal extremities.

Such is the treatment to be observed in all acute inflam-

inations confined to the stomach and small intestines. The presence of blood in the rejected contents of the stomach and rectum, induces but simple modifications in the antiphlogistic treatment. Hematemesis is, like hemoptysis, constantly accompanied with some degree of irritation, which it is necessary to subdue. Vomiting of blood is always a serious accident. When it takes place, it should be treated by the most active local debilitants, in order to repress the over-excitement of which it is the consequence. Astringents and bark act only in as much as they irritate the tissues, and change the mode of action of the vessels; but they are frequently injurious, either by increasing the exhalation which they ought to suppress, or by occasioning an inflammation no less dangerous than the hemorrhage. Here we may expect special advantage from ice lemonade, cold and acidulated enemata, and refrigerent applications on the epigastrium. When the constitution is vigorous and the pulse high, these means should be preceded by bleeding, whilst we also make use of sinapisms or burning cataplasms to the feet, in order to excite heat in those parts, and restore organic actions. All those measures should be seconded by a complete abstinence from all aliments, and by perfect tranquillity. This treatment, when employed with perseverance and activity, will seldom fail to perform a cure. The recurrence of the disease is prevented by persevering in the severity of diet, in the use of acidulated drinks, and by avoiding all exertion both of body and mind. Stimulants called astringents, and all preparations of iron, cannot be resorted to before the gastric irritation has entirely subsided, or when the exhalation of blood, still persisting in spite of other remedies, requires that all means, even the most uncertain, should be tried. To avoid all serious and immediate danger is the supreme law in therapeutics.

One of the most remarkable and fatal results of acute or chronic gastro-enteritis, is ulceration or perforation of the coats of the stomach and intestines. The stomach has often been known to be ulcerated and perforated in a few moments, amid the most excruciating pain, so as to occasion death in a few hours or days. In other objects, a perforation is the result of chronic gastritis, terminating in ulcerations, extending more or less, in some cases, to the diaphragm or transverse colon. Erosions are often found at the inferior portion of the small intestines, after acute enteritis, which may terminate in a complete perforation of those organs, and allow the fœces

to escape into the peritoneal cavity. Similar solutions of continuity are, though seldom, found to be the consequence of schirrous or cancerous affections of the rectum. In all such cases, the physician can only combat the irritation occasioning the destruction of the tissues. The only means of preventing perforation is by checking gastro-enteritis, on its appearance, by the most appropriate remedies. When the fœces have found their way to the abdomen or chest, death is inevitable.

The softness and glutinous aspect of the mucous membrane of the stomach or intestines, a disease which in some subjects, is limited in extent, and in others, propagated to a distance embracing entire divisions of the alimentary canal, is also to be referred to gastro-enteritis. The gelatiniform degeneration, mentioned by M. Cruvelhier as a distinct disease, is frequent in adults; M. Louis relates numerous instances of it. This affection may be easily ascertained on the living subject; and as it is the result of gastro-enteritis, our efforts should be directed against this last-mentioned disease.

Inflammations of the parenchymatous organs annexed to the superior part of the digestive canal, are commonly placed under the dependence of stimulations of its mucous membrane. Hepatitis, for instance, most frequently arises in consequence of gastro-duodenitis. The yellow tinge by which it is accompanied, the deep pain in the right hypochondrium and shoulder, the bilious coat of the tongue, and bitterness of the mouth, do not call for emetics, as it has been generally believed. An observing practitioner will here recognize an irritation in the liver, which is to be treated by capillary blood-letting from the right hypochondrium, complete abstinence from all liquid or solid aliment, and by acidulated drinks, warm fomentations, general bathing, and other antiphlogistics.

When a violent acute hepatitis is announced by intense pain, extreme agitation, and high fever, the most powerful means are to be used with prudent firmness. Large bleeding from the arm, and from forty to sixty leeches on the right hypochondrium, are to be repeated until the irritation is overcome, or its violence diminished. The liver, which is a parenchymatous organ, abundantly supplied with blood-vessels and cellular substance, may easily become the seat of purulent collections, or chronic schirrhous, or of cancerous affections, which generally prove fatal. These deplorable results are generally brought on either by a want of firmness and sufficiency in the antiphlogistic treatment, or by the use

of excitants at the commencement of the disease, when the irritation, being still in its embryo, can easily be destroyed to the root. The distinctions intended to be introduced by nosologists between hepatitis in the centre or at the surface of the liver, are entirely useless at the bedside of the patient, since they cannot be the basis of any special curative indication.

The matter of abscesses formed in the liver tends to come out through the anterior varieties of the abdomen. The tumour which is then formed is not to be opened unless the external parts partake of the inflammation, and unless fluctuation is manifest. These signs indicate the formation of a salutary adhesion between the purulent sac and the peritoneum; the consecutive treatment belongs to the surgeon. When the abscess breaks out through the intestines, the colon is generally the seat of that perforation; the patient suddenly passes a quantity of pus through the rectum: we must then insist on the appropriate means of maintaining rest in the parts, of preventing their too violent inflammation, and of promoting the internal process of cicatrization, which, after all, will seldom have time to be completed.

Icterus, which must have excited, to a high degree, the attention of practitioners before the birth of pathological anatomy, and which many are still attempting to consider, in many cases, as an effectual disease; icterus, I say, must finally be erased from the class of diseases. It is merely a symptom, a secondary effect, of certain degrees of irritation in the liver. Diluents taken internally, baths, emollient fomentations, general and local bleeding, according to the strength of the patient and the intensity of hepatic symptoms, are the most proper remedies to be employed against it. Above all, diet, by maintaining the stomach in a state of rest, which prevents it from soliciting or exciting the secretion of bile, is, in all diseases of the liver, with or without suffusion of bile, a most powerful agent.

Inflammation of the spleen appears to be under the dependence of acute or chronic gastritis. If we except the cases arising from wounds in the left hypochondrium which are strongly characterized, it will be found that their origin is mostly obscure, their progress slow, and their diagnosis uncertain, until the organ has so increased in size as to raise up the parietes of the abdomen. I consider splenitis of this kind as determined by the habitual excitement of the stomach,

calling to that organ a surplus of blood, and involving the spleen in the same disorder. The disposition of the parts, as well as pathological anatomy, justify this assertion. The same antiphlogistic treatment, which has been so often recommended against other inflammations, must also be applied to acute splenitis arising from internal causes. But these protracted irritations of the spleen, the existence of which is connected with some over-excitement of the stomach, require the same treatment as chronic gastritis. Local bleeding from the left hypochondrium, emollient fomentations applied to the same spot, baths, diet, diluent drinks, such are the remedies of which reasoning and experience have established the efficacy.

Like the liver and spleen, the pancreas often partakes with inflammations of the stomach and superior portions of the small intestines. After gastro-duodenitis of long standing, the pancreas is found tumefied, hard and schirrhous. But this organ is so deeply seated, the phenomena arising from its disordered functions are so obscure, and so easily eclipsed by those of enteritis, that it is not possible to ascertain their existence, nor necessary to apply to them any other remedies but those prescribed in gastro-intestinal excitements.

The same reflections are applicable to tumefactions of the mesentery, and even to those purulent collections sometimes occurring in that organ after, and in consequence of, acute inflammations of the small intestines. Bichat had pointed out that law according to which irritations are propagated along the course of the lymphatics communicating with the inflamed surfaces. It is true that complications of this kind, in the acute state, are always dangerous; but as they cannot be ascertained during life, they can derive no benefit from therapeutics.

Void of all important accessory, and with much less intimate sympathy than the stomach and intestines with the principal viscera, the large intestines, from the valve of the cœcum to the rectum, are very liable to acute inflammations.—Those lesions may assume three principal forms, according as every secretion is suppressed in the inflamed membrane, or as its mucous folliculi and exhaling vessels being violently stimulated, abundant dejections take place; or the irritation becomes so high, that the vessels let out blood which mixes with the stools.

The first of those forms is the most rare, and the least understood; it may perhaps, as is the case with other inflam-

mations of the mucous membranes, constitute merely the first period of a phlogosis terminating by considerable secretions. In all cases, whether those secretions take place or not; let either blood or mucosities alone pass through the anus; let there be little or great heat along the intestine, colic or tenesmus, the treatment does not vary. The patient is always submitted to rigorous abstinence, and to the use of drinks in which starch or gum has been dissolved; enemata made of a decoction of linseed or of the root of marsh-mallows; but these should be made of a quarter or half of the quantity generally injected at a time, for fear of fatiguing and painfully distending the rectum and colon. White starch may be advantageously substituted to the mucilages indicated above; the bud of a poppy added to the liquid, makes it somewhat anodyne, and is very serviceable where the pain is violent. Emollient fomentations are to be made on the abdomen, and leeches applied to the anus, in numbers proportionate with the severity of the symptoms, the age and strength of the patient. Baths, frictions on the skin with warm soap and water or vinegar, are useful, especially in hard labouring men and soldiers, whose skin is often soiled, and unfit to perform a free perspiration. Diet also produces the beneficial effect of preserving the inflamed portions of the digestive mucous membrane from the contact of fæces, which always irritate and excite the contractions of the muscular coat lying next to it. These are to be persisted in, till the violence of the disease is considerably lessened.

Such is the treatment to be observed generally in acute irritations of the large intestines, whether they be called colitis, diarrhea or dysentery. These diseases are often produced by atmospheric variations, by a damp cold after the heat of a burning sun, and still more frequently by the use of unwholesome food; they often affect a great number of persons, among whom they make extensive ravages. A few facts would seem to warrant the belief that the emanations arising from the evacuations of dysenteric patients are susceptible of propagating the disease. It is, therefore, necessary to scatter the sick in various salubrious places; to insist on the observance of all rules susceptible of preventing local infections, and on the anti-phlogistic treatment of every patient. A wholesome regimen, attention to remaining covered at night, cleanliness, remoteness from low damp places, avoiding green unripe fruits and meat imperfectly cooked, are

the most efficacious means of preventing epidemic dysentery, or of extinguishing it where it already exists. The patients will soon be cured under this treatment, and able to resume their occupations, the number of victims being thereby considerably lessened within a short time.

Dysenteries called adynamic are mere complications of gastro-enteritis with colitis; they constitute very serious disorders, to which it is necessary to oppose all remedies separately called for by the two sorts of inflammation from which they originate.

During the convalescence of acute colitis, the physician must carefully watch over the patient's diet. Some feculent food may at first be substituted to mucilaginous or gummy drinks; the *décoction blanche*, with the addition of a few drops of laudanum, or of a few grains of opium, is then highly beneficial, and completes the restoration of health in the alimentary canal. The patient is to live some time on rice, sago, salep, &c. before he resumes his former regimen.

The peritoneum, from its situation, often receives from other viscera those violent acute inflammations to which it is so frequently liable. Thus the uterus after labour, the bladder after lithotomy, and, in some very rare cases, the stomach or intestines, being inflamed, may propagate their irritation to the peritoneum. In other cases, peritonitis proceeds from the sudden impression of cold, from blows on the abdomen, or from wounds penetrating its cavity, and occasioning an extravasation of fluid from some organ lodged within it.

In all cases of peritonitis, debilitants are highly indicated; large quantities of leeches to the abdomen, light emollient fomentations, mucilaginous drinks in small doses, absolute rest, long bathing, emollient enemata, are adapted to the acute form. The activity of the treatment should be commensurate with the intensity and danger of the disorder. It must never be forgotten that this inflammation easily passes to the chronic stage, and produces either collections of serum or pus, or anormal membraniform productions, all which consequences can never be prevented but by the destruction of the inflammation on its first invasion.

The inflammation of the peritoneum which is apt to follow labour, lithotomy, and abdominal wounds, will often be avoided by evacuating blood both locally and generally, thereby preventing the violence of irritation from any of the above causes; prudence even requires that those means should always be

resorted to whenever the injury has been such that we may dread violent inflammation.

SECTION III.

Of the treatment of chronic irritations of the digestive canal.

There are very few diseases less understood, and more frequently treated in an empirical manner, and contrary to the principles of rational therapeutics, than those obscure, slow, and habitual irritations of the stomach, liver, and intestines. The principal causes which may account for the errors daily committed as to their nature and mode of treatment, are the variety of phenomena they produce, their faculty, existing during a long period of their course, of digesting several kinds of food, and the temporary relief obtained from stimulants which ignorance often suggests.

Chronic irritation of the stomach occasions an immense variety of phenomena in the organization, which it is important for the physician to study with persevering diligence.—Man, in perfect health, experiences no sensation at his stomach; as soon as that organ announces its presence by a sense of fatigue, uneasiness, or pain, it is irritated and requires attention. It is often at first nothing but the effect of an increased susceptibility, characterized by the promptness with which the stomach resents the effects of all strong emotions, high-seasoned food, wine, spirituous liquors, and by the relief and easiness procured by a light diet, aqueous drinks, and peace of mind.

A more advanced stage of the disease gives rise to permanent but inconsiderable phenomena, increasing under the influence of improper regimen and of all excesses: thus, after a meal, the subject experiences heaviness and uneasiness about the epigastrium; muscular strength seems much impaired, and the most active men feel an invincible aversion for all exertions; digestion is slow, difficult, and accompanied with borborygms; some kind of food appears more easily assimilated than others. When this stage is rendered more violent by stimulants, the pain at the epigastrium increases, the abdomen is tense, and the patient attributes his complaint to indigestion.

When chronic gastritis is still more violent, the lightest food is digested with difficulty, and the patient is compelled

to live on liquid food. The pain at the stomach is either null or constant; a general uneasiness supervenes, and variations in diet, which would produce no inconvenience in other circumstances, will prove injurious, and exasperate the symptoms.

These are the most frequent forms of chronic gastritis.—They are sometimes accompanied with various particular phenomena which have often been mistaken for the disease itself, of which they are only an effect or symptom. Some patients, therefore, will experience a sort of burning pain or spasmodic internal constriction under the ensiform cartilage. The epigastrium is then generally warm, contracted, or projecting, and sensible on pressure; in others, a sense of internal heat runs along the œsophagus to the throat, where a burning and acrid fluid seems to be diffused, and to corrode the parts. This symptom generally appears on the patient taking a hearty meal, especially certain kinds of food, or fat animal substances. In other cases, the internal heat gives place to a sense of acrimony, more or less intense, and sometimes intolerable, ascending from the abdomen to the pharynx. The patients fancy their stomach full of acidities, which it afterwards expels. In some constitutions, the slightest cause will bring on vomiting, the lightest food will raise and contract the stomach. At last, the pain sometimes pervades the whole chest, which feels as if run through by a sword or a burning iron, either at its base or about the region of the shoulder blades.

Whatever may be the other morbid symptoms, the appetite varies considerably in all chronic gastrites. Sometimes the stomach experiences an increased energy in its digestive powers, and the patients feel a constant want of taking large quantities of food which are tolerably well digested. In ordinary cases, especially where the disease is recent, or has not made considerable progress, a sense of hunger continues to recur at regular periods, but food does not fail to produce uneasiness, pain, and indigestion. For the most part, the appetite is lessened, and sometimes null; and habit alone induces the patient to search, in the enjoyment of a meal, something to please his palate.

The stomach is too important an organ, that its irritations should not give rise to numerous and varied sympathetic phenomena. The tip and edges of the tongue are red, and its extremity pointed and elongated. At other times, it is

wide, somewhat pale, and covered with red and projecting papillæ. The skin is dry, and sometimes acrid to the touch. Fever seldom exists, except during the recrudescence periods of the irritation. The action of the secretory organs is continually altered; urine is alternately abundant or rare, thick or limpid; bile accumulates at different times in the stomach, or is obstructed in its ducts; the saliva is, in many subjects, so abundant as to produce real salivation, whilst in others it is so rare as to have the mouth entirely dry, &c. The lungs are often sympathetically irritated, producing a dry, small, jerking cough, especially after a meal; the heart, independent of the modifications it imparts to the pulse, is, in many subjects, nervous and excitable, and the seat of palpitations which have sometimes induced the belief of the existence of a material and permanent lesion of its tissue. The cerebral system also experiences disorders that give rise, either to languor, despondency, and disgust of life, or to sorrow, hypochondriasis, or to various kinds of mania.

It is easy to conceive that continued and permanent affections of the stomach must speedily alter the process of nutrition. Light chronic gastritis, however, which affords no great obstacle to nourishment, is not incompatible with a certain degree of corpulence. But, in the generality of cases, the patient gradually loses flesh; his skin becomes of an earthy hue, and he gradually arrives to marasmus.

It is also evident that schirrhous and cancers of the pilorus, and other similar affections of the stomach, mostly proceed from chronic gastritis of some duration.

The greatest practical difficulty occurring in the management of the diseases under consideration, often consists, not so much in administering proper treatment, as in ascertaining their existence and discovering the source of the accidents complained of by the patient. Indeed, the diagnosis of chronic gastritis being once established, its treatment is immediately disclosed. Debilitants must be the basis of its therapeutical indications, and it is necessary to have immediate recourse to them, in a degree commensurate with the intensity of the symptoms. When the disease has been brought on by excesses, by the abuse of stimulants and privation of sleep, the physician must insist on the adoption of more regular habits, abstinence from all exciting food and stimulating drinks. Coffee, liquors, and wine, should be proscribed, as well as solid animal food, ragouts and spices. This will often prove

sufficient where the case is rather a gastric susceptibility than a real inflammation. A gentle and regular diet maintains the stomach in a normal condition, and prevents the development of the disposition to irritation. The most beneficial results will here be derived from gentle exercise, avoiding the too assiduous studies of the cabinet, early rising, occasionally taking, during the day and at bed time, a few glasses of water, containing sugar or gum, gently acidulated with orange juice.

In the second stage of the disease, I mean, when the symptoms of gastritis, though light, are permanent, and easily exasperated, the patient must subject himself to more vigorous privations. Thus, thin feculent porridges, the white flesh of animals, fish, cooked fruits, ripe raisins in the proper season, should compose his food, and pure water his ordinary drink. If the pulse is full, the constitution vigorous, twenty or thirty leeches to the epigastrium should begin the treatment. During the exacerbations constantly occurring at certain periods of the disease, repeated blood-letting from the capillaries, emollient fomentations on the abdomen, absolute diet, lying in bed, and the use of mild drinks, should be prescribed. By following this method, the irritation will seldom fail to subside gradually, the symptoms will disappear, and health be restored.

When the symptoms of chronic gastritis have arrived to a higher degree, regimen and dietetic means will no longer be sufficient: leeches must be applied to the epigastrium in small quantity, but renewed every three, four, or six days, according to the strength of the patient and the severity of the symptoms. Long warm baths, and emollient fomentations on the abdomen, are then very useful. Absolute diet, interrupted by occasional draughts of an emollient ptisan; emollient enemata for the purpose of keeping the bowels free, and of cooling the inferior extremity of the digestive canal, will be found beneficial. It is necessary to persevere in this negative treatment until the total disappearance of the symptoms. Cutaneous revulsives, and other medical agents of a similar nature, as will be mentioned hereafter, are now called for, and the physician should never omit to combine them with antiphlogistics or direct debilitants, which constitute the principal and indispensable part of the treatment.

In chronic gastritis unattended with fever, it cannot be too often repeated, that it is by regimen and regular habits, more

than by evacuations of blood, that a cure must be sought for. I have seen, (and others must have made the same observation,) those diseases, although timely and vigorously attacked by large and repeated applications of leeches, resist that treatment, and patients weaken rapidly and sink under the loss of blood before the irritation had ceased. Such conduct is prejudicial to the credit of our art, and makes a number of victims. A judicious practitioner must never forget, that when our organs have contracted habits of morbid actions, they cannot recover their normal condition but by degrees, and that the patient's strength should be so preserved as to enable him to pass through the inevitable protractedness of treatment. It is indispensable that the whole animal economy should be for a long time modified, and especially the affected tissues, before we can expect the total disappearance of chronic irritations. Leeches always shorten the duration of latent gastritis; but they are still less efficacious than other means which medicine possesses for effecting a cure. Too much eagerness and precipitation in obtaining a recovery, will expose the patient to great perils, and the physician to do extensive mischief in order to obtain insignificant results.

The special symptoms of chronic gastritis, such as pain in the chest, gastric cough, palpitations, anxiety and hypochondria, induce no modification in the treatment indicated above. All these accidents will disappear as soon as the physician has been able to master the gastric irritation, and when their intensity calls for his interference, they are to be treated in the same manner as over-excitements of the lungs, heart, brain, and other parts sympathetically affected.

We know the successful practice of Camuset, who cured vapours and other nervous symptoms by means of chicken or veal broth, of emulsions and other similar drinks. Pinel never failed to recommend to hypochondriacs, melancholics, and persons consumed by pretended obstructions, fruits, milk, a light and vegetable diet. The physiological practitioner should follow the same conduct in the treatment of nervous disorders arising from chronic gastritis.

The excessive voracity accompanying bolimia* should be

* There occurs sometimes in fevers a sort of craving for particular food, especially when the high febrile action has passed away, and left the patient in extreme debility; and, although I cannot say that the continuance of a severe diet should prove injurious, I believe that the call of nature can be

treated with the more perseverance, as it frequently terminates with the sudden explosion of acute gastritis. Softening drinks, and some light, feculent food, must alone compose the diet. Dyspepsia, being the consequence of irritation, will disappear with it. The sensation of heat, acrid and acescent, is often obstinate and troublesome to the patient. One or two scruples of sub-carbonate of magnesia will procure relief if the secretion of the stomach is really acid; but as this remedy causes no modification in the affected tissues, the relief will be but temporary, although it may be often employed as an useful palliative, in some cases, when proper remedies are directed against the disease itself. The obstinate vomiting attendant on certain gastritis, requires that liquids should be given in small quantities at a time, that the patient be kept in perfect rest, and emollient fomentations carefully applied to the abdomen. Rivière's potion, which is too often resorted to in those cases, fails in most of them, because it does not subdue the exalted susceptibility of the stomach which produces vomiting. In a word, the most efficacious means of curing gastritis, and all its consequences, is by antiphlogistics and all other remedies calculated to eradicate the source of the complaint.

Cold is, in certain chronic gastritis, one of the most useful agents. As far as we may judge from a few observations, it proves especially proper where the epigastrium is the seat of violent burning pain, or agitated by uncommon pulsations, which the eye can see, and the hand feel, when applied to the pit of the stomach. The coats of the viscus are the seat of strong congestion; the arteries by which it is surrounded beat with too much force. Cold fomentations and drinks will now prove highly serviceable. All these cases of gastritis, where cold may be used, are a vast and interesting subject of inquiry.

There is no disease which calls for more continual patience

indulged in all cases where the desired aliment is not too evidently contra-indicated by the existing circumstances. It is with perfect confidence that I assert that the indulgence of those appetites will prove more beneficial than obstinacy in resisting them by a continuance of diet. As a general rule, I believe I may say, that in all cases of fever and other diseases accompanied with debility, the feelings of the patient are the best criteria by which we can be guided in the employment of regimen, and articles of diet; and there will be found but few, indeed, which it will not be advisable to indulge in a moderate degree.

on the part of the sufferer, and attention on that of the physician, in observing the effects of the remedies. The former must provide himself with total resignation to the severity of diet, the tediousness of other cares and regimen, and the slow progress of relief, whilst the latter must allow no opportunity to escape of imparting proper modifications to the symptoms. The stomach is a capricious organ, whose tastes and conveniences we must consult, not to gratify them, but to draw inferences which may assist our judgment.

Convalescence in chronic gastritis is always long, and requires the greatest care to prevent relapses. The patient must resume his ordinary regimen by degrees, several months, and sometimes whole years are required to restore health in the stomach; and during all this time the patient must conform to the most rigorous precepts of diet, and to all other means required when the gastric susceptibility is increased.

But, notwithstanding the most proper attention, many patients retain a slight form of gastric irritation, which is not altogether incompatible with a general satisfactory state of health. These individuals are to be ranked among those who must purchase health by the sacrifice of a great many enjoyments, in order to prevent an increase or return of the evil. I have now under my care, a young man, thirty years of age, who, for the last five years, has not been able to take other kinds of food than milk, and that during the night; for, in the day time, his stomach is so irritated that it cannot even retain common water. Others again are compelled to live merely on feculent vegetable substances, easy of digestion, and in whom the slightest deviation from a severe regimen is purchased at the expense of violent pain and of protracted indispositions.

What is most generally prejudicial to patients affected with chronic gastritis, is their persuasion that the stomach is weak; an opinion often corroborated by the fact of stimulants procuring a temporary relief. In some robust constitutions, the stomach continuing its functions, is over-heated by stimulants, so as not to be painful to the economy. It is then in the condition of those irritated muscles which, after a little exercise, are no longer painful, until the artificial excitement, having subsided after rest, allows the morbid irritation to resume its influence. The stomach, after the effects of stimulants, always becomes more sensible and irritated than before. But the patients unacquainted with this circumstance, have again re-

course to the substances which have procured them such relief, and, by the abuse of them, soon arrive at that period where the organ ceases to perform its functions, and where stimulants, which had procured a temporary relief, become evidently injurious. They now accuse the inefficacy of medicine, and evince an entire repugnance for debilitants, which they conceive to be more calculated to weaken, than the most powerful excitants have proved effectual in strengthening their stomach. It is, however, necessary to have again recourse to abstinence, gummy mucilaginous drinks, and other therapeutical agents of the same kind; and it will be a fortunate circumstance if the total disorganization of some portion of the stomach does not render all such attempts useless. Happy indeed are those whose ignorance or quackery does not persuade them that their gastric debility, having made further progress, it is to be treated with stimulants still more active than those heretofore employed.

When fibrous, schirrous, or cartilaginous substances are formed in the coats of the stomach—when the pylorus is the seat of one of those tumours involving lymphatic ganglia and the vessels and nerves in their neighbourhood, the physician can do no more than nourish the patient by means of soft and liquid substances, whilst he soothes his sufferings by fomentations, baths, and internal emollients. This treatment is much more beneficial than those pretended solvents which are still found in some formulæ, and are only calculated to exasperate the disease.

These principles are totally applicable to the treatment of chronic enteritis, which are, indeed, less frequent than gastritis, because the stomach generally receives the first impression on the part of stimulants, and seldom transmits them to the intestines but in a weak and adulterated condition, or because they are frequently absorbed before they reach them. Borboryma, several hours after a meal, flatulence, tumefaction of the abdomen, alternating with its sinking, irregular diarrhœa, followed with obstinate constipation, are the symptoms of irritations easier and sooner cured than gastritis.

There is, however, another form of enteritis, incident to infants, and deserving particular attention; it is that disease which has been so long and improperly called diseased mesenteric glands [*Le carreau*]. A mere study of the causes and nature of that affection, and the most superficial exami-

nation of the alterations found after death, are sufficient to show that it consists at first in an enteritis, which is, in some cases, violent, but in others, and more frequently, obscure, and passing to the chronic state. Under the influence of this disease of the mucous coat of the intestines, the mesenteric ganglia, being more developed and irritable in infants than in adults, soon become irritated, tumefied, and transformed into voluminous masses containing pus, or into a tubercular tissue. The same phenomenon takes place at more advanced periods of life, although less frequently, and in a lesser degree; and anatomical investigations have long since ascertained the mechanism of its formation.

When in infants, the heat and dryness of the skin, frequency of the pulse, intumescence of the abdomen, loss of appetite, and disorders in the digestive functions, indicate the invasion of enteritis, no food is to be allowed except mucilaginous and gummy drinks; leeches should be applied to the abdomen, in number proportionate to the strength of the patient and the intensity of the fever. Reason indicates that their application, which is to be renewed once, twice, or three times, at a few days interval, according to the progress of treatment, will be followed with emollient fomentations on the abdomen. General bathing, frictions on the skin with water and vinegar, or soap, will prove beneficial in calling vital action to the surface, and restoring perspiration, which has become almost null. Pure air, a salubrious, elevated, and dry habitation will greatly assist the treatment. Moderate exercise should be added, as soon as may be allowed by the cessation of fever and the return of strength. We must always bear in mind, that, in this complaint, inflammation, either in the digestive canal, or in the mesentery, is always of long duration. Evacuations of blood should be copious and the diet absolute, merely at the commencement, when the irritation being violent, and the fever intense, food might increase the symptoms, but especially when the subject is more debilitated by the disorder of his functions, than by the loss of a few ounces of blood, and the privation of aliments. But, at a later period, as the symptoms begin to subside, some liquid, mucilaginous, or gelatinous substance may be allowed. These substances, being readily absorbed in the stomach or superior portion of the small intestines, leave but little fecal matter, and are the most proper aliments to be taken during the convalescence of all chronic enteritis, espe-

cially of that form of the disease under consideration. With regard to the opinion which attributes the obstruction of the mesenteric ganglia to the absorption of thick and viscous matter from the internal surface of the intestines, it is no longer worthy of refutation; and the apprehension entertained of the injury occasioned by the patient's taking any feculent food, however well prepared, is altogether chimerical.

It is evident that gastritis, which often accompanies the invasion of entero-mesenteritis, constitutes an additional reason for the employment of an antiphlogistic treatment.

When the intumescence of the mesentery persists, after the subsidence of intestinal irritation, as well as in cases where this tumefaction arises from often repeated excitations of the mucous membrane, without, however, amounting to real inflammation, some have recommended a nutritive diet and gentle purgatives. I will take occasion to discuss this question in another place; and will, for the present, content myself with saying that in the convalescence of the *carreau*, new or additional quantities of food can never be allowed without the greatest circumspection, consulting, at every step, the susceptibility of the constitution, and the effects of the regimen. On the other hand, should the disease be the result of excitement too slight to produce enteritis; or should the inflammation of the intestines have subsided, the stimulating effects of purgatives might, in the former case, develop the affection; and, in the latter, occasion a relapse.—We may, therefore, conclude that the use of purgatives is attended with some danger. The advantage sought to be derived from them is altogether problematical, whereas the use of antiphlogistics is free from any inconvenience. I consider the latter mode of treatment applicable to every period of the *carreau*; and should its success be less rapid at a more advanced stage than at the invasion of the disease, it is to be exclusively ascribed to the last traces of inflammation and obstruction being more tardy and difficult to be eradicated than in a more early stage. The violence, or even incurability of material disorders in the intestines or mesentery, sometimes baffle all the efforts of a debilitating mode of treatment; but these circumstances can never justify the use of stimulants, which are altogether inconsistent with the nature of the evil.

I have little to say about chronic diarrhœa, frequently occurring after acute inflammations of the superior portion of the alimentary canal, or after violent colitis, whether neglected or improperly treated at their commencement. The first step here is to enforce an absolute diet: should the constitution be still vigorous, and the subject well fed, it will be more proper to begin by leeches to the anus. When, to these means, we add gummy drinks, taken in small quantities, and mucilaginous enemata, they will generally prove effectual in arresting the progress of the disease. Tepid baths, frictions on the skin, warm clothing, wearing flannel close to the skin, will greatly promote the operation of antiphlogistics. When the patient's health has improved, we are still to persevere in the same treatment, except with the addition of rice water, *white decoction*, and other analogous drinks. As soon as the digestive canal will permit, some abundantly nourishing food, but such as leave little stercoral matter, may be allowed.—There is no diarrhœa which can resist this treatment, especially when assisted by exercise, free air, amusements, and residing in elevated, temperate, and salubrious places.

Chronic as well as acute hepatitis, is connected with gastroduodenal irritation. This seems to be to the stomach and superior extremity of the small intestines, what the mesentery is to that portion of the digestive canal appended to it. Here then we have again to treat gastritis and enteritis. This twofold irritation must occupy the whole attention of the practitioner: the most effectual therapeutical means are—regimen, soft acidulated drinks, emollient fomentations to the abdomen, leeches to the right hypochondrium and to the anus. Should the disease arise under the influence of a burning climate, such as India or Senegal, the first step must be the removal of the patient to more temperate latitudes; by their obstinacy in remaining under a climate which gives rise to such diseases, patients are liable to see them aggravated, notwithstanding the most appropriate treatment, and frequently to relapse after their cure. Acute inflammations are widely different in this and other respects, from chronic phlegmasiæ. After the cure of the former, the patient becomes inured to the climate—I mean, his organs become less sensible to the action of the causes which had modified them; the effect of the latter, on the contrary, is to render the constitution more liable to be affected by those causes which have already deranged in a permanent manner, the rhythm of their vital actions.

The disease then becomes habitual in the living organism, which can no longer free itself, until the causes ceasing to operate, medicine can recover its efficacy. Thus, phthysical patients must leave northern regions and repair to the south, and those affected with gastro-enteritis, hypochondria, and chronic hepatitis, must travel to the north, under the temperate zone, which, being equally distant from the poles and the tropics, seems the most favourable to the development of human faculties, as well as to the normal exercise of the functions.*

CHAPTER VII.

OF DEBILITATING MEDICATIONS APPLIED TO THE LYMPHATIC SYSTEMS.

The disposition of the extreme ramifications of the lymphatics, their relations either with the whole series of living tissues, or with the extremities of the venous and arterial capillaries, the nature of their functions, and the influence they possess in the process of nutrition, are as many obscure topics which physiology has not yet elucidated. It is, therefore, impossible to ascertain positively the number or the nature of their affections. Observation, indeed, has shown the vo-
with an increase of energy in all elaborations of the white
lume and development of the lymphatic system corresponding

* This would be a place for indulging in some observations on what I have said, page 166, with respect to the universally adopted practice of driving consumptive patients to southern latitudes; but I will confine myself to referring to the case related in that place; and after requesting further observations, it will afford me more pleasure to stand contradicted by experience than to be successful in theoretical speculations.

A very estimable friend, Professor J. B. Beck, of New-York, informed me some days ago, that Dr. Charles Drake, of the same city, intended to publish an observation made on himself, tending to prove that the inspiration of cool air is not so injurious in consumption as is generally believed. This I conceive to be correct, and I cannot but express the wish that Dr. Drake will prosecute and make known the result of his trials, as they cannot fail to substantiate, in some measure, the view I have of the subject.

fluids; but what part does this system perform in the diseases of our organs? What modifications do inflammations or atonies impart to the composition of the lymph, and to the vital actions of the vessels in which it is contained? Finally, what influence do these results possess on the whole animal organization? These questions cannot at present be answered otherwise than by suppositions unworthy of positive physiology, and replete with disastrous consequences in practice.

We, therefore, know little or nothing at all of the diseases affecting the imperceptible ramifications of the absorbents. Maader, Darwin, Soemmering, and lately M. Alard, have overstepped facts, and been launched into an ocean of conjectures, by attributing to the lymphatic system the greater part of, and nearly all, the affections incident to our organs. M. Broussais himself has not been more successful in considering tubercles in the lungs, as well as the schirrhous and cancerous conformations of our organs, as lymphatic inflammations. In those cases all the organic tissues are involved; the irritation has modified, confounded, or perverted their physical elements, impaired their sensibility and the rhythm of their vital motions. Such affections are altogether distinct from inflammations of the vessels or ganglia carrying or elaborating the lymph; and in denominating both these sorts of affections by the common appellation of *sub-inflammations*, the physician in chief of Val-de-Grâce has added a vicious analysis of phenomena to a still more vicious language.

In the actual state of science, our study must be limited to the modifications which the predominance of the lymphatic and other vessels carrying white fluids, imparts to the character and termination of the diseases of the tissues. Here observation will prove serviceable in elucidating the treatment, as well as the theory of morbid affections. It will demonstrate with what facility, in fair and lymphatic subjects, irritations will become chronic, and produce a degenerescence of the invaded tissues. The practitioner, cautioned by experience, will insist on the employment of emollients and antiphlogistics, until these foreign materials, the product of a disordered nutrition, have been absorbed. All pretended solvents, irritants of every kind, applied to indolent and lymphatic tumours, generally have no other effect but that of increasing their consistence and susceptibility, and of giving rise to acute inflammations, which will terminate in the cancerous destruction of the whole.

With regard to lymphatic trunks and ganglia, I do not believe them susceptible of becoming the seat of another inflammation, with a distinct character and appellation, than the ordinary inflammation of blood-vessels. When irritated and inflamed, the canals and ganglia carrying or elaborating the lymph, become red, distended with blood, painful and heated, similar to all other parts of the body placed in the same circumstances. Lymph being a fluid derived from between the tissues of the intestines, or from the surfaces of membranes, and not unlikely formed by the orifices which absorb the materials of those parts, does not appear susceptible of flowing from all parts to the irritated tissues, and of producing active tumefactions, the result of congestions similar to what takes place in the blood-vessels. We cannot assimilate, in this respect, the lymphatic with the arterial systems, every part of which, being under the influence of the nerves, propels, according to the existing excitement, its contents towards the irritated organs, distending their vessels, and increasing the energy of vital actions, which is already greater than in the state of health. As the lymph cannot, even in irritations of its own vessels, perform the same part as the blood in ordinary phlegmasiæ, we may say, that in this sense, there can exist no lymphatic inflammation. The lymphatics and their ganglia are, in this respect, in a condition similar to all other parts of the body where sensibility is increased and inflammation exists to a certain degree. Hence the term of sub-inflammations, given by M. Broussais to their irritations, is altogether incorrect.(1)

(1) The diseases which have been denominated *phlegmasies blanches*, *scrofulieuses*, *lymphatiques*, and *sub-inflammations*, are either acute, or more properly chronic inflammations of the tissues in lymphatic subjects, or phlegmasiæ, equally chronic as acute, of the organs elaborating lymph. White fluids never flow to irritated parts; but these are always distended by a certain quantity of blood coming from all parts, as may be seen by the enormous size of arteries and veins in the vicinity of goitre, white swellings, steatoma, cancers of the breast, &c. These dilatations, when taking place in the lymphatics in the neighbourhood of scrofulous or cancerous swellings, are always situated above, and never below the tumour. Their contents, far from entering the tumour, come out of it in greater quantity than in the normal state. The blood must then be considered the only reservoir from whence all parts affected with chronic irritations derive the deleterious materials which take their origin within them: phlegmasiæ are always the same in their nature, whatever be the tissues they modify, or the constitution of their patients.—(Note of the author.)

I believe these considerations will throw some light on the history of the diseases of the lymphatic system, and on their proper treatment. It has been fully established by Bichat, that these vessels and their ganglia, most frequently partake of the irritation of the surfaces or tissues from whence they originate. This observation is, as it were, the foundation of the pathology of the lymphatic system. Its accuracy may be easily ascertained on the external parts of the body. In inflammations of the fingers or toes, arising from ulcers in those parts, or after their immersion for some time in irritating liquids, it is not uncommon to see the lymphatic vessels of the limbs and their ganglia, inflame. This affection, when seated in the vessels, is characterized by the presence of a painful, renitent, and reddish tumour under the skin, forming, as it were, a chord, running across the lymphatics. The curative indications here consist in removing the cause of inflammation, destroying the irritation it has produced by means of emollient applications, local bleeding, rest, and all the range of antiphlogistic agents. It is also proper to disseminate leeches in number proportionate to the extent and violence of the irritation, on the whole length of the tumefied and painful chord. When employed in an early stage of the disease, this method will lessen its duration, and prevent the formation of abscesses.

When the inflammation extends also to the lymphatic ganglia, the same mode of treatment will be resorted to with as much benefit.

As long as these diseases remain in the acute state, when pain, heat, and redness are intense, all physicians agree on the propriety of administering debilitants; but the irritation has no sooner ceased to be violent and phlegmonous, than this unity of doctrine and of practice disappears. Some have recourse to all kinds of stimulants; others persevere in the emollient treatment. The consequence is that the latter daily witness the benefits derived from their method, whilst the former, either compromise very often the life of their patients, or hasten, by means of irritants, the total disorganization of the diseased tissues, so that, to perform a cure, they are compelled to destroy or remove the parts affected. The most efficacious treatment of latent and chronic inflammations of the lymphatics, or of their ganglia, consists in small applications of leeches, repeated at a few days interval, the continued use of emollient cataplasms, a regular, but light regimen,

gentle drinks, and exercise. It is only when this treatment fails that we should resort to stimulants, which will be mentioned hereafter.

The same circumstances which determine, externally, the irritation of the lymphatics, produce similar results in large cavities. Thus, inflammations of the bladder frequently determine irritation in the lumbar ganglia; those of the mesentery are inflamed by the influence of enteritis; bronchitis is often complicated with irritation of the ganglia situated under the first divisions of the trachea, &c. These facts are daily observed in dissections. But the diagnosis and treatment of the lymphatic tumours in question, always present the greatest difficulties, because we do not possess the means of ascertaining their existence in the beginning, or of acting directly on them. The physician can do no more than modify the irritated surfaces which have induced inflammation in the ganglia, and when he can succeed in curing the former, the other will soon disappear spontaneously. In the most severe cases, when internal lymphatic tumours are of long standing, he is again to direct his treatment against the primitive affection, of which they are the consequence. The use of certain revulsives, and a few stimulants, the favourable effects of which are not yet well ascertained, are the only but insignificant means then left at our disposal, and which generally prove unavailing. It should be kept in mind that although medicine possesses effectual means of preventing the degenerescence of lymphatic ganglia situated internally in the vicinity of inflamed parts, they are totally inadequate to their cure.

It is important to remark, that inflammations of the lymphatic ganglia and vessels may arise in consequence of repeated stimulations of the organs giving rise to those vessels, even when their irritation does not amount to real inflammation. Thus the continual action of a damp cold on the skin may, without that membrane being at all affected, occasion inflammation in the lymphatics, originating from the skin, and subsequently into the ganglia. The same cause operating on the bronchiæ in a degree inadequate to produce acute inflammation, may occasion tubercles in the lungs. Facts of this kind require attention; the prophylactic treatment of a number of serious, and even mortal diseases, will derive the most important knowledge from them, and therapeutics itself will acquire at least the benefit of operating more successfully

on diseases whose nature and causes shall be better understood.

Scrofula has been ranked among the diseases of the lymphatic system; and under this barbarous denomination, all inflammations occurring in highly lymphatic subjects have been confounded. Medicine must at least repudiate this strange association of the most dissimilar diseases. There is no such thing as scrofulous patients, nor anti-scrofulous remedies; but we have, in lymphatic constitutions, pneumonitis, gastritis, encephalitis, dermitis, and ganglionitis. In the prolegomena of this work, we have indicated the general modifications which the lymphatic temperament imparts to the treatment of irritations, and to the employment of antiphlogistics;—it is unnecessary to say more on that subject.

We are not as yet acquainted with any direct means of debilitating the lymphatic system which has become too active and irritable in those persons where that system is predominant. Its energy can only be relatively lessened by exciting the circulation of the blood, and the action of the muscles, by increasing the activity of the elaborations of the blood, and giving strength to every other part of the organization; but here therapeutics is merely confined to revulsives, and cannot be the object of our study.

It is impossible to treat of diseases of the lymphatic system requiring the use of debilitants, without including among them syphilis. This affection is not, however, exclusively confined to the lymphatics. Under the denomination of syphilis, physicians have confounded irritations of all tissues, and of all organs, and attributed them to a common imaginary cause, a syphilitic virus. By attentive examination, we discover that this pretended syphilis is composed of inflammations or ulcerations which, having first appeared in the genitals, are frequently cured simply by local treatment, and general antiphlogistics, and sometimes require the employment of more or less powerful revulsives. The constitution of the subject, the sympathies connecting the genitals with mucous membranes, bones, fibrous tissues, and especially with the integuments, satisfactorily account, in many cases, for the occurrence of secondary irritations, determined by those which had previously taken place. What relation can the lymphatic system have with ulcerations of the prepuce and glans penis, with urethritis, pharyngitis, and with irritations of the periosteum and bones?

M. Jourdan, who has so much benefitted himself and the whole world with the learned historical labours of German physicians, and especially of Henslen Sprengel, and Gruner, was the first who attempted, in France, to show the absurdity of the prevailing opinion of the importation of syphilis by the companions of Columbus, and the equally erroneous and disgusting hypothesis of the existence of a syphilitic virus.(1) His efforts have not been fruitless;—the opinion of the celebrated translator of the history of medicine by Sprengel, and of Meckel's excellent treatise on anatomy, has been adopted by many individuals of high merit; a military surgeon has published in its favour the important results of his practice at the hospital of Strasbourg. The facts related by M. Richmond (2) are very satisfactory, and place that question almost beyond every possible doubt.

Towards the end of the last and beginning of the present century, Hunter,(3) Adams,(4) and Richard Carmichael,(5) had already attempted to distinguish the real syphilis, produced by contagion, from those symptoms which they have called *pseudo-syphilitici*, *syphiloïdei*, *sequalæ syphilitici morbi*. The result of their enquiries, and of those of their successors is, 1st, that pseudo-syphilitic irritations are much more frequent than others; 2d, that the diagnosis between them and the latter is always difficult, and often impossible; 3d, that both these forms of syphilis can be cured without mercury.

English practitioners have demonstrated the truth of this remark respecting the treatment of syphilis, by an infinite number of well authenticated cases. G. Ferguson, a surgeon of the British army in Portugal, was the first who called the attention of his countrymen to the useless and injurious practice of mercury. Soon after, T. Rose, G. Guthrie, J. Thompson, J. Barthe, and J. Hennen adopted and propagated the same doctrine. In Germany, L. Krüger, Hill, and others,

(1) *Considerations historiques et critiques sur la syphilis, Journal universel des sciences médicales*, t. I. II. et III.

(2) *Mémoires sur la syphilis, Archives générales de Médecine*, t. V. p. 161, et t. VI. p. 40, et p. 371.

(3) *A treatise on venereal diseases*. London, 1788.

(4) *Observations on morbid poisons*. London, 1807.

(5) *An essay on the venereal diseases which have been confounded with syphilis, on the symptoms which exclusively arise from that poison*.—Dublin, 1814, in 8vo.

declared themselves partisans of the new opinion. In France, MM. Charmeil of Metz, and Richond of Strasbourg, have equally ascertained the possibility of successfully treating, without mercury, all irritations reputed syphilitic, either primary or consecutive. There is no doubt but this subject will deserve the further attention of practitioners.

It is now certain that mercurial preparations, far from being always successful against irritations of the genitals, even in their mildest form, frequently exasperate them, and occasion considerable mischief. Nay more: in many constitutions, mercury itself produces irritations more obstinate and dangerous than those against which it is administered. In a word, this metal, under whatever shape it is administered, against primary inflammations or ulcerations, does not safely and constantly prevent secondary and sympathetic irritations of remote parts. In this respect, the adversaries of the mercurial treatment have the advantage in favour of their practice, in as much as they cure their patients with less danger, and with equal chances against relapses.

The whole question rests on the demonstration of the fact just mentioned. No one denies the possibility of curing urethritis, ulcerations of the penis, intumescence of the inguinal ganglia, periostitis, pharyngitis, ophthalmiæ, and cutaneous eruptions, by severe regimen, diet, bleeding, baths and derivatives. Many, among the most exclusive admirers of mercury, acknowledge that it is injurious during the first period, which is the period of inflammation in syphilis; but they maintain that, without mercury, relapses and consecutive accidents are more frequent. Facts and calculations will resolve this difficulty, which is altogether practical. M. Fergusson found syphilis treated without mercury in Portugal, where primitive chancres were generally cured by local means, and by a few sudorifics taken internally. He employed the same method among the British troops, and with equal success. M. Rose has observed secondary symptoms in about one third of patients treated without mercury; but those symptoms were so light as to have escaped the notice of ordinary skilful men, and these disappeared under the treatment already employed against the primary affection. (1) Other English practitioners have cured, without mercu-

(1) *Observations on the treatment of syphilis, with an account of several cases of that disease, in which a cure was effected without the use of mercury.* Medico-Chirurgical Transactions. London, Vol. VIII. 1817.

ry, several hundreds of patients; and they found the proportion of secondary symptoms to be less considerable than by the opposite mode of treatment. (2) M. M. Murray, Evans and Brown, have seen secondary symptoms occur only in one case out of ten treated without mercury. M. Guthrie, in the Chelsea Hospital at York, has collected a number of cases favourable to this method. M. Thomson, at the head of one of the great hospitals of Edinburgh, has cured primitive ulcers by rest, antiphlogistics, a recumbent posture, the local application of mere palliatives, with as much rapidity as when mercury has been used. No affection of the bones followed this practice. A small number of cutaneous eruptions, swelling and ulcerations of the pharynx, subsequently appeared in some cases, but yielded to the same treatment. MM. Bartlett and Hennen have obtained similar results. Finally, a circular, addressed on the 2d of April, 1819, to all the physicians of the British army, and signed J. M. McGregor and W. Francklin, declared that, out of 1940 patients, treated for primary ulceration of the penis, ninety-six have had various kinds of secondary symptoms: among these, twelve only were submitted to the mercurial treatment. These, as well as the rest, were all perfectly cured. In all cases, after treatment without mercury, the patients may return to their occupation, and even to the most arduous labour, which is not the case in the treatment by mercury.

On perusing these statements, some may yet exclaim against what they call invasion of the spirit of system; but their vociferations will neither astonish nor arrest judicious practitioners: declamation is the lot of prejudice, investigation that of reasoning.

It follows from what we have said, that in those diseases comprised under the appellation of syphilis, the most severe analysis can only discover irritations of the genitals, produced either by excessive coition, or by the impression of matter proceeding from tissues affected with similar irritations, and which, according to the constitutions of subjects, the violence of the disease, and the remedies employed, are either radically cured in more or less time, or transmitted through the medium of the sympathies, to remote organs. A proper

(22) *Observations on the treatment of syphilitic diseases without mercury.*—Edinburgh, 1817, in 8v.

local treatment is the first condition necessary to the cure of those diseases. The second consists in the employment of general antiphlogistic or derivative means, which experience has established as the most useful. Mercury may here find a place among internal remedies; but its action is neither indispensable in all cases, nor free from danger. The circumstances in which it is proper, truly useful, and even superior to all other remedies, are small in number, and ought to command the particular attention of our enlightened contemporaries.

Having so far explained our subject, let us now examine the local treatment of inflammations, resulting from impure coition, and which have their seat in the lymphatics. These parts are not more particularly involved than all other tissues. Hunter found the lymphatic vessels extending from the genitals to the ganglia of the groin, red and inflamed, as well as those ganglia themselves. Analogy seems to warrant the idea, that this inflammation takes place in all cases of transmission of the irritation from an inflamed surface or organ to the nearest ganglia. In this case, the lymphatics will seldom give any sign of their irritation. The physician's attention is more forcibly called to the point from whence the phlogosis is derived, and to the organ which it has subsequently involved. English physicians have observed, that in ulcerations of the prepuce and glans penis, success will follow the observance of the three following precepts, a recumbent posture, absolute rest in bed, emollient or resolute dressings. Indeed, it is easy to conceive, when the penis is freed from the inevitable friction arising from walking, and covered with relaxing topics, how soon its inflammation must subside and disappear. When irritation is high, emollient cataplasms are called for; but in milder cases, lint dipped into water or into a solution of acetate of lead, will be sufficient. Local bleeding may be added, according to the exigencies of the case. Long continued cold applications are highly beneficial where the congestion of blood is intense, and the inflammatory swelling considerable. It now becomes important to renew the dressing frequently, in order to keep the part moist, and wash off the matter, which might, by its presence, increase the irritation.

By following this antiphlogistic method in the beginning of the disease, buboes will be much less numerous than by any other plan of treatment. The irritation impeded in its pro-

gress, has less tendency to extend along the lymphatics to the inguinal ganglia. When, however, these are inflamed, swollen, and become painful, resting in a constant recumbent posture in bed should be strictly observed. Leeches, in various quantities, to the tumour, constitute the best application, as they will destroy the irritation by which it is produced. I have often seen local bleeding follow the most voluminous and inflamed buboes. After evacuating blood, emollient cataplasms, or, if the tumefaction is recent, compresses dipped into cold water, often renewed, appear to me the most proper means to be used; leeches and emollients are afterwards repeated, as occasion requires. From what has been observed in the practice of the most eminent physicians, and from my own experience, I feel warranted in saying that this method will succeed in operating the resolution of the greater number of buboes. It is evidently preferable to the applications alternately cold and warm, generally adopted by the English, wherein the action, being incessantly contradicted, must necessarily keep up or renew the irritation, instead of subduing it by a continued debilitating impression.*

Other phlegmasiæ, occurring either primitively or by sympathy, in the pharynx, nasal cavities, periosteum, articulations, and bones, require no other local treatment than antiphlogistics. Some have succeeded in applying leeches to all the inflamed parts, even as far as the tonsils, where they have

* Among the most important improvements made in the healing art since the commencement of the present century, we must reckon the practice of treating syphilis without mercury. The method is now successfully adopted throughout this continent, and its success among us has equalled that obtained in the old world. But it is somewhat singular that whether lues venerea is treated with or without mercury, the patient can never rely on a radical cure, since we daily see relapses after the most judicious treatment. On the other hand, I have read reports from various institutions in Europe, which are totally contradictory with respect to the frequency of relapses in both modes of treatment. Some reports tend to prove that relapses are more commonly met with when mercury has been used; others again show that they are of more frequent occurrence when that remedy has not been employed. I am not aware that any particular attention has been given in these countries to ascertain the truth; and, if we consider that the people of the United States in particular, are totally void of that spirit of national rivalry, which has often been so injurious to the cause of science in the old world, we must confess that, as impartiality to one or another system is an essential condition to scientific experiments, none, perhaps, are better qualified to furnish those results which are to be the guide of our practice in this as well as in all other diseases.

proved highly beneficial. I will speak in another place of the general treatment of syphilis.

With respect to chronic inflammations of the lymphatics, they are characterized by hard tumours, extending to the skin and cellular substance. Their treatment is mentioned in the second chapter of this book.

Tumours arising from chronic irritations of the ganglia, even where neither violent pain, heat, or hardness exist, require the persevering and repeated use of emollient applications, and of small local bleeding. It is absurd to attempt the dissolution or absorption of those tumours, without subduing the irritation from which they proceed; the most essential part of the treatment then consists in the employment of means calculated to restore harmony in the functions, and perfect equilibrium between the process of composition and decomposition of the tissues. I have seen buboes remain stationary for six or eight months in hospitals, and be gradually and spontaneously cured as soon as the patients resumed their occupations. In some constitutions, indolent tumours are met with, in which nothing remains but the materials accumulated by irritation, and the resolution of which is the work of time. But before giving up those lymphatic tumours to nature, it must be well ascertained that the irritation has disappeared, and antiphlogistics should be persisted in for some time longer.

CHAPTER VIII.

OF DEBILITANT MEDICATIONS APPLIED TO THE NERVOUS SYSTEM.

SECTION I.

General Considerations.

There exists in the human body an important apparatus, which collects, as it were, all impressions, and propagates them from the surface to the centre, and from the centre to

the organs, which serves as a common bond, a regulator and agent of impulsion to the whole and to every division of the living economy. This apparatus is formed by the nervous system; it partakes of all affections; and being the exclusive agent of sympathies, it holds under its dependence the whole animal organism and all its functions. The whole nervous system possesses such a remarkable influence on the systems of most pathological affections, that the study of this influence in the various cases, is eminently calculated to throw additional light on the physiology of diseased organization.

The nervous system is liable to various diseases, either in its extremities expanded on the surface of the body, or in the interior of the organs; whether in the intermediate cords which unite those extremities to the centre, or in that centre itself which constitutes the cerebro-spinal portion of the nervous system.

Intimately blended with the proper tissues of organs, it would appear, by the pain which so often exists before any trace can be found of a change in the tissues, that the ramifications of the nervous system receives the first impression from stimulating substances. This circumstance may perhaps be owing to their being more sensible to stimulations than other parts, which causes them to act sooner under their influence. But the nervous ramifications, blended with the whole of the living tissues, never remain alone affected for a length of time, and with any degree of intensity. Their stimulation extends, in all cases, with more or less rapidity to the other tissues composing the organs, and especially to the capillary blood-vessels, thereby giving rise to inflammation. Simple nevrosis can never exist; and those diseases which have been called by that name, are to be referred either to disorders resulting from irritations in the central parts of the nervous system, or to acute or chronic phlegmasiæ, among the phenomena over which the effects of nervous excitement predominate.

Hallucinations, confused or exaggerated perceptions in sight, hearing, smelling, and taste, are constantly the effect of changes in the action of the nerves perceiving those sensations, or in that of the brain itself; and these changes themselves proceed from irritations existing either in the tissue wherein the extremities of the nerves are expanded, or in the intermediate chord, or even in the brain itself. Inflam-

mations and disorganizations of the retina, labyrinth, and pituitary membrane; tumours of the acoustic, optic, and olfactory nerves; destructions of the cerebral substance in the organs where those nerves terminate, which are always ascertained on the dead body, justify my assertion. In such cases, instead of applying the dogmatical name of *nevrosis*, it would be more rational and more useful to therapeutists to search for the seat of the disease, occasioning such unusual phenomena.

Pain existing along the course of the nerves is merely the result of acute or chronic irritations, which often become habitual, and affect the portions of nerves in which they are felt. Dissection always proves this to be the case, by constantly showing the existence, in inflamed nerves, of bloody injections, serous effusions, and of fibrous, schirrhous or other tumours, to be the produce of a violent or slow irritation of the affected tissues. These diseases ought, therefore, to be called *nevritis*, and not *nevrosis* or *neuralgia*.

Situated in the centre of the nervous system, the brain receives all impressions produced on the animal economy, with every part of which it has more or less intimate and rapid communications. In bones, cartilages and tendons, the sensibility is not exalted till the lapse of a few days, in order to give time to the delicate and almost imperceptible nervous ramifications penetrating those organs, to excite pain, fever and sympathetic phenomena; but in the skin, mucous membranes, and all parenchymatous organs, the phenomena are instantly developed. On the other hand, whenever the brain receives the impression of pain or of an exalted vital action existing in some other organ, it is itself stimulated, its functions are disturbed, and it excites in an irregular manner the heart, stomach, muscles, and all parts subjected to its influence.

Should this state of sympathetic excitement continue for some time, and should the stimulation experienced by the brain be intense, inflammation may take place in that viscus, and complicate the primary disease. Certain viscera, owing to their closer connection with the brain, have more power than others of exciting these secondary phlegmasiæ. Baglivi, Rega, Sydenham, Stoll, Finke, and others, had formerly noticed the intimate connexion existing between gastric phenomena and cerebral symptoms in gastro-enteritis, which they called bilious or mucous fevers. This observation has been confirmed very lately; and Mr. Scoutetten has even establish-

ed that, after all violent inflammations of the digestive canal, the arachnoidea gives evident traces of inflammation.(1)

In the chronic stage, the same sympathies produce the same effects. Latent gastritis and hepatitis act on the brain, and are the most frequent cause of hypochondriasis. We know the influence of an irritated stomach in the production of apoplexy.(2) Several dissections have proved that mania, and other disorders of the intellectual functions, are frequently occasioned by inflammation in some viscera acting then morbidly on the brain, and producing in that organ secondary irritations or alterations of texture. There is no doubt but hysteria is the effect of chronic irritation in the uterus, inducing disorders in the nerves.

But if the brain, being the centre of all perceptions, is thus excited by all other organs, and shares in their stimulation, its influence on them is not less powerful and replete with remarkable effects, when it is itself the primary seat of more or less intense phlegmasiæ. Gastro-enteritis is often sympathetically produced by encephalitis. Under the influence of strong and lasting intellectual excitements, irritations arise in the most irritable viscera, which sometimes terminate in chronic inflammations. Thus the assiduous and sedentary labours of the cabinet, violent passions and nostalgia, are frequent causes of gastro-intestinal, pulmonary, or other inflammations.

Excitements of the nervous system, however limited and inconsiderable, always increase, by their long continuance, the susceptibility of all its parts: under their influence the whole body becomes more susceptible of impressions; the action of the brain acquires predominance over all other organs; the nervous temperament, if it already exists, assumes greater energy, or it becomes predominant in subjects where no trace of that temperament was observable. This nervous susceptibility, increased under the influence of certain irritations, is often carried to such extent as to be exasperated by the slightest stimulants, and to give rise, in consequence of the least physical or moral excitements, to the most alarming accidents.

(1) Recherches d'anatomie pathologique démontrant le rapport qui existe entre l'irritation de la membrane muqueuse gastro-intestinale et celles de la méninge du cerveau, *Journ. univ. des. scienc. médic.*, t. XVIII.

(2) Vide article APOPLEXIE in the *Dictionnaire abrégé des sciences médicales*, and the work of M. Richond, entitled *De l'influence de l'estomac sur l'apoplexie*, Paris, 1824, in 8vo.

Spasms, convulsions, tetanus, chorea and catalepsy, in the eyes of the physician accustomed to enquire into, and distinguish the real seat of diseases, are nothing more than the result of a primitive or secondary stimulation of the cerebro-spinal nervous system, or of the disorder induced by that irritation in muscular motion. Sometimes the real seat of the disease is in one or several viscera which have become painful; or in the brain, the spinal marrow, or their membranes. These distinctions are of the highest importance in therapeutics: without them, it would be impossible to lay down the exact treatment which circumstances may require in the different varieties of nervous diseases.

From these observations it follows, that, in affections of the nervous system, our treatment should always be directed against the existing irritation. It is important to remember that disorders occurring in the functions of this system, constantly arise from acute or chronic irritations, either of its own substance, or of the organs in which it is ramified, and where it occasions alterations of texture similar, or at least analagous to those which follow all other inflammations. The words *neurosis*, *neuralgia*, *convulsions*, *paralysis*, express but secondary phenomena; they ought to be banished from the nomenclature of diseases, and others established conveying the idea, and founded on the knowledge of the affected organ and on the nature of that affection.

The whole class of narcotics is included in the debilitants applied to diseases of the nervous system. Many practitioners have thought that those substances, besides stimulating the stomach or other organs with which they come in contact, have also a direct debilitating effect on the brain and nerves, thereby lessening their increased action, and producing more or less a profound stupor.

This is the proper place to call to mind that the function of an organ may be diminished, or even entirely impeded, at the same time and for the same reason that its tissue is the seat of violent irritation or conjection of blood: now, it will be seen below, that this is always the case with narcotism. These do not act otherwise than by producing a sensible disorder in the function of the brain and spinal marrow, and an afflux of blood to those parts which may be paramount to apoplexy and death.

In order to proceed methodically in laying down the treatment of irritations of the nervous system, we will examine,

1st, irritations of the viscera, accompanied with predominance of nervous phenomena ; 2d, lesions of the nerves themselves, or of their expansion in the organs of the senses ; 3d, excitements of the cerebro-spinal centre. The special form of accidents accompanying these different cases, is altogether of a secondary importance in the treatment, owing to their constant variety. Hence, in some constitutions, acute gastritis and metritis, will produce either agitation and want of sleep, spasms or convulsions, or drowsiness and stupor. When the diseases become chronic, they may produce melancholy or faintness, sometimes incoherence of ideas, or even mental alienation. The practitioner must first attentively enquire for the affected spot producing the disorders, and examine the brain which is in a state more or less approaching inflammation. The particular nature of the phenomena produced by both these orders of affections, possesses but a secondary influence on the treatment they require.

SECTION II.

Of the use of debilitants in irritations of the viscera, with predominance of nervous symptoms.

The curative means required for affections of this kind, vary according to the forms, somewhat numerous, which they are susceptible of assuming ; the most remarkable of which will now be considered.

All inflammations may, in nervous subjects, give rise to great agitation, want of sleep, delirium, spasmodic motions, and other similar accidents. This fact daily presents itself in practice. In such cases, the first indication consists in diminishing the violence of the irritation producing such disorders in the nervous functions. This will be effected by local bleeding, general, tepid and long bathing, emollient and sedative applications. These must be had recourse to, not only in inflammations of parts situated externally, as the muscles, articulations or ligaments, but also in metritis, nephritis, gastritis, hepatitis, and other inflammations of the internal viscera.

Should these means be found inadequate, and the nervous system so bent on irritation that its affection continues and makes further progress, although the local inflammation may

have been treated with sufficient energy, narcotics may become useful. It is, however, generally improper to apply narcotics immediately on the affected tissues, owing to their being susceptible of renewing or increasing the irritation, and of being altered in their nature by irritated surfaces. Their calming and stupefying effect is more certain when applied to sound parts, which absorb them without altering their particles, and carry them immediately into the circulation. Thus we see extract of opium and laudanum produce stronger and more certain effects when given in glysters than when taken by the mouth, wherever the stomach or intestines are in a state of irritation.

In proportion as the excitement of the blood-vessels is less intense, and the nervous symptoms more predominant, general narcotics may be substituted to antiphlogistics and blood-letting. But we should not forget that such substances are excitant, and only act in modifying vital action in the nervous system. When inflammation exists, they seldom succeed otherwise than by allaying, for a limited time, the general morbid symptoms; and when their effects disappear, the disease returns, accompanied with the whole train of nervous disorders, which had subsided for a time. In a word, opiates are never to be used except when, by means of direct antiphlogistics, the physician has been able to allay irritation in the parts affected, and thereby prevented the effects of that excitement which narcotics never fail to produce.

These rules are also applicable to the treatment of certain varieties of asthma, which, being independent of organic affections of the heart and large vessels, seem to proceed from irritation of the mucous membrane of the bronchiæ, and from spasmodic contraction of the muscles of the glottis. (1) They should, at the same time, regulate the physician's conduct in cases of spasms of the pharynx and œsophagus, nervous vomiting, *gastralgia*, *bolimia*, *pica*, nervous colic, spasms of the urethra or bladder, and in all nervous disorders of the viscera. It cannot be too frequently urged that, in all such cases, antiphlogistics, local bleeding, baths, and emollient fomentations, should precede the use of narcotics, and, as it were, dispose

(1) *Vide Réflexions physiologiques et pathologiques sur l'asthme, Journal Complémentaire des sciences médicales, t. V, p. 3.*

the nervous system to support their action, and obtain relief from them.

On the other hand, the treatment of irritations with predominance of nervous symptoms, does not solely consist in the employment of soothing and antiphlogistic means. It will be seen hereafter that they may be advantageously combined with derivatives tending to divert vital efforts to the parts, and with various stimulants calculated to diminish or subdue the excess of irritability of the nervous system.

SECTION III.

Of the employment of debilitants against irritations of the nervous trunks, and of their expansions in the organs of the senses.

Inflammation of the nerves is evidently the cause of that pain, often intolerable, which has been called by authors nervous rheumatism, and, by the learned Professor Chaussier, neuralgia. After having designated the vital affection giving rise to such diseases, their treatment becomes self-evident. When pain begins to spread along the course of the nerves, general bleeding, and especially the application of leeches, are highly beneficial. M. Vaidy has several times cured in a short time, violent neuralgia, by means of scarification and cupping along the whole course of inflamed nerves. (1)

To the means already prescribed, it will be proper to add local emollients, long bathing, and soft gentle drinks. I believe this treatment to be best adapted to the diseases in question. When it fails, however, and pain, which it is generally difficult to allay, still continues, we may have recourse to direct excitants or derivatives, notwithstanding their efficacy has been established by the most empirical experience. But this change of treatment should not be resorted to before having insisted on the use of antiphlogistics and emollients, for a longer time than ordinary practitioners generally do. Inflammations of nerves always run through a considerable thickness of parts, their irritations must be treated with great perseverance. The primitive seat of pain or irritation should first command our attention, and the principal efforts of the treatment, as well as a great number leeches, should

(1) *Journal Complémentaire du Dictionnaire des sciences médicales*, t. III. p. 135.

be directed to that part. Wherever the affected nerve is superficial, these remedies will act more directly and with greater activity.

Acoustic neuralgia, or *otalgia* requires the same treatment. In this case M. Itard directs the head to be sponged for a quarter of an hour with warm water, and then rubbed with hot flannel, until the parts be perfectly dry, when they are to be covered with another dry and hot flannel, or an oil-cloth cap. Where the hairs are long, and this process impracticable, the temples and ears may be covered with emollient applications, containing some aromatics, in order to stimulate the skin, and promote perspiration. Vervine boiled with milk and linseed flour forms a very proper topic.(1)

In inflammations of the retina, antiphlogistics must be tried previous to stimulants and derivatives, as well as in odontalgia, where they will check the too frequent practice of pulling of teeth.

SECTION IV.

Of the use of debilitants against irritations of the cerebro-spinal system.—1st. Acute irritations.

It is often extremely difficult to distinguish inflammation of the brain from that of the arachnoides. When the head, however, is invaded, during the course of acute phlegmasiæ in other organs, it is most generally the serous membrane of the brain itself. M. Lallemand has satisfactorily characterized the difference between the symptoms of arachnoiditis, of apoplexy, and of cerebritis, when he says, that in the first, spasms exist without palsy; in the second, there is a sudden attack of palsy without spasmodic symptoms; the third is especially characterized by spasms, slow and progressive palsy, by an irregular and often intermittent course.

Whether the affection is in the brain itself, or simply in the arachnoides, the danger is equally great, and the treatment must be equally active. If the brain is easily disorganized, as is often found in dissections, the arachnoides also may as readily become the seat of membranous exsudations and of mortal serous effusions. The strictest antiphlogistic treat-

(1) *Traité des maladies de l'oreille et de l'audition.* Paris, 1822, 2 vols. in-8vo.

ment must be resorted to on the first onset of the disease.—Bleeding, which is generally proper in every case, should be proportionate, not so much with the agitation of the pulse, which is often more tranquil and slow than natural, as with the intensity of cephalalgia, the injection of the eyes, and with the dejection or exasperation of the nervous affections. Immediately after bleeding, cold applications, such as ice contained in a bladder, must be applied to the skull, after shaving off the hairs. Should there be any appearance of irritation about the cerebellum, leeches around the neck, behind the ears, to the temples and back of the neck and head, will be found serviceable, after general bleeding. When the irritation has been diminished by these means, derivatives may be advantageously employed. In many cases, sinapisms applied not only to the feet, but the whole leg, as high as the knee, are advantageously added to leeches to the neck, which are renewed as they fall, and to cold applications on the head. This treatment, combined with the use of diluent drinks, has several times succeeded in checking encephalitis, threatening to become intense. When the disease continues, we must persevere in the same course of conduct. It is dangerous to operate a revulsion on the alimentary canal, before the encephalitis has been considerably diminished, owing to the intimate sympathy existing between the stomach and the brain, in consequence of which the latter might share the stimulation exercised on the former.

Clinical experience has established the fact, that several diseases, still considered by M. Broussais as gastro-enteritis, complicated with encephalitis, or arachnoiditis, are, exclusively, irritations of the brain, or of its membranes in the beginning, and that the affection of the stomach and intestines is but a subsequent, secondary, and sympathetic effect. Those complaints, which ought to be called encephalo-gastritis, are of frequent occurrence among pretended ataxic fevers, typhus, and what is called in children acute hydrocephalus. In all such cases, which it is easy to distinguish by the cerebral symptoms being anterior to, and more violent than those of gastro-enteritis, it is necessary to follow the treatment just described, carefully avoiding any exciting ingesta, covering the abdomen with emollient fomentations, applying leeches to the epigastrium as soon as inflammation begins to appear within the abdomen.

But in the greater number of cases, inflammation com-

mences in the abdomen, and subsequently extends to the brain, or its serous membrane, through sympathy. Prudence and reason dictate to the practitioner the necessity of applying the same direct antiphlogistic treatment against secondary and sympathetic affections of the brain, as when that organ is the primary seat of the disease.

Violent, deep-seated and permanent pain, extending along the spine, and indicating inflammation of the spinal marrow, must be treated with general bleeding, applications of a great number of leeches to the whole extent of the parts affected, long bathing, and diluent drinks. The patient should lie on a solid matress; as soft or feather beds tend to increase heat and pain. If the patient cannot be immersed into a warm bath, cold applications to the parts might prove beneficial. Some have advised both at the same time; but I am decidedly averse to the alternate application of heat and cold in cases of inflammations, and I think this practice contrary to reason.

Acute hydrocephalus, or *ventricular* arachnoïditis of children, whether proceeding from gastro-enteritis, or from irritation in the brain, requires the treatment laid down against encephalitis. Its results are to be equally dreaded, whatever be the patient's age or strength, since the nature of the disease is the same. Arresting the progress of irritation will effectually prevent that effusion of serum in the ventricles, which is so frequent in children, and always arising from that disease. For this purpose, leeches must be applied to the neck and temples, and the head covered with compresses dipped in cold water, whilst proper and energetic remedies are used against the existing gastro-enteritis. (*)

(*) The precept here given of arresting the progress of irritation, and thereby preventing effusion of serum, is undoubtedly of the utmost consequence; but I am afraid it will be found next to impossible. Indeed we have no means of ascertaining the period of the disease at which this effusion takes place. Some practitioners have thought hydrocephalus may occur without previous inflammation: others that the period of effusion is coeval with that of irritation: whilst others again, and particularly the French writers, pretend that it is invariably the effect of the latter accident. We have no means of deciding this question, and the few facts which have been adduced on all sides, are far from being conclusive. If we adopt the views of M. Bégis, others will say that his debilitating treatment cannot fail to increase the accumulation of fluid, which it will certainly do, if it has already taken place. Here the physician is placed in a most embarrassing situation, and

Cold applications to the head, whilst the remainder of the body lies in a warm bath, are most generally beneficial in irritations of the brain. But this measure requires great caution, in order to prevent the mischief to which it may give rise. The patient being placed in a warm bath up to the chin, take a vehicle containing about two pounds of water, which is first brought in contact with the head, and then poured upon it, in such manner as the mass of water may produce no shock nor percussion. These ablutions must be repeated ten, twenty or thirty times, in the course of six, ten or twenty minutes, after the patient is taken out of the bath, and his body quickly wiped dry with hot linen, and placed in a warm bed. Heat must be kept up by means of hot bricks and bed cloaths, whilst cold is constantly applied to the head. This is the most effectual mode of maintaining the salutary effects of cold effusions. By neglecting to persevere in the temporary effect of a warm bath on the whole body, and of cold water on the head, a double re-action would inevitably take place, as I have often observed it in practice, the head would become burning hot and the trunk cold: hence, the fugitive improvement procured by effusions, would be followed with increased violence of the cerebral symptoms.

It is evident that in all cases of encephalitis, the brain must be kept in a state of constant and absolute rest, without which blood-letting will have but a transient effect, in which the excitement produced by this harmful exercise of the brain, will soon draw the blood to the inflamed parts, and neutralize the effect of direct cold or of distant derivatives. The patient must, therefore, be kept in a dark room, and in perfect rest and silence. Assistants must take care not to cross, torment, or unnecessarily disturb him: their vigilance and attention must keep him from impatience and anger. Finally, it is necessary to remove all causes capable of exciting passions and feelings of all kinds. A man whose brain is in a state of irritation, ought to have his senses, as it were, an-

the anxiety under which his mind labours in that moment, can only find relief in this deplorable truth, that none of those methods has yet been found to produce a radical cure. As far as my own experience can enable me to judge, large evacuations from the bowels, by means of the most drastic purgatives, has been more successful than any other plan of treatment, in procuring what little relief it is possible to afford in so obstinate, and I might perhaps say, incurable a disease.

ihilated, and his mind in complete inaction, in order to be free from all kinds of excitement. These measures are more beneficial than is generally thought, in the treatment of the diseases under our present consideration.

By an attentive examination of the causes, symptoms, and material disorders which characterize apoplexy, it is impossible not to recognize in them the existence of a more or less violent irritation of that portion of the cerebro-spinal nervous system, on which blood is extravasated. Should this irritation, which is at first slow, inconsiderable, and often kept up by the sympathetic influence of an inflamed stomach, be suddenly increased in violence, the blood flows with vehemence to the medullary substance of the brain, where it produces a circumscribed extravasation, or a rapid and more or less extensive disorganization. *Hypertrophia* of the left ventricle of the heart, apoplectic conformation, and activity of the circulation, are mere circumstances which may, indeed, favour the formation of a congestion of blood on the brain; but irritation of that organ is the only cause by which it can be produced. Hence the most efficacious treatment must evidently consist in large bleedings from the constitution, leeches to the neck, cold applications to the head, whilst the feet and legs are kept warm and strongly irritated. Having overcome congestion, it is necessary to persevere in the treatment of encephalitis, until the local irritation has entirely subsided.

When the brain has only been the seat of an overflowing irruption of blood into its substance, without extravasation, it may remain for some time loaded with liquids and weakened, but it gradually returns to its normal condition, and resumes the exercise of its functions. The case is very different when the blood has made its way in the substance of the brain. Here the irritation becomes chronic in the part affected, which seldom recovers its action before the extravasated liquid is absorbed, and the parietes of the sac in which it was lodged, complicately cicatrized. Whilst these processes are going on, the physician must remove all causes which may give rise to a recurrence of apoplexy, and promote the entire resolution of all the accidents resulting from that which has already taken place. Various stimulants have sometimes created hopes which experience has not always justified.

Convulsions, cramps, and tetanus, are referred to acute over-excitements of the nervous system. These accidents are the result of an irregular action of the cerebro-spinal sys-

tem over the organs of motion. Cramps often arise from mechanical causes, such as pressure on the nerves by tumours or foreign bodies : cramps of pregnant women belong to this category. Permanent or temporary spasmodic contractions of an arm, or of any other part, or even of the whole body, may arise from all sorts of cerebral excitement, such as anger, contrariety, &c. The same with convulsions. These two sorts of disorders of muscular action are frequently produced by inflammations of the arachnoidea, or by the influence exercised over the nervous system by irritations in the intestines and in the uterus, or by any other similar cause. Tetanus consists in a general or partial spasm, always occasioned by some irritation acting on the nerves, and preventing their action. This irritation is either seated in the cerebro-spinal system, or in some sensible and important organ, the affection of which is deeply felt by the nerves, as may be seen in consequence of worms in the intestines, impression of cold on the skin, laceration of some nervous filaments in wounds, and of violent moral affections.(1)

These reflections convey the idea of the treatment best adapted to all those affections, which have heretofore been considered as special diseases, but are nothing more than various effects of irritation in some nervous centre. When they become manifest, as in tetanus and convulsions, it is necessary to enquire into and remove the irritation which excites sympathetically the nervous system : in this manner we proceed to the cure of diseases in the uterus, to expelling worms from the intestines, dilating wounds, and removing all local inflammations. It is afterwards proper, when the brain gives indications of congestion of blood, to have recourse to depletion and antiphlogistics, such as leeches to the neck, cold applications to the head, &c. ; and when the muscles themselves are affected with irregular contractions, calming and opiate functions will be serviceable. Such is the direct treatment adapted to disorders in the muscular functions proceeding from irritations in the nervous system. The physician's attention should always be directed to tracing every step of the irritation, and eradicating it from every organ it may have successively invaded. Long general bathing and letting

(1) *Mémoires de Médecine, Chirurgie et Pharmacie Militaires*, t. XII.

blood from the veins, are here eminently useful. M. Pelletier has even gone so far as to draw twelve pounds of blood in six times, and his audacity was crowned with success.(1)

The cases in which it is impossible to proceed according to this rational method, can alone justify the impyrical administration of stimulants, to which the vulgar generally resort on such occasions. Ether, carbonate of potass, fetid gums, musk, opium, and all calming or antispasmodic preparations, may be employed. We will enquire below into their mode of operating, their effects, and their inconvenience or advantages.

The nervous system is the more liable to irritation, either primary or sympathetic, as it is more susceptible and irritable. This condition, constituting the nervous temperament, existing to a high degree, may require therapeutical means, in as much as it renders the organs too liable to irritations, and the functions too easily disturbed, by very slight moral affections. It is more common in women than in children. Their nerves are not, as is frequently said, feeble and delicate, but unnaturally predominant and excitable.

In order to reduce the nervous susceptibility, it is necessary that the subject should avoid all cases which may keep up or increase it. Balls, concerts, numerous meetings, and all exciting liquors, such as coffee, tea, white wine loaded with carbonic acid, should all be prohibited. A good but frugal diet is highly proper; but all high seasoned, and consequently irritant food, are injurious, as well as strong and penetrating flavours. Cold or nearly cold general bathings, are always beneficial, when contra-indicated by the existence of some pectoral irritation,(2) as also gentle exercise, in the open air, on foot or horseback, the labours of gardening, or botanical excursions. These means operate in protecting the nervous system from violent excitement, and in drawing towards the muscles and the viscera of the trunk the vital actions which had concentrated in the cerebro-spinal system; they are also the best preventive and cure, in delicate subjects and in women, against the *vapours*, which have always been so fashionable in some circles of society: in a word, they remove that

(1) *Journal Complémentaire du Dictionnaire des sciences médicales*, t. XII.

(2) Vide *Du froid et de son application dans les maladies*; Par S. Tanchou. Paris, 1824, in 8vo.

excessive predominance and sympathetic over-activity of the nervous system which disposes it to partake of, and complicate a great number of other irritations.

It will be seen hereafter that stimulants, which empiricism has substituted for the rational debilitant and derivative method, in order to allay excessive nervous susceptibility, generally prove injurious by exciting irritations in the organs with which they are brought in contact. Numberless cases of acute or chronic gastritis are daily produced by valerian, preparations of iron, bitters, and other remedies of this kind. Whenever dietetic means are calculated to modify the animal economy, and to restore the healthy exercise of its functions, it is always proper to prefer them to active medicinal substances inducing disorders, and after unfavourable excitements in the organs.

2d. *Chronic Irritations.*

Latent and obscure irritations of the cerebro-spinal nervous system are not less frequent than acute affections of those organs. Why, indeed, should not the centre of sensation preserve deep traces of the numerous stimulations acting on the medulary expansions of its extremities, or in the internal organs of which it perceives all the painful impressions. The incessant agitations of our passions during the whole life, must constantly expose it to more or less considerable and permanent disorders. The continual exertion of the mind, especially in the profound meditations of the cabinet, is generally accompanied with congestions of blood on the head, giving rise to chronic irritations in those parts of the brain which are most excited.

Chronic encephalitis, therefore, is not uncommon, but generally misunderstood in practice, and designated, not by the affections in which they consist, but by the disorders they occasion in the intellectual functions, in sensations, or in motion. Hence mania, impaired perceptions, convulsions and palsy, as described by authors, are mostly the result of chronic irritations of those organs, or of those membranes. An accurate analysis of the symptoms during life, and examinations after death, confirm the truth of this remark.

Chronic as well as acute irritations of the brain, may arise from diseases in some portion of nerves, or from its sympathetic relation with other irritated organs. In the former

case, the over-excited brain generally acts on the most sensible and irritable parts of the organization, and there gives rise to secondary inflammation. This often takes place in men of letters; and, as M. Georget observes, gastritis, hepatitis, metritis, and nervous disorder in respiration, are often the result of an habitual over-excitement in the brain.(1) In the latter case, hypochondriasis, mania, hysteria, epilepsy, and other similar affections, are the remote effect of phlegmasiæ, existing first in the stomach, liver, uterus, &c. and sympathetically disturbing the cerebral functions. This mechanism seems to be more frequent in practice than the other.

Nostalgia appears also to belong to the same order of affections. The constant grief of being absent from home produces an evident irritation in the brain, which is soon followed with gastro-enteritis, pneumonia, or other internal phlegmasiæ. Sometimes habitual suffering and pain in some of the viscera, may produce despondency in the patient's mind, and give rise to that unconquerable desire of returning home, which characterizes nostalgia. In this case, the affection is truly consecutive of gastro-enteritis, or of some other irritation. The love of country is also forcibly awakened in the heart of man, when disease threatens to render his return impossible.

In all chronic nervous diseases, the physician must explore the condition of the viscera, study all commemorative circumstances, and enquire whether the cerebral irritation is the effect of other phlegmasiæ, or whether, being independent of all other prior affections, it is complicated with secondary disorders in the principal organs of the animal economy. The diagnostic being so far established, the treatment is, as it were, already pointed out: it only remains to direct it successively to all the parts affected. In hypochondriasis, for instance, the treatment, as we have already said, must be directed against chronic gastro-hepatitis. In hysteria, it is generally proper to treat metritis by means of leeches to the hypogastric or lumbar regions, &c. In nostalgia arising from inflammation in the viscera, these diseases must be the object of our treatment, which consists in rousing the patient's courage by the promise of his speedy return home.

(1) *De la physiologie du système nerveux, et spécialement du cerveau, &c.* Paris, 1828, 2 vol. in 8vo.

Whenever the intellect is impaired, it must be restored by medicinal agents calculated to allay irritation in the brain, such as evacuating blood from the neck, when the subject is plethoric, cold applications, ablutions, or even dry cupping, to the head; also, by moral means calculated to ease the mind, avoiding all painful sensations, and all causes of excitement, contrariety and anger. It is necessary to give a proper direction to the intellectual faculties, and moderate the particular fancies of those affected with chronic delirium or mania, without neglecting severity to the wicked, and due recompense to the docile. These unfortunate beings are grown up children, whose education must be commenced anew, for restoring their normal intelligence. In order to attain this end, we must, as M. Georget observes, 1st, never excite the ideas or passions of the sick on the subject of their delirium; 2d, avoid direct contradictions of their erroneous opinions, whether by jests or sarcasms; 3d, draw their whole attention to objects foreign to their folly, communicate to their mind new impressions, and imparts to it more reasonable affections and sentiments. When the patient is furious in his fits, it will be proper to seclude him, or apply the straight jacket. Maniacs require great indulgence, and kindness and good behaviour are always more successful than useless and cruel barbarities. M. Pinel is entitled to the everlasting gratitude of all the friends of humanity, for having abolished chains and other cruelties inflicted on the unfortunate victims of mental aberration*

* Any one who has ever visited the recesses of those unfortunate fellow beings whom insanity has cast away from society, must have been deeply impressed with the importance of the services which the late M. Pinel has rendered to humanity, by providing the means of soothing the anguish of those sufferers; and should he have done no more than spare the feelings of the visiter at the sight of so heart-rending a spectacle, his memory should always be held in great veneration. Let it be said to the credit of this state, that most of its inhabitants are able to form a just idea of the valuable benefit conferred by M. Pinel, owing to the paternal care bestowed by their government, on all classes of sufferers, especially on maniacs. But let him who wishes to obtain some idea of the cruel and barbarous treatment inflicted on those wretches, previous to the days of that illustrious benefactor, let him, I say, visit other states in the union. In them he will find that, save life, which is not taken from them in an immediate manner, they are subjected to all other privations. In every case of mania, the same treatment is applied, which consists in unwholesome food, the strictest confinement in narrow dungeons, unwholesome air, privation of a sufficient quantity of light, entire absti-

If mania has been treated by so many different methods of cure, it is owing to its being occasioned by a great variety of diseases. General bleeding, purgatives, unexpected plunging in water, vomits, moxa to the head, and a variety of other empirical and ridiculous means, have had partisans and detractors. But their success seems to belong to hazard; no positive indication of the cases in which they are proper has ever been preferred, and the rational treatment of mania is yet that of chronic encephalitis—I mean direct antiphlogistics which have just been mentioned, and derivations carried either to the alimentary canal, or to the integuments.

On perusing authors, we find that amid all the irritants they prescribe, all of which have succeeded in some cases of chorea, catalepsy, and chronic convulsions, the treatment of cerebral excitements by means of debilitants, is yet the most successful. Should the affection proceed from worms, from intestinal or intense inflammations, these accidents must command our first attention. Epilepsy requires no other mode of treatment. This disease is too generally and too early abandoned to itself; it would be necessary to act with perseverance during the intervals of the fits, allay the nervous susceptibility, prescribe fatiguing exercise, apply cold to the head, and have recourse to local bleeding, cold bath, and some derivatives. In an early stage of the disease, the fits may become more distant, and finally disappear, under this treatment. It becomes afterwards necessary to induce new habits, restore harmony in the functions, and remove the irritations which have a tendency to pervade the nervous system. It is useless to add that the irritation which sometimes produces epilepsy, must be effectually destroyed. When the *aura epileptica* proceeds from an external cause, such as a

nence of exercise of body, and recreation of mind; in a word, the absence of all appropriate therapeutical treatment, constitutes the only method of providing for their assistance. Such is also the deplorable condition of similar institutions in Canada, that it would be much to the advantage of their inmates to remain under the fostering care of their friends, in whose hands humanity and tenderness would prove a substitute for the more scientific treatment which the present state of medicine has provided for their relief. Physicians of all countries have never ceased, for the last twenty years, to recommend the abolition of such barbarous practices, but legislators seem deaf to their entreaties, and to the cries of humanity. Let us hope, however, that maniacs will soon be provided with those conditions, without which all the resources of medicine are totally unavailing.

splinter, or a cicatrix on the surface of a limb, it may be necessary to destroy the part with caustic or actual cautery.

Most nosologists have ranked hydrophobia among diseases of the nervous system. This affliction, no doubt, combines irritation of the brain and spinal marrow, with that of the pharynx, bronchiæ, and perhaps of the stomach. Further observations on the disorders it occasions, are necessary, in order to determine the exact seat of the complaint. A rational treatment has been substituted to the empirical means formerly in use. The wound is now washed, pressing out of it as much blood as possible; its surface is freely cauterized either with liquid deuto-chloruret of antimony, or with actual cautery; the subject is afterwards put on very low diet, until its entire cicatrization. I hold it to be important that the subject should remain, if possible, ignorant that the animal by which he was bitten is mad; that idea must even be attempted to be removed, if it already exists, in order to ease the mind. Cases are recorded where the disease occurred a long time after the suspected wound had been received, at the very instant of the patient hearing that others had died who had been bitten by the same animal. Fright itself has, in some cases, given rise to symptoms of hydrophobia.

This complaint has never yet been cured. The largest doses of narcotics, prussic acid in the stomach or through the veins, have not been able to check its course.⁽¹⁾ Irritants are particularly injurious. Some experiments on animals, and one on man, seem to establish the benefit of injecting water into the veins. M. Magendie, to whom we are indebted for our knowledge on this subject, introduced in one of the veins of the arm, during an access of hydrophobia, about two pounds of water, at the temperature of thirty degrees, Réaumur;—twenty minutes after, the patient recovered his senses, the dread of water and the convulsions disappeared. The patient continued to improve until the eighth day, when he died, as it was thought, of an extensive inflammation in the leg, occasioned by the presence of two broken ends of lancets with which bleeding had been tried. Neither the hydrophobia nor the injection, appear to have had any participation in this

(1) *Expériences sur la rage*, par M. Magendie, *Journal de Physio'logie*, t. I

(2) Histoire d'une hydrophobie traitée à l'Hotel-Dieu, au moyen de l'injection de l'eau dans les veines, *Journal de Physiologie*, t. III.

fatal result.(1) There may be some doubts, however, as to the real disease existing in this subject: it might have been a case of acute gastro-cephalitis, which is sometimes accompanied with nervous symptoms, convulsions, and dread of liquids; but, in this hypothesis itself, the cure would have been equally remarkable and interesting.(2) This process deserves to be again tried.

In opposition to this plan we have that of Marochetti, who pretends that the hydrophobic virus concentrates in the excretory ducts of the sublingual glands, on each side of the frenum linguæ, and on the lateral portions of the inferior surface of that organ, where it forms several pustules, of the size of a millet grain, and sometimes larger, in which real inflammation exists. The matter contained in these pustules is, according to Marochetti, the rabic virus itself, the presence of which is only temporary; and if it be not let out within the first twenty-four hours of its appearance, it is absorbed, and rabies is soon declared. These pustules generally appear from three to nine days after the bite, sometimes twenty-one, and even thirty days. If they do not come on before six weeks, the patient is considered free from hydrophobia.

Such are the facts related by Marochetti.(3) A farmer of Ukraine acquainted him with the process by which he always cured hydrophobia, which consisted in opening the sublingual pustules as soon as they appeared. He subsequently verified these observations himself at Podolia and Moscow. According to Professor Edmann, a similar method is used from time immemorial in Esthonia, about twelve hundred miles from the residence of the Ukranian peasant. Several German

(1) History of a case of hydrophobia treated at the Hotel-Dieu by injecting water into the veins, *Journ. de Physiologie*, t. III.

(2) In a similar case, M. Gaspard, of St. Etienne (Loire) did not obtain the same success; but he introduced only eight ounces of water into the veins of a robust man, and without previous blood-letting. (*Expériences sur un homme hydrophobe. Journ. de Physiol.* t. IV.) M. Majendie observes, however, that one or more evacuations of blood, proportioned with the strength of the patient, and previous to the injection, will favour its action.

(3) *Observations sur l'hydrophobie*, indices pour reconnaître l'existence du virus hydrophobique, et moyens d'en prévenir le développement, en en détruisant le germe; *Mémoire lu à la Société Médico-physique de Moscow*, le 4 Octobre, 1820, par Michel Marochetti, médecin-opérateur à l'hôpital Gallitzin, Saint Pétersbourg, 1821.

practitioners, (1) and M. Magistel in France, (2) have observed the pustules described by the Russian physician. Dr. Xanthos affirms that in Thessalia, Epirus, and other parts of Greece, the inhabitants preserve themselves from the consequences of the bite of rabid animals, by the excision of tumours which soon appear under the tongue, and which they call lisses. (3)

It is no longer possible, if not to doubt, at least to neglect the opportunity of ascertaining the existence of sub-lingual pustules in hydrophobia. For this purpose, that organ should be examined twice a day, during the first six or eight weeks after the accident. As soon as they appear, they must be opened with the point of a lancet, ordering the patient to suck and spit out the greenish liquid which they contain. The little wounds are then cauterized with red hot iron.—Marochetti recommends to wash the mouth with a decoction of the head and flowers of the *genista tinctoria*, which is also used as a ptisan for about six weeks. When the pus contained in the pustules is allowed to acquire consistence and become solid, opening and cauterizing those tumours are no longer a preventive against rabies. We must, however, acknowledge that the pustules have not invariably been found to exist, and that in other cases their incision and cauterization have not proved successful, whether the operation was performed too late or imperfectly, or whether its preventive powers have been exaggerated.

In expectation of those tumours, the physician should not neglect to wash and cauterize the wounds inflicted by the rabid animal, in order to prevent, if possible, the absorption of the poisonous foam deposited on its surface. Suction of the wounds, by means of cupping glasses applied directly to them, might prove beneficial in drawing out a quantity of fluid from the parts, and particularly the venom with which they are impregnated, and in preventing its absorption into the vessels. This operation should be practised previous to

(1) Lettre du Professeur Koreff à M. le baron Dupuytren sur la découverte de Marochetti, concernant la rage, *Journal complémentaire du dictionnaire des sciences médicales*, t. XIX.

(2) *Journal de l'hôpital de Barlay, ou mémoire sur l'hydrophobie*, Saintes, 1823. in 8vo — *Journal général de Médecine Française et étrangère*, Septembre. 1823.

(4) *Archives générales de Médecine*, t. VI. page 119.

cauterization, especially when we cannot have immediate recourse to the latter. The practice among the ancients of sucking poisonous wounds with their mouth, shews the advantages that might be derived from the use of cupping glasses, which act on the same principle.*

* Recent and well made observations tend to prove that Marochetti's ideas are altogether visionary; for, if we consider the number of cures which are said to have been performed by other means, it would appear doubtful whether his method is as successful as some others. Novelty had a great share in giving credit to the assertions of the Russian physician, but now that public enthusiasm has somewhat subsided, we begin to appreciate them to their proper value. The greatest difficulty here lies with the absence both of positive evidence of the animal being really rabid, and of pathognomonic symptoms. Cases have even proved fatal where no dread of water existed, and in others where this symptom was present, a cure has been effected by ordinary means, and even where no treatment of any kind was applied.

The most singular facts I ever read or heard of, are consigned in the *Journal des Progrès*, vol. III, of which the following is an abstract. A young woman and her child are bitten by a dog supposed to be rabid. The mother is much agitated, and notwithstanding cauterization, vesicatories, and the internal use of all sorts of stimulants, she dies in a few days. The child, who is too young to be frightened, although bitten in several places, recovers, with no other remedy than water and sugar.

A young man receives a similar bite—refuses to have his wounds cauterized—and is cured after the use of some quack medicines.

A man, 47 years of age, is bitten at the leg, and is perfectly careless of his wounds; but in about a fortnight he is alarmed by a physician, who tells him the danger of his situation. The consequence is a violent affection of the head and stomach, which continues for two months, after which, the physician proclaims him out of danger, and he immediately recovers good health.

Another, aged 28, is so convinced that the bite he has received will inevitably kill him, that he is attacked with violent symptoms, and dies in a few days, notwithstanding the most appropriate treatment.—On the same day, an old man, a woman, and a child, were also bitten by a mad dog, and they were cured by the confidence they had in the curative power of pan-cakes made with oyster shells.

The first of these is the fact that the United States is a young nation, and that its history is a history of growth and development. The second is the fact that the United States is a nation of immigrants, and that its history is a history of the struggle for a common identity. The third is the fact that the United States is a nation of free men, and that its history is a history of the struggle for freedom.

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ON
THERAPEUTICS.

BY
L. J. BEGIN.

VOL. II.

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THE
FRENCH PRACTICE OF MEDICINE:

BEING A TRANSLATION OF

L. J. BEGIN'S TREATISE

ON

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WITH OCCASIONAL NOTES AND OBSERVATIONS ILLUSTRATIVE OF THE TREAT-
MENT OF DISEASES IN THE CLIMATE OF NORTH AMERICA.

BY XAVIER TESSIER.

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TREATISE
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CHAPTER IX.

OF DEBILITATING MEDICATIONS APPLIED TO THE
SANGUIFEROUS SYSTEM.

SECTION I.

General Considerations.

Modern physiology has totally banished the hypothesis, according to which the blood was considered as the impure source of the greater number of diseases. That science has demonstrated that this fluid, as well as the organs in which it is contained, and by which it is set in motion, constitute but one system, the various parts of which modify each other reciprocally, and in the most immediate manner. Over-action in the blood-vessels always occasions changes in the composition of the blood; but of all those alterations, those of the solids are the most important to be attended to, at the same time that they are better understood: for we possess but few data with respect to the others, and it belongs to animal chemistry to point out their nature, and the mechanism of their formation.

Situated in the centre of the animal economy, the heart constantly distributes the vivifying liquid to all its parts, and sets them all in motion. Being itself under the influence of the nerves, the cerebro-spinal system, as well as every other part of the organism, are equally under its dependence.

There is no viscus which performs its functions so uninterruptedly ; but these functions are more frequently disturbed, and experience more constantly the effects of all stimulations imparted to the animal body, than any other. Hence the heart is more frequently affected with numerous and serious disorders than most other parts of the living economy.

The causes constantly acting on the centre of the circulation are twofold. The ones, acting, as it were, mechanically, increase the force of the circulation and the rapidity of the pulsations of the heart and arteries, such as cries, singing, efforts and violent exercise ; the others are merely sympathetic, and operate through the nerves, as violent passions, over-excitements, or phlogosis of all other organs.

The effects resulting from these various causes are not always identical. When muscular action is strong and continued, the heart is always accelerated in its motion, even so as to cause its rupture, and instant death. Some moral affections cause a sort of spasmodic and permanent contraction of that organ, such as fright, and the first impulse of anger in some individuals. Other emotions, on the contrary, such as joy, first accelerate its action which then becomes tumultuous. Passions, properly so called, produce alterations in that viscus, merely in consequence of the violence of their impression upon the nerves, and through them upon the heart itself. Hence, ambition, love, and avarice, have no immediate influence on the circulation, but the subject who possesses such dispositions, thereby experiences emotions which are more violent, and consequently more injurious than persons differently constituted.

All phlegmasiæ have a remarkable tendency constantly to act on the heart, the motion of which is thereby modified in various ways, according to the nature of the parts affected, and the impression produced on the nervous system. Violent pain never fails to cause the palpitation of the heart to be small, contracted, rapid, and more or less hard. In peritonitis, pleuritis, inflammations of the synovial membranes, and painful gastro-enteritis, the pulse presents those characters. On the contrary, when an organ is less inflamed and painful, the heart gives larger pulsations, which distend the arterial tubes, and produce a full, large, and energetic pulse. This is what happens in inflammations of the parenchymatous organs, and those which affect but inconsiderably large portions of a mucous membrane. Every viscus imparts to the

pulse other secondary characters, which experience and attention will enable us to distinguish, and which it would be too long and foreign to my present purpose to relate in this place.

The modifications occurring in the motion of the heart, are never exempt from the stimulation of the fibres of that organ. When those alterations are but rare and transitory, the irritation from which they proceed has no injurious effect; but when they acquire more intensity, and become habitual and of long duration, they soon give rise to inflammation, and subsequently to various alterations in the viscus, or in the large vessels that emerge from it. When the excitement is merely nervous, I mean without any sensible change in the normal condition of the organ, it is constantly followed, after some time, with real inflammation and all its consequent disorders. The acceleration of the motion of the heart in the course of diseases, is known to be the effect of the sympathetic stimulation of that viscus; but this stimulation most frequently degenerates in acute carditis or aortitis, which are the more dangerous, as they are seldom ascertained during life.(1) It is probable that further examinations on the dead subject will point out the fact that, in diseases, the irritation and phlogosis of the internal membrane of the heart and blood vessels, are as frequent as those of the gastro-intestinal mucous membrane and of the meningea.

The heart almost invariably partakes of the disorders occurring in respiration, and vice versá. This is exemplified in asthma, angina pectoris, &c. The excitability of the heart is in proportion with that of the nervous system. The most inconsiderable gastro-enteritis is then frequently accompanied with palpitations. We have spoken in another place of the affections of this kind produced by chronic gastritis, and it is useless to return to the subject.

The circulation is always increased in the tissues affected with irritation or phlogosis. The blood is called to them with unusual force; the arteries going to them are dilated, and beat more strongly, and sometimes quicker, than the other arteries of the body. When the irritation continues for a length of time, the capillary vessels increase to a larger size,

(1) *Vide* the celebrated work of MM. Berton and Bouillaud, entitled *Traité des maladies du cœur et des gros vaisseaux*. Paris, 1824, in 8vo.

as well as all the others which grow more voluminous in proportion. The inflamed organ is surrounded with a vascular circle, arising from irritation, as may be seen in bronchocele, in the vicinity of articulations affected with caries, and in cancerous breasts. M. Broussais thinks that the blood undergoes a greater alteration, and becomes darker in inflamed than in sound parts. This assertion is incorrect in its general bearing; for the nature of the modifications which the blood undergoes in inflamed tissues, varies according to the species of inflammation, and the disposition of the subject. I have often ascertained that, in acute inflammations, the blood that returns from the affected tissues is more intensely red than ordinary venous blood, and seems to have lost its arterial properties. During chronic irritations, that fluid undergoes no special alteration; it becomes darker merely in the tissues that have been stimulated for a length of time, and whose vessels are dilated, almost varicose, and unable to propel it with sufficient energy and vivacity towards the venous trunks: but this state resembles more atony of the vessels than phlegmasia properly so called; it calls for stimulants, and in a pathological as well as therapeutical point of view, it cannot be confounded with the irritation that has preceded it.

The veins are not less liable than the arteries to modifications, in consequence of the inflammation of the parts from which they arise: they are at first dilated, and when this continues, they increase in size. The dilation of the veins, which does not deprive them of all their energy, and of their power of contracting again if the column of blood was diminished, is very different from those passive and varicose enlargements, slowly induced by obstructions in their cavities, and sometimes by the sole weight of the column of blood contained in them. In the former case, the veins are straightened, tense, renitent, and elastic; in the latter, they present soft, sinuous, cold undulations, and give way to pressure.

The inflammation of certain tissues is susceptible of propagating to the veins, in such manner as to occasion an extravasation of coagulable lymph, and form a coagulum which obliterates their cavities. Such is the mechanism of dropsies called passive and local, as may be seen in œdematous legs, in ascites occurring in consequence of degenerescence of the liver, and in intestinal chronic irritations, &c. M. Bouillaud has found, in the first of these cases, the crural and hypogastric veins, and even the cava, obliterated; in the others, the vena

portarum was similarly affected.(1) Facts of the kind are recorded in the writings of Morgagni, Meckel, and others. We know that the general dropsy arising from diseases of the heart and lungs, is merely owing to the obstacle then offered to the return of the venous blood. This opinion is corroborated by the experiments of M. Magendie on absorption, which strike at the root of that hypothesis, so long admitted, of the atony and relaxation of the lymphatics, to the inertness of which the stagnation of serum, either in the serous membranes themselves, or in the cellular substance, was attributed.

Inflammation of the veins is of more frequent occurrence than has been hitherto believed. We begin to have some correct ideas of such affections, when they are the result of blows, wounds, or other traumatic causes; but we are still in the dark with respect to the others, the causes of which reside, either in the inflamed organs from whence the veins originate, or in the alteration of the blood they contain, which absorption has provided with acrid and deleterious principles.

The vascular system is, like the nerves and lymphatics, susceptible of presenting an excessive development and a predominance of action constituting the sanguineous temperament. The subject is eminently disposed to inflammations and hemorrhage. It is proper to remark here that the high colour of the skin is no positive sign of the degree of volume and action of the vascular system. In many persons whose skin is pale, flaccid, and difficult of colouring, the blood appears to have left the surface, and concentrated in the viscera, which are thereby singularly liable to phlegmasia. I have seen a vast number of those sanguinous temperaments, under the disguise, as it were, of a lymphatic constitution, which are the more entitled to our attention, as the inflammatory nature of their complaints is frequently misunderstood, and bleeding is generally made less copious than their cases require.

Those persons are the most liable to hemorrhage, whose development of the vascular system is connected with great mobility of the heart and capillaries; their complexion is often pale, but their pulse is large, full, undulating under the

(1) De l'oblitération des veines, et de son influence sur la formation des hydropisies partielles; Considérations sur les hydropisies passives générales. *Archives*, t. II. p. 188; t. V. p. 94.

finger, and susceptible of being greatly modified by the influence of all sorts of moral affections. It must be borne in mind that, in such subjects, irritation alone causes the blood to be propelled to some particular part, and to escape through the mouths of the exhalants.

The blood may, no doubt, be altered by numerous causes ; but, as we have already observed, we possess but imperfect ideas of the circumstances susceptible of producing that result, and of the nature of the changes which that fluid undergoes. A long continued use of salted, smoked, and irritating substances, which are assimilated with difficulty, determines that alteration of the blood which causes all the phenomena of scurvy. In this disease, the blood appears darker than in the state of health. M. Alibert asserts that it is even thicker, containing more fibrine and less serum.(1) Under the influence of a cold, damp, swampy atmosphere, and of ill-conditioned food, the blood loses its consistence, becomes more fluid, pale, and serous.

Local inflammations of long standing, and especially acute gastro-enteritis, producing a considerable degree of fever, and involving to a great extent the nutritive functions, are followed, in the one case with a diminution of the mass of blood, owing to the losses which then occur, and are not supplied by alimentation, and on the other, with a change of composition, which appears to proceed from the wasting of the assimilable particles, by the acceleration of the circulation, and their normal formation of great heat. When, in acute diseases, the constitution is compelled to derive its support from the absorption of the materials deposited in the tissues, it will be readily conceived that such a mode of renovating the blood must impart to that fluid other characters than those it possesses when alimentary substances, constantly taken in, maintain its normal composition. Hence it is, more disposed to putridity, and, after death, more rapidly decomposed, when during inflammations, the fever and nervous disorders have been carried to a great extent.

We may operate specially on the circulation : 1st, by directly diminishing vital action in the organs performing that function ; 2d, by letting out more or less blood ; 3d, by intro-

(1) *Eléments de Thérapeutique et de Matière Médicale*, t. I.

ducing, either through the stomach, or by way of direct injections, substances calculated to alter the composition of the blood, and render it less irritating. Rest of both body and mind, a cool and gently humid atmosphere, whilst they lessen the excitement of every part of the body, diminish also that which may exist in the vascular system.

We have nothing to add on the mode of operating of local bleeding in the diseases of the circulation. When in a state of irritation, its various parts are subjected to the laws common to every other organ, and the same phenomena are to be observed, which call for a similar mode of treatment.

General bleeding is never to be employed when the pulse is very weak and prostrated, the skin cold, breathing slow, or near being extinct. In such cases, whatever be the state of the affected parts, we are always to begin with revulsives, in order to awaken the circulation, rouse the vital actions, and restore strength: general bleeding is never afterwards necessary except when the pulse has become large and strong.

Bleeding from the veins is more calculated to act directly on the whole of the vascular system. It produces a more speedy depletion, and is more efficacious in subduing its excessive stimulation. It is more imperiously called for in those habits where the blood is abundant, the vessels distended, and the excitement and heat considerable. If there should exist no intense local inflammation, and if congestions show merely a tendency to take place on the lungs, the head, or other parts of the body, phlebotomy is then perfectly indicated. But where the general vascular excitement is unaccompanied with plethora of the vessels, local bleeding acts in a more direct and efficacious manner. The former will, indeed, extend its action to every part of the body, by lessening the mass of blood; but the relief it procures is frequently of short duration, because the irritated parts, the stimulation of which has not been immediately subdued, continue to draw repeated portions of blood, and soon recover their predominance over the other organs. A great deal of blood must be taken from the veins before a sensible relief is obtained, whilst by combatting irritations in a more direct manner, the morbid phenomena are changed in their origin, and by sparing the strength of the patient and the nutritive materials, calm is more effectually restored in the heart and vascular system.

This reasoning is confirmed by, or rather founded upon

facts. We daily see the most violent febrile excitements subdued by the local evacuation of a quantity of blood which, had it been taken from the veins, would have hardly produced any sensible effect. Whenever there exists no plethora of the vessels, local bleeding is always preferable. But where this is the case, phlebotomy must invariably precede the application of leeches, because the source from which the affected part derives its redundant fluid, must be diminished, before the local depletion can have all its effect; otherwise, the large vessels, remaining in a state of fullness, would constantly pour fresh supplies into the affected tissues, as fast as the leeches could take them up, and no effect would thereby be obtained.(1)

The indication of general bleeding being clearly established, it remains to determine upon what vessels, what parts, and with what rapidity it is to be performed.

The mode of proceeding to that operation is twofold, phlebotomy and arteriotomy. The latter may be performed on every part of the body; the former is only practised on the head, where the temporal artery being superficially situated, can be easily opened, and afterwards exactly compressed upon the bones of the cranium. Both must therefore be comparatively considered with respect to their effects on the brain. The opening of the temporal artery necessarily draws a greater quantity of blood in the trunk of the external carotid; it evidently deprives the internal carotid of a part of the blood which irritation would inevitably have drawn into the brain. But is not the result obtained by opening the jugular

(1) M. Broussais thinks that general bleeding is *never* to be resorted to, except where sanguineous engorgements are rapidly forming in the parenchymata; that local bleeding is *often* injurious in phlegmasiæ of the principal viscera of long standing, where no superabundance of blood exists in the economy; lastly that both general and local blood-letting *always* occasion great uneasiness, promote congestions in the viscera, and thereby *frequently* give rise to convulsions and fever, when performed on persons who have but little blood to spare. (*Examen*, PROPOSITIONS 265, 267, & 268.)

These principles are too exclusive. General bleeding is always necessary wherever inflammations, parenchymatous or otherwise, are accompanied with plethora and a large, strong pulse; local blood-letting is useful in chronic phlegmasiæ unattended with disorganization, and when the subject is not reduced to a state of marasmus or of extreme debility; but both must be proportionate to the fullness of the vessels and to the strength of the patient. This doctrine appears to me more plausible than that of the above mentioned physician. (*Note of the author.*)

vein? In this case also, an outlet is offered to the liquid proceeding from the external carotid, the blood is invited to pass into that vessel, and a sort of momentary *diverticulum* is thus established externally, which relieves the brain. All the difference consists in arteriotomy acting more directly upon the internal carotid, whilst bleeding from the jugular can only operate on that vessel through the medium of the capillaries of the external parts of the head, which are first emptied and afterwards more abundantly supplied. Experience teaches us that the result of both operations is nearly identical; it has perhaps never confirmed the assertion that arteriotomy possesses exclusive advantages, and I believe it is never really indicated except where the temporal arteries being very prominent, and beating with force, present themselves to the particular notice of the practitioner, and appear to shake the whole head. The opening of the jugular is by no means inferior to it, except in those very rare cases.

There exists no well attested fact to show that arteriotomy acts upon the whole of the sanguiferous system in a manner different from phlebotomy. The contrary opinion, which attributes to the opening of the arteries a more debilitating, speedy and powerful action than that of the veins, appears to me void of foundation, although it is maintained by M. Alibert, and others. Provided depletion is produced, and the heart and lungs receive less blood from the other parts of the body, it matters not whether the blood is taken on the distal or inner side of the capillaries; for in both cases, the liquid drawn ceases to return to the centre of the circulation.

Physicians have dwelt at great length on the effects of bleeding performed at a distance from, or near the parts affected. An important distinction is here necessary to be made: the vessel from which blood is drawn receives its supply either from the inflamed tissues, or from healthy parts situated at some given distance from the place where the disease exists. In the former of these cases, the bleeding must be called *direct*, since it acts immediately upon the irritated capillaries; in the latter it is *indirect*, with respect to the organ affected, upon which it operates only by diverting the blood to other parts.

We know that the capillaries admit of a larger quantity of blood as their excitement is more intense. If, in such cases, a direct issue be given to the liquid; if the vessels which draw

it to the diseased parts be immediately disgorged, the morbid excitement may thereby be instantly diminished, and the inflammation will become less violent. Even if the distended capillaries were but momentarily disgorged and relieved, this action, though merely transient, might prove sufficient to lessen the violence of the irritation, and consequently diminish the afflux of blood, by destroying the vital modification which draws it to the inflamed parts. This reasoning is confirmed by experience. I have already said that good effects are daily obtained from opening veins which come from articulations or other organs actually inflamed, but, in order to prove effectual, this sort of bleeding must be abundant, in order to prevent reaction in the irritated tissues, and the formation of another congestion in their vessels. Its action must, in that respect, be assimilated to that of all other species of local bleeding.

The discussions, formerly so agitated, respecting derivative and revulsive bleedings, are no longer deemed interesting. Yet it is somewhat necessary not to drop the subject altogether, and to explain what we are to think of the results obtained by these various operations. Whenever bleeding is performed on veins emanating from others than the affected tissues, it may, as we have already said, be called *indirect*, relative to those tissues. It varies only in being performed sometimes nearer to, at other times farther from the inflamed parts. In this manner a *derivation* is always obtained, in as much as the liquid constantly tends to precipitate itself into the capillaries that form the origin of the opened vein: but this derivation takes place, according to circumstances, in a part more or less remote from the seat of the disease. Such is the general rule. Let us now consider what occurs when, in encephalitis for instance, we open either the jugular, or the veins of the arm or foot. In the first case, as we have already said, the blood is invited to pass into the external carotid, and leave the inside of the cranium; in the second, the capillaries of the fore-arm, and the brachial artery, tend to draw it to themselves; in the third, it is directed to the aorta descendens, then to the crural arteries, and it ceases for a few instants, to fill and distend with as much force the superior vessels. If the subject be weak, and require but a small evacuation of blood, it is evident that a greater benefit will be obtained by operating as near as possible to the irritated part; for then a derivation will be obtained without its

being necessary to evacuate as much liquid as if we were to open a more remote vein, the corresponding arteries of which have but an indirect communication with those in which the blood is precipitated. But if the patient be phlegmatic, vigorous, and requiring a large bleeding, it may be more proper to bleed at the foot, and thus direct the blood, not only from the irritated brain, but also from the superior parts of the body. This sort of bleeding is, indeed, often followed with a speedy relief, and even with a relaxation in the brain, sometimes amounting to syncope. It is, therefore, evident that bleeding from the arm holds an intermediate rank between that of the veins of the foot and the jugular, with regard to its mode of operating on the brain; hence it is generally substituted with advantage to both.

We must not forget to observe, that in all cases where the various modes of venous bleeding are resorted to alone, and unaccompanied with revulsive irritants and local refrigerants, they generally do no more than empty the vessels, and lessen the over-action of the circulation as well as its febrile excitement. The local effects of this operation are but transitory, and vary according to the constitution of the subject. Clinical experience, to which we must always appeal in order to appreciate the real efficacy of medicinal agents, has not yet pointed out in a positive and incontrovertible manner, that letting blood from the jugular, the radical, or the sphenoidal veins, has any decided advantage the one over the others, in most of the cerebral irritations that we have taken as examples. Observation may, at some future time, enable us to distinguish with more accuracy the cases in which it might be more beneficial to operate at a distance from, or near the parts affected: this improvement shall be an additional benefit conferred by therapeutical physiology, which is only beginning to expand its virgin rays over the dominion of medicine.

The effect of phlebotomy on the whole, and especially on the centre of the circulation, is proportionate to the rapidity with which the blood flows. When the opening is small, and the stream very slender, that effect is hardly sensible; the veins seem to absorb with as much rapidity as to make up the deficit, so that in order to obtain any important result, the evacuation must be carried to a great extent. The case is very different when the opening is large, and the blood made to flow with a full stream; the large vessels are suddenly

disgorged, the heart is, as it were, emptied, the lungs deprived of blood, the pulse rapidly sinks, and syncope is soon brought on.

It is both important and remarkable for the therapist to study those effects: they point out the necessity of making large openings, and of rapidly evacuating blood, when an effect is intended to be produced on the lungs, or the other organs. These evacuations are well adapted to strong and plethoric subjects, but they are dangerous and ought to be avoided in emaciated, weak, and irritable habits. They might prove fatal when the circulation is languid, the pulse depressed and weak, the skin cold, &c. But then general bleeding is contra-indicated, or it must be performed with great clearness and circumspection.

Some physicians of the last century were in the habit of letting blood at the commencement of most diseases. We all remember that such was the practice of Bosquillon, at the Hôtel-Dieu. Bleeding is not less frequently resorted to in our days; but local blood-letting is preferred in the greater number of irritations, and phlebotomy seems to constitute but an exceptional measure which is proper in certain constitutions, and destined to fulfill a special indication, namely, that of lessening the state of fulness, and the general increased action of the circulation. A number of facts, however, seem to warrant the assertion that general blood-letting is too much neglected among us; it has been followed with almost unexpected beneficial results in tetanus, diabetes, convulsiones infantum; even in hydrophobia, it has produced evident relief, although not for a long duration. I regret to be compelled to leave always imperfect the indication of the value of the various therapeutical agents; but the fault does not lie with me, who endeavour to establish their mode of operating; it is to be attributed to our predecessors, who, without taking the trouble of analysing their effects, have confined themselves to relating the favourable or contrary results they have derived from their employment.

It must be kept in mind, that general bleeding invariably tends to increase the predominance of action, and the excitability of the nervous system. In convulsions, spasms, and nervous affections, it is never to be had recourse to, except in plethoric habits, and where the brain is evidently the seat of congestion. Phlebotomy is then eminently useful; the same where the lungs are suddenly gorged with blood, ac-

accompanied with congestion. A woman is suddenly seized, in a saloon, with violent spasms : she is immediately carried into an adjoining room. Her stays are loosened ; ether, vinegar, and all similar remedies are tried in vain. On my visit, I found the face had become blue, somewhat tumefied, and presenting the appearance of asphyxia ; she was senseless ; her breathing was scarcely observable ; the pulse was depressed, and violent general convulsions returned at intervals. I attempted to bleed. This lady was of a strong constitution ; dancing had produced great excitement, whilst the chest, which was very tight, was unable to afford a free passage to the blood, which was circulating rapidly ; the room was also excessively warm. My opinion was, that these circumstances had occasioned a double congestion to the head and lungs ; the operation was resisted. Her senses began to return, and she was taken home. The following day, a violent pneumonia had taken place, accompanied with considerable irritation in the brain, and nothing but the most copious bleeding was able to rescue her from imminent danger. I am inclined to think that phlebotomy, performed at the moment of the accident, would have prevented the formation of this encephalo-pulmonary inflammation. We know what happens to foundered horses, who drop down in the heat of summer, from a stroke of apoplexy. If they are bled in time, they are suddenly cured, and can return to their labour the next day. A good deal of attention is, therefore, necessary, in order to distinguish, in the accidents which have been confounded under the name of convulsions, when they are not feigned, the causes which produce them, as well as the organ from whose disorder they proceed.

The habitual or precautionary blood-letting to which certain individuals subject themselves at regular intervals, must rank with the general bleeding that is often called for in acute inflammations of the parenchymatous organs. Among the subjects who resort to this measure, we must distinguish those whose functions are regularly performed, and those who are merely subjected to occasional accidents more or less serious. For the former, bleeding is completely useless, and they ought to dispense with it until necessity requires it. There can be no exception to this rule ; but there are persons whose blood is rapidly formed, who are strongly disposed to plethora, and in whom congestions readily take place in the brain, the lungs, or other parts of the body. This con-

dition, which is frequently met with in populous cities, is promoted by high living, rest, idleness, and occurs in middle aged persons. In many subjects nature provides against the fatal results which might be the consequence, by establishing gastro-pulmonary mucous excretions, or considerable epistaxis, the flow of which becomes nearly as regular as the menses of women. All these accidents are the result of an excess of nutrition and irritability; but they are seldom to be interfered with, because they protect the living organism against more serious disorders. When plethoric habits labour under none of those evacuations, and experience giddiness, or a sense of fullness in the chest, a slow digestion, or a universal prostration, they are generally relieved and momentarily cured by bleeding, of which they soon contract the habit. It must be remembered that the operation is here but a palliative which does not remove the cause of the symptoms against which it is directed. A severe regimen, habitual sobriety, exercise of the body, are the only means of checking hemorrhoidal and pituitous discharges, and of removing those excessive obesities with which a great number of persons are affected. They will also prevent the necessity of those periodical bleedings which have now become indispensable to the constitution. The motion, and even fatigue of the limbs, which cause a wasting of the nutritive materials; the lessening in its source of the activity of nutrition, by allowing but small quantities of food, and little or no stimulant drinks, will soon cause those morbid evacuations, those species of emunctories which nature has established for the purpose of expelling all obnoxious principles, to disappear, along with the necessity of evacuating every year, every six or even three months, the excess of blood in the vascular system.

We must here remark that by neglecting to reduce alimentation, the bleeding destined to evacuate the surplus materials it creates, becomes more and more frequently necessary whether owing to the really increased activity of nutrition, or to the incessantly increased susceptibility of the organs. Hence it is not uncommon to see that persons who were in the habit of being bled but once a year, require that operation three, four or even six times during that period, until they are at last forced to resort to the means that ought to have been employed at first, and which consist in lessening the diet, and restoring harmony through all parts of the body by means of bodily exercise. How many wealthy persons, in the midst of

plenty, clinging under the weight of infirmities, have recovered their strength and health by a change in their situation, by labour, and even by paucity! But how difficult is it not also voluntarily to abandon all the enjoyments of luxury and pleasures which wealth affords! As I have already remarked, the generality of patients would rather submit to taking the most bitter and nauseating drugs, than give up amusements which have become real wants for the higher circles of society.

In plethoric temperaments possessing a disposition to cerebral or pulmonary congestions, the physician, being frequently unable to reduce the diet and increase the bodily exercise, is compelled to increase the quantity of the hemorrhoidal evacuation, or promote it by means of leeches to the anus, at more or less remote intervals, according to the intensity of the accidents experienced by the patient. These local evacuations have a double advantage, in as much as, independent of the depletion they produce in the vessels, they tend to establish, at a distance from the viscera threatened with congestion, a centre of habitual and permanent action, to which the vital functions and the redundant materials which occasion too great a stimulation in the principal parts of the organism, are chiefly directed. Men of fifty or sixty years of age, who labour under the inconvenience of corpulence, cephalalgia and vertigo, are best benefited by this medication, to which it is, however, proper to substitute dietetic means susceptible of dispensing with the necessity of its employment.

Next to bleeding, abstinence of all aliments is the most speedy and effectual mode of impoverishing the blood, and of lessening the excitement of the circulation. Two remarkable effects will follow this medication, which ought to be attended to by the practitioner: the first is a constant diminution of the liquids that are made to circulate by the process of nutrition and of secretion, and even by the vital action of the tissues; the second is the absorption incessantly more active of the liquid materials deposited in the interstices of the solids, and even of a more or less considerable portion of the latter. Through this twofold action, by means of which the blood is constantly wasting itself, and repairing its losses at the expense of the organism, the happiest and best marked results are obtained from abstinence.

Inflammation appears to communicate too much stimulus to the blood, owing to the excitement it occasions in the ves-

sels. By allowing a part of this liquid to waste itself by the absence of fresh nutritive materials, its quantity, and the richness of its elements, will soon be diminished. Hence a severe diet is the most efficacious remedy against irritations: when fever, and excitement of the nervous system, exist, rest of both body and mind must be added, in order to remove all causes that might increase an excitement which we are otherwise attempting to subdue. During rest in bed, nearly all the secretions become more abundant, the urine is more copiously elaborated, the cutaneous perspiration is readily changed to a gentle moisture, the vital actions are more uniformly extended to every part of the organism, and the general disorder tends of itself to disappear.

Diet has this particular good effect, that in securing rest to the digestive organs, it diminishes its irritations in gastrointestinal affections, whilst in all other diseases, it renders its sympathetic excitement less violent or less liable to take place. A proper study of the part which the stomach and intestines perform in diseases, evidently points out the beneficial effects of abstinence during their course. Every one may have observed how a copious meal changes the appearance of ulcers in a very few hours. All practitioners have seen to what extent the excitement of the stomach by means of aliments is unfavourable, in all irritations of some violence of the internal or external parts of the body. Another indication of importance to be attended to by the practitioner, and which constantly presents itself in therapeutics, consists in preventing that viscus from disordering, by its sympathies, the organic actions, and from increasing the intensity of inflammations existing in other organs.

The vascular system is constantly engaged in repairing, at the expense of what the orifices of the veins and lymphatics derive from the organs, the losses it undergoes from the secretions and the pulmonary and cutaneous exhalations. The quantity of blood lodged in the capillaries is at first diminished and carried to the larger vessels; then the adipose substance shares the same fate; and the tissues themselves are soon gradually emaciated, decomposed, and carried off, under the influence of this increased action of the absorbents. If local irritations are properly treated, the changes occasioned by abstinence on all organic actions will seldom fail to subdue the general vascular excitement with which they are accompanied. In the chronic stage, a severe diet, the absti-

nence of even the most gentle broth, constitute another and the most efficacious means of allaying the febrile excitements attendant on pneumonia, gastritis, and other internal inflammations. This negative measure is less debilitating than bleeding; it is no less efficacious, and can be better graduated according to the exigencies of the case. A severe regimen is also indispensable in cases of calculi, in which the constitution seems to rid itself, by means of a urine saturated with saline and animal matter, of the exuberant materials contained in the liquids.

In all cases of morbid tumours, of schirrous productions, and voluminous engorgements, a severe regimen, and almost entire abstinence, have often proved highly serviceable. Several practitioners, as well as myself, have no doubt seen those voluminous enlargements of the mesentery in infants, disappear with greater rapidity as diet had been more vigorous. Some gelatinous broths, after the disappearance of the intestinal irritation, were sufficient to keep up the strength, whilst the absorbents increased in their energy were engaged in carrying the materials deposited in the affected ganglia, towards the benefit of nutrition. The external tumours called lymphatic, engorgements of the liver, spleen, and other parts of the body, have often been cured in the same manner. It appears reasonable to believe that this mode of treatment might be no less advantageously applied to certain cases of dropsy, arising from the irritation of serous membranes, and which still continue to exist after the inflammation has disappeared.

Abstinence, considered as a debilitant of the sanguiferous system, and at the same time as a stimulant of the orifices of absorbents, offers an ample field to the practitioner; and we may reasonably affirm that we are not yet acquainted with the whole extent of its influence, and of the advantages that can be derived from its employment.

Let us here remark that when we resort to diet in the course of chronic inflammations, for the purpose of promoting the absorption of tumours arising from those affections, it is most generally proper to combine it with bodily exercise carried as far as the strength of the patient will permit. By increasing the waste of the nutritive materials, and thus directing the vital actions to the sound parts, muscular exercise has a double advantage. The patient should be left to his choice of the kinds of exercise that are most

agreeable; among them are promenade in a pure and lively air, botanical excursions, gardening, &c. The whole mystery consists in procuring to the patient such occupations as will draw his attention from the disease, and gently fatigue him. In order that exercise should prove beneficial, it must be continued and repeated daily; this will not be obtained if the exercise fails to afford pleasure, and becomes monotonous.

General or local bleeding, abstinence, and rest, are never made use of in the course of acute diseases, without being accompanied with diluent and mild drinks. It is known that such liquids possess a salutary and sudden effect over the circulation. Their aqueous, and perhaps acid particles, carried into the vessels, expend the stimulating property of the liquid that fills them, and diminish the force of its action on the irritated parts, and on the rest of the economy. From that moment, they contribute powerfully towards eradicating the irritations actually existing, or allaying the sympathetic excitements to which they have a tendency to give rise. It must be remembered that, during the course of inflammatory diseases, the secretions are constantly propelling out of the body the particles which are the most irritating and highly endowed with the principles of animal life, whilst the absorbents take up with great rapidity the aqueous particles contained in the alimentary canal, and which are destined to supply the deficit occasioned by the increase of vital action. This twofold process of excretion of old materials and of inhalation of diluting particles, gives rise to a gradual and beneficial regeneration of the blood.

The stomach, as well as the rectum and skin, are the natural channels which are offered to the physician for the introduction of the elements which it is proper to convey into the circulation. When the stomach is irritated, and does not allow the ingestion of much liquid, we may resort with advantage to repeated enemata, general baths of various kinds, in order to supply the absorbents with the materials required by the state of the patient to be introduced into the blood.

This would be the place to make some mention of those pretended depuratives so extensively used in former times, and which the practitioners of our days have so wisely and so generally abandoned. The greater number of those substances, such as bitters, sudorifics, and the acrid principles of plants, are all irritating, and their effects were the more unfavourable as they were administered against chronic inflam-

mations which they seldom failed to exasperate. All the humoral theories, however, are not to be totally rejected. The most enlightened physicians are beginning to perceive that some truths might be found in the hypothesis on which they were founded. In certain cases, it would seem that we ought really to attempt modifying the composition of the blood, in order to change the rythme of vital action in the tissues to which it is distributed. But indications of this kind ought to be attentively studied, carefully understood, and fulfilled by means of well-known remedies. We unfortunately possess but few empirical results, and some insignificant conjectures, on this subject.

For example, experience has taught us that, in subjects inclined to irritations, or already affected with phlegmasiæ of long standing, such as herpes, &c. a continued employment, especially in the spring, of the fresh juice of beets, lettuce, and other mucilaginous plants, combined with small proportions of chervil and cresses, is highly serviceable. Observation has also shown that milk, assisted with a gentle and vegetable diet, is very proper for persons labouring under chronic phlegmasiæ, whose organs are emaciated, and who seem to call for a material change in every part of their body. But there is an immense step between these vague notions and the rules derived from a thorough knowledge of the nature of the complaint, of its situation, and above all, of the physiological operation of the remedies employed for its cure.

Water is yet the only substance that has been introduced into the veins. We have already related the effects of that introduction, which is never to be resorted to except when all other channels are closed, or appear insufficient.

It must be here remarked, that the injection of water must be made gradually and slowly, in order that very little liquid be introduced at a time. M. Magendie has observed, that when large quantities are injected, the lungs become obstructed, and death may be the consequence. Mucilaginous substances are never to be introduced into the veins; for experience has shown that they are immediately injurious, owing to their thickening the blood, which is thereby incapable of circulating freely through the lungs.(1) This process is, however, so seldom used, that it does not require a particular notice.

(1) *Journal de Physiologie*, t. I. p. 37.

SECTION II.

Of the treatment of irritations of the heart and its appendages.

Pain about the precordia, anxiety, a violent disorder in the circulation, general agitation, and the other concomitant symptoms, announce the existence of inflammation in the heart or pericardium, the active and powerful antiphlogistics must be had recourse to without delay. Two indications now present themselves to the practitioner: the first consists in diminishing the motion of the heart as well as the mass of blood going through it, and the pain and difficulty attending the indispensable exercise of its functions; the second has for its object to allay in a direct manner the over-excitement existing in that organ.

General bleeding is the first remedy belonging to this order. Although it should be proportioned to the strength of the patient, and the severity of the symptoms, yet it must be sufficiently copious and repeated, as to occasion a marked depletion in the heart and blood-vessels. The most perfect rest of both body and mind, breathing a fresh air, entire abstinence, emollient, acidulated, and cool drinks, promote, in a great degree, the action of phlebotomy. During this treatment, leeches should be applied in great number to the precordia, and to the place where the pain is most violent. The patient must carefully avoid all causes that might excite the nerves, the stomach, or the heart. Bleeding is indispensably necessary as often as the pulse rises, and the motion of the heart indicates irritation and is attended with a return of pain. There is no danger in letting out blood profusely; for the most serious accidents, and even death, might be the consequence of an unjustifiable pusillanimity. If acute carditis and pericarditis are so seldom cured, it is to be ascribed not only to the severity of the disease, but also to the want of a sufficiently active treatment at their commencement. The physician is not to be deterred by muscular debility, concentration of the pulse, the lividity of skin, tendency to syncope, alteration of the facies; they are only the effects of the obstacle occasioned in the circulation by the inflammation of the heart, or of its membrane, which bleeding is alone capable of subduing.

Carditis, properly so called, is very rare ; but acute irritation of more or less violence, is of frequent occurrence in the heart, as we have already said. Corvizart has too much neglected those diseases of the substance of the heart and of its internal membranes, which leave after them no remarkable traces of their existence, nor considerable alterations. The labours, in other respects so valuable, of M. M. Laennec, Bertin, and Bouillaud, have indicated rather than filled the space that still remains, before the history of the diseases incident to the centre of the circulation can be thoroughly understood. When irritations of the heart are not violent, as they occur after a long race, great exercise, and after taking a quantity of stimulating liquors, the disorders that supervene in the functions of that organ disappear spontaneously, and only require rest, acidulated drinks, and other means equally simple. But if, during the course of gastritis, pneumonia, encephalitis, and other inflammations of the viscera, the heart being over-excited, becomes painful, and bent on inflammation, there is little doubt but what carditis exists along with the primary and principal affection. If we may judge by the opening of bodies, in which the internal membrane of the ventricles and auricles, as well as the internal and middle coats of the aorta, have been found red, gorged with blood, and more or less softened, in consequence of inflammation in other viscera with which the heart had been sympathetically affected, it is, I say, reasonable to suppose that leeches and emollient fomentations to the precordia, and even phlebotomy, might prove beneficial, whenever the symptomatic fever is intense, and accompanied with pain, or merely with a sense of uneasiness behind the sternum. We have every reason to believe that, in some cases that are yet but little understood, but are becoming every day more frequent, death is hurried on by the formation of sympathetic irritations of the heart, and that this fatal termination might be prevented, or at least delayed, by applying a timely and proper treatment to the over-excitements of that organ.

I leave these conjectures to the sagacity of practitioners ; they alone can determine to what extent the violence of febrile action, and the symptoms of over-excitement of the arterial system, can be diminished by the local treatment of the sympathetic irritations of the heart and its appendages. Reason and analogy show that what is successfully performed in diseases of the brain, stomach, and lungs, when they

are sympathetically affected by other organs, can also be attempted against those of the heart, which is no less important a viscus, and not so immediately subjected to the influence of morbid sympathies.

Palpitations, which have so long been classed among diseases, are but a symptom of irritation of the heart. They always arise, either from deep-seated affections in that organ, or from irritations situated in other parts, and which act sympathetically upon the centre of the circulation, or from moral affections and disorders more or less violent occurring in the nerves. In subjects whose heart is diseased or highly excitable, the motion of that organ is rendered painful, disordered, and accelerated by the slightest causes. The practitioner must then examine the heart, ascertain the condition of the various parts about it, and successively give his attention to the viscera that appear to be inflamed, and to the whole of the nervous system. The indications that most frequently present themselves in practice consist in subduing either the material affections of the heart, as well as the existing plethora, or the inflammations which cause a sympathetic disorder in the ventricles and auricles, or finally the nervous susceptibility. From what has already been said, it is only necessary to indicate them, that the practitioner should be enabled to choose the most rational and efficacious therapeutical means that each case may require. Some revulsives, such as *digitalis*, diffusible stimulants, the preparations of iron, and gentle narcotics, may prove serviceable in allaying the tumultuous motion of the heart; but this mode of operating and the circumstances in which they are to be employed, shall be explained hereafter.

The organic lesions of the heart that have been so frequently met with, so well described, but so often mortal in a higher degree, should be examined and treated when still in their milder form, and at their commencement. Therapeutics is almost insufficient against obliterations of its openings, ossifications of the valves, alterations, softenings, and increase of strength and density of its parietes; but it would not be totally unavailing, and might prolong life, if recourse was had to it at the time when the organ, being merely disordered in the intensity of its vital and organic functions, is yet sound in its tissue and capable of being restored to health. If morbid anatomy appears far ahead of pathological physiology, and of therapeutics, with respect to the disease of the heart, it is

owing to their investigating affections which their severity renders incurable ; but it will not yet be complete before it has indicated the less advanced stages of those complaints, and their milder forms, which it is possible to cure.

The increased sensibility of the heart, and its disposition to irritation and hypertrophia, require the interference of the physician, as soon as they produce the slightest accident. The patient must then avoid all violent exercise, ascending any place with rapidity, declamation, and all exertions of the voice, every difficult occupation and hard labour must be interdicted. The most proper means of allaying the predominance of vitality and action of the heart, are exercise on foot or in a carriage, inhabiting places where the atmosphere is fresh without humidity, cold acidulated drinks, the most sober regimen, entire abstinence of all high-seasoned meals and spirituous liquors. Quiet occupations, avoiding numerous assemblies, and tranquillity of mind, will greatly promote the cure. Warm cloaths, during the cold seasons, abstaining from all circumstances which may tend to accumulate the fluids into the thorax or give rise to bronchial or pulmonary affections ; promoting a gentle perspiration at the feet, and keeping the bowels open, are also highly useful. It is then of the utmost importance to prevent plethora. This is to be effected by means of a severe diet, proper exercise, whilst promoting anormal hemorrhages and secretions, through which the constitution tends to free itself of the surplus nutritive materials. Thupiles, cutaneous perspiration, urinary secretions, will be kept up with advantage by means of leeches to the anas, dry frictions on the skin, copious drinks, containing a small proportion of nitre, scilla, and other similar preparations.

At a more advanced stage of the disease, when the obstruction to the circulation, the anormal extent and force of the pulsations, and the suffocation experienced on ascending an eminence, have become considerable, we must insist and persevere in the same treatment. It will generally be proper to add to the above means, according to the vigour and plethoric habit of the patient, general bleeding more or less copious, which will tend to rid the heart of its encumbrance, and facilitate its action.

When symptoms of aneurism of the heart, aorta, or pulmonary artery, make their appearance, the highly debilitating and antiphlogistic treatment of Valsalva may be successfully tried.

It consists in reducing the circulation to the lowest possible degree, in order to enable the heart gradually to contract, and resume its normal dimensions. This method is composed of three principal means: the first consists in abstinence of all aliments carried to such a degree as to reduce the patient gradually to some light broth, or gently nourishing potions during the twenty-four hours; the second in avoiding all excitements of the irritation, by keeping the patient in an absolute state of rest of body and tranquillity of mind; the third is intended to promote the effect of the other two, by copious blood-letting, in order to lessen directly the mass of blood, and reduce it to what is strictly necessary for the support of life. This treatment is evidently to be resorted to only by degrees and with great prudence, without which the vital actions, being suddenly depressed beyond proper bounds, might possibly be extinguished. The usual food of the patient must be abandoned by degrees, the local and general evacuations of blood will be made less copious, but repeated at shorter intervals; rest alone is to be as strictly observed at the commencement as at the end. Refrigerant and acidulated drinks will be found very beneficial. Cold applications to the precordia will also prove serviceable, provided they do not produce an irritating effect on the lungs. It is in such desperate cases, and where we are compelled to use means so directly in contradiction with the ordinary habits of patients, and in their nature so disagreeable, that we are bound to inspire an unbounded confidence, and that the friends of the patient, and his relatives, must console him, and fill his mind with hope and courage. But it is not sufficient to reduce the irritation to the lowest possible degree, and then gradually allow food, in order to perform a cure. The patient must be maintained in that state of debility, not only until the stethoscope indicates the absence of all lesion in the heart, but even for some time after that result has been obtained, in order to allow the affected tissues of that organ to resume the habit of their normal condition. Three or six months are sometimes necessary for that purpose.

The treatment of Valsalva is, however, to be had recourse to merely in young subjects, whose heart has not yet undergone a very material disorganization. What effects can we expect from it in old people, who would be unable either to submit to it, or to recover from the extreme debility, that necessarily follows? How can we hope for any benefit from

that method in cases of ossifications of the valves, obliterations of its orifices, fibrous or adipose degenerescence of its fleshy fibres, &c.

When a disease of the heart is carried so far as to be beyond the controul of medicine, or when the age of the subject does not allow having recourse to such active treatment, we must content ourselves with checking the rapid progress of the complaint, by the dietetic and gentle means mentioned above. The special indications here consist in occasional derivative bleeding, severe regimen, promoting all excretions, and removing every physical and moral cause of excitement of the heart. During the fits of dyspnœa and suffocation, revulsives are often useful, as they maintain the blood chiefly in the extremities, thereby allowing time to the heart for discharging the quantity contained within it, which impedes its motion.

These measures are equally proper against pericarditis, aortitis, and aneurysms of the aorta, which are not less frequent and dangerous than similar affections in the heart.

SECTION III.

Of the treatment of the irritations of arteries.

Inflammation of the large arteries, such as the aorta, and its principal divisions, does not appear to be a very rare disease. Some facts recently observed, and others related in the works of Franck and of several practitioners, appear to establish its existence to a greater or less degree in all inflammations accompanied with high febrile excitement. It must be kept constantly in mind that the vascular system increases its action only in consequence of the irritation of its organs, and especially of the internal membrane of the heart and large arteries. Such a fact, well demonstrated, will perhaps throw additional light on the treatment of the vascular excitement attendant on all inflammations. In the present state of science, we can only say about the arteries what has been said of the heart, which is that, in subjects whose agitation of the pulse and disorder of the circulation are accompanied with pain or palpitations along the course of a vessel, it is proper to apply leeches and emollient topics opposite that vessel, whilst the principal disease is continued to be treated by antiphlogistics.

During the inflammation of certain organs, if the arteries that go to them beat with more force than usual, and are uncommonly filled with blood, is not the inflammation of their coats the cause of these phenomena? Is not the long continued irritation of the vessels surrounding anormal, schirrhous, or cancerous tumours, the cause of the preternatural development of the arteries going to those parts? Are not all phlegmasiæ of the living tissues propagated to the arterial ramifications that penetrate them, and, at a greater or less distance towards the heart, to the rest of the vascular system? The knowledge of morbid phlegmasiæ authorises these conjectures; but autopsy alone can place them beyond the reach of controversy. In all cases, the arterial irritations in question being under the absolute dependence of local inflammations, require the whole attention of the practitioner, and debilitating medications are to be employed only in those rare cases where positive symptoms indicate the existence of a more or less violent phlegmasia of their parietes.

The treatment of aneurism of the arteries, situated in the large cavities, is the same as that of similar dilatations in the heart. They always arise from irritations that have either softened or ulcerated the arterial parietes (*true aneurism*,) or to their erosion (*aneurism by ulceration*.) When these complaints take place in the arteries of the limbs, the medical treatment is more neglected, and surgical means applied which are much more efficacious, but cannot find a place in this work.

SECTION IV.

Of the treatment of irritations of the veins.

Phlebitis, which was hardly known to our predecessors, is now more frequently observed, since dead bodies are more carefully examined, and the traces of disease more attended to after life has departed. It is to such affections that we are to ascribe the obliteration of the veins arising either from the coarctation of their parietes, or as is more frequently the case, from the presence of a fibrinous coagulum, which becomes organized, and gradually more solid and adhering to the inner coats of the vessels. MM. Travers, Wilson, Chaussier, and Ribes, have often found the veins of the abdo-

men inflamed and filled with pus. M. Velpeau has recently observed, that the singular affection of lying-in-women, called *phlegmasia alba dolens*, which is a sort of serous, inflammatory and painful engorgement of the abdominal extremities, is always accompanied with inflammation of the veins, which coincides with that of the symphysis of the pelvis.(1) M. Meckel had before ascertained the same affection of the veins in similar cases. The observations of Hunter, Sasse, Hodgson, and the researches of M. Breschet on phlebitis, are well known to all.(2) From those observations it follows, that the irritation of any organ whatever can extend along the veins emerging from them as far as the largest trunks, and even to the heart itself. The presence of calculi, of anormal fibrinous concretions, of hydatids, and other similar bodies in the veins, can only be referred to a slow inflammation in those organs. The remarkable case related by M. Barde, in which there existed arteritis, and phlebitis, at the same time, and in the acute stage, shows that the simultaneous inflammation of every part of the vascular system, even in the chronic stage, is not impossible, and seems to call for further researches.

When phlebitis, however, is announced by pain and tension in the parts covering the inflamed vessels, general and local bleeding, and emollients, are urgently called for. It must be remembered that inflammation of the veins, but more particularly of the arteries, has a tendency to extend to the heart, and that we are to use all endeavours to arrest its progress, and confine it to the parts affected in the first instance. With regard to chronic phlebitis, the diagnostic is too obscure, and its causes too imperfectly understood, to enable us to lay down any particular mode of treatment.

SECTION V.

Of the treatment of irritations of the capillary vessels.

The capillaries, when in a state of inflammation, give rise to two very remarkable results, inflammation, and sanguine-

(1) *Archives Générales de Médecine*, t. VI. p. 220.

(2) De l'inflammation des veines ou de la phlébite: *Jour. Complém. du Dictionn. des Scienc. Médic.* t. II. p. 324, et III. p. 317.

ous exhalation. The treatment of the former in the various organs wherein it may take place, has hitherto been the subject of our researches ; and although we have also said something with respect to the latter, we must indulge some further remarks on the special medications they require.

Exhalation of blood is always the consequence of local irritations which draw the blood to the affected parts ; it seems to differ from inflammation, only by the circumstance of the blood being propelled by the distended vessels into their exhalent extremities, instead of retaining it within their cavities. The local effusion which then takes place, prevents for a certain time the recurrence of the inflammation with which the excited organ is threatened, and which, when it is formed, generally terminates in hemorrhages that soon become habitual. Whether shivering exists or not at the commencement of the hemorrhagical congestion ; let the pulse be large, elevated, tense, &c. or not, during its course ; let symptoms of sympathetic excitements exist in the other parts of the body, or let all the organs remain calm, and as it were passive ; finally, whether the hemorrhage be accompanied with symptoms of vascular excitement, or let all the rest of the economy remain unaffected, these circumstances do not change the nature of the complaint ; the exhalation of blood is nevertheless the consequence of a local stimulation, which operates with as much force on the whole system as the subject is more debilitated, the irritation more frequently renewed, and the fluid let out with more facility at the commencement of the disease.

It is useless to mention that I do not speak of the hemorrhage arising from erosion of the vessels, or from wounds of the arteries and veins : these accidents are entirely mechanical, and require no other therapeutical means than those which are calculated to disgorge the vascular system, and promote the formation of coagulum.

The treatment of hemorrhage arising from exhalation is comprised under two distinct heads : the first consists in suppressing the actual flow of blood ; the second in preventing its return, and in destroying the habitual liability of the patient to hemorrhage.

The most rational treatment of hemorrhage is founded on the same basis as that of acute irritations of the tissues. Absolute rest of body, a fresh air, the absence of all causes that may accelerate or obstruct the circulation, the use of cold,

acidulated and mucilaginous drinks, habitual phlebotomy, leeches and cold applications to the region of the affected part, constitute the principal medications to be employed. The blood should be freely let out at the commencement of hemorrhage, as long as the patient is vigorous, and his vessels full and excited. The flow of blood is sometimes so copious, and the irritation from which it proceeds so strong and continued, that the most powerful revulsives must be added to internal and external antiphlogistics. In certain cases, should the hemorrhage resist all curative methods, and as the fear inflammation must be subordinate to the existing danger of death soon taking place, the physician is justifiable in having recourse to direct stimulants, tonics and astringents, in order to modify the action of the irritated tissues, and promote the contraction of the mouths of the vessels and the formation of an inflammatory process. The parts affected with hemorrhage are seldom painful, and it is by exciting pain and increasing the irritation, that direct stimulants check the effusion of blood. Mention will hereafter be made of the necessary precaution that must attend their employment.

The preventive treatment of hemorrhage is the more difficult owing to its frequent relapses. A thorough knowledge of the organization of the subjects inclined to those sorts of affections, is sufficient to indicate the most efficacious means they require for their cure. These must evidently be chosen among those which diminish the over-activity of the vascular system, and, next to bleeding, a severe regimen, a fresh air, cold bath, and cold, acidulated, aqueous drinks, hold the first rank.

General bleeding may be performed on subjects disposed to hemorrhage, but who are not actually affected with it, only in as much as the susceptibility of the vascular system becomes exalted, and threatens a relapse, notwithstanding the use of other debilitating medications. It has been very properly observed that phlebotomy is a powerful preventive against the danger of hemorrhage, whilst on the other hand it makes the vascular system more excitable, and very frequently more liable to the returns of that disease. Both these effects, which appear so contradictory, emanate from the same organic law. If the diet continue to be full, and the subjects remain exposed to the same exciting causes, and if no other measure be taken in order to allay the susceptibility of the heart and blood-vessels, general bleeding may, it is

true, remove the danger attending a very profuse hemorrhage; but, as the organization soon repairs its losses, the disposition to that accident will soon again return. It is, therefore, evident that the economy will require bleeding more frequently as it shall have been more habituated to that evacuation, because the vascular system becomes more excitable in proportion as the nervous system acquires a more predominant influence over its functions. In a word, bleeding is a sort of substitute for the hemorrhage; it has the same effect on vital action, and soon becomes so necessary that the patient can no longer dispense with it.

The treatment of hemorrhage must, therefore, consist in allaying the over-excitement and susceptibility of the vascular system, and in dispensing with the necessity of evacuations of blood. Acids, such as lemonade made with lemon juice or with sulfuric or nitro-muriatic acids, never fail to make the pulse calm and less frequent; cold is very powerful in subduing the disposition to irregular congestions, and restoring harmony in all its functions. Cold bath, however, is not to be employed without great circumspection, in internal hemorrhagical irritations, owing to its effect in accumulating the blood in the centre. A severe regimen is of the highest moment; it is even frequently necessary to keep the patient fasting until the sense of hunger be such as to occasion an evident degree of debility in the heart and arteries.

To these general means, we must add those that are calculated to diminish the more or less violent and permanent irritation of the organ affected with hemorrhage. Leeches in its neighbourhood, cold fomentations with oxycrat on the corresponding regions, are eminently useful. If the subject be much debilitated, some fixed and astringent tonics, and revulsives, may also be proper. Their effects will be explained hereafter.

SECTION VI.

Of the treatment of alterations of the blood.

The nutritive elements that go to the blood may become vicious, owing either to the ill-condition of the food itself, or to its not being properly modified by the digestive and respiratory organs, before it is distributed to the various tissues of the animal economy. Hence scurvy may arise

from the long continued use of salted meat, water in a state of putrefaction, a cold, damp, and confined air, desponding passions, and a variety of the causes which were formerly considered as producing astheny of the organs. In all these cases, the blood, the composition of which is gradually altered, can no longer impart a proper vigour to the viscera. It soon irritates the most sensible tissues, such as the gums, the mucous membranes, &c., whilst, at the same, time the strength is impaired, and internal inflammations take place. The capillary blood-vessels themselves, being irritated and partly destroyed, let out their contents, and thereby give rise to transudations and interstitial hemorrhage. Death may become the consequence of the succession of these irritations and of the fever they induce, or of the slow destruction of a machine which can no longer repair its losses, and whose various parts, being successively invaded, must finally cease to act.

The methodical treatment of scurvy must be founded on the knowledge of the various circumstances that may have produced it. Excitants, bitters, the most active tonics, were formerly given indistinctly in all cases; but they can have no other effect than that of increasing organic irritations and fever, and of producing death. To one of our most enlightened contemporaries medicine is indebted, if not for the discovery, at least for the demonstration of the advantages of a more rational method, and of the injurious consequences of ancient practices. M. Kerandren has shown that the treatment of scurvy must be composed of a nourishing diet which provides the blood with fresh materials, and restores its normal composition. Should gastric, gastro-intestinal, pulmonary, and other irritations exist, they must be treated with leeches and gentle diet, to which must be added the use of vegetables, gelatinous broths, and fresh meat. Bitters, the acid juice of cruciferous plants, and alcoholic tinctures are highly improper; the most useful remedies consist of the fresh juice of mucilaginous vegetables, turtle and frog broths, salads, and all similar substances. Under their influence, muscular debility, depression of mind, and irritation of the gums, will soon disappear.

When scurvy is the consequence of excessive privations, affliction of the mind, a foggy and cold atmosphere, it will be readily conceived that its cure requires that the patient should be placed in a more happy and salubrious condition. I would

even presume to assert, from repeated observations, that scurvy is more radically cured without the use of irritants, which have so long been extolled for the cure of that disease.

CHAPTER X.

OF DEBILITATING MEDICATIONS EXTENDED TO THE WHOLE OF THE LIVING ECONOMY.

As external agents merely act upon some organs or organic systems exposed to their influence in the production of disease, so the modifications induced in them by medicinal substances are all, either confined to the parts with which they come in contact, or propagated, through various channels, to some more or less remote tissues. Not one of those substances ever extends its action to the whole of the organism, nor debilitate, at the same time all its functions. This therapeutical fact is as important to be known as the axion of the primitively local effects of morbid causes is essential in pathology.

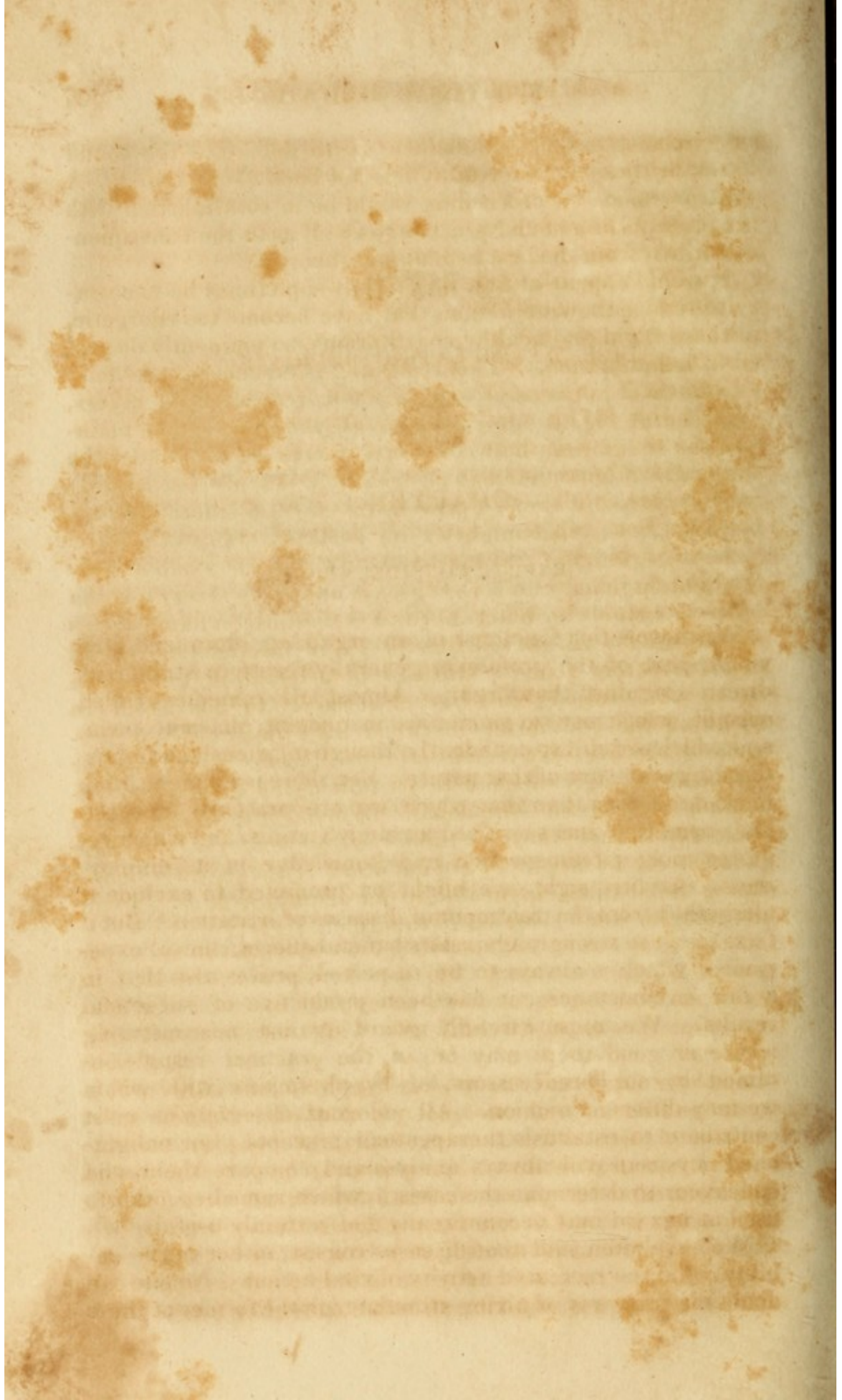
By a proper combination of the various medicinal agents hitherto mentioned, it would not be difficult to subdue the energy of vital action in a greater or less number of organs at the same time, and consequently to extend the debilitating process to more or less considerable portions, or even to the whole of the living economy. This is the only mode of effecting general debilitating medications.

The most efficacious manner of operating that result, is by removing all dietetic stimulants, and abstaining from all alimentary substances, evacuating certain quantities of blood, and maintaining the body in a continual state of rest. Under the influence of this treatment, and especially by the abstinence of all aliments, the most robust man will soon fall into languor, become incapable of moving, and finally sink, being deprived of strength and of nutritive materials, but not without irritations taking place in the nervous system and in the stomach.

Such medications, however, are never indicated in therapeutics. When irritation exists we may and ought to resist them wherever they successively make their appearance, but

no circumstance should induce us to debilitate the sound parts, or those whose vitality has not been over-excited. A contrary mode of proceeding would be in contradiction with the precepts of a sound practice, as well as to the consequences drawn from the best established theories.

It would appear at first that it may sometimes be necessary to reduce the vital actions that have become too energetic, in those florid and healthy constitutions, so eminently disposed to inflammations. This reasoning is erroneous. As long as no one organ is more sensible and irritable than others, the general vigour and energy of all the vital actions maintain the equilibrium between all the functions, and render the state of health less liable to be disturbed. In this case nothing more is requisite than to prevent too much plethora, and remove all causes that might excite local irritations of greater or less magnitude. Strong habits are much less liable to inflammation than weak constitutions; and if a contrary opinion have so long been entertained, it is because inflammations complicated with general debility were misunderstood, and called by other names. Instead of attempting to weaken strong constitutions, we have, therefore, to endeavour to maintain the equilibrium between their functions, by preventing the over-excitement of those organs which appear the most strongly inclined to irritation, and by a careful attention to dietetic stimulants. When phlegmasiæ make their appearance, they are to be resisted wherever they show themselves, by a proper combination of the various debilitating medications applicable to one or more organs. I cannot imagine one exception to this rule.



BOOK III.

DIRECT STIMULATING MEDICATIONS.

CHAPTER I.

GENERAL CONSIDERATIONS.

Whenever the functions of an organ are deranged, the vulgar part of the profession generally resort to stimulants directed against that organ. Almost all remedies called specific, which are so numerous in ancient pharmacopœia, and which are still so confidently, though injuriously, administered by some, are of that nature. Yet, there is no medication more dangerous than that which we are presently to consider, none that has sacrificed as many victims, and which requires more circumspection and knowledge in its employment. At first sight, we might be prompted to exclude it altogether from the treatment of diseases of irritation. But if facts speak so strongly against its baneful effects, clinical experience, which is always to be respected, proves also that, in a few circumstances, it has been productive of successful results. We must carefully guard against misconstruing whatever good there may be in the practical results obtained by our predecessors, or by physicians with whom we may differ in opinion. All judicious observations must contribute to establish therapeutical precepts ; an enlightened physician will always analyse and compare them, and endeavour to determine the cases in which remedies hitherto used at hazard may become really and certainly useful.

We have often said that diseases consist, either in the debility, or in the increased activity of vital action. No one can doubt the propriety of giving stimulants in the former of these

conditions ; but can they be indicated ? and how do they act in the latter circumstances ? These questions require a serious investigation.

Diseases arising from debility are somewhat rare ; they generally constitute latent chronic disorders, unaccompanied with alarming symptoms or immediate danger. They may be divided into two categories, according as they invade the tissues themselves, or merely some of the elements entering into the composition of complex organs, so as to diminish or totally impede one or more of their functions. This distinction is founded upon pathological facts, and it will be seen that, in a variety of cases, it may serve as a guide near the bed-side of the patient. Hence, the tissues of every organ, such as the skin, the mucous, serous, and fibrous membranes, the muscles, the vessels, &c. may be flaccid, soft, relaxed, thin, void of resistance, and incapable either of acting with force, or of resisting for a length of time the action of external agents : then there is debility, atony or relaxation of all the parts entering in the composition of the affected tissue. Sometimes certain functions alone become inert, the organ appearing in every other respect healthy. The skin, for instance, without having lost any of its tension and force, sometimes remains pale, scarcely fit for perspiration, and, as it were, deprived of vitality ; the mucous membranes, although apparently in a state of health, secrete but a small quantity of liquids, in certain subjects, or show themselves almost insensible to the action of stimulants. The stomach and intestines have been observed to be torpid, languid, and readily distended with alimentary or stercoral matter. Facts of this kind are by no means rare ; the sphinters have been seen motionless, the liver secreting but a small quantity of bile, or, failing to give it its usual properties, the heart propelling the blood with scanty vigour, &c. But I have said enough to be understood.

Now, the stimulants employed in all those cases may equally be divided into two classes ; the first, including those which corroborate and give force to living matter, by increasing its energy, and imparting additional activity to its nutritive process : the second, comprehending the substances that operate in a special manner upon one or another organic element, so as to excite, and give force and durability to certain functions that have become languid.

We must add, that these distinctions are not so strictly

marked that the secretory stimulants, for instance, should not occasionally affect all the elements of which the mucous membrane, the skin, and the other organs, are composed. But our present object is merely to determine the primitive or principal effect of every kind of stimulant, and, in this respect, there is no doubt but they might be divided into several classes, according to the tissues they modify, or the vital actions they excite.

In order to proceed with certainty in the employment of remedies of this kind, it is necessary, in the first instance, to distinguish the incapacity for motion resulting from real debility of the tissue, from that arising in consequence of pain and inflammation in those parts. In the latter case, the affected organ is most generally hot, its tissue red and turgescer; the pulse is agitated and the sympathies are more or less excited; in the other, on the contrary, the parts affected are pale, soft, cold, almost inert; no symptom of vascular reaction be present; and if the action of the parts is languid or impossible, at least it is not obstructed by pain. Should there be some degree of irritation and phlegmasia, stimulants never fail to exasperate the morbid phenomena, whilst rest and abstinence restore calm and vigour; but, in opposition to this, the debilitated parts seem to call for appropriate stimulants, which favour vital action, and abstinence and rest increase the debility, and accelerate the complete annihilation of the functions.

Real atony must not be confounded with the languor induced in certain organs by the irritation of other parts, or by the impossibility of action which results from the affection of the parts to which the diseased tissues belong. In all those cases we must return to the primitive seat of the disease, and an accurate knowledge of the mode of acting of the various morbid causes and of the laws of sympathy, will clearly point out the diagnostic.

After that analysis is made, and the debility of the diseased organ being ascertained to exist independent of any other affection, the best indicated stimulants must still be administered with great prudence. It frequently happens that the tissues are the more susceptible, and the more liable to inflammation, as their vital actions appear more languid: this is what occurs in a great number of delicate and nervous habits, where the lungs, the stomach, or any other organ possesses little vigour, but great debility. In some cases, how-

ever, we should not be deterred from strongly exciting the debilitated organ, or increasing its heat, and giving rise to a sort of local fever; there are circumstances in which the process resulting from these measures appears indispensable to obtaining the desired therapeutical effect. But this medication can only be applied to internal parts, where irritations occasion disorders in the viscera. Internally, gastritis, pneumonia, hepatitis, and other acute inflammations, are too dangerous, and too readily fatal, that we should not endeavour to prevent their invasion.

The medication which consists in stimulating organs already irritated is always hazardous. It has, however, been successfully resorted to, and it is proper to analyse the cases in which it is justifiable. For this purpose the various irritations must, as it were, be decomposed. Some cause the presence of blood, pain and redness in the tissues, as well as all the symptoms of inflammation, properly so called, to a higher or less extent: this accident is called inflammatory irritation. Others increase a particular secretion, and give energy to some particular function, without occasioning a proportionate excitement of the vascular system. Hence, in certain cases of urethritis, diarrhea, and hepatitis, a flow of mucus and of bile takes place from the irritated organ, without being accompanied with violent pain, intense fever, nor sensible local heat. Nevertheless, it must be remembered that the elements of our tissues and organs are so intimately connected and confounded, that none can be increased in their action without the others participating in that excitement. But this fact is not in opposition with the hypothesis according to which certain complicated organs, such as the skin, the mucous membranes, the secretory parenchymata, and even the brain, can be more excited than others in some of their functions, and consequently in the parts that perform them in a special manner.

This distinction being once admitted, it will be readily conceived that it is possible to substitute, in a diseased organ, a different mode of sensation and motion, for the pathological action going on in that organ, which may destroy the former complaint. One irritation is thus substituted for another, and this change proves beneficial whenever the artificial disease is less dangerous, and more readily subdued than that which it is intended to destroy. But, in this preceding we can never feel perfectly confident that the stimulant employed will not

aggravate the disease; and this will occur whenever the irritation is sufficiently intense and deeply rooted as to resist the change, and persevere in its course. It is in this manner that purgatives exasperate gastro-enteritis, and that astringents change diarrhea into acute and violent colitis, &c. The danger constantly existing of aggravating the disease is the most serious inconvenience attending the employment of stimulants.

The use of these remedies is generally founded upon this therapeutical fact, which it is important to remember, that certain irritations, such as increased secretions and hemorrhage, disappear when pain and inflammation are excited in the affected parts, in the same manner that phlegmasiæ cease in their turn, when abundant secretions and hemorrhage can be induced on the surface of the affected tissues. These evacuations seem to act in the same manner as local bleeding: by letting out blood, or changing the nature of that fluid, they prevent its stagnation in the irritated capillaries, and thereby check the progress of inflammation. Empiricism boldly recommends irritants calculated to promote the mucous secretions, in cases of acute or chronic gastro-enteritis. The same remark may be applied to those pretended solvents of engorgements in the liver. In the midst of a number of failures, some facts appear to show that they have been occasionally employed with advantage. But before promoting secretion in a mucous membrane actually irritated, it must first be ascertained that its irritation is inconsiderable, and, as it were, *erythematous*. But if it be intense, it is necessary to subdue it by means of antiphlogistics, and thus prepare the part for the sort of stimulation intended to be operated upon it. Hippocrates, and the physicians of his school, always adhered to that precept: they understood the danger of evacuants in the first period—I mean in that of the greatest intensity and crudity of the disease. But if, by means of antiphlogistics, the irritation has been so reduced as to be able to disappear under the use of irritants acting upon the secretions, it is evidently more advantageous to persevere in those means which have brought on that favourable change, than to resort to others which have a contrary effect, and reproduce all the severity of the symptoms. Finally, when stimulants are had recourse to, it is necessary to choose the mildest of them, such as minoratives in gastro-enteritis, gentle expectorants in bronchitis, &c. Then, at least, if the remedy do not produce the desired

effect, its unfavourable result is reduced to almost nothing, and can be easily obviated.

The physician may assume more boldness when it is necessary to substitute sanguineous stimulations (excitements of the blood-vessels) to abundant secretions of long standing. These complaints, as we have already said, wear away of themselves, and disappear under the use of antiphlogistics: prudence always dictates the propriety of allaying the first violence of the disease from which they arise, but they sometimes resist those medications, become habitual, and seem to form part of the functions of the affected organ. Then it is that irritants may prove beneficial, such as astringents and styptics, in the shape of injection or local application. It is to be remarked that in order to be efficacious, those remedies must excite pain, and an irritation which it would be dangerous to occasion internally. Hence they are generally improper, except against irritations of internal parts, such as the urethra, the eyes, the ear, the nose, &c. and, in a few cases, against chronic diarrhea.

Irritations may be treated with local stimulants, either at their commencement, or towards their termination. It was at the commencement of certain gastro-intestinal irritations that tartar emetic was so generally employed ten years ago; at the moment when blennorrhagia is about to be declared, injections of sulphate of zinc and balsam of capahu were instantly prescribed; it is also at the invasion of rhinitis that fumigations with an infusion of elder are still administered, &c. In all these cases, an attempt is made to displace the irritation which threatens to take place, by creating a stimulation which may be of shorter duration and less serious in its consequences. But experience has shown that, with regard to the stomach, for instance, this reasoning is contradicted by facts. It demonstrates also that with regard to the other organs, a direct or debilitating treatment is still the most simple; and if it be not always the most expeditious, it is undoubtedly the most certain and the least liable to danger.

If, at the decline of irritations, those stimulants which tend to change the mode of action of the parts, are generally useless, the case is evidently different when inflammations have totally disappeared. Then, indeed, stimulants may be proper in order to put an end to the relaxation and inertness which occur in parts that have long been stimulated. Vessels distended with blood for days and even months, remain, in

some subjects, dilated, almost varicose and deprived of elasticity; and excitants, administered with prudence, are alone capable of restoring them quickly to their normal condition. It is in this manner that after protracted ophthalmiæ, stimulating collyria restore to the conjunctiva, which was relaxed and varicose, its normal tension and energy; after urethritis, some tonic injections are often indispensable; certain inflammations of the skin require the application of sulphurous or other preparations; lastly, in relaxed, pale and obtuse habits, gastro-enteritis is sometimes followed with a languid and weak stomach which calls for bitters, Bordeaux wine, &c. But in all those cases we are to take care that no trace of acute and sanguineous irritation should exist in the parts, and stimulants must be administered with such prudence as to be enabled to check their injurious consequences by a discontinuance of their employment.

The stimulating agents with which *materia medica* supplies therapeutics, are so numerous, that it is extremely difficult to class them methodically according to the nature of the impression they produce, or to their curative property. They may, however, be referred to two great classes, according as their action is susceptible of extending to all tissues and organs, or to certain functions. The first comprehend tonics properly so called, astringents and styptics; the other includes the special stimulants of the digestive canal, the vascular system, the respiratory organs, the nervous centres, &c. The effects intended to be obtained by the former are to fortify the living tissues, increase their density, as well as the violence and duration of their action. The latter tend to direct vital action towards some particular parts, and to promote the exercise of one or more functions. The circumstances requiring the one or the others shall be enumerated in a subsequent part of this book.

In another point of view, stimulants are derived either among the alimentary substances necessary to the support of life, or from the simple or compound remedies which fill our formularies. The first are more slow, but more certain, in their operation; the others act with force and rapidity: their effect is more apparent and sudden, but of less duration and certainty in their employment. In the proper exhibition of dietetic agents, there is always something mild, graduated, contrasting with the sort of violence exercised by stimulants on organs and functions, and which appear in greater harmo-

ny with the laws of the animal economy, and with the normal regularity of vital actions.

Whenever organs are actually weakened, without any other concomitant disease, the proper employment of dietetic agents must hold the first rank in the treatment to be prescribed. These agents alone can operate with that continuity and for the long space of time necessary to rouse vital action, impart additional energy to nutrition, and increase the vigour and resistance of the tissues that have become inert or emaciated. Hence, good aliments, a moderate use of wine, exercise intermixed with sufficient rest, a gentle activity of mind, living in a dry atmosphere, and in places that are elevated, salubrious, and covered with vegetables, a contented heart, and peace of mind, are the first, and the most efficacious of all tonics. It will not be difficult to apply similar remedies to the various organs, whenever they are required to be made stronger, more energetic, and more active in their functions. If remedies be then indicated, they are to be considered as secondary, and as mere adjuvants to the others. Hence, in debilitated constitutions, when *innervation* and *hematose* exist, and the principal functions are languid, bitters, tincture of bark, ferruginous preparations and other remedies of this kind, are only to be employed as auxiliaries to the means above mentioned.

But, in cases of irritation, when the parts are already diseased, and their mode of acting is intended to be changed, medicinal stimulants are most generally indispensable. the others would not, in general, act with sufficient vivacity, and in such special manner as to produce the desired effect. Yet, whenever the disease is slow and chronic, as habitual diarrhæa or blennorrhagia, dietetic stimulants must be added to those procured from pharmacy, in order to make their effect more certain and considerable. Sometimes they are alone sufficient, in as much as they change the *rhythme* of the organic functions of the whole machine: thus discharges of mucous and other morbid evacuations, which had resisted all other methods of treatment, have been cured by good regimen, a moderate quantity of spirituous drinks, and continued exercise. In certain cases also, it is proper to combine local stimulants with an appropriate treatment internally, for the purpose of promoting their effect, and of introducing into the economy certain materials that modify the internal func-

tions, and substitute elaborations that are more regular, and in better harmony with the state of health.

With regard to their employment, stimulants are either applied directly to the diseased part, or exhibited internally, so that their impression is propagated to the affected tissues, by the absorption of their particles, or through the sympathies. As we have already said, it is generally difficult to distinguish those two modes of action: it is even frequently impossible to determine with accuracy whether a given remedy, placed in the stomach, for instance, in a subject affected with cutaneous eruptions, urethritis, or other external inflammation, has operated through absorption, the sympathies, or by a real revulsion. Therapeutical physiology can alone decide the question, and it is but reasonable to believe that it will soon be enabled to place it beyond controversy.

It is necessary to remark that, whenever stimulations are exercised upon other parts, for the removal of irritation from the organs affected, those parts should be in a healthy state; for, if they were already excited, stimulants would not fail to increase their irritation, and they would operate as revulsives, or sympathetically increase the primary disease. This is a fundamental rule in therapeutics, and I cannot dwell too long on its importance, since it is in a great measure the cause of success to be derived from the employment of those stimulants which are to operate upon parts remote from those to which they are applied. Whenever, therefore, I will speak of the internal employment of sudorifics, diuretics, expectorants, narcotics, &c., I will always suppose the intestinal canal in a state of health; without this, we could expect none of the effects to be derived from the substances under consideration.

The whole organism is sometimes excited at the same time, in order to stimulate a set of organs the affection of which is complicated with general debility. This mode of proceeding requires that all the parts operated upon by medicinal agents, or which are to participate in their action, should be free from inflammation; otherwise, stimulants will seldom fail to concentrate their effects in the irritated organs, increase the disease, and produce no beneficial results. It is in this manner that physiology and a complete knowledge of the state of all organs, must invariably guide the practitioner in the application of therapeutical agents.

Whatever be the effect of the employment of stimulants,

and in whatever manner their action is directed, it is always necessary to proportion their dose to the susceptibility of the subject, as well as to the state of the organ to be affected by them. In doubtful cases, we are always to begin by small quantities, in order to do the least possible injury, should there be any error in the diagnostic. Even when the indication is clear and positive, it is still proper to proceed with such circumspection as to enable us to examine at leisure the effect of stimulants on the affected organs, and ascertain whether and how far the dose is to be increased. It is well known that living tissues become accustomed to excitements, and that, in order to maintain their effects, the dose must be gradually increased. This is the reason why, in medications that are to be of long duration, it is proper to begin with the mildest stimulants, in order to be enabled to resort to more active substances, and gradually to increase their dose; it is even often useful to allow the organs acted upon to take rest, and resume their susceptibility. The remedy is afterwards exhibited by the same small quantities that were at first administered. In this manner, and especially by daily and attentive examination of the state of the organs, we may prescribe, if not with a constant success, at least without danger for the patient, large doses of stimulants that might prove fatal if given all at once, without discernment, and in spite of the reaction and irritation which they are capable of producing.

CHAPTER II.

OF STIMULATING MEDICATIONS APPLIED TO EXTERNAL PARTS.

The integuments, after a constant exposure to the burning heat of equatorial regions, sometimes cease partly to perform their functions when the subjects return to a more temperate latitude. Perspiration then becomes languid, and vital action, as well as the materials which were constantly lost by the constitution, are directed to the viscera which they thereby dispose to irritation. The indication then consists in drawing the excitement to the surface. This will be effected

by wearing woollen dresses close to the skin, by dry or aromatic frictions on every part of the body, baths, either with pure water, or containing some stimulating principles, and lastly, by aqueous or aromatic vapour baths. By adding to these the use of warm and somewhat stimulating drinks, uninterrupted exercise, and a mild regimen, the integuments will recover their energy and the whole extent of their functions. Active sudorifics, internally, are improper in those circumstances, owing to the necessity of making a continual use of them, and because they would soon lose their action, or give rise to a dangerous gastro-enteritis, if their dose were carried too far.

The pale, soft, and inelastic integuments of some lymphatic subjects, especially of those who live in a low, damp, cold, and dark atmosphere, also require the use of some stimulants, in order to excite the functions and restore the energy of the skin. The means already indicated are better adapted to the inhabitants of damp and swampy countries, than tea and coffee which they use in large quantity, and which have the great inconvenience of occasioning an enormous development of the fact. Those drinks should not, however, be totally proscribed, for their employment is no doubt founded upon a real want of some internal stimulation, which is readily communicated to the skin, thereby increasing the energy of that membrane; but they ought to be restrained within certain limits, and totally prohibited in corpulent persons, or to those whose fibres are too much relaxed.

Stimulant applications against cutaneous asteny must be limited to those few cases; let us now examine their beneficial or injurious effects upon the integuments when in a state of irritation.

The treatment resorted to by the German physicians against rubeola, variola, and scarlatina, which consists in cold lotions and cold bath, is highly perturbing. The transient effect of the fluid is also followed, in the parts affected, by a more or less violent reaction, which must place it among the most energetic stimulants. It may, however, be conceived that, by first eradicating the local irritation, cold affusions and bath subsequently determine in the skin, which is either inflamed or covered with eruption, a violent excitement, and a mode of sensation and motion different from that which constitutes the disease: in a word, the morbid action is thereby modified, diminished, and even subdued. Drs. Hubertus, Carl,

Milius, Kolbany, Pseufer, and Frœlich, relates hundreds of cures of eruptive fevers operated in that manner, without other auxiliaries than cold drinks, cool air and rest. M. Frœlich lays down as a rule that baths and affusions should be colder and more continued, as the skin is more irritated, red, and dry, and the fever more intense. According to this physician, cold always makes the skin supple and moist; he renews its application as often as heat and aridity return. I doubt much that this practice will be imitated by many. Cutaneous phlegmasiæ, accompanied with fever, are so readily and radically cured by means of antiphlogistics, that no physician can prudently resort to so perturbing a method, which so many circumstances can render fatal.

Cauterization has lately been proposed in order to cause the abortion of the variolous pustules, at the moment of their invasion. This process, which is made use of by MM. Bretonneau, Duméril, and others, consists in dipping a needle into a strong solution of argentum nitratum, or into that salt after it has been cristallized and melted, and then carrying the caustic as far as the centre of the pustule, which is thereby checked in its progress, unaccompanied with inflammation, and covered with a superficial scar, leaving behind it no traces of its existence. It is evidently impossible thus to cauterize all the small pustules which precede those of confluent small-pox; but if those of the face could be prevented, and the painful and sometimes so serious inflammation of that part thereby obviated, this benefit would already be very considerable. This process appears to me inoffensive, and susceptible of being tried without danger. The abortion of the pustules is the more readily promoted, as they are cauterized at an earlier period of their invasion. After the third day, when pus is beginning to form, that operation is useless. It evidently acts in disorganizing the part which tends to inflame, and producing, under the scar to which it gives rise, a mode of irritation different from that occasioned by the disease.

We have already spoken of blisters applied to the centre of erysipelas. This topic operates in promoting great irritation in, and drawing a quantity of fluid to the part: it is an irritant which puts a stop to the evil by concentrating it. This medication has long been in use among the Spaniards, and we find in the *Memoirs of the Medical Society of Séville*, that the unfortunate and laborious Mazet has published a very interesting treatise from Juan de Herca on the efficacy of that reme-

dy.(1) It would be unreasonable to apply blisters to simple erysipelas, which either nature or art has confined to a portion of the skin that does not compromise the existence of the patient; but I believe, with M. Samson, that when, in spite of the most active antiphlogistics, the disease continues to extend indefinitely, we must attempt to confine it to one particular place, by applying without delay, in the centre of the inflamed surface, a blister which will determine in the part to which it is applied, the formation of an abscess with or without gangrene of the skin and cellular tissue. In this manner, we change into a disease, which is indeed serious, but the consequences of which can be foreseen, a complaint unlimited in its extent and in its consequences. A blister appears to me preferable to cautery or caustic substances, which are recommended by some.

The bite of venomous animals, and especially of reptiles, such as the viper and several species of serpents, have heretofore been considered as requiring, in all cases, a special treatment almost exclusively composed of irritating substances. This proposition must be submitted to a new examination, and the physiological doctrine will greatly contribute in throwing considerable light on the due employment of pharmaceutical agents in this investigation. The wonderful effects of *guaco*, which appears to give to the skin a particular odour capable of driving away serpents, are not sufficiently well demonstrated as to be entitled to much consideration. Arsenious acid and arsenite of potass have been prescribed by English physicians. Their treatment for poisonous wounds occasioned by venomous serpents, consists in a potion composed of two scrupules of liquor arsenicalis, (2) ten drops of tincture of opium, an ounce and a half of aq. menthæ pip., and half an ounce of lemon juice: this is taken during the effervescence occasioned by the acid, every half hour, for four or five hours. A purgative enema is first administered, and whilst the draught is taken, the wound is washed with a liniment composed of half an ounce of spirits of turpentine, the same quantity of liquid ammonia, and an ounce and a half of sweet oil.

(1) *Journ. Compl. des Scienc. Médic.* t. X

(2) This liquor is composed of the arsenite of potass, in the proportion of half a grain of potass and the same quantity of arsenic into a scruple of distilled water.

The enema must be repeated several times. The draught is discontinued when the patient recovers his mental faculties; and the fomentations, as well as the frictions with the liniment, are persevered in until the skin resumes its natural colour.(1) When the patient has been purged, and the first symptoms have disappeared, a mixture composed of twenty drops of tincture of opium, fifteen *grains* of sulphuric ether, and an ounce and a half of aq. menthæ pip., may be substituted to the arsenical liquor.

We know the effects of ammonia, of the *eau de luce* and olive oil, used both internally and externally against the bite of the viper, and it is useless to dwell on them. The most rational treatment against wounds caused by poisonous reptiles consists in disgorging the wound by washing and pressing it; cauterizing its surface with solid or liquid caustics; covering the parts with linen dipped into sweet oil, occasionally rubbing it also with the same substance, to which are added, a few drops of volatile alkali; giving through the mouth a few cups of elder water or of infusion of orange flowers, with six or eight drops of volatile alkali.

The treatment just alluded to, which is generally adopted, is essentially perturbing. It is founded upon this theory, that the venom of vipers and serpents has a stupifying action upon the nervous system, obstructs the motion of the heart, and irritates the viscera. In those cases, volatile alkali and ether tend to rouse the vital actions, promote excentric motions in the organism, bring on sweats, and thus neutralize the effects of the poison. The experiments of Fontana would seem to prove that topics are then useless; yet such have been their good effects, that we cannot altogether exclude them from the treatment. When the wound is slight, and unattended with fainting, vomiting, or considerable anxiety, we may confine the treatment to the internal exhibition of a gently diaphoretic infusion, and to dressing the wound with oil and a few drops of volatile alkali.(2)

(1) *Medico-Chirurgical Transactions of London*, vol. II.

(2) I have been blamed of having, in another work, insisted upon the good effects of antiphlogistics against the bites of the viper. I believe they can succeed only in very slight cases, where all medication is almost superfluous, or when the primary effects of the absorption of the poison are followed, either with an extensive external inflammation, or with violent symptoms

A similar mode of treatment is to be applied to the stings of insects, such as the wasp, the bee, the scorpion, &c. It is always necessary to extract the dart which the animal might have left in the wound, taking care not to press the vesicle adhering to its base which contains the poison. The inflamed part is afterwards covered with narcotic topics, such as a solution of opium, the juice of poppies, or that of lettuce, and some sudorifics internally. I do not, however, consider the latter to be of essential service; and although they are recommended by the majority of authors, I would not myself hesitate, in the most severe cases, to confine my treatment to baths and emolient fomentations externally, and to diluents and gentle narcotics internally. Water and vinegar, with a large quantity of muriate of soda, in the shape of lotion, and given internally by M. Carillet,(1) are, in my opinion, inferior to the medications abovementioned: their irritating property is calculated to increase the pain and irritation attendant on the disease.

It is almost constantly necessary, in anthrax, in order to stop the progress and extent of inflammation and gangrene, to establish a considerable degree of irritation in the centre of the disease. This is the mode of operating of actual cautery or of the most powerful caustics, which are then resorted to, and transform the centre of the tumour into a more or less extensive or profound scar. There is great analogy between this process and that of the application of blisters to phlegmonous erysipelas tending to gangrene.

of encephalitis or meningitis. Such were the cases related by M. E. F. Delacourt,* and especially that of a dark complexion and strong woman who, after being bitten at the leg by a viper, had her menses suppressed, and fell into a furious delirium, alternating with a state of stupor, whilst the tongue was dry, the thirst great, the epigastrium painful, the face injected, the eyes red and immoveable, the pulse frequent, hard, and concentrated. In this situation, stimulants were undoubtedly improper, and bleeding, as well as diluent drinks, urgently called for. But circumstances of this kind are extremely rare; for it most generally happens that the patient falls into a state of stupor which indicates the extreme langour of the nervous system, and threatens a speedy dissolution. Now, until facts shall have shown that the treatment generally adopted and sanctioned by experience is dangerous, or less beneficial than debilitants, its employment must be continued. It would be useless to abandon, in dangerous cases, a mode of treatment founded upon numerous facts, and adopt another which is sanctioned only by a few more or less probable indications.—(*Note of the Author.*)

* *Journ. Univ. des. Scienc. Médic.* t. XXXIV. p. 5.

(1) *Journ. Compl. du Dict. des Scienc. Méd.* t. XIV. p. 37.

The best treatment of wounds inflicted by rabid animals rests on a different principle; its fundamental indications are: 1st, to wash and press out the saliva deposited by the animal, and allow the wound to bleed; 2d, to destroy the virus before it is absorbed, by exactly cauterizing, to a great extent, the whole surface of the sore. We have already spoken of the efficacy of those means, the description of which belongs to surgery.

Gangrenous ulcers, such as those resulting from anthrax, hospital gangrene, and the putrid sloughing of inflamed parts or tissues strangulated by aponeurotic laminæ, seem to be both speedily and efficaciously brought to happy conditions by means of dressings made with the chloruret of soda. This liquor, the advantages of which in cases of putrid infection have been demonstrated by M. Labarraque, may prove of immense benefit in therapeutics, and I have myself had several opportunities of ascertaining its good effects. It would seem impossible in the actual state of our knowledge, satisfactorily to explain its action, not upon putridities or scars partly decomposed, and of which it instantly destroys the infectious property, but upon the irritated living tissues which it restores to their normal condition.

Among the diseases of the skin against which perturbatory and irritating means are most constantly employed, the itch is the most conspicuous. It would be superfluous to enumerate all the formulæ that have been proposed against that complaint: they all contain some acrid and irritating substances which substitute an artificial irritation in place of the disease. The most active of those remedies produce real eruptions, distinct from that of the itch, with which they are intermixed, and which may continue to exist as long as the remedy is administered. In the greater number of subjects, however, the skin becomes accustomed to those kinds of frictions; under their influence, the psoric irritation, at first excited, afterwards exasperated, gradually disappears along with its eruption which, after a few days, ceases to return, and the subject is cured. In this manner, the itch, as some say, is brought out, and afterwards dried off, under the influence of irritants. In this respect, they have the advantage of rapidly wearing out an irritation which, without them, might have been protracted in its duration, and of obviating the injurious consequences sometimes resulting from its sudden metastasis on the viscera.

The efficacy of the remedies proposed against the itch is far from being proportionate with their stimulating properties. We should always give the preference to those which excite but little irritation in the skin, though they should be sufficiently powerful to eradicate the psoric eruption. Hence the *herbe aux gueux*, the root, branches and leaves of the dentelary, the decoction of tobacco, colocynth, and a variety of similar plants, have been rejected from the treatment of psora, owing to their violent irritating effects. The ammoniacal liniment of Mr. Gallée, a member of the council of health for the army, which is rendered more or less active according to the age and number of the pustules, has even succeeded against every species of itch. The camphorated liniment, composed of two scruples of camphor to two ounces of oil of sweet almonds, has not been less successful in the hands of M. Vaidy. This topic possesses the advantage of allaying the itching, which is sometimes intolerable. Arsenic and liquid acetate of lead are inefficacious against the itch, whilst their poisonous properties may prove dangerous. The same remark applies to the deuto-chloruret of mercury, and to the *quintessence* of which that salt is the basis.

The most common remedy against the itch is sulphur. Sometimes it is incorporated with muriate of soda and hog's lard; at other times it is united with potass and fat, so as to form a sort of soap, which is as efficacious as the ordinary ointment, without staining the cloaths to the same degree; finally it is also combined with muriate of ammonia, lime, oxyde of lead, or sulphate of zinc, and a variety of other substances equally irritating. The sulphuret of potass, with the addition of one eighth or seventh of sulphuric acid, mixed with four or five times its weight of water, is one of the best remedies against the itch: the credit of it is due to M. Dupuytren. The patient is to make two lotions every day with two or three ounces of the liquor. Lastly, baths of sulphuret of potass, of soda or of lime; a liniment made of the same substances and baths of sulphurous vapours, are also very frequently used with great benefit.

The itch must not, however, be treated in a blind and empirical manner. The activity of the therapeutical agents employed against it must be proportioned to the strength and susceptibility of the subject. Should violent pain intervene, irritants must be rejected. Emollient baths always promote the good effects of the treatment, and they are perhaps the

only useful preparation to which the patient can be subjected.

Nevertheless, there is nothing *specific* in the treatment of the itch with sulphur or other stimulants: this irritation might, I am convinced, be successfully treated with emollient baths every day, attention to cleanliness, and frictions with simple cerate or any other mild ointment. But this direct antiphlogistic treatment would be more tedious and costly, consequently inferior to the method generally adopted which, in prudent hands, is entirely free from danger.

But if experience show that the phlegmasia constituting the itch can be easily attacked, worn off and destroyed by irritants, it is by sanctioning their employment against herpes. These affections, as we have before said, are better cured by emollients, gelatinous baths, and soothing applications, than by the various stimulants with which it is usually covered. But when they are no longer accompanied with irritation and pain; and after the cessation also of the throbbing sensation which is generally accompanied with a sense of burning, some irritants may be used with advantage. They modify organic action, and displace the morbid excitement, which has become habitual, by another stimulation which is under our immediate controul, and more readily subdued.

In the shape of lotions, baths, and douches, the natural or artificial waters of Barèges, Cauterets, Bagnère-de-Luchon, Aix-la-Chapelle, Enghien, Harrowgate, Lowech, are frequently useful. The sulphurets of soda and of potass, incorporated into hog's lard, are proper against those cases of long standing which have resisted all other treatment. The subcarbonates of soda or of potass, dissolved in the proportion of four or six ounces in the water of a common bath, are sometimes serviceable against the general itchings experienced by some herpetic subjects. Under the influence of these preparations, and even by the action of douches made either with pure water, simple aqueous or aromatic vapours, the local irritation constituting the proximate cause of herpes is at first increased, the affected portion of skin becomes more painful, warm and red, and is covered with a more abundant secretion. In some subjects, these symptoms run so high as to excite fever and agitation. But when the disease tends towards a cure, the parts become gradually less sensible to the action of the stimulating remedy, the scabs fall off, return no more, and leave the skin in its natural condition.

It is, therefore, evident that stimulants must be proportioned to the susceptibility of the patient, and to the intensity of irritation and local pain. If the latter be considerable, narcotic decoctions are called for as well as ointments containing extract of opium. When the eruption is slight and farinaceous, an ointment made of cucumber is generally sufficient for its destruction. In all cases, a severe regimen, and the internal use of proper remedies, must be made to promote the effects of the topics.

The root of *treba yapan*, brought from Java to Europe by a traveller, appears to act in the same manner as other irritants of the skin. It is inodorous, and has an acrid burning taste. Before it can be used, it must be triturated with vinegar to the consistence of molasses, and a coat of about one line in thickness is applied to the part twice a day. M. Neumann, of Berlin, has succeeded in curing cases that had resisted all other methods, by means of that plant, to which M. Hufeland has lately attempted to direct the particular attention of medical men. (1)

The preparations of iodine, and especially that composed of twelve grains of iodine to one ounce of hog's lard, which some have recommended, act by irritating the parts. It is to be remarked on this subject that experiments made first by M. L. Angelini, with the waters of Sales in Piémont, (2) and afterwards repeated by M. Cantù, appear to establish the fact that iodine in the hydriodate state exists in all sulphurous waters. (3) This principle no doubt adds much to the efficacy of those waters in cutaneous diseases, and its absence in artificial sulphurous waters must be taken into account.

Hydrocyanic acid has been prescribed by M. Thomson against prurigo and herpes of long standing. He uses as a lotion half an ounce of prussic acid, and the same quantity of rectified spirit of wine, all in a sufficient quantity of distilled water. This topic seems to be generally adopted in the dispensaries of Chelsea and Brompton. The records of those establishments show that this remedy is infallible against prurigo, and almost so against herpes. (4) But before it can

(1) *Nouveau Journal de Médecine*, t. VIII. p. 29.

(2) *Répertoire Médico-chirurgical de Turin*, July, 1822.

(3) *Mémoires de l'Académie de Turin*, 1824.

(4) *London Medical Repository*, May, 1824.

be placed among rational therapeutical agents, observation must point out its mode of acting, and establish its efficacy upon better grounds. Prudence requires great reserve in the exhibition of so active a poison as prussic acid.

M. Dupuytren makes use of a mixture of calomel and arsenic, in the proportion of one hundred and ninety-nine parts of the former to one of the latter, against phagedenic and coroding herpes. If the surface of the sore be ulcerated, he covers it with a thin coat of hair powder applied with a common hair-mop; but if it be covered with an imperfect crust or cicatrix, he first destroys them, before applying the remedy. Should there be any apprehension of the powder not adhering sufficiently, it may be diluted in gum-water or mixed with cerate. The dose of arsenic must then be increased of one or two hundredth parts. In all cases, it is necessary to wait, as when the arsenical ointment of Rousselot is made use of, until the scab falls off of itself, which will generally take place in eight or ten days, and then renew the application until the cure is completed. Five or six applications are necessary for the cure, which will be effected in eight or twelve weeks.(1)

All those remedies, which have been empirically tried, and, in certain cases, sanctioned by experience, may prove useful. They have a tendency, either to destroy the inflamed surfaces, or to induce a different mode of irritation from that which constitutes the disease.

The subjects affected with herpes generally have their skin rugous, dry, and little fit for perspiration. In order to restore the functions of that membrane, dry or aromatic frictions, vapour baths and other means of this kind have been recommended. I believe it would be preferable to prescribe tepid bath containing a quantity of mucilage and gluten, wearing flannel close to the skin, and the use of all other means calculated to preserve the heat of that membrane, and protect it against all atmospheric variations.

Acupuncture, which has recently been revived by M. Cloquet, (2) must be placed among the direct stimulants of the

(1) *Formulaire des hopitaux civils de Paris*, par Ratier, 2e Edition, Paris, 1825, in 8vo.

(2) Vide *Mémoire sur l'Acupuncture*, by M. Morand, Paris, 1825, in 4to.
—*Notice sur l'Acupuncture*, by M. Pelletan fils, Paris, 1825, in 8vo. &c.

tissues into which the needles are plunged. The opinion of MM. Cloquet, Pelletan fils, and others, which attributes to the needles the power of absorbing the electro-nervous fluid accumulated in the inflamed parts, has no other foundation than a mere gratuitous supposition. The instruments have no other effect than of irritating the parts, by substituting to the morbid pain a traumatic and more tolerable pain, and a process which destroys that arising from the disease. Hence this operation is frequently ineffectual, although the long continued presence of needles in the tissues has the tendency to make their action more violent and better calculated to operate the desired effect. Acupuncture can never be justifiable in inflamed tissues; the theory of the subtractions of the nervous fluid by this process might lead to fatal consequences, which would still more forcibly show the necessity of being careful in attempting to explain the mode of operating of the various therapeutical agents.

CHAPTER III.

OF STIMULATING MEDICATIONS APPLIED TO THE ORGANS OF THE SENSES.

Several diseases of the eyes, although of an inflammatory nature, require the use of stimulants. Hence we find that astringent collyria and ointments are pretty successful in inflammations and ulcerations of the borders of the eye-lids, when unaccompanied with violent pain and redness, and where suppuration flows in abundance from the affected parts. The oxyde of cadmium, the impalpable powders composed of prepared tutty, sugar candy, calomel, and other similar substances, are very beneficial against opacities of the cornea. Cauterization, with the nitrate of silver, is often indispensable for promoting the cicatrization of ulcers and of fistulæ of the membranes of the eyes. But it must be kept in mind that antiphlogistics and local bleeding should always precede such measures, which never fail to increase the morbid irritation, and substitute in its place a sort of inflammation which promotes the absorption of the extravasated lymph, and the ea-

catrization of the ulcers. In almost every case, however, a complete cure can be effected by the simple addition of blisters to the back of the neck with antiphlogistics,

Cold lotions with water containing a small portion of liquid acetate of lead, of a decoction of roses and plantain, or of a small quantity of alcohol, are very useful whenever stimulants appear to be called for by the relaxation of the parts hitherto irritated.

The mucous surfaces of the auditory passages and nasal cavities are sometimes affected with a sort of discharge which being free from pain, may be successfully treated with astringents, whenever they become habitual, and resist the use of antiphlogistics. Injections with the waters of Balaruc, or decoctions of fumitory, of melilot, &c. are then useful, as they create a sanguineous stimulation by means of which the secretory vessels are disgorged and their over-excitement prevented.

Nearly all these remedies belong to the dominion of surgery, and they are mentioned only with the view to indicate the place they should occupy in a methodical classification.

CHAPTER IV.

OF STIMULATING MEDICATIONS APPLIED TO THE GENITO- URINARY ORGANS.

Several indications may be fulfilled by means of stimulants to the genito-urinary organs. They may be comprised under the following heads, 1st, Increasing the energy of the genital functions; 2d, stimulating the uterus, with the view either to increase the flow of the menses, check menorrhagia, or accelerate parturition; 3d, suppressing a mucous discharge from the bladder, vagina, or urethra; 4th, lastly, increase the quantity or change the quality of the urinary secretion.

SECTION I.

Of the means calculated to excite the genital functions.

There are subjects whose genital organs have less activity, and are less developed than in the natural state. In others, those organs, exhausted by excesses, have become insensible to stimulants, and remain inert. In both those cases, there exists a simultaneous debility of both parts of the body, or the genitals alone are affected with a greater or less degree of asteny.

When puberty is but slowly and imperfectly induced, in both sexes, and in subjects otherwise weak, pale, badly nourished, and exposed to a damp, cold, and dark atmosphere, it is proper to rouse the vital actions, and place the organism in a condition more favourable to the free exercise of its functions. It is then to be presumed that by rousing the general strength, and increasing the activity of nutrition, the living economy will be enabled to execute its functions, and the vital concentrations which tend to succeed each other in the body will be accomplished with regularity.

The accidental exhaustion of the genitals requires rest, a good diet, moderate exercise, gentle distractions, and the absence of all that might create important efforts. One of the most necessary indications is to ease the imagination, which is for the most part highly exalted. In this manner, the exhausted organs will soon gradually recover their former energy, and nature all her rights.

In all such cases, remedies must be used very sparingly. Aromatic substances, such as ambre, musk, galbanum, ginger, ginseng, and a variety of others, generally act upon the stomach, which they seldom fail to irritate. Experience also shows that stimulants applied to the alimentary canal rather impede than promote the functions of generation. The stimulating effect thus obtained is only momentary, and followed with a proportionate degree of debility. The constitution soon becomes habituated to their action, and the doses must incessantly be increased, or their effect will be null. This state of inertness also becomes almost incurable, because the little degree of excitability which the organs still possessed is worn off and destroyed. Rubefacients applied in the

vicinity of the genitals, electricity and galvanism, are not more beneficial, nor their effects of a longer duration.

SECTION II.

Of the means calculated to stimulate the uterus.

It must be remembered that in young girls and in women, the menses may disappear, either owing to the parts being irritated to a degree approaching inflammation, or to the existence in some other part of inflammations which prevent the discharge that ought to take place through the uterus, or because that organ itself is in a complete state of asteny. The two first of those causes of amenorrhea are not to be noticed in this place. Whenever the uterus is inert, it is necessary to have recourse to general stimulants which may propagate their action to that viscus, or determine a congestion which ought to have before taken place in its tissue. But those means are not always efficacious, and it is necessary to resort to substances which may act in a more special manner upon the debilitated organ.

Among the substances of this kind, physicians have placed the following: 1st, savine, rue, saffron, mint, castoreum, iron, and all other remedies that stimulate the vascular and nervous systems; 2d, aloes, black hellebore and other purgatives, which act powerfully upon the rectum, and which, by exciting a considerable degree of vascular excitement in that viscus, may operate in a similar way upon the uterus, and promote its action. Savine and rue have been considered as emmenagogues by excellence, but they only irritate the stomach, and consequently the arterial system. Savine also appears to act upon the rectum, at least it has been found to have produced that effect upon animals who had died of that remedy.(1) Rue seems to contain also a slight narcotic principle, the effect of which is always subordinate to the irritation experienced by the digestive canal.

Black hellebore, formerly so much extolled by Mead, has been successfully employed by J. Maclean in several serious cases.(2) The effects of this substance are as danger-

(1) *Orfila, Toxicologie*, t. II.

(2) *Edinburgh Med. & Surg. Journ.* July, 1823.

ous as its emmenagogue properties are uncertain. Volatile alkali, extended in water, and injected into the vagina, has recently been recommended by Dr. Lavagna, in whose hands it has succeeded fourteen times.(1) It is evident that ammonia acts in the same manner as all local stimulants, and it might be beneficial to use in its place stimulating injections or fumigations of every kind, which may alone be sufficient in many cases, or associated with internal remedies in others. The special stimulants of the uterus are never to be had recourse to before the energy of the vital functions has been increased in all other parts of the body; and even in that case, direct stimulants, such as injections into the vagina, operate with less force and danger than those which, being administered internally, are frequently ineffectual, and may occasion serious disorders in the viscera.

If stimulants have been used with the view to excite the flow of the menses, they have also been employed in order to check their immoderate discharge. But in the latter case, there is neither inertness nor languor of the uterus; on the contrary, it is over-excited, and the treatment it requires is the same as has been laid down against hemorrhage, in the second book of this work. All astringent, cold, acidulated injections may become useful, whenever rest, cold and permanent fomentations, mild drinks, and other similar remedies, prove abortive. They may, indeed, give rise to metritis, and their employment can never be sanctioned except in cases of absolute necessity. Internal stimulants must be totally rejected; MM. de Wedeking and Sauter, (2) who thought they had found in savine a sort of specific against uterine hemorrhage and other pretended inertness of the uterus, will have but few followers. The nitrate of potass, at the dose of two, three, four scruples or more, combined either with sugar, or with an emulsion of gum arabic, has been recommended by Dr. Zccari against menorrhagia; but this substance then acts as a revulsive: it strongly irritates the digestive canal, and consequently disorders the train of vital actions. Such dangerous remedies are always excluded from

(1) These facts are consigned in the thesis of Dr. Nilato; *De ammoniacæ riquidæ proprietate emmenagogâ*, Paduæ, 1825, in 8vo.

(2) *Mélanges de chirurgie étrangère*, t. I.

a judicious practice, whilst we possess others less violent and more certain in their effects.

During parturition, the uterus is sometimes thrown into a real state of perspiration and stupor, which prevents its contracting with force in order to expel its contents. Various direct stimulations to its body and neck, as well as substances gently stimulating, may then be successfully exhibited. In a great number of cases, this prostration is the result of extreme fatigue or great anxiety, which rest and tranquillity of mind will be sufficient to remove. *Secale cornutum* has been proposed against this accident. This highly poisonous remedy was known in America under the name of *pulvis parturiens*, when Oliver Prescott brought it into notice. In Lyon, and its neighbourhood, it was already used by some midwives as a popular remedy, when the pains were slow, and the labour protracted. Shortly after, M. Desgranges made it the subject of new experiments. According to the report of this physician, ergot, administered in decoction or infusion, at the dose of one scruple to a drachm, excites the action of the uterus, adds colour to the face, activity to the eyes, hardness and quickness to the pulse, and singularly promotes parturition. This remedy has already been adopted by many; but M. Clet, of Lyon, has tried it once without success. Dr. Chatard, of Baltimore, considers its stimulating property as very uncertain and weak, and he thinks it may prove injurious to the child. (1) By the advice of Professor Chaussier, Madame Lachapelle has made use of ergot in a great number of cases, but without apparent benefit. (2) This substance is, therefore, to be considered as uncertain in its effects; but it must be submitted to the test of further experiments, in order to ascertain the circumstances in which it is not indicated. It does not appear, however, to have ever produced any fatal consequences. The state of apparent death of the fœtus, after laborious or protracted labours, is of too frequent occurrence to consider it, with Dr. Chatard, as an effect of that remedy.

(1) *Exposé des travaux de la Société Royale de Médecine de Marseille, pendant l'anne 1819, Marseille, 1820, in 8vo.*

(2) *Pratique des Accouchements, ou Mémoires et observations choisies sur les points les plus importants de l'art. Paris, 1821-1825, t. III.*

SECTION III.

Of stimulants destined to lessen or suppress anormal mucous secretions of the bladder, urethra, and vagina.

A number of practitioners, dissatisfied at the slow progress of the rational treatment of blennorrhagia, in cases of some violence, have at last resorted to the use of stimulants for the cure of that complaint. Those remedies may be used in two different ways; the first consists in immediately irritating the diseased surfaces; the other in the internal exhibition of irritating substances, which operate through the agency of the sympathies, or the particles of which are supposed to be absorbed, and to extend their influence over the inflamed membranes.

Injections belong to the first order: They are generally composed of strong astringents, such as the sulphates of zinc, alum or copper, the acetate of lead, argentum nitratum, &c. Sometimes they are exclusively irritating, as the deutochloruret of mercury, caustic potassa, cologne water, honeyed or common wine, and various other preparations of the same kind. Liquid or solid opium is also frequently combined with astringent injections, without its being possible to give any reason for that combination. The English surgeons make a very common use of injections; they have several times been attempted to be introduced in France, but only adopted by a few.

Injections in the urethra with any of the above preparations at the commencement of gonorrhœa, give rise in that part to a violent irritation which is substituted to the morbid affection. But it is difficult to calculate the effects of such a perturbation; and it not unfrequently happens that the disorder thus produced is more violent, more difficult to destroy, and more dangerous for the affected parts than the natural disease. Some practitioners do not hesitate to make use of stimulating injections, even at the period of the greatest violence of the disease; but if some patients can effectually resist that treatment, others are so seriously injured by it that it must be considered highly prejudicial. Physicians ought to be better convinced of the impropriety of thus trying at random, remedies susceptible of doing great mischief, with the view merely to cure a few days quicker, slight disorders which would certain-

ly terminate happily by the efforts of the organism, or by the most simple treatment.

Astringent injections are never indicated except at the decline of urethritis, when the discharge becomes perpetual, unaccompanied with pain or local inflammation. Stimulants will then give force to the affected membrane, destroy the abundant secretion, and substitute a slight irritation of the blood-vessels to that existing in the lacunæ. Sulphates of zinc and alum are inferior to common wine, first diluted in water, and afterwards injected pure, until the total disappearance of the pain it excites at first, and of the discharge.

Among the substances which, when given internally, appear to possess a sympathetic elective action upon the mucous membrane of the urinary passages, balsamum copaibæ is the most conspicuous. For a long time this remedy was only given in small doses, and towards the decline of gonorrhœa. M. Ribes, and after him, M. Delpech have tried it at the commencement and at the period of the greatest violence of the disease, in doses which would have previously been deemed dangerous. The action of this balsam is very complicated: it consists, on the one hand, of a stimulation often intense of the digestive canal, on the other, of an evident excitement of the mucous membrane of the urethra. An increased dose of that substance gives rise to colic pains, repeated alvine evacuations, pain at the epigastrium, acceleration of the pulse, great heat, and some eruption on the skin. The emission of urine is accompanied with a sense of heat, burning, and even with blood from the irritated tissues. At the dose of two or three scruples, and even of half an ounce, or of one or two ounces a day, as prescribed by M. Ribes, it becomes an excessively perturbing remedy. It either cures or exasperates the evil; and the chance of its producing the latter effect is in proportion to the irritability of the subjects and the severity of the symptoms. It not unfrequently happens, and several physicians have observed, that it is followed with gastritis, enteritis, and inflammations in the colon, which require the use of antiphlogistics and of local blood-letting.(1) Copaiba is never to be administered without great reserve, never at the commencement, nor during the acute stage of urethritis, but after

(1) *Dict. abrégé des Scienc. Méd.* t. V. art. COPAIBU.

the disease has been partly subdued. If, as MM. Bibes and Delpech recommend, it be given in higher doses than usual at the last mentioned period, the physician is always careful to watch its effects and totally suppress it, as soon as it occasions violent disorders in the alimentary canal. Sulphuric acid, opium, wine and distilled water, are occasionally combined with the balsam as correctives, in order to promote its digestion; but these substances frequently increase its irritating property and the danger attending its exhibition.

Cubebs have the same advantage and disadvantage as balsam capaibæ. When given, either in grain or powder, in the form of pills, in the dose of two to four or six drachms a day, their effect has been highly extolled by T. Cwafort,(1) and in France by MM. Delpech and Cullerier. MM. Merat and Desmond have even gone so far as to assert that they succeed better when the inflammation is the most intense.(2) M. Broughton considers cubebs as superior to all other remedies against gonorrhœa.(3) But M. Lallemand has frequently observed that this substance often increases the violence of inflammation in the urethra, and that of all the symptoms.(4) M. Puel very properly says that cubebs can only be successfully employed in subjects whose susceptibility and sympathies are obtuse, and where no symptom of gastrointestinal irritation is present.(5)

Finally, experience shows that antiphlogistics are preferable to irritating methods in the treatment of urethritis. M. Lallemand has several times been compelled to resort to leeches to the perinæum, in order to remove the unfavourable effects of capiaba and cubebs, although their partizans proclaim that they *never* exasperate the symptoms of blennorrhagia.

Inflammation of the vagina in women has been treated in the same manner as urethritis in men. But it has been

(1) *The Edinb. Med. and Surg. Journ.* January, 1828.

(2) *Dictionnaire des Sciences Médicales*, art. POIVRIER.—*Revue Médicales*, t. XVI.

(3) *Medico-Chirurgical Transactions*, Vol. XII.

(4) *Vide* the excellent thesis of M. Plindoux: *De quelques moyens thérapeutiques employés dans le traitement de la blennorrhagie et de la syphilis*. Montpellier, 1823, in 4to.

(5) *Mémoires de Médecine Militaire*, t. XVI.

observed that stimulants possess less influence on the vagina than on the urethra in man, whether owing to the mucous membrane of the digestive canal having less intimate sympathetic connexions with that of the vagina than of the urethra, or whether the stimulating principles of capaiba and cubebs cannot act as directly upon it. Hence it is that physicians have confined themselves to the use of the irritating injections abovementioned.

Chronic cystitis, whether it gives rise to an abundant flow of mucous, or to shirrhous tumefaction of the prostate gland, ulcerations, fungosities or other affections of the bladder, has not generally been treated with stimulants; and this circumstance may perhaps account for its having frequently baffled all the effects of medicine. Decoctions of the root of *pareira brava*, and of *uva ursi*, which possess a stimulating and gently diuretic property; balsam of Tolu, and other like substances, have almost generally proved ineffectual against that disease. We are bound to acknowledge that irritants are for the most part unavailing in chronic inflammations. Turpentine, at the dose of one scruple to one or two ounces, has been considered a specific for the cure of the diseases under consideration; it has occasionally been successful, but merely on lymphatic and relaxed subjects, in whom the disease appeared to consist rather in an increased flow of mucus than in a violent sanguineous inflammation of the parietes of the bladder.

Injections with the waters of Barèges and of Balaruc, those which contain some portion of acetate of lead, sulphate of zinc and the like, are seldom useful. The greatest prudence is required in order to proportion them to the degree of sensibility of the subject, and obviate their injurious consequences and the renewal of the acute stage of the disease.

Permanent injections, as operated by means of the double steam catheter, are highly stimulant. Let a foreign liquid, however mild and tepid, or mucilaginous, constantly wash the internal surface of the bladder, the mucous membrane cannot fail to be highly stimulated, and increased in its vital actions and vascular excitement. If, instead of pure water or emollient decoctions, any of the above mentioned preparations be made use of, they will evidently increase the excitement which the liquid itself occasions. Permanent injections, therefore, are admissible only in subjects whose vesical catarrh is free from local sensibility, fever and sanguine-

ous irritation of the bladder. But in those cases they are the more active as the liquid, being constantly applied to the surface of the viscus, loses no part of its stimulating property by its mixture with the mucosity, which being, along with the urine, successively propelled out as soon as they are secreted, leave the mucous membrane entirely exposed to the exclusive contact of other modifying agents. The consequence of this order of things may be a favourable change in the condition of the organ, and a total cessation of the discharge. Mr. Cloquet, the inventor of double stream catheters, has several times succeeded where all other measures had failed.

SECTION IV.

Of the Excitations of the organs secreting the Urine.

Chronic nephritis and gravel are generally treated by means of stimulants acting upon the urinary passages, especially when they are unaccompanied with violent pain, fever or anxiety. It is a singular prejudice which induces physicians to stimulate parts already over-excited, and thus accelerate the return of paroxysms which it is so important to prevent.

Whenever heat and obstructions exist in the kidneys, and where the urine is thick and loaded, stimulants of every kind should be proscribed. When irritation and phlogosis of the urinary passages have been completely eradicated, liquors containing alkaline and earthy carbonates, or even pure alkali, properly diluted, may prove serviceable in those numerous cases where the sediments and calculi contain great proportions of uric acid. Acids are then prohibited. M. Laugier relates the case of a man in whom calculi of oxalate of lime, arising no doubt from the habitual use of sorrel, ceased to be reproduced after this plant had been discontinued. In another case, Béclard has seen calculi rapidly forming in consequence of eating raw fruits. Acids, and especially carbonic acid, have succeeded in those rare cases of calculi composed of the phosphate of lime.

It is evident that the only effect of these medications consists in giving to the blood such chemical qualities, that the kidneys cannot derive from it the materials capable of giving rise to the formation of fresh calculi. But in order that they may prove successful, there must be added a severe regimen,

local blood-letting, continued exercise, and copious aqueous drinks, capable of eradicating every trace of irritation in the secretory organs.

Active diuretics, such as the decoctions of uva ursi, pareira brava, saxifraga, cherry stalks, &c. are contra-indicated.—The mineral waters of Vichy, Bourbon L'Archambault, Spa, Saint-Gondon, Luxeuil, Contrexeville, Bussang, and other places, are not, in general, very serviceable. All the stimulating preparations designated under the imposing title of *anti-nephritics*, are injurious. During the operation of such remedies, calculous patients are delighted in observing their urine become muddy and loaded with gravellous particles; they are unaware of the circumstance that the formation of those foreign bodies, the expulsion of which is the cause of their joy, is to be ascribed exclusively to the remedy, and that, sooner or later, a complete disorganization of the kidneys will be the result of its exhibition, if too long persisted in.

The same empiricism, the same disregard of all principles of a sound practice, seem, for the most part, to have prompted physicians to make use of stimulants in diabetes. What opinion can we entertain of those men who, at the least indication, will then prescribe at hazard camphor, musk, aromatics, bark, ammonia, the tincture of coral, cachoe, feruginous waters, Druver's powder, and even the tincture of cantharides. Stimulants, however, have not constantly proved injurious; some cases of success by a regimen exclusively animal, are recorded, first by Rollo, afterwards by Nicholas and Guendeville, and latterly by MM. Dupuytren and Thénard. But this treatment, by which it is intended to regenerate the composition of the blood, and supply it with elements of urine of a better condition, is not to be resorted to until the nephritis causing diabetes has been properly managed and destroyed. Solid opium appears to have afforded some relief by lessening the quantity of the urine, and its use does not seem to be incompatible of being associated with other medicines. It is sometimes interesting to observe the speedy change resulting in the urine of diabetic patients from the use of animal substances. An albuminous matter is at first discovered, daily increasing in quantity, and being the unequivocal expression of the success of the treatment. This matter afterwards gradually disappears, in proportion as the kidneys begin to secrete urea, uric, and per-

haps also acetous acids. The urine then presents the same characters as in health, and a little longer continuance of the same means will be sufficient to prevent the return of the disease.(1)

The absence of urea in the urine of diabetic patients, has given birth to the idea of prescribing that substance as a cure for the disease. Some experiments of M. Legalas had shown that it can be safely administered in sufficiently large doses;(2) but on its being given to a woman labouring under that complaint, it materially increased the secretion of the urine, without any sensible improvement in the morbid phenomena.(3)

Dr. Marsh has proposed against diabetes large doses of opium, combined with warm bath and muscular exercise, carried to such a degree as to produce perspiration. One patient treated in this way by M. W. Carter, was quickly cured, after alkali, tonics, sudorifics, and several other methods, had been tried in vain. Dr. Marsh's plan is altogether revulsive; its principal effects are, first, to change the direction of nervous action; and then, to increase the vitality of the muscles and integuments. It might, perhaps, be advantageously combined with the regimen that forms the basis of the treatment generally adopted in France.

It must, nevertheless, be remembered that diabetes consists in an irritation of the kidneys, and that stimulants are never applicable, except when that irritation is not intense, or after it has been in a great measure subdued by antiphlogistics.

(1) Mémoire de MM. Dupuytren et Thénard, sur le diabetes sucré. *Bulletin de la Faculté de Médecine de Paris*, année 1806.

(2) *Journal de Physiologie*, t. II. p. 357.

(3) *Archives générales Médecine*, t. VI. p. 625.

CHAPTER V.

OF STIMULATING MEDICATIONS APPLIED TO THE ORGANS
OF RESPIRATION.

SECTION I.

General considerations.

Pulmonary inflammations are accompanied, either with dryness and aridity of the affected surfaces, or with a superabundant and almost colliquative secretion of puiform or purulent mucous fluids. In the first place, the indication is made to consist in promoting expectoration, in the second, physicians endeavour to lessen or totally check the unfavourable excretion, all by means of stimulants. It would be impossible to trace without disgust the theories of most of them concerning the operation of those remedies. In some cases, the viscous matter must be acted upon by incisives, and dissolvents; in others the blood requires to be purified, and lymphatic engorgements to be dissolved; in all, the chest is represented as an inert receptacle, the parieties and cavity of which must be either washed or emptied.

There are two channels through which stimulants can be directed to the organs of respiration; the one is the ærial tube itself, the other the gastro-intestinal cavity. The first is more direct, but it can only be made subservient to fugitive and transient medications, which cannot act with energy upon the diseased parts. For this reason, it has been generally neglected, although several observations seem to indicate that some good effects might be derived from it.

The stomach, therefore, has been most generally adopted for that purpose. It must be kept in mind that the stimulants of the respiratory organs, when taken into the stomach, act first upon the internal membrane of that viscus, in which they produce an effect similar to that which are to operate upon the mucous membrane of the lungs. Hence, the greater number of expectorants increase the secretion of mucosities in the stomach, and, in larger doses, produce nausea, hiccup, and vomiting. Their effect is then propagated from one organ to the other, through the medium of the sympathies. But this is not the only mechanism of the operation of those sti-

mulants: their particles being absorbed seem to penetrate also to the lungs, and act immediately upon them; for, when put in contact with denuded skin, or the internal surface of the rectum, they act upon the chest, in the same manner as if taken through the mouth.

When pectoral stimulants, taken internally, produce too much excitement in the stomach, their effect upon the lungs becomes null; their action is merely revulsive, and gives rise to vomiting, colic pains, or even copious stools, and considerable diarrhœa. The respiratory organs are not thereby excited, but, on the contrary, freed from a part of their irritation. It is in this manner that sympathetic and revulsive stimulants have the most immediate connexion with, and are readily converted into one another.

The stimulants under consideration must, therefore, be given in small doses at first, in order that they may be subsequently increased with safety, whilst carefully watching their action, and maintaining it at the proper degree. As soon as the stomach becomes irritated, it is necessary to suspend the exhibition of stimulants, and allay that irritation until its entire disappearance, when their use may be again resorted to, but with still greater care than before.

SECTION II.

Of the mode of increasing the bronchial secretions.

The general denomination of expectorants under which materia medica has confounded the greater number of stimulants acting upon the organs of respiration, is, in every respect, incorrect. Expectoration is but a secondary and complicated phenomenon, which various medicinal agents can promote by producing different impressions upon the mucous membrane of the bronchiæ. Hence that name is given to any substance that will either increase or diminish the expectoration, provided it be thrown up with greater facility and with relief to the patient.

In order to obviate this confusion in the language, it is proper to divide pectoral stimulants into two great classes, according as they really increase or diminish the mucous secretion of the bronchiæ. A third division will comprise those which, according to some practitioners, are destined to dissolve the lymphatic engorgements of the pulmonary tissue.

It has been said in the second division of this work that true expectorants are those which, in allaying the irritation of the bronchiæ, increase the quantity and promote the good quality of their mucous secretion. The others should never be used without great reserve; they do not promote so much the *expulsion* of the matter, as they favour its formation by stimulating the mucous membrane.

The substances belonging to this first category, that are the most generally in use, are scilla, Virginian polygala, sage, camphor, veronica, iris Florentiæ, arum, (1) ipecacuanha, the syrups of garlick, of colicum, of erysinum, and capillaire. All mucilaginous and gently aromatic drinks, given warm and in large quantities, produce the same success. Other substances are also procured from organic bodies, but whose properties are still doubtful; these are sulphur, hydro-sulphurets of oxyde of antimony, both yellow and brown, sulphurous mineral waters, the acetates of potass, of antimony, and of soda, &c.

The remedies destined to promote or increase the quantity of mucous secretion in the bronchiæ, have been specially recommended: 1st, at the invasion of acute pulmonary catarrhs; 2d, during the first and second periods of croup, and during the course of hooping-cough; 3d, in chronic bronchitis and pneumonia, constituting almost every case of phthisis; 4th, lastly, in subjects affected with dry and painful asthma.

All the substances just mentioned are prohibited at the commencement of bronchial and pulmonary inflammations. Some persons have, it is true, advised warm decoctions of maidenhair, hyssop or other stimulating plants, with a view to promote a secretory process in the mucous membrane of the pulmonary organs, and thus cause the abortion of the phlegmasia with which it is threatened; but this perturbation is never proper except in lymphatic persons, and in the mildest form of the disease. In the greater number of cases, it exasperates the symptoms, and converts bronchitis into a more or less violent pneumonia. Prudence requires that they should be totally prohibited.

(1) These two last substances must be proscribed, owing to their inconstant effects, and to the acrid and often venomous properties they frequently contain. (*Note of the author.*)

The same prohibition should extend to those irritants that have been proposed in the commencement of croup. Dr. Hoffman has proposed to substitute, in the place of tartar emetic and of ipecacuanha, sulphate of copper, at the dose of a quarter or half a grain every two hours with some sugar. He says that the hoarseness of the voice will soon disappear, and the character of the disease be generally improved, under this treatment. M. Hoffman frequently adds digitalis to the sulphate of copper, and in severe cases he resorts to bleeding. But when the disease is mild, the sulphate is alone adequate for its cure. From this observation, it appears to possess the property of suddenly checking the secretion of mucosities in the bronchiæ, to such a degree that the symptoms of croup will be removed as by enchantment.(1) Experience has not confirmed that sort of specificity; the sulphate of copper causes a great irritation in the stomach, and, in that respect, it may act as a dangerous revulsive. The same observation applies to the sulphuret of copper, administered by Dr. Frisch, of Nyborg, either as an emetic (2 to 4 grains) or an alterative ($\frac{1}{4}$ to $\frac{1}{2}$ grain, in gum water).(2) All these remedies can never take the place of antiphlogistics and of local bleeding.

But when after a proper treatment of the irritation of the larynx and trachea, some dense mucus or membraniform concretions accumulate in the organs and threaten suffocation, the necessity of their evacuation and expulsion cannot be denied. This is obtained by means of the hairs of a quill presented to the pharynx and to the uvula; and this process is much more efficacious than most of the internal stimulants made use of in those circumstances. The expansive action of the throat and trachea is thereby excited without irritating the stomach or the inflamed parts; hence this process is less injurious than emetics.

Nevertheless, tartar emetic, at the dose of one eighth of a grain, or the syrup of ipecacuanha taken by tea-spoonfuls, until nausea and vomiting are brought on, is frequently employed. It is sometimes necessary to carry the fingers into the pharynx in order to extract the fragments of false membranes or of mucosities which are thrown up with difficulty. Emetics

(1) *Hufeland, Journal*, February 1821.

(2) *Same Journal*, December, 1823.

promote the secretion of a liquid and viscous mucosity which carries away the morbid concretions; but this additional serosity is merely the consequence of the increased action they produce in the parts already inflamed. The circumstances which the partisans of emetics consider as justifying their conduct, are the absence in children of a disposition to spit, the quantity and tenacity of the products of the laryngo-bracheal irritation, and the imminent danger to which the patient is exposed. Emetics, it is true, are sometimes beneficial in lymphatic subjects, who possess an evident disposition to mucous secretions, and whose aerial tube is obstructed, and affected with a difficult and continued rattling. They have also proved serviceable in infants who, having arrived at the termination of the paroxysm, appear on the verge of suffocation from the presence of the mucosities lodged in the throat. But the first step is always to subdue the irritation by means of antiphlogistics and local blood-letting: stimulants may afterwards be used merely with the view to promote the expulsion of the fluids extravasated in the trachea; but they are totally ineffectual against the irritation of that organ, and it must be remembered that they irritate the stomach, and readily become injurious, in as much as they add another inflammation to that already existing. It is even said that some observations made during the prevalence of croup as an epidemic, seem to have proved that tartar emetic, administered at the commencement of the disease, has increased the laryngo-bracheal irritation, and promoted instead of checking the formation of the false membrane.

The excitants of the bronchial secretions, such as sulphur, or the sulphuret of potass, in the form of pastilles or syrup, and various other preparations of the same kind, which are so frequently and so abusively prescribed in bronchitis of infants, whether there be a tendency to croup, or whether the disease be called whooping-cough, are generally injurious. They are to be entirely prohibited, because they increase the excitement of the parts, and often give rise to gastritis, without producing salutary evacuations. Some constitutions possessing an evident disposition to a copious secretion of mucus, whose habit is not very irritable, and in whom there exists a well marked, though imperfect tendency to expectoration, are the only exception to the general rule that excludes the use of such dangerous and uncertain remedies, provided they have previously been submitted to evacuations of blood, and,

to a diluent, mild regimen. The same reflexions will apply to mild or severe bronchitis in adults.

It is impossible to consider, with Mr. Webster, whooping-cough only as an affection of the brain: but the disease is evidently accompanied, in a great number of cases, with a secondary irritation of the brain. In this respect, leeches to the temples or behind the ears, which that physician recommends, may prove highly useful. It is, however, improper to add to this treatment calomel, ipecacuanha, rhubarb, digitalis, scilla, and antimony; for the effects of those substances mutually destroy each other, an inconvenience always to be avoided in practice. Mr. Webster, it is true, considers the relief afforded to the brain by blood-letting as the fundamental part of the treatment; but why should he render this indication difficult to be fulfilled, by combining stimulants that act upon the digestive and respiratory organs with the use of antiphlogistics? (1)

It would be almost absurd to prescribe expectorants in cases of phthisis resulting from chronic pleurisy, from tubercles that are yet entire, (2) or from indurations or schirrous degenerescence of the lungs. The excitement occasioned by those substances would never fail to exasperate the disease, without any useful result; and should the mucous membrane of the bronchiæ have hitherto remained unaffected, those stimulants, acting upon its secretions, would inevitably inflame it, and accelerate death.

When violent pneumonia and bronchitis show a tendency to the chronic stage, stimulants are generally resorted to,

(1) *London Medical and Physical Journal*, December, 1822.

(2) These products of inflammation, on which we daily acquire more accurate ideas, have not always been considered incurable. Cullen, among others, hoped that some remedy would eventually be discovered for their cure. He believes they can exist a long time without occasioning any disorder. I am even inclined to think, says he, that nature alone operates the resolution of tubercles that are entirely formed; but this never takes place after the inflammatory process has commenced, and the indication consists in preventing that inflammation. Blood-letting, antiphlogistics, a severe diet, entire abstinence of animal food, and a diet almost exclusively composed of vegetables—such are the means recommended by Cullen for their cure. This shows that the truth was known before us. The theoretical and practical rules laid down by the Scotch physicians have been adopted by M. Broussais. Shortly after, Laennec converted into a sort of certainty this possibility of curing tubercles, which had been but imperfectly understood by his predecessors.

but also without benefit. It is then intended to *empty* the chest, and promote the *expulsion* of the matter that obstructs the viscera; the physicians that adopt this practice do not perceive that by stimulating the irritated parts, the secretions are rendered more copious, and that by renewing the matter as quick as it is expectorated, the disease is protracted and aggravated, instead of being cured. The stimulants that increase the pulmonary secretions, can never be employed except after the almost entire cessation of phlogosis in the bronchiæ and lungs, where the matter supplied by the irritated tissues is expectorated with difficulty, or where the vascular erethysim having subsided, the mucous secretion does not become copious with sufficient rapidity. In lymphatic subjects, whose fibres are relaxed, and not very irritable, and whose chest is habitually loaded with mucosities, active expectorants may be administered; but they would increase the cough, and almost infallibly bring on disorganization of the diseased parts, when the subject is dry, irritable, and the lungs secreting but a small proportion of liquids.

Out of the best indicated expectorants, emetics in nauseating doses must be rejected, owing to their facility of giving rise to gastritis. Ammonia, as indicated by Cullen, is too powerful a substance, and is too prompt in rousing the circulation, to be prescribed without danger. Kermes mineral possesses properties which it is generally impossible to foresee with accuracy, and deserves no confidence. Vegetable substances, such as polygala, scilla, the syrup of erysinum, &c. will generally be sufficient to fill the indications. Sulphur, the sulphuret of polass, and hydro sulphurous waters, have often been serviceable, and have justified the credit they now enjoy.

The inspiration of aqueous vapours, saturated with vinegar, ether, or aromatic principles, have often been advantageously substituted for expectorants exhibited internally.

These remedies, by leaving the stomach free, are less injurious than those which are first to operate upon that viscus; but they are also to be prescribed merely at that period of the disease where the acute stage has subsided, and in subjects whose general susceptibility as well as pulmonary irritability are not much developed.

The mucous membrane of the aerial passages may become, as well as nearly all similar organs, a sort of emunctory, through which the constitution throws out of the system the surplus

materials of nutrition. In lymphatic, corpulent subjects, who lead a sedentary and inactive life, and who have arrived at a certain age, it is not uncommon to observe copious secretions of mucosities in the chest, without inflammation in the bronchiæ, or any symptom of disorganization in the lungs. I have met with several cases of this disease in men, which, I believe, is too generally neglected. I found the patients under the use of pastilles of sulphur or of ipecacuanha, of oxymell scillæ, or other substances destined to keep up a secretion, the suppression of which appeared to them dangerous. But in such cases stimulants are at least useless: they have a tendency to increase the evacuations from the lungs, change into a real inflammation the mere excitement of the secretory process in the bronchiæ, and finally give rise to serious disorders in the lungs. A severe regimen, continued exercise, low diet, revulsives to the skin, will be necessary to give a new direction to vital action, and relieve the lungs from the habitual obstruction existing within the chest.

Every paroxysm of asthma generally terminates in a more or less abundant secretion of more or less limpid, viscous and thick mucosities. It has often been attempted to bring on that evacuation at the commencement of the paroxysm, in order to cause its abortion; but the remedies employed for that purpose generally prove inefficacious, and determine, after a certain length of time, inflammation in the stomach, which it is difficult to cure; they should therefore be resorted to only towards the end of the paroxysm, during which some gently stimulating infusions, such as those of linden, orange flowers, &c. are alone proper. Ipecacuanha, in pastilles or syrup, may afterwards become useful. I have several times made use of them, and observed that under their influence, expectoration is pretty soon established, at the same time that the paroxysms diminish in violence. But, in order to obtain these results, the patient should not be of an irritable habit, that his stomach be sound, and his mucous membranes copiously supplied with secretion.

Such are the principal cases in which stimulants that promote bronchial secretions may become serviceable in practice. Let us now examine the mode of acting, and the circumstances which sanction the employment of substances of a contrary effect.

SECTION III.

Of the means calculated to diminish the pulmonary secretion.

Balsamic and resinous principles, as well as mucilaginous substances, combined with bitters and aromatics, are frequently employed in medicine to promote expectoration. Ivy, horehound, and several other labiated plants; Iceland moss, turpentine, tar, the balsams of Tolu, of la Mecque, of Copahu, and of Peru; benzoin, benzoic acid, myrrh, catechu, the resinous extracts of guaiacum and of anise, lime water, or the decoction of bark, combined with some mucilage: such are the remedies employed for the same purpose. These substances, like those mentioned in the preceding section, produce first an excitement in the stomach, and afterwards through sympathy or absorption of their particles, the mucous membrane of the bronchiæ; but they differ with them in this respect, that far from increasing the bronchial secretion, they diminish its quality and promote its expulsion. This last effect is only secondary, and is less worthy of attention than the impression received by the mucous membrane.

The place which those substances should occupy in therapeutics, must be separate from that of expectorants properly so called. The substances which tend to diminish or totally suppress the mucous secretions of the urinary passage and genital organs, cannot increase that of the internal coat of the lungs. It would be leading the young practitioner into error to continue to confound them with scilla and kermes, for instance, which promote the bronchial secretions. Should it be necessary to restore that evacuation after it has been suspended, it would not be immaterial to prescribe polygala, or the balsam of Tolu: from this we may conclude in favour of the distinction I wish to establish between substances included under the same denomination. Clinical observation, directed towards the study of the effect produced by various stimulants upon the vitality of the ærial tube, will contribute to give greater accuracy to this investigation, and perhaps bring from one into the other class, or entirely reject, substances that have been hitherto imperfectly understood, or nearly null in their effect.

There is no remedy that has accelerated the death of a greater number of phthysical patients, than those commonly called *balsamic*. All balsams contain an acrid and stimulat-

ing substance: when taken internally, they create a sense of acrimony and heat in the throat, stomach, and intestines; under their influence, the pulse rises, and the skin becomes dry and hot. By increasing the circulation in the lungs, these substances accelerate their disorganization in proportion to their degree of activity, and to the vigour of the patient. For this reason, they ought to be totally banished from the treatment of phthisis; and, in this disease, we are to consider as real poisons all compositions containing balsamic substances, such as the balsam of sulphur with aniseed, Morton's pills, the pills of cynoglosse, &c. If these remedies have sometimes succeeded, it was only in catarrhal affections which were confounded with phthisis. These reflections, which seem to have been first written by a modern physiological physician, belong to Bosquillon, or perhaps to Cullen, whose doctrine the former had imbibed in his notes to his translation of the Scotch physician. M. Broussais very properly adds that balsams stimulate, and even inflame the stomach, if that organ be already disposed to irritation, accelerate the appearance of diarrhæa, increase the violence of the hectic fever, and multiply the causes of destruction by which the unfortunate victims of phthisis are surrounded.⁽¹⁾ There is even more than a perfect analogy in the precepts established by those physicians; and the prohibition of balsams and of their compounds, is still more absolute in Cullen and Bosquillon, than in M. Broussais.

Although specially prescribed, when a copious, fetid and sanious expectoration, mixed with streaks of blood, announce the existence of some ulceration in the lungs, balsamic substances possess none of the vulnerary and cicatrizing properties attributed to them by modern physicians. They might not be, however, totally useless in habits whose mucous secretions are abundant, in whom the lungs are easily engaged, in consequence of bronchitis which tends towards the chronic stage. The subjects I have before alluded to, whose mucous membrane of the lungs is affected with a copious secretion and habitual catarrh, frequently make use of the balsam of Tolu, and with some advantage, when the stomach is not very irritable, and the chest free from parenchymatous inflammation. But it is necessary, in all cases, to watch their

(1) Histoire des phlegmasies chroniques, t. II. 348.

effects, and suppress them altogether, as soon as the epigastric sensibility, thirst, redness of the tip of the tongue, quickness of the pulse, the heat of skin and ardour in the chest, announce that they are injurious, and excite too much irritation in the principal viscera.

It is in general necessary to avoid prescribing balsamic substances for a long space of time; for they would soon loose the efficacy, and require indefinite large doses, to the detriment of the digestive and respiratory organs, whilst by occasionally suspending their employment, the organs are allowed to rest, the excitement they had experienced disappears, and they recover their former susceptibility, without being so liable to contract alterations of structure which are generally mortal.

Balsamic substances have been tried to be introduced into the lungs in the form of vapour. Tar fumigations, recommended in Russia and England by Sir A. Crichton, (1) have already fallen into a deserved discredit. Dr. F. Forbes has shown that they operate unfavourably in all cases of confirmed phthisis, and that they are admissible only in some chronic catarrhs. (2) The same remark will apply to the vapours of turpentine, to all balsams submitted to the action of heat, and even to benzoic acid produced by the combustion of benzoin. These substances, thus administered, may become more injurious than when taken through the mouth, but they also operate with less force; their use can never be sanctioned, except in some lymphatic habits, possessing little irritability, and in chronic bronchitis, accompanied with copious expectoration, but without any disorganizing inflammation in the lungs.

Experience has never confirmed the good effects expected to be derived from the use of oxygen and other stimulating gases for the cure of consumption; facts, on the contrary, show that they are frequently injurious.

When it is intended to diminish expectoration in phthisis, mucilaginous, combined with bitter substances, constitute very precious remedies. They are, it is true, unavailing in profound disorganization of the parenchyma of the lungs; but, in less serious cases, they rouse the strength, improve the

(1) *London Medical Repository*, February, 1818.

(2) *London Medical and Physical Journal*, October, 1822.

condition of the expectoration, diminish the frequency of the cough, allay the irritability and hectic fever. Such are the properties which M. Regnault has discovered in Iceland moss, and described with great accuracy. The decoction of bark, with the addition of a jelly made of hartshorn or isinglass, might well be substituted for that plant. Should its bitter and astringent principles not agree with the stomach, it would be proper to extract the jelly it contains, and reduce it to a state of mucilage of a certain consistency and mildness. Lichens, as well as all bitter combined with gelatinous substances, have often produced the most unexpected beneficial results in protracted catarrhs, where the subject is of a lymphatic and not very irritable habit. They are much superior to balsams, and less warm, acrid and irritating for the stomach and vascular system. Whenever irritations exist in the abdomen, they are not to be made use of, as Sir A. Crichton very properly observes, especially if the pulse be frequent, the cough difficult and dry, the expectoration rare, and the ardour in the chest considerable.

Notwithstanding what has been said in favour of the conserve of roses by Forestus, Valériola, and Rivière, in cases of phthisis, it must never be given except when the habit is not very irritable, the fibres relaxed, and the expectoration too copious.

The acetate of lead has been prescribed against the mucous secretions of the lungs, and especially against the colliquative sweats of phthysical patients. This preparation, so much extolled by Hundertmark, has recently been employed with a sort of success by M. Fouquier. (1) He gives it solid, in pills of one to eight, ten, or twelve grains. M. Barbier thinks it can even be carried farther. This remedy is nevertheless essentially revulsive; it has a tendency to irritate the gastrointestinal surface, and thereby diminish the pulmonary and cutaneous excretions. Hence it is scarcely worth noticing here; suffice it to say that it is dangerous, and that the advantages, which are still problematical, sought to be obtained from it, can by no means compensate for the serious accidents to which it may give rise.

(1) *Considérations générales sur le mode d'administration des médicamens, et observations sur l'usage interne de l'acétate de plomb*; par M. Ratier, Paris, 1820, in 8 vo.

The use of digitalis, of narcotics, and especially of the hydro-cyanic acid, which has still a great number of partisans for the cure of phthisis, is to be ranked among the stimulating medications of the nervous and vascular systems. Their effects will be noticed in another place.

SECTION IV.

Of the means calculated to produce the absorption of lymphatic indurations of the lungs.

Attempts have often been made at producing the resolution of lymphatic engorgements, or rather of the alterations occurring in the tissue of the lungs in consequence of chronic inflammation. It would be difficult to enumerate all the measures, generally impirical, which routine and quackery have consecrated against one of the most common and fatal diseases to which our species is liable; emetics every two days; balsams combined with aromatics; purgatives more or less active, have all been tried. These medications are revulsive, and cannot act upon the lungs but by irritating the internal surface of the stomach and intestines.

The trial made in the United States by the illustrious practitioner B. Rush, of mercury in consumption, is still carried on in that country. Salivation, in the eyes of the physicians of the United States, is specially serviceable against indurations of the lungs. Dr. Little, of Mercersburg, has published very interesting results, obtained from the direct inspiration of mercurial vapours sufficiently concentrated as to being on salivation in twenty, twenty-four, or forty-eight hours at the utmost. This American physician never fails to subdue at first the inflammatory diathesis, whenever it exists, and afterwards to prescribe appropriate tonics along with the mercurial vapours.(1) This method has not been, and does not deserve to be employed in Europe. Mercury, under whatever shape it is administered, excites the vascular system, and disorders all the functions; and it is readily conceived that this blind conduct will be productive of more mischief than good. The deuto-chloruret of mercury, however, in small doses, combined with mucilage, has proved successful

(1) *Bulletin de la Faculté de Médecine*, 1809, page 93.

in persons who were reputed to have been imperfectly cured of syphilis; but among the patients subjected to this treatment, even in the most favourable cases, many have not been benefited by it; in others, it has accelerated the disorganization of the lungs; and those which have been more or less completely cured by that method, were only affected with simple chronic catarrhs, and would, in all probability, have been equally relieved by regimen, rest, demulcents and revulsions. This fact is the more probable, as it is difficult to place confidence in the therapeutical effects of one eighth or sixth part of a grain of corrosive sublimate, thrown into a cup of a solution of gum, in which it does not fail to be decomposed, and converted into calomel.

The strongest stimulants, although generally prohibited whenever they extend their action to the inflamed respiratory organs, may, as we have already said, be employed without danger in some constitutions. But the medication which some physicians have advised, and which consists in creating an artificial fever, with the view to promote the resolution of tubercles and the disappearance of lymphatic indurations, is to be totally prohibited. It is very easy to produce fever in exhausted subjects, where the stomach and nervous system are very irritable and excitable. This is brought on by means of bitters, acid and irritating substances, known under the pompous name of antiscorbutics, of preparations of antimony and sulphur; but, by accelerating the circulation, it is impossible not to increase the pulmonary inflammation, by occasioning a greater quantity of blood to pass to the affected tissues. It is not the resolution of tubercles or of indurations which is thereby produced, but the suppuration and disorganization of both. M. Broussais very judiciously observes that some individuals may resist for a length of time the influence of this aggravation of the evil; but the greater number receive their death blow at the very first dose of such remedies. Again, stimulants, even the best indicated and apparently the most beneficial, in cases of phthisis, must be abandoned the moment that the pulse rises, and fever brought on or increased. This rule is without exception; neither the apparent debility of the subject, nor lividity of the skin, flaccidity of the muscles, small pulse, nor the state of vacuity of the arteries, can authorise the use of tonics, whenever they produce the effects abovementioned. By a deviation from this course of conduct, the physician will have to repent for having multi-

plied the sufferings of the patient, and accelerated a dissolution which might have been retarded by a more rational and methodical treatment.

CHAPTER VI.

OF DIRECT STIMULATING MEDICATIONS APPLIED TO THE DIGESTIVE CANAL.

SECTION I.

General considerations.

If it be true that few organs are more frequently affected with irritation than the digestive canal, it is equally certain that none are exposed to the action of as great a number of dietetic and medicinal stimulants. When we consider how the stomach and intestines are incessantly tormented by all sorts of agents, both in health and disease, it is difficult to conceive that they can resist so many causes of organization. They are the habitual depositories of stimulants destined to modify other parts; and during their disorders, the loss of appetite, a profound sense of debility, repugnance to the exercise of volition or its absolute impossibility, are as many circumstances which seem to invite the physician to prescribe stimulating substances. Hence they have been given under every shape, and one of the greatest benefits of the medical doctrine generally adopted at the present day, is to have pointed out the danger attending their exhibition in the majority of cases.

The stimulating medications made use of in the diseases of the alimentary canal, may be classed as follows: 1st, evacnants, 2d, tonics and stimulants, 3d, astringents, 4th, counterpoisons and vermifuges.

SECTION II.

Of the means of promoting secretions and exhalations in the digestive viscera.

The stimulants that excite the secretions and exhalations of the digestive canal, never operate without, at the same time, promoting contractions, to a certain degree, of the stomach or intestines. Hence the name of emetic or purgative which has been given them. But in the medication they produce, muscular action, or the expulsion of the remedy, of the matter accumulated in the gastro-intestinal cavity, and of the liquids instantaneously thrown out by the exhalants, is of a lesser importance than the impression immediately received by the stimulated membranes. From this impression, we are enabled to determine the advantages or the inconvenience attending the use of evacuants, and it is also upon that impression that the physiological physician is to fix his special attention.

Of Emetics.—When the stomach is irritated or overloaded with indigestible alimentary substances, the mildest liquids, taken warm, and in sufficiently large quantities, will alone induce vomiting. Water, milk, the decoctions of mucilaginous plants, are also particularly fitted for that purpose, as also titillating the uvula and pharynx with the hairs of a quill, or with the fingers.

Among the irritating emetics, antimonium tartarizatum and ipecacuanha are the most prominent. The root of this last mentioned plant contains a particular substance, of the nature of alkalis, in which its emetic property essentially resides, and which MM. Magendie and Pelletier have called *émétine*. This substance may be substituted for ipecacuanha, in subjects who feel a particular repugnance for that remedy. Emetine, coloured or impure, is given in the dose of three to four grains for adults; that which is white, or in a pure state, has the same effect at the dose of one grain. By dissolving it in two ounces of a gentle infusion of orange flowers, with the addition of half an ounce of syrup, a vomitive potion is obtained which is not very disagreeable, and is to be administered in the dose of one spoonful every quarter of an hour, until vomiting comes on.(1)

(1) Emetine serves also for making pastilles or a syrup which is capable of being substituted for the syrup and pastilles of ipecacuanha. Thirty.

Various substances have been proposed, but to no effect, as substitutes for tartar emetic and ipecacuanha. The leaves of *asarum europeum*, extolled by Linnæus and by M. Loiseleur Deslongchamps; the roots of several species of violet, in which M. Boullay has discovered emetine, which he, therefore calls violine; the powdered roots of some kinds of euphorbium, employed by MM. Coste and Villemet, evidently possess a considerable emetic property; but their effects are neither so accurately known, nor perhaps so constant, as to merit the preference over other emetics. The same remark applies to kermes mineral, emetic wine, and to a variety of other preparations now fallen into disrepute. When pharmacology supplies us with more certain remedies, free from inconvenience and danger, it is unnecessary to have recourse to others of a doubtful character.

The operation of emetics cannot be too carefully analysed. Their first effect is to irritate the mucous membrane of the stomach. Under their influence, a slight and fugitive congestion takes place in the internal coat when the parts are healthy; but this congestion becomes of a certain duration and of an inflammatory nature when the stomach is already irritated, or the remedy given in too large doses. This phenomenon is soon accompanied with a copious secretion of thick and viscous mucosities, and with an exhalation of fluid from the lungs, which mixes with the medicine, and which Darwin has seen amounting, in some circumstances, to four or five tumblerfuls. The duodenum always participates in the irritation of the stomach, and the excitement of its internal coat is soon communicated to the liver, as well as to the pancreas, the secretory process of which is thereby immediately increased. The first intestine then contains a more or less yellow and deep coloured bile, united with the pancreatic juice, which are carried by the antiperistaltic motion of the bowels into the stomach.

Whilst these phenomena are taking place, the patient feels a disagreeable sense of uneasiness and obstruction in the epigastric region. The nervous system is sympathetically ex-

two grains of coloured emetine, in four ounces of sugar, are made into pills of nine grains each, one of which is to be given every hour. The syrup contains sixteen grains of emetine in every pound. The dose of the pure emetine must never exceed a quarter of that which is coloured. (*Magendie's Formulary*, translated by Dr. Baxter, of New York.) (*Note of the author.*)

cited ; hiccup, nausea, and retchings follow in order ; a viscous sweat flows from the whole surface of the skin, and especially from the face, until vomiting comes on and expels the contents of the stomach. This sort of crisis brings on speedy relief, but the same symptoms soon return for a number of times, until the impression produced by the emetic is totally exhausted.

Next follow great fatigue and want of rest, sometimes an irresistible tendency to sleep. These phenomena, to which are to be added a gentle perspiration, or a copious secretion of urine, as well as a state of relief and ease, prove the violence of the efforts caused by the remedy, and the extent of the disorders it has occasioned in the vital actions. Every part of the body shares the convulsions of vomiting. Independent of the nervous action, which is sympathetically disturbed, the abdominal viscera and the lungs are also powerfully shaken. During every effort, the blood not being able to arrive freely to the heart, stops in the large veins, flushes the face, engorges the brain, and distends its capillaries to such a degree as to dispose it in a great measure to hemorrhage and apoplexy, or even give rise to those accidents. But these secondary effects, which have caused emetics to be considered as sudorifics, diuretics or emmenagogues, are the result of sympathies ; they are but transient, and subordinate to the impression received by the stomach. The fundamental agency of emetics resides in that impression.

As the phenomena of gastric affections become better understood, this general rule will probably be established, that emetics can never be decidedly beneficial, except in those rare cases where the stomach actually contains foreign and irritating substances, which it would be dangerous to leave longer on the stomach. They are to be almost exclusively reserved for bringing on evacuations, the necessity of which is indicated by positive signs ; but even then, it must be remembered that all emetics are irritating, and that the mildest of them are to be preferred. Whenever the stomach contains poisonous matter, or is over-loaded with aliments, titillation of the throat, or copious tepid drinks, are entitled to a decided preference over emetics. Should ipecacuanha, tartarized antimony or emetine be deemed indispensable, they should be given uncombined with others or among themselves, and in very small doses, in order to avoid violently exciting the stomach. Experience does not appear to have

positively shown that any one of those substances possesses a decided superiority over the others; but ipecacuanha seems to be milder than the other two.

When vomiting comes on, it is greatly assisted by copious mild drinks, which will ease and shorten the retchings, and contribute to allay the irritating effect of the remedy.

It was formerly thought useful to fill the stomach with food, before giving an emetic, in order to assist vomiting. This practice added to the irritation produced by the remedy, and to that constituting the disease. The same effect is obtained in a more rational manner, by means of diluent mild drinks.

Too much reliance should not be placed on the evacuations produced by a vomit, because they are the result of the excitement it creates in the organs from which they proceed. The relief and rest that follows their effects is to be carefully attended to; for experience has taught that they are more the result of the cessation of the disorder and efforts occasioned by the remedy, than of the resolution of the phlogosis, which frequently resumes its course, and makes its appearance again the next day with renewed vigour and extent.

In violent irritations of the stomach, when patients spontaneously vomit bilious and greenish mucosities, a number of physicians had immediate recourse to emetics. The consequence was that either the patient was suddenly cured, or the disease changed into a more violent disorder, or into bilious adynamic and ataxic fevers. I have often witnessed those fatal mutations, which were applauded by ignorance, in considering the disease as unmasked, instead of recognising that it had simply been exasperated by the remedy. This order of things has now given place to antiphlogistics, as indicated in the first division of this work, which prevents that train of accidents and of mortal fevers which were so apt to follow extensive bilious and gastric derangements.

Emetics are generally improper during irritations of the stomach; they can never be allowed except in lymphatic subjects, whose fibres are relaxed and not very irritable, the thirst null, tongue wide, pale at its edges, loaded in the centre with thick and yellowish mucosities; the belly souple, without great morbid heat, or pain on pressure. In such cases, the irritation of the stomach is not intense; a viscous mucosity covers its villous coat; and by creating in that membrane an artificial excitement, a copious exhalation, it is

possible to change that condition, diminish the rapidity of the vital actions, and promote a more speedy resolution.

Physicians of the present day may, however, use emetics with greater security than formerly. Instead of giving infusions of camomile, broths and other stimulants susceptible of increasing the irritation caused by the emetic, after its exhibition, they prescribe a severe abstinence, gummy drinks, and emollient fomentations on the abdomen, in order to extinguish the last traces of irritation of the stomach, and restore that organ with greater certainty to its healthy condition.

When, by means of general antiphlogistics and local bleeding, the symptoms of gastritis have been subdued, and the tongue remains white or yellowish, the patient experiencing a constant bilious taste, a violent head-ache at the lower part of the forehead, repeated efforts at vomiting, without fever, heat of skin, or pain in the abdomen, an emetic may be allowed, carefully watching its effects, and removing, by means of mild demulcent drinks, the unpleasant consequences it might produce. The continuance of emollient drinks and of abstinence, would no doubt be sufficient to operate the cure of those symptoms; but a more active treatment is resorted to with the view to shorten the duration of the disease, without adopting a doubtful course. Opium, as prescribed by Sydenham, on the evening of the day that the emetic has been taken, in order to subdue the irritation that might still remain in consequence of the vomiting, is now totally abandoned; and even should that be the result, narcotics are not the remedies proper to be employed.(1)

With regard to furunculous eruptions, which are justly considered as frequently arising from irritation of the sto-

(1) Emetics, says M. Broussais, can never cure gastro-enteritis, except by the revulsion and critical evacuations they produce: their effect is, therefore, uncertain in slight cases; and in more serious circumstances, they are always dangerous; for they never fail to increase the inflammation, which they have been unable to cure. (*Examen*, PROPOSITION 287.) This doctrine appears to me incontrovertible. But if emetics cure some cases of slight gastritis, it is probably not by revulsion, since they operate on the diseased organ; it is by changing the condition of the organ and substituting an irritation, followed with critical evacuations, and of a different nature from that constituting the disease. The crisis is then the effect and not the cause of the change induced in the mucous membrane of the stomach, and we cannot with propriety call revulsive a medication which, consists in stimulating parts already irritated, otherwise it would become necessary to give another name to the medications exercised at a distance from those parts, with the view to relieve them. (*Note of the author.*)

mach, emetics are to be totally excluded from their treatment; in many cases they perpetuate them, by keeping up the internal inflammation of which they are the result. They are not to be employed in those circumstances, unless the patient presents the whole of the symptoms above indicated.

Of Purgatives.—The preceding considerations, relative to the mode of acting of emetic preparations, or to the circumstances requiring or tolerating their employment, are almost entirely applicable to purgatives. Among these we may again meet with emetics, given in small doses, diluted in a large vehicle. Their minute particles being then more divided, cannot strongly irritate the stomach, and are carried with the liquid into the intestines, where they cause purging. All stimulating or simply indigestible substances, which fatigue the digestive canal, may also produce the same effect. The most common among purgatives properly so called, are honey, prunes, tamarinds, manna, cassia, the oil of sweet almonds, of olive and of ricinum, the syrup of peach flowers, the tartrates of potass and of soda, the sub-phosphate of soda, sulphates of potass, of soda and of magnesia, as well as the mineral waters which hold these salts in solution; the protochloruret of mercury, nerprum, rhubarb and senna; next to them we have gratiola, bryony, the second bark of the black willow tree, black hellebore, jalap, aloes, colocynth, veratrine, croton oil, &c.

All these substances act in the same manner, but with different degrees of violence. They all produce a certain degree of irritation in the intestines, accompanied by redness, increased temperature, slight tumefaction, and generally with pain in their mucous membrane. The disorder which then takes place is less great than in vomiting, but it is characterized by all the accidents of a transient or somewhat permanent enteritis.

The irritating effect of purgatives upon the mucous membrane of the stomach is generally inconsiderable, except when that organ is very excitable, or to a certain degree irritated. The excitement it receives may also be such as to cause its sudden contraction, and the expulsion of the purgative through the mouth. In most cases, a sense of obstruction, of heaviness and even heat, is felt at the epigastrium, with a reluctance for food. But the irritation seems shortly to change its seat; as the stomach becomes more free, borborygms come on, the belly is tumefied; colic pains

and copious frequent stools. In its progressive march, the irritating substance acts successively upon the various parts of the intestinal canal. In the duodenum, it stimulates the orifice of the ductus choledochus, and promotes a rapid and copious secretion of bile; and, as it proceeds downwards, its presence occasions the exhalation of a quantity of mucosities, until it reaches the rectum, and is finally expelled.

The impression produced by purgatives upon the intestines always accelerates their peristaltic motion. The first stools chiefly consist of the fecal matters lodged in the large intestines; shortly after, the evacuations are composed of mucous, serous, bilious, and more or less copious liquids, mixed with the purgative and with the drinks administered in order to promote its action: the latter almost exclusively constitute the last evacuations.

The irritating action of purgatives singularly varies in the threefold respect of its violence, duration, and extent. When the substance does not possess very great activity, it only promotes the secretions and exhalations above mentioned. As it proceeds through the alimentary canal, the parts disengaged during its passage soon recover their natural condition; in this manner, it affects but very small portions of intestine successively and separately. Below the place which it actually stimulates, the purgative does not yet irritate the mucous membrane; above it, the excitement it has produced is already beginning to subside.

But the case is very different when substances highly irritating are made use of: the over-excitement of the intestines persists in the parts primitively affected, and extends to a distance, as the purgative approaches the anus. Instead of mucosities and perspiratory fluids, the inner coat of the intestines furnishes a certain quantity of blood. The colic pains are very acute, the anus becomes hot, violent retchings and tenesmus succeed each other with rapidity. The duodenum, the latter portion of the ileum, the cœcum, and the inferior extremity of the large intestines, specially receive the effects of that incendiary irritation, traces of which are to be found in the remaining portions of the alimentary canal. The enteritis which follows persists for some days, or even weeks and months. I have known a man who, six months after having taken a purgative poison which had acquired celebrity, still had three or four liquid and painful stools ever day. In this case, the enteritis has become chro-

nic; and the subject was still rejoicing of the lasting effects of the remedy!

The sympathetic phenomena produced by purgatives deserve a serious attention, in as much as they give the measure of the extent to which the intestinal canal is irritated. When colic pains come on, the pulse becomes unequal and intermittent; during the whole time of the operation of the remedy, it is smaller and more frequent than in health. A general and painful sense of cold, or rather a sort of shivering, is occasionally felt; the skin is dry; perspiration, urine, and the secretion of the mucous membranes of the upper part of the body is either diminished or suppressed. The liquids extravasated in the serous cavities are sometimes taken up by the absorbents. Muscular strength is impaired; the limbs are unwilling to move; the sensations appear vague and imperfect; the intellectual functions are difficult and slow, and the inclination to sleep is irresistible. The severity of these symptoms is in proportion to that of the intestinal irritation. When they are moderate, and soon disappear, the urine becomes more copious, the cutaneous perspiration returns, the pulse is large, and all the various elaborations, previously suspended, are re-established. At this period, weakness subsides, and the want of aliments returns. Within the space of a few hours the physician has been able to observe all the phenomena of the rise, progress, and decline, and of a sort of termination by crisis, also, of the convalescence of a more or less moderate enteritis. But when the impression of the purgative has been too great, the inflammation, far from disappearing, becomes stationary, and may even terminate into a state of adynamy.

These considerations are sufficient to impress upon the mind the necessity of being careful and reserved in the employment of purgatives. Their impression is more considerable and lasting than that of emetics. Some physicians place them among debilitants; but their doctrine, which is correct in some respects, requires explanation.

Purgatives never debilitate the intestinal canal; on the contrary, they stimulate it to a certain extent, and increase its secretions, serous exhalations and peristaltic motion. In this respect, laxatives act in the same manner as drastics, with this difference only, that their impression is not so powerful, that they may be readily assimilated, and that they are less irritating. M. Barbier has committed a great error

in attributing to them a relaxing and astenic property, the existence of which is entirely denied by facts. We may easily pass by insensible gradations from the milder minoratives to the warmest drastic, without being able to draw a line of demarcation. The particles of jalap and of croton oil when largely diluted are merely laxative; those of manna or of cream of tartar, placed in contact with an intestine the sensibility of which is much exalted, may inflame it to a high degree, and give rise to all the phenomena of a violent purging.

The general weakness and unwillingness to move, which accompanies the action of purgatives, are the result of the pain they occasion in the intestines, as we find it demonstrated by the whole history of enteritis. After the operation of the remedy, should the pulse be reduced in frequency and vigour, this phenomenon is to be attributed to the cessation of the artificial excitement produced in the intestines, and sometimes of that for which the remedy has been prescribed. On the contrary, should the irritation be thereby increased, the symptoms of debility will not take place, or if they do, they will be accompanied with other phenomena that characterize gastro-enteritis with adynamy. In appreciating the state of debility resulting from purgatives, we are to take into account the general fatigue they produce, and from which the nervous system tends to recover by means of rest and sleep; and also the material loss occasioned by the increase of intestinal secretions and exhalations; but I do not believe that, except the cases of excessive evacuations, this loss can have a great share in the production of the state of asteny which then exists. In general, when the secretions are increased, it is much less the expelled substance that caused the debility, than the irritation which has occasioned that increased secretion, and sympathetically disordered the principal viscera.

The question must, therefore, be decided as follows: 1st, purgatives constantly stimulate or irritate the intestines; 2d, they never occasion general debility but in consequence of the pain and fatigue they occasion, of the cessation of the irritation previously existing, and lastly, of the material losses to which they give rise; 3d, when they exasperate instead of curing irritations, they increase the fever, heat, and all the sympathetic excitements, or produce general adynamy.

These remarks are entirely applicable to emetics, which some French practitioners, in imitation of the Italian *con-*

tro-stimulists, have determined to consider as possessing a mild and antiphlogistic property.

Purgatives may be administered by the mouth, the anus, in frictions on the skin, or injection in the veins. The two latter are not much used ; frictions with the tinctures of jalap or aloes are too uncertain, and their introduction into the veins too dangerous to deserve a place among therapeutical agents. Purgative enemata are more really and generally useful. Their employment is founded upon this important fact, that excitements produced in the rectum and colon are transmitted, through the sympathies or the continuity of membranes, to the small intestines, in which they accelerate the peristaltic contractions, and produce a copious secretion of mucus and the phenomena of purging. In order to obtain this effect, it is not even necessary that the purgative substance should penetrate far into the large intestines. The irritating impression exercised upon the extremity of the rectum by suppositories of soap, aloes or othes substances, are sufficient to excite the whole extent of the intestinal canal.

There is this essential difference between the purgatives administered through the mouth and those introduced into the rectum, that the former act more powerfully upon the superior portions of the alimentary canal, whilst the latter operate at first upon its inferior extremity, and very slightly upon the parts above : hence the dose of the last should always be stronger than that of the others.

From this remarkable difference of action, we derive the following important precept, that in inflammations of the stomach and of the first divisions of the small intestines, the purgatives that the case requires are to be injected into the rectum ; and reciprocally, when purgatives are called for in colitis, they are to be given through the mouth, because when they arrive at the rectum, they are dissolved, milder, and less susceptible of producing much excitement.

There are some purgatives that operate specially upon certain parts of the digestive canal. Thus, castor oil, the neutral salts, manna, affect the superior portion of the small intestines ; aloes and hellebore, on the contrary, strongly irritate the colon and rectum. According to circumstances, therapeutics is much benefitted by this difference of properties in remedies of the same class.

Whatever be the nature of purgatives or the channel through which they are introduced, we are to bear in mind

that they give rise to a certain degree of enteritis which it is necessary to subdue and bring to a happy termination. Hence the subject is to be prepared by a preliminary diet of twelve or fifteen hours, and by copious diluent drinks, for the reception of the irritating substance. As soon as this is administered, and when uneasiness, colic pains and dejections come on, large quantities of barley water, of gelatinous or herbaceous broths, must be prescribed. These liquids promote the purging, by gently exciting the intestinal secretions and contractions, and by preventing an over-excitement of the blood-vessels. In many cases, it is only necessary that a very gently purgative should move the intestinal canal, when laxative broths shall keep up, and even increase the evacuation. During the operation of the remedy, the patient must remain quiet, avoid exercise and cold, which might derange or exasperate the phlegmasia with which he is affected. After that operation has ceased, the same measures are necessary in order to accelerate the disappearance of the irritation. Broth and soup are injurious before the lapse of six, twelve or twenty-four hours; for they have often changed into violent enteritis, a simple excitement which, without them, would have disappeared in a few hours.

The various substances that we have mentioned are seldom given by themselves. Manna, senna, the neutral salts, combined in different proportions, generally constitute that disgusting preparation, called a *physic*, which is so extensively used. Neither theory nor practice even sanctioned such mixtures; one purgative substance judiciously selected, and well adapted to the state of the subject, to the nature and intensity of the excitement necessary to be produced, is infinitely more proper than all those barbarous associations of remedies contained in the Formularies. Instead of correcting the effect of drastics, minoratives add another stimulation to that which the others already excite to a high degree. If the minorative be sufficient, let it be given alone; if a more energetic stimulant be necessary, instead of combining it with one less active, let it be administered in a due proportion to the force of action intended to be produced. This unnecessary complication of medicinal agents will expose to serious consequences, whilst it perpetuates the darkness by which therapeutics is still surrounded.

Physicians have long made use of emetic and purgatives combined, and designated under the name of emeto-cathartics. Ipecacuanha, or emetic tartar, mixed with the sulphates of

soda or potass, either by themselves, or diluted in the infusions of senna, of gratiola, and of other similar plants, constitute the basis of those mixtures. They are still used against saburrhal obstructions of the stomach and intestines, whenever it is deemed necessary to operate upon the whole digestive canal. But an isolated emetic or purgative may become injurious, and if so much circumspection be necessary in their employment, how many dangers will not attend both administered at the same time? I believe they ought to be totally banished; for it can never be necessary, and it is always hazardous, to irritate simultaneously the whole extent of the gastro-intestinal mucous membrane. The indication which consists in evacuating both upwards and downwards, very seldom presents itself, except where irritating enemata are to be substituted for cathartics. In some cases of gastro-enteritis, which appear to require vomiting and purging, it is generally better to begin with the first, and order the other two or three days after, when the irritation produced by vomiting shall have totally subsided.

Some persons require emetics, and especially purgatives, every year, every six and even three months. In many of them, costiveness is so constant as to call for a laxative every week, and in some cases, every two or three days. No habit can be more pernicious than this indulgence. If a man is subject to periodical gastro-hepatic irritations, characterized by evacuations of bile, loss of appetite, bitter taste in the mouth, &c., these phenomena indicate that the digestive viscera are too much excited, and that the food is too abundant and of a bad condition. Evacuants are not the proper remedies in such cases, but a more severe regimen, greater exercise, a daily use of diluent, gummy or acidulated drinks. In this manner the irritation of the stomach and intestines is obviated, whilst purgatives would either aggravate the disorder, or produce but a temporary cure. The successive ingestion of stimulating food and of irritating remedies never fail to exhaust the organs, increase their sensibility, and give rise to serious chronic inflammations. The consequence of the habit of taking purgatives during several years, in the spring and fall, is, that the patient will eventually be unable to recover from one of those occasions, and fall a victim, both to his bad regimen, and to the means employed for removing its effects. Such is the kind of death which terminates the existence of most of those men who, being endowed

with a vigorous constitution, appear to derive the greatest benefit from purgatives, and who can longer resist their deleterious action.

Persons advanced in years frequently have their stomach and intestines inactive, and their alvine evacuations rare, dry and difficult; in these cases, drastics and those pretended *health powders*, which would better be called *death powders*, are eminently injurious. The digestive organs become accustomed to them; the doses must continually be increased, until they are such as to create a permanent intestinal inflammation. The most rational conduct is to take every day a certain quantity of an emollient drink, mixing with the food cooked fruits, ripe raisins during the season, and herbaceous vegetables. I have known several subjects similarly diseased, in whom two glasses of lemonade, of barley sweetened with sugar, taken at bed time, or in the morning before breakfast, never failed to procure a copious and easy stool during the day. In others, salad at breakfast produced the same result. Should these prove unavailing, simple enemata, rendered purgative by degrees, and at long intervals, will be serviceable. General baths are equally proper, by supplying the absorbents with materials which they would otherwise draw from the contents of the digestive viscera. Finally, if purgatives cannot be dispensed with, they are to be selected from among the mildest, and prescribed with caution, but it is indispensably requisite that the patient should pursue a course of diet that will enable him to dispense with those remedies.

Some persons, with a view to promote digestion and excite appetite, are in the habit of taking cream of tartar or rhubarb in the first spoonful of their soup, or a certain quantity of bitter and purgative tinctures before their meals. These remedies, it is true, give a sudden impulse to the organs, and compel them quickly to expel the alimentary mass which overloads them; but their consecutive effect is most generally a greater or less developement of gastro-enteritis.

M. Broussais very judiciously observes, that bitter purgatives increase the intestinal heat, whilst the saline dissimulate the inflammation, and render it chronic. Such, he says, is the effect of calomel, which allays the sufferings of gastro-enteritis but by keeping up a diarrhoea which terminates in dropsy and marasmus.

During the first stages of all pretended essential fevers, purgatives cannot be too severely prohibited : for, if the intestinal irritation be intense, they will increase it ; and if it be slight, the most simple means will be adequate for its cure. That conduct is justifiable where the subject is not very irritable, the tongue pale, large and mucous, the pulse not much accelerated, nor the skin hot, acrid, and burning. It may also prove useful when, besides these symptoms, there exists flatulency of the abdomen, without pain, accompanied with a constipation that cannot be relieved by demulcents, and a species of *engouement* in the digestive canal which incessantly exasperates the inflammation of the bowels. Experience has taught that in those circumstances purgatives are followed by a sensible relief, and the disappearance of all the symptoms. But it is necessary that the alimentary canal should previously be prepared to receive them, by means of appropriate antiphlogistics ; and, in many cases, whilst waiting for that opportunity, the bowels become relaxed and open, and all the morbid phenomena disappear under the influence of those preparatory measures.

When purgatives are called for in acute diseases, they are to be taken among laxatives and minoratives, and never among drastics. The indication here consists in promoting evacuations, and extinguishing the irritation of the blood-vessels in a flow of mucosities. For this purpose, the dangers attendant on a violent irritation of the alimentary canal will be prevented in proportion as it will not be disturbed by the interference of remedies. Hence we may conclude that honey, cooked prunes, cassia, the sweet and recent oil of ricinum, neutral salts, calomel, and a few more substances of the same nature, shall compose the whole catalogue of purgatives that are admissible in practice. Jalap, colocynth, gamboge, and all the irritants of the same class, will always be excluded from an enlightened theory. I know of no circumstance in which they may not be dispensed with, and none in which they will not expose the subject to the most serious accidents.

Among the most dangerous purgatives, we must place colchicum, which forms the basis of the medicinal wine of Husson, black hellebore, and many others which contain, besides a drastic principle, an irritating and poisonous property,

the effect of which concentrates upon the nervous system, This is also the case with croton oil.(1)

Some practitioners have made use of purgatives against the most intense dyarrhæa and dysentery, however improper they may be in such cases. The Italian physicians of the school of Rasori, exaggerating the idea of Calhu, Pringle, and several other practitioners of the last century on their efficacy, have had recourse to the most drastic purges. In the course of a dysentery which appeared as an epidemic at Mantua, in the years 1811 and 1812, J. J. Pisani did not hesitate to administer, at the invasion of the disease, tartar emetic, and afterwards cream of tartar combined with jalap. This perturbing method has found men so daring, and so deaf to all reason, as to become its partisans. Let us quote a few observations, in order to appreciate the good effects of so mild a treatment.

(1) The oil of *croton tiglium*, which contains a great proportion of acid, resinous, active matter, soluble in alcohol, in æther and the fixed or volatile oils, is one of the most common purgatives used in India. Doctor Cromwell, physician to the British Company at Madras has introduced it in England and it has since been rapidly adopted throughout Italy and the south of Germany. Doctors Mattheis, Vacca, Berlinghieri, Cantini, Fenoglio, Benvenuti and others, speak highly in its favour. M. Magendie, in France, has made some experiments with the view to ascertain its mode of operating. Its most constant effects are, an acrid burning sensation in the throat, heat in the rectum, and slight colic pains. Half a drop or one drop at the utmost, extended in a demulcent vehicle, produce ten or twelve alvine evacuations. In a larger dose, it occasions a violent inflammation of the intestines, accompanied with repeated vomiting and continual dejections. Four of the seeds from which that oil is obtained are said, in India, to produce poisoning. This purgative wants none of the properties that can entitle it to the partiality of contro-stimulists in all countries; and if administered by prudent hands, and in proper circumstances, it is not more injurious than all other drastics; but its improper exhibition may prove so injurious that it ought rather to be ranked among those poisons, the sale of which is prohibited, than among the substances employed in medicine. According to Dr. Cromwell, four drops of croton oil in friction on the abdomen, will produce purging.

Among the substances which may, at some future period, deserve to be distinguished by the Rasorians of all countries, it is proper to place veratrine, an alkaline substance discovered by MM. Pelletier and Caventou, in *ceviadilla*, white hellebore and *colchicum*. A quarter of a grain of veratrine acts as a violent purgative. Inhaling the powder excites violent sneezing; in the mouth, it produces a considerable flow of saliva. Two, four, or six grains introduced into the digestive canal, especially inflame the rectum, and occasion alvine dejections, vomiting and death. M. Magendie thinks that veratrine may eventually prove useful in all cases where the vegetables that contain it are generally administered. The question remains to be decided whether those vegetables themselves can often be admissible.—(Note of the author.)

Nicou, a robust man, aged twenty-eight, had been labouring under fever for three days; the face was swelled, and red; there were also present a painful sensation about the præcordia, prostration of strength, bitter taste in the mouth, bilious eructations, nausea, dyarrhæa. Six grains of tartar emetic in two pounds of barley water bring up a considerable quantity of greenish matter, and give some relief. But heaviness at the stomach remains, accompanied with pain in the abdomen, copious stools, great thirst, pungent heat of skin, pulse frequent, full and hard. Twelve ounces of blood, and six more grains of tartar emetic produce the subsidence of all these symptoms. Up to the third day of the patient's entry into the hospital, he had only had five stools. The colitis appeared to be on the eve of subsiding under the influence of the mild demulcent treatment: but one ounce of cream of tartar was prescribed. The next day six alvine evacuations, somnolence, painful lassitude in the limbs, the tongue is covered with a fuliginous coat,—*two ounces of cream of tartar in two doses.* This remedy brings on eight alvine discharges of green, membrane-like, fetid stools, with an increase of pain in the stomach, intense thirst, and tumefaction of the abdomen. These appearances determine the physician to prescribe at once half a scruple of jalap with half an ounce of cream of tartar; and as there has been an exacerbation of the fever with shivering in the evening, followed with pain in the head, and four stools, the dose of the substance is renewed. Nine stools are procured during the night; delirium comes on, the tongue is trembling and red at its edges; the same prescription. This last dose produces ten stools, stupor, heat and pain in the abdomen, intense thirst and the pulse is frequent and vibrating. Bleeding is now ordered, followed by one ounce of cream of tartar. The symptoms immediately subsided. The cream of tartar, combined with ten, afterwards with twenty grains of jalap, continued to keep up the alvine evacuations, as well as the fever and pain in the abdomen, but after nineteen days of this treatment, the patient, emaciated and exhausted, at last entered in convalescence.

In another subject, named Coutellons, we observe the symptoms alternately exasperated by the emetic, the cream of tartar and jalap, and relieved by blood-letting. He was labouring under dyarrhæa, with intense thirst and infra-orbital cephalalgia, tongue furred, pulse hard, frequent and vibrating. Five bleedings, twelve grains of tartar emetic, eight

or nine ounces of cream of tartar, and about five scruples of jalap, finally left him, without dyarrhæa, it is true, but not without having several times been in a state of danger.

A treatment of this kind would appear to have been imagined only with the view to try to what extent the constitution can suffer irritation with impunity. Its only effect is to exasperate and wear off the intestinal irritation, nearly in the same manner as sulphur and all irritating frictions exasperate but rub off cutaneous phlegmasiæ. But the difference of organs must for ever exclude a similar method as applicable to internal parts. The history of the openings of bodies during the epidemic of Mantua is a striking example of the dangers which attend its employment. Inflammations extending from the œsophagus to the anus; red or brown spots, as well as ulcers disseminated over the mucous membrane of the stomach; the intestines often invaginated in several places; the peritoneum not unfrequently participating in the inflammation of the alimentary canal; the liver increased in size and consistence, and covered with granulations, the spleen diseased; the lungs, heart, pleura, and pericardium presenting traces of great sympathetic irritations: such are the disorders that were generally observable.⁽¹⁾ And when we reflect that this epidemic, which was called by J. J. Pisani dysentery, was but a dyarrhæa affecting the whole garrison, we cannot but refer such considerable lesions to the barbarous treatment resorted to for its cure. Had a medical jurist been called to some of the openings of bodies, he would not have mistaken all the characters of poisoning, I mean the general phlogosis, the ulceration and even gangrenous state of the digestive canal, along with the presence in these organs of matters capable of producing death.

Engorgements of the viscera, especially those of the spleen, liver and lymphatic ganglia, are frequently treated with purgatives, repeated daily, and in more or less considerable doses. Who can tell what quantity of calomel the English physicians have consumed in the treatment of chronic hepatitis in India? In England, the waters of Cheltenham are the principal resort for those whose liver has suffered in warm

(1) Histoire de la dysenterie épidémique qui régna dans l'hôpital militaire de Mantoue sur la fin de 1811 et le commencement de 1812, *Archives Générales de Médecine*, t. V. p. 534.

climates.(1) Aloes, jalap and soap, are the basis of a host of pills, reputed solvent, by means of which viscera already irritated are incessantly tormented.

What can be the object of physicians resorting to that treatment in chronic engorgements of the liver? Do they still think of incising and dissolving the matter accumulated in the irritated tissues? Or do they suppose the existence in those parts of obstructions susceptible of being destroyed by irritants? These hypotheses are too absurd to make proselytes and deserve a serious refutation. By following this practice, the empirical physicians follow the usage established before them, and especially conform themselves to the idea of the patient, who fancies that every alvine evacuation carries away a portion of the humours accumulated in his bowels. It is true that every purging affords some relief. After the disorder occasioned by the effects of irritants, and the secretory excitement they produce having subsided, a salutary change takes place, and both the patient and his physician exult at the event. But this improvement is only momentary, and is soon followed with difficult digestion, obstinate constipation, obstruction in the belly, pain in the hypochondrium, and all the symptoms of gastro-duodenitis and of hepatitis. The pills, waters, and salts, must then be repeated, and the patient, thus led from an illusory relief to relapses that incessantly become more intense, finally arrives at the end of his career, his death having evidently been accelerated by the continual excitement of the irritated parts.

Purgatives are not to constitute the basis of the treatment of chronic gastro-hepatitis. Some individuals, after their return from India to England, may have recovered under the use of calomel and purgatives; but it remains to decide whether the change of climate has more contributed to the cure than the internal irritants. By promoting the secretions of the mucous membrane of the intestines and biliary organs, it may be possible to attempt a change in the mode of action

(2) These waters and salts are chiefly composed of the sulphate of soda and magnesia, of a small portion of the muriate of soda, and of a still smaller quantity of the sulphate of iron. Besides these salts, the water contains about one eighth of carbonic acid. The English boast much of its mild and continued purgative effect. The waters of Mont d'Or, of Pyremont and Vichy, which contain similar principles, may be a good substitute for it in France. (*Note of the author.*)

of the parts, extinguish the irritation of their blood-vessels, and promote the absorption of the steatomatous tumours to which it has given rise. This indication does not, at first sight, appear void of reason; but a more attentive examination, and especially clinical experience, teach us how difficult, and even impossible, it is to succeed. Indeed, this change can be operated only when the disease is recent; for, at a later period, the treatment is either unavailing or exasperates the disease. Among the whole of the parenchymatous organs, the liver is the one which shows itself more obstinate when irritated. Some physicians will say that, by irritating the gastro-duodenal mucous membrane, it is possible to operate a salutary revulsion, and free the liver from the disease. This vicious reasoning leads to dangerous consequences in practice. No revulsive effect can then be expected, for all the stimulants directed to the stomach also act upon the liver, which is thereby secondarily affected, and increased in its vital functions. The result is, therefore, a real stimulation of the various irritated parts, because the disease does not only reside in the liver, but also in the alimentary canal. We know that the whole of the gastro-hepatic organs is set in action and irritated by the same agents. It would be a singular mode of relieving an organ that has become the seat of considerable irritation, to draw the blood in greater quantity to that part by all kinds of immediate irritants.

Facts speak in stronger terms than theoretical explanations; they prove that purgatives have never performed a cure that can exclusively be attributed to them. On the contrary, physiological analysis proves that their effect, even under the most auspicious circumstances, has been unfavourable, and has retarded the salutary process of nature.

The obstinate constipation that often accompanies hepatitis, deserves, however, some attention. The physician ought to be well convinced that this symptom will disappear along with the irritation from which it proceeds. The methodical treatment of this affection must engage all his thoughts, and he is to keep the bowels open by means of a vegetable and gelatinous diet, mucilaginous drinks, baths, enemata, and, if necessity require, mucous and sweet minoratives. These are the only remedies authorized by therapeutical physiology, and sanctioned by experience.

Physicians are as much in error respecting the history of diseased mesenteric glands as that of hepatitis, in isolating

the tumefaction of those glands from the irritation of the intestines. Both the mesentery and the portion of intestines appended to it are but one set of organs, they act simultaneously, and partake of the same stimulation. It is, therefore, impossible to operate a revulsion upon the mucous coat of the intestines in favour of the lymphatic organs that open in that membrane. The idea of pretending to operate the disgorge-ment of the mesenteric glands, and of drawing the humours with which they are distended into the intestinal cavity, is too gross an absurdity to be noticed. As I have already said, purgatives must, therefore, be banished from the treatment of entero-mesenteritis; and if it be occasionally necessary to keep the bowels open, this shall be done by means of the remedies just mentioned, I mean gentle minoratives and enemata.

SECTION III.

Of the stimulating and tonic excitement of the digestive organs.

The stimulating and tonic substances employed with the view to strengthen the digestive organs, increase their vital functions, and secure their action upon the aliments, constitute more than half of the medicinal bodies and compounds which pharmacy affords to therapeutics. Their use is at present more restrained than it was formerly, and it will perhaps be still more so when the study of morbid phenomena, and of the effects of remedies, shall have been more completely investigated.

However, the substances under consideration may be divided into two great classes, the first comprehending stimulants properly so called, the second the fixed tonics. This division is imperfect, in as much as several of them possess properties common to both classes; it is also insufficient, because, according to the sensibility of the subject and the susceptibility of his organs, one stimulant may produce no remarkable effect, or a particular tonic will give rise to a violent local and general vascular excitement. Notwithstanding such discrepancies, the classification of excitants into stimulants and tonics must be preserved, owing to the facility it affords for analysing the effects of remedies, and because it can produce no inconvenience if it be not too rigidly observed.

The most common stimulants are: valerian, Virginian serpentaria, arnica, aristolochia longa, radix contrayervæ, Win

ter's bark, cascarilla, canella, angelica, ginger, camomile, absinthium, millefolium, marum, chamædrys, some kinds of arundo, saffron, menthapiperitis, scordium, juniper, cloves, anise, cumin, coriander, fœniculum, pepper, thyme, melissa, rosemary, sage, marjoram, lavender, satureia, guaiacum, smilax china, sarsaparilla, sassafras; the balsams of Tolu and of Peru, benzoin, tar, turpentine; the plants crucifereæ, such as cardamina, horseradish, cochlearia; erysinum, mustard seeds, the muriate and acetate of ammonia, phosphorus, alcohol, in small doses, and the wines that contain a great proportion of that principle.

Among the fixed tonics, we have bark, quassia amara, the bark of simarouba, lignum chirayitæ, the bark of the willow-tree and of angustura, gentian, centaurium minus, caicus, hop, lepidium minus, veronica, menianthes, columbo, Iceland moss, fumitory, rumex patientia, taraxacum, intybus, saponaria, ilex, iron, several purgatives in large doses, such as rhubarb and aloes, the wines of Bordeaux and of the Rhine.

Some principles that chemistry has lately discovered, and the number of which is daily increasing, appear chiefly to contain the medicinal properties of the plants above mentioned. Various alkalis, among which cinchonine, quinine, lupuline, hold the first rank; acids, such as piperine, gentianine, rhubarbarine, form the basis of almost every medicinal vegetable. When these shall have been submitted to further analysis, they will probably yield other salts or salifiable basis from those brown, bitter masses, designated by the name of *vegetable extracts*, and which are nothing more than compounds of colouring matter, of acids, and of principles hitherto isolated. The stimulating plants contain also volatile oil, resin, gum-resin, balsam, camphor, from which they derive a more penetrating flavour, and often very energetic properties.

Stimulating remedies generally produce, in the mouth and stomach, great heat, and a pleasant sensation which soon degenerates into a painful sense of acrimony and burning; they promptly determine an evident congestion of blood, and a considerable excitement of the circulation, in the mucous coat of the stomach. This viscus thereby acts more powerfully upon the aliments; it is enabled to admit a larger quantity, and hunger returns more frequently, than in the state of health. In large doses, stimulants accelerate the pulse, produce thirst, redness of the tongue, heat of skin, and soon

after, a copious secretion from the skin, kidneys, uterus, or other parts. The effects of tonics are less striking, but more easily traced to, and detected in, the various sets of organs. Their first impression upon the mucous tissues of the mouth and stomach are not accompanied with any sensible local heat, great redness, increase of action, nor excitement of the circulation. In the organs of taste, they create a bitter and disagreeable sensation, but without stypticity. Under their influence, the membranous fibres are drawn closer, and the tissues increase in thickness, density and force, and are less susceptible of impressions, either from stimulants or other causes. The effect of stimulants is sudden and powerful, but superficial and momentary; that of tonics is slower, and apparently less strong, but it penetrates deeper and is more lasting. The former is easily communicated to the nervous and vascular systems, to the secretory organs, and increases vital action; the latter remains a longer time stationary in the digestive organs, and if administered during a long period, so as to affect the various sets of organs, their functions will thereby become stronger, more durable, and less liable to be disturbed, but without being accelerated, and even sometimes performed with less rapidity than usual.

It must be remembered that we are always supposing the alimentary canal to be perfectly sound; for, if it be irritated, other consequences will follow. The excitants of both classes soon increase the symptoms, occasion fever and sympathetic excitements in other parts of the living organism. Yet in these very cases, stimulants properly so called act more rapidly and with greater force, but also with more injury than fixed tonics. In gastro-enteritis, *serpentaria*, *arnica*, *valerian*, and alcohol, have done more mischief than peruvian bark, bitters, and astringents.

Nature has frequently combined stimulating with tonic principles, as may be seen in *absinthium*, *camomile*, and *Winter's bark*; bitter and tonic principles are often united with feculent or mucilaginous nutritive substances, such as in *colombo*, *Iceland moss*, and *taraxacum*. Art has imitated this process of nature by associating both these orders of medication in its formulæ. Hence *canella* or *cascarilla* have been mixed with bark and *centaurium minus*; aromatics and bitters with feculent drinks, gluten, and a variety of alimentary substances. The object of those combinations is either to promote the action of the bitter topics and cause their pro-

per effect, or to facilitate the digestion of insipid and heavy food, which the stomach could not otherwise digest without great difficulty.

When stimulants are intended to operate merely upon the digestive canal, it is proper to exhibit both kinds in small doses, and in such manner as to produce such little excitement as not to bring the sympathies into action. They must be given at long intervals, in order that the effects of one dose should only continue that of the preceding one, and not be added to, nor increase it; otherwise the mucous coat would be over-excited. A different line of conduct is necessary whenever it is deemed requisite suddenly and strongly to excite vital actions in the stomach, or secondary stimulations, either in the vascular or nervous systems, or in the cutaneous, urinary, or bronchial secretions. The doses must then be higher and more frequently repeated, that their effect be continued and made incessantly to increase. It is almost useless, after what has already been said, to observe that the more active and repeated the stimulants, the greater is the attention necessary in order that they do not influence the organs with which they are brought in contact.

The diseases of the mouth that require the use of stimulants and tonics are now less numerous than was formerly believed. The inflammation of the gums arising from the use of bad food, and of impure water, and from the abuse of spirituous liquors, which is apt to occur in irritable habits, is no longer confounded with scurvy. The livid and brown colour of the irritated tissues must not deceive the practitioner; it proceeds from the multitude of blood-vessels contained in the gums, for which neither leeches nor emollient acidulated gargarisms are contra-indicated. A severe and mild regimen added to them, will be adequate for the cure.

Ulcerations in the inside of the cheeks and in various parts of the mucous membrane of the mouth, which do not proceed from the irregularity of the teeth, require gargarisms with the decoction of bark, diluted tincture of cochlearia and the like, when local and general demulcents have failed, which is very rare, and when the ulcers look soft greyish, covered with a viscous mucosity, and free from pain. Concentrated mineral acids applied with a dossil of lint, are sometimes indispensable in order to stop their progress, as they make a considerable change in the condition of the parts.

Fabrice de *Hilden Van-Swieten*, Berthe, and a few other

practitioners, have collected interesting observations on the species of gangrene, called scorbutic, of the gums in children. This serious affection often brings on mortification of the parts, denudation of the bones, and death. M. Montgarny has described a similar disease under the name of *figarite*, and M. Baron has written an interesting memoir on the same affection which he had observed in an asylum for children. This physician found the cheeks more frequently involved than the gums; they were tumefied, inflamed, and covered with a gangrenous scar outside, proceeding from within, and perforating the cheek, accompanied with great loss of substance, and generally followed with death. (1) Successive trials were made of scarification of the parts affected, excision of some portions of the gums elevated above the teeth, and threatening gangrene, applying the hydrochloric acid more or less concentrated to the sores; and lastly, actual cautery. All these remedies failed in the majority of cases. Death took place both in consequence of the continual progress of gangrene, and from the involuntary deglutition of the putrid matter furnished by the mortified surfaces. Experiments made with the chlorate of potass have proved highly serviceable, in removing putridity, separating the scars and cicatrizing the wounds. This remedy, which had before been made use of by M. Rey, appears to be a good substitute for mineral acids, and even for the application of fire which is so justly relied upon.*

Irritating, bitter, and antiseptic gargarisms in what is called angina gangrenosa, will only increase the irritation of the back part of the pharynx, multiply the sufferings, and extend the ravages of mortification. It is known that the false membranes formed by the concretion of condensed mucosities on the surface of the inflamed parts, have often been taken for scars. In all those cases, mild, and gently acidulated gar-

(1) Mémoire sur une affection gangréneuse de la bouche particulière aux enfants: *Bulletin de la Faculté de Médecine de Paris*, t. V. page 145.

* The third volume of the *North American Medical and Surgical Journal* contains a valuable essay on this disease by Dr. Coates, of Philadelphia. This gentleman fortunately discovered, that blue vitriol in solution was the best remedy that had hitherto been tried for the cure of the ulcers. His experience on that subject appears to have been very extensive, and his paper ought to be read by every practitioner of medicine.

garisms are no less founded upon the dictates of reason than upon the most judicious and extensive clinical experience.

It is useless to return to what we have said on the use of stimulants and tonics in the various shapes of gastro-enteritis called by the names of foul stomach or intestines, and of bilious or gastric fever, of a certain degree of intensity. A general and salutary reform has banished them from the treatment of all such affections. But, in debilitated, lymphatic and obtuse habits, when, after the subsidence of the gastro-intestinal irritation, the tongue remains large, thickened, covered with mucus, without redness at its edges; when the belly is tumefied and not painful on pressure, whilst the skin is cold, and the pulse small, weak, and slow, it is proper to prescribe some gently stimulating infusions, such as those of the linden-tree, of orange flowers, of sage, &c. These, along with external heat and fomentations, will raise the pulse, and equalize the vital functions hitherto concentrated upon the digestive viscera. But as soon as this is obtained, it is necessary to return to demulcents and antiphlogistics, which must constitute the basis of the treatment.

All violent fevers, I mean those varieties of gastro-enteritis which produce adynamy and ataxy, are generally accompanied, as we have already said, with more or less irritation of the brain and of its membranes. The stimulation of the digestive organs, and of the nervous system, would then be directly the reverse of what the nature of the malady requires: hence their use is now totally abandoned. Ammonia, musk, æther, camphor, and opium, so generally prescribed in all violent gastro-intestinal inflammations, where the subsultus tendinum and delirium supervene, are the most obnoxious remedies that empiricism could ever have imagined. In vain does Darwin pretend that wine and opium, given alternately and in small doses, relieve astheny and stupor, in subjects affected with typhus; no one will ever adopt such a treatment. Virginian serpentaria, a warm and stimulating substance, recommended by Sydenham, Pringle and Cullen, wherever delirium, stupor, and petechiæ exist, can only increase the violence of the inflammation for which it is administered. Lastly, phosphorus, notwithstanding what Mentz, Conradi de Northeim, Wolf and Alphonse Leroy have said in its favour, has been ascertained by the observations of Weikard, and the experiments of toxologists, to be a substance too dangerous to deserve a place among therapeu-

tical agents. In all the cases under consideration, it constitutes a deadly poison.

The majority of English physicians attribute a great importance to the employment of acids in the treatment of typhus. M. Thomas, for instance, after emetics and purgatives, submits patients labouring under that form of gastro-enteritis, to the use of a potion composed of 12 drops of muriatic acid, and 5 of laudanum, incorporated into an ounce and a half of infusion of the root of columbo. This dose is repeated every four hours. He gradually carries the quantity of acid to 18 or 20 drops; and when the fever has somewhat abated, he substitutes bark for columbo. This method is but the consequence of Pringle's idea, and rests upon the hypothesis of the putridity of the humours in adynamic diseases. A sound physiology has long banished this method. Indeed, what can be more contradictory than the combination of opium with an acid? what can be more vague than the ideas according to which this combination is made? what is less calculated to ease the stomach than the mixture of an aromatic and bitter vehicle with a mineral acid and a narcotic? Yest, as prescribed by E. Cartwright, owing to the carbonic acid it gives off in the stomach, is attended if not with as much danger, at least with the serious inconvenience of increasing the gastric-excitement; and of wasting a precious time during which the physician might resort to more rational and efficacious measures.

M. Massuyer, of Strasbourg, has administered the acetate of ammonia in very large doses in adynamic fevers. He pretends that this substance prevents the development of fuliginous matter in the mouth, and keeps the skin moist. It is evident that this latter effect only takes place in subjects whose cutaneous exhalent vessels may yet be sympathetically stimulated, I mean in the mildest cases. Cullen had formerly considered ammonia as an useful sudorific, and occasionally prescribed it; but the stimulating action of that substance is so energetic that it is useless here to dwell on the dangers attending its employment.

It is equally useless to relate the uncertain and contradictory modes of treatment of physicians who treated typhus with bleeding, bitters, vomits, and purgatives, combined with stimulants, astringents, or alexipharmics. Therapeutics is now ridding itself of that encumbrance; the progressive improvements making in pathology teach us the better to analyse the

mode of acting of the means it employs, and this science is thereby rendered more certain and methodical.

The English, under the impression of erroneous ideas on the effects of mercury, consider the preparations of that metal as a sort of specific in yellow fever. Drs. Chisholme, Duncan, Currie, and Thomas, advocate that method. 400 grains of calomel have even been administered in two or three days, before salivation could be effected. The physician is struck with horror at the idea of such enormous quantities of an irritating remedy being thrown into an inflamed stomach. Those who use mercury in frictions expose their patients to somewhat less danger. In all cases, this remedy can never be useful when it produces salivation, except by locating in the salivary organs an inflammation capable of displacing that which is situated in the intestines; but it will be readily perceived how difficult it is to operate this mutation, when the stomach is inflamed to such a degree as to create yellow fever.

This hasty view will no doubt be sufficient to demonstrate to what extent direct excitants are injurious in all gastrointestinal irritations. If some physicians were still undecided, it would only be necessary for them to look back to their own experience, and to the results they have obtained by those means. Let them take into account the frequent occurrence of adynamy and ataxy following the use of emetics in bilious fevers, the prostration of strength or agitation of the nervous system becoming more considerable after each dose of the decoctions of bark, serpentaria, camphor, and other similar agents; let them look at their patients covered with petechiæ, burning with fever, agitated with horrible convulsions, and sinking in the anguish of despair: on the other side, they will see with what rapidity those pretended violent bilious fevers, either adynamic or ataxic, generally give way to antiphlogistics; and when they shall have observed patients whose strength is restored and fever subdued by bleedings and emollient drinks, let them decide. The solution of the question between the two opposite modes of treatment, belongs to every one whose conscience is enlightened by clinical results.(1) When all the resources of logic have

(1) I am aware that bills of mortality have been published unfavourable to M. Broussais. But the author of this dark treason has failed to acknow-

been exhausted, facts alone must decide and carry the suffrages of even the most obstinate.

However, when adynamy, carried to the highest degree, is characterized by an earthy taint of skin, a very small and sinking pulse, cold and viscous sweat over the whole body, the eyes dull and sunk, the limbs immovable, and a general tendency to putridity, what should be the conduct of the physician? The danger is then such that, notwithstanding the most appropriate means, the patient can very seldom recover. If, however, the tongue be then moist and pale, the abdomen neither painful, hot, nor swollen; if copious and fetid stools have taken place, and if the gastro-enteritis, at first intense, appears to have decreased in violence, it may so happen that the irritation has left the stomach and the first intestines, and reached the neighbourhood of the cæcum and of the large intestines. The symptoms of adynamy then persist, on the one hand, by the exhaustion of the vital actions, and the losses the organism has previously sustained; on the other, owing to the stupour of the brain. Some excitants may then prove serviceable; but I believe they ought not to be taken from among the most energetic. On the contrary, we are to begin with those of a mild character, such as wine, at first with water, then by itself, in large spoonfulls. If, under the influence of this agent, the pulse gains strength, the patient seems to awake, without the tongue becoming red and dry, convalescence is at hand. But when the skin becomes warm, the pulse frequent and small, the epigastrium

ledge that the Val-de-Grace was then filled with the most serious and desperate cases, and thereby more likely to prove more beneficial to students; and that the removal of patients from one ward to another was more rapid than at any other institution, owing to a great number of convalescents removing to other wards and, leaving their beds to new-comers, whilst they themselves increased the proportion of cures by the other modes of treatment to which they were subsequently subjected. M. Castel,* although more learned, has not been more just: he pretends that since the establishment of the new doctrine, mortalities have increased in Paris. But numerous causes, independent of medical practice, or even the obstacles thrown in its way, may have produced that result. Hence those reports have not been able to stand the test of every physician's observations, nor shake confidence in the success of the antiphlogistic method; whilst a great many detractors of the physiological doctrine still continue, notwithstanding their public declarations, to follow the therapeutical precepts it proclaims. (*Note of the author.*)

* *Réfutation de la doctrine médicale de M. le Docteur Broussais, et Nouvelle analyse des phénomènes de la fièvre*, Paris, 1825,—in 8vo.

painful, the tongue dry, sharp, and of a scarlet hue, the relief obtained will not be of long duration; the patient will soon sink under an excitement which he was unable to overcome. The cases in which we are compelled to resort to tonics in adynamy are at present very rare, because that stage is prevented in time, and because, when it does take place, the antiphlogistic means resorted to against the phlegmasia which produces it, prove adequate to its removal. At any rate, it might so happen that, in the cases of extreme prostration that I have just mentioned, cutaneous excitants might be less injurious and less dangerous to the patient than tonics given internally. This question will no doubt be one day set at rest by means of more accurate clinical observations.

When the appetite becomes urgent, in acute gastro-enteritis, and the stupour is removed, we should prescribe broths, notwithstanding the continuance of frequency of the pulse, acrid heat and redness of the tongue; otherwise, hunger would increase the gastritis, bring on stupour, *fuliginosities*, and prostration; but more material substances would be injurious.(1) This proposition of M. Broussais appears to me dangerous. During the convalescence of the most intense gastro-enteritis, when the appetite occurs even with energy, we ought first to begin with feculent or gelatinous decoctions, and not with broths. Animal principles, especially *osmazone*, are too strong stimulants to be permitted, when the tongue is still red, the pulse frequent, the skin hot and acrid.

Tonics and stimulants have often been extolled against chronic gastro-enteritis, and especially against engorgements of the viscera occurring after that disease. The ferruginous and acidulated mineral waters of Vichi, Spa, Forges, the sulphurous ones of Barèges, Cauterets, and of Aix-la-Chapelle, internally, as well as bitters and aperient decoctions, are incessantly prescribed in all cases. This treatment will sometimes perform a few unexpected cures, which are taken up and published with pomp, in order to keep up the credit of some waters or drugs, but which are far from redeeming an infinitely more considerable number of failures that are seldom made known. Stimulating the digestive viscera in chronic engorgements of the liver and spleen, is sometimes useful, but only in subjects not irritable, and

(1) Vide *Examen des Doctrines Médicales*, PROPOSITION 336.

especially when every trace of gastro-intestinal irritation has completely disappeared. The cheerfulness and fatigue of a voyage, the change of air and of regimen, exercise, withdrawing from business, in the subjects who visit the springs, promote the absorption of the materials which irritation has accumulated in their organs. But if that irritation still exists, excitants will increase with it the volume of the tumours it is intended to destroy. Even in those cases where it has disappeared, intestinal stimulants will again renew the accidents, as too many examples exist to prove it. The greatest circumspection, therefore, is necessary in their employment. The habit of observing cases can alone point out the circumstances in which they can be safely administered, and not the dry studies of the cabinet.

Some physicians, and among others, M. Barbier of Amiens, think that balsamic substances and turpentine are capable of promoting the cicatrization of ulcers in the stomach and intestines. This opinion founded upon what takes place externally, is the less exact as the incarnative properties of balsams are strongly contested; and their impression upon the gastric mucous membrane is too active to be beneficial internally. We ought to remember that the only means of cicatrizing intestinal ulcers is to try subduing the irritation from which they proceed, prescribe a regimen that leaves no stercoral residue, finally place the affected viscera, as much as possible, in a state of rest which promotes the renovating process of nature. If the large intestines be the seat of the affection, a few cold enemata, with a gently astringent decoction, might be proper, when every sign of sanguineous excitement has completely disappeared.

In those very rare cases, where the digestive organs are really languid and inert, a state which is characterized by a broad and pale tongue, constant tranquillity of pulse, slow and difficult digestion, obstruction and a sort of inelastic fullness (*empatement*) of the belly, without pain, thirst, nor other signs of gastro-enteritis; in those cases, I say, tonics will produce very good effect. It is easily conceived that, in such cases, meek and farinaceous foods abounding with mucilage and fecula, are heavy, and remain on the stomach, wherein they produce distention and uneasiness; whilst spiced aliments and meat occasion a sense of ease, a gentle heat, and are easily and promptly assimilated. It would be difficult to ascertain whether, in subjects affected with this sort of gastric debility,

nutrition is too slow in the stomach and intestines, or whether the membranes of those organs have grown thin, and deprived of consistence and *oligotrophies*, to use an expression consecrated by M. Barbier. Post mortem examinations seldom show such alterations, and it is easily conceived that the digestive process, so directly placed under the influence of the nerves, may become languid and imperfect, even where there exists no remarkable alteration in the tissues of the organs affected.

However, the stomach is a viscus so sensible and irritable, that even when it is affected with astheny, we cannot but use the greatest circumspection in the employment of the means calculated to increase the intensity of its vital action. Great care must be taken that irritation be not substituted for debility, and stimulants, given without discrimination, would not fail to produce that effect. We are then to insist upon an analeptic regimen, composed of substances of an easy digestion, and of a moderate use of wine. Ferruginous mineral waters are frequently beneficial. It will be proper to prescribe as an habitual drink a gently stimulating tisan, such as a light infusion of camomile and smaller centory. Powders composed of equal parts of bark and canella, taken in the first spoonful of soup, will promote the digestion of the repast. In the employment of gastric stimulations, we are not to load the stomach with aliments, but, on the contrary, observe attentively the state of the pulse, tongue and skin, promote nervous action by gentle exercise of the body, and discontinue the stimulation as soon as symptoms of irritation come on. Astheny of the stomach is almost unknown in practice, and the inflammation of its tissue is pretty much the only cause of the disorder and imperfection that so often occur in its functions.

SECTION IV.

Of the employment of astringents.

The astringent substances mostly in use are the roots of the *coryophyllatæ*, *polyganum*, *tormentilla*, *ratanhia*, and of *agrimonia*; the barks of oak and of the *cæsculus hippocastanum*; the *putamen viride nucis*, gall nuts, gum acacia, the roses of Provins, the *punica granatum*, *rhus*, *simarouba*, catechu, gum kino, green raisins, acetic and sulphuric acids,

the sulphates of iron and zinc, and those of alumen and potass.

The impression of those substances on the living tissues is very remarkable. It evidently consists in drawing closer all the organic elements; the part submitted to their action becomes white, thick and dense, less excitable, and less permeable to the blood. This liquid even seems to be expelled to a distance by the constriction of its vessels. Placed upon the tongue, astringents have a very strong nipping and styptic taste; they at first produce no heat nor exhalation: far from it, they cause a sensation of cold, and prevent all secretory process. These effects are proportionate with the activity of the substance employed; and in this respect, there is between tonics, such as bark and the astringents above mentioned, and styptics or escharotics which are made use of externally, no other difference but that of the degree of constriction they produce in the organic tissues.

The condensation and paleness produced by astringents are not of long duration; a reaction soon takes place in the tissues, the blood returns again, and a turgescence somewhat considerable occurs with all the phenomena of vascular excitement. Immobility and constriction, which are first produced, are soon followed with more rapid oscillations, and with the return of the humours.

Astriction cannot be successfully opposed to sanguineous irritations of the stomach and intestines. Medications capable of producing metastasis may well be tried externally; but the structure and sensibility of the digestive organs do not permit that course, whenever those organs are even but slightly inflamed. Chronic dyarrhæa and dysentery, where mild remedies and abstinence have failed, if unaccompanied with any sensible vascular excitement, are alone susceptible of being relieved by astringents. It is possible that the intestinal mucous membrane be then pale, soft, gorged, as it were, with white fluids, and the process of exhalation and secretion increased in them, without complication of local heat and redness. This form of colitis is somewhat frequent in lymphatic and obtuse habits, that are subject and disposed to infiltrations; in such cases, the skin is cold and dry, the tongue pale, the pulse feeble and tranquil, the abdomen not painful on pressure, stools frequent, without tenesmus, and of a serous or mucous nature.

Astringents are positively contra-indicated whenever there

is pain in the belly accompanied with heat of skin, frequency of pulse, and bloody stools. They have succeeded in a few cases, but in the generality of them they have proved injurious, whilst others have been cured rather in spite of them than by them; and therapeutical precepts are not to be established on a few exceptions but on general results.

Some persons have attributed to ipecacuanha a gently astringent property, and Pison, Valentine, Baglivi, Deckers, have considered this substance as the anti-dysenteric by excellence. This remedy is at present generally excluded from the treatment of all mucous or bloody fluxes of the intestines, accompanied with pain, fever, and acrid heat of skin; in the other cases, its intervention is rather susceptible of being obnoxious than useful. We must also exclude the use of enemata composed of three drachms of ipecac, boiled in two quarts of water, until reduced to less, as recommended by Th. Clarke in the treatment of acute dysentery. The diaphoretic effects attributed to those remedies cannot take place without first irritating the inflamed membrane of the intestines; and in the greater number of subjects, they leave the skin dry and burning, whilst they increase the number of stools, agitate the pulse, and produce colic pains.

Astringents may be administered, not only by themselves, but also combined with aromatic excitants, or with opium, or extended in some seculent and nutritious liquids.

The combination of bitters with aromatics implies a sort of contradiction; for whilst the former tends to produce constriction of the tissues, suspend the vascular oscillations, and expel the fluids from the surface with which they are brought in contact, the latter solicits the extension of the tissues, accelerates the action of the capillaries, and causes the afflux of blood. Such mixtures cannot cure dyarrhæa of old standing but by exciting in the organs more or less inflammation, thereby destroying the irritation which existed in the secretory vessels. I conceive that this result is more to be attributed to a stimulating medication properly so called, than to a constriction of the tissues.

The union of astringents with opium is more rational, and is more deserving of the confidence it generally possesses among practitioners. Indeed, whilst the tissues are constricted by tannin and gallic acid, the narcotic principle diminishes the sensibility of the parts and the peristaltic motion, and very likely retards the vascular reaction which must

follow. Diascordium, bolusses and pills containing extracts of opium, catechu, and other astringents; also decoctions of the root of columbo with opium, have proved highly beneficial in those rare cases, where it is necessary to resort to stimulants in intestinal irritations terminating in chronic dysarrhæa or dysentery.

The addition of astringents to feculent substances has a twofold effect—that of lessening the action of the former, and of promoting the digestion and assimilation of the latter. This therapeutical process is frequently resorted to, and it seldom produces injurious consequences, when the intestines are free from violent irritation.

When, under the influence of the most simple astringents, intestinal secretions increase, this phenomenon indicates that the medication itself is obnoxious, and that mild remedies and diet are to be continued. M. Alibert has often employed, with advantage, at the Hospital St. Louis, the decoction of rice with the addition of 12 grains of catechu in every two quarts of the liquid. If any analogous preparation, to which we might add, as occasion requires, a few drops of laudanum, or a grain of the gummy extract of opium, should excite pain in the belly, colic, tenesmus, and frequency of pulse, far from resorting to the most powerful astringents, it would then be necessary to return to the use of demulcents and revulsives. The digestive canal seldom requires additional vital energy; stimulants, even the most powerful, never can disorder it but by raising its organic action in too high a degree. The dose of astringents is never to be increased, except in those rare cases where the first doses produce no apparent effect, not even frequent stools. This circumstance shows that the alimentary canal is not very sensible, and it seems to invite the physician to prescribe more energetic substances, if he wishes to obtain favourable results. The quantity and strength of astringents are also to be increased, when the stools, after becoming less frequent and better conditioned, resume their natural appearance, without the patient having infringed the rules of diet. It is evident that the mucous membrane has now become habituated to the contact of astringents hitherto administered, and that, in order to complete the cure, they must be rendered more active.

When the disease is chiefly seated in the large intestines, and especially in the rectum, remedies are better administered by the anus than through the mouth, for the purpose of

exhibiting those energetic astringents to which it may be proper to resort.

The acetate of lead, as an astringent, is to be totally proscribed: the fruit of *baobab*, considered by the inhabitants of Nubia, Egypt and Darfour, as a precious remedy against dysentery, and which J. Frank has several times employed with success,(1) seems rather to belong to the class of mucilaginous than of astringent substances. The same may be said of the *triumfetta semitriloba*, used in the East Indies, and which has often succeeded in the practice of Professor Wendt of Copenhagen.(2) The root of Juan de Lopez, or *tatuleira*,(3) so much extolled by Gaubius, and by several other Spanish physicians, is, on the contrary, a violent astringent, the efficacy of which is to be observed only in the chronic mucous fluxes of the intestines, as Andry has himself used it with success in such circumstances. Alum has no other effect but that of combining with the acidities contained in the digestive canal.

Intestinal hemorrhages should never be treated, as we have already said, with astringents, except where bleeding, cold, and abstinence, have failed. Nitre, muriatic and sulphuric acids, the cold decoction of *rhanhia*, *caryophylla*, and *bistorta*, are then the most proper. It is useless to dwell again on the danger of thereby producing violent gastritis, and on the necessity of discontinuing those remedies as soon as, the blood being stopped, symptoms of intestinal irritation begin to show themselves. This therapeutical precept has been sufficiently discussed; it is, therefore, useless to return to it again.

SECTION V.

Of the means calculated to neutralize poisons, and destroy worms, in the intestinal canal.

The fundamental therapeutical indications in cases of poisoning are the following: evacuate the poisonous contents by the least irritating substances, and then combat with energy the disorders produced either immediately in the irritated parts, or secondarily in the nervous system, the lungs, or

(1) *Journal complémentaire des sciences médicales*, Vol. XII.

(2) *Magazin der Pharmacie*, November, 1825, p. 164.

(3) Notice sur le *tutellera*: *Bulletins de la Faculté de Médecine*, Vol. V. p. 117.

other organs. There is, however, a small number of poisons unsusceptible of being decomposed in the stomach by appropriate agents. But it must then be remembered that antidotes can only reach the poisonous particles that have not yet combined with the organic tissues, or been taken up by absorption, and that the mucous membrane of the stomach and intestines possesses to a high degree the property of altering the nature of most excitants, or of driving them into the torrent of the circulation. In every case of poisoning, whatever prompt and proper means are employed, we are to calculate that the poison has already produced more or less impression on the organs, and that its particles are, for the most part, either decomposed or combined with the tissues, or have passed into the absorbents, and are, therefore, beyond the reach of the chemical action of counter-poisons.

The substances destined to produce such neutralizations are to be chosen among those that possess an emollient property on the digestive canal, promoting, at the same time, the expulsion of its contents. Every antidote acting in small doses, or being susceptible of irritating the parts, either immediately, or by the combination it forms with the poison, must be rejected from the treatment. The indication of chemically decomposing toxical agents, is always subordinate to that of evacuating them and of obviating their irritating effects; it is to be fulfilled only in as much as the means to be employed are such as to satisfy the other two conditions of the treatment.

Hence water saturated with albumen, and if it cannot be procured, milk, broths, and gluten, should be given copiously in poisoning by the deuto-chloruret of mercury and carbonate of copper, because these liquids, especially the former, whilst they promote evacuations and lessen the impression made on the organs, decompose also with rapidity, as demonstrated by M. Orfila, the two salts we have just now mentioned. The hydro-chlorate of pewter and sulphate of zinc are equally decomposed in large quantities of milk. Arsenic is unfortunately without an antidote; charcoal, as recommended by M. Bertrand, to decompose arsenic, would only serve to waste a precious time. Alkaline hydrosulphates, as well as the hydrosulphuric acid, proposed by M. Renaud, are useless; vinegar and oils are dangerous. Mucilaginous substances, cold water, or rather water and sugar, taken copiously, are alone

to be administered. When it is found impossible to expel a large dose of emetic tartar immediately, some benefit may be derived from the decoction of bark, as proposed by Berthollet, or, in the absence of that remedy, from green tea, gall nuts and all vegetable astringents properly diluted; emetine is also quickly decomposed by gall nuts. All poisonings by caustic alkaline should be treated with water and a little vinegar. Liquids containing magnesia in solution are eminently useful in poisoning by acids. It is proper to use the sulphate of soda, after the ingestion of the hydrochlorate of barytes, owing to the great affinity which sulphuric acid has for that earth, separating it from all the combinations it forms with the other acids. Common salt is the best counter-poison of the nitrate of silver. Lastly, magnesia is serviceable in poisoning by phosphorus, because the liquid which serves as the vehicle, by filling the stomach, propels out all the air it contains, and retards the combustion of the poison; whilst the earthy particles neutralise the phosphatic and phosphoric acids which may have formed. In all other cases of ingestion of irritating mineral substances, mucilaginous substances and waters, taken in large quantities, should be exclusively administered.

The means that medicine opposes to vegetable poisons are only intended to promote their expulsion, and diminish the irritation they have produced in the various parts of the animal economy. Those means cannot be ranked among the substances capable of acting chemically upon the poisonous particles. The analysis of the greater number of vegetables is otherwise so imperfect that it is not possible at present to attempt to determine what are to be their antidotes. Emetics and purgatives shall then be at first employed against mushrooms and other similar poisons, which may remain some time in the digestive canal. Recourse will be had to coffee and to water containing a small proportion of vinegar, if there be drowsiness, as after the ingestion of narcotics. Bleeding, where the subject is threatened with apoplexy; inflating the lungs with air, where the chest seems to suspend its motion; finally, irritating cutaneous frictions, where the patient is cold, without pulse and nearly sinking, are the most appropriate accessories.

Experiments made by Dr. J. Murray demonstrate that liquid ammonia, given internally in small quantities, or inhaled through the nose, and applied to the head, by means

of thick compresses, often renewed, is a precious antidote against hydrocyanic acid.(1) It is to be remarked that the hydrocyanate of ammonia does not partake of the eminently poisonous properties of the acid which contributes to its formation. M. Jullia has ascertained that hydrocyanates of iron, and perhaps of soda, exist in the urine in certain diseases;(2) and the triple salt of hydrocyanic acid, iron and potass, may be taken in large quantities without inconvenience, as proved by an important observation of M. D'Arcet. All alkalis, might, therefore, perhaps share with ammonia the property of annihilating or lessening the deleterious action of the hydrocyanic acid. M. Heller, however, has demonstrated that coffee and oil of turpentine are then either useless or dangerous, by their occasioning inflammation in the digestive organs, and that it is better to insist upon the use of emollient drinks.(3) Frictions and external ammoniacal applications will be advantageously added to that treatment.

The above considerations are mostly applicable to the employment of vermifuges. Among the latter, we are to select the substances that are least calculated to inflame the digestive mucous membrane, and the physician should wait until the too violent over excitement with which it is affected in a great many cases, has entirely subsided, before he administers them. It not unfrequently happens that this antiphlogistic treatment, by destroying the irritation, and suppressing the gastro-intestinal secretions resulting from it, promotes the expulsion of worms, and thus dispenses with the administration of any other anthelmintic. In this manner lumbrici are evacuated in children at the decline of gastro-enteritis, of which they seem to be rather the effect than the cause. M. Pallas has given the very interesting history of a whole tenia evacuated in this way under the influence of emollients.(4)

When these medications are not sufficient, small doses of castor oil or the oil of sweet almonds, mixed with lemon juice, generally produce the expulsion of worms. In the most obstinate cases, corsican moss, sementina, fern, calomel, ce-

(1) *Edinburgh Philosophical Journal*, 1824.

(2) *Archives générales de Médecine*, Vol I, p. 104,

(3) *De la nécessité de ne pas trop insister sur l'usage intérieur des excitants dans l'empoisonnement par l'acide hydrocyanique*, Paris, 1824 in 8vo.

(4) *Mémoires de Médecine Militaire*, Vol. XVI.

radilla, or other stimulating and purgative substances, may be successfully employed. Infusions of one to six drachms or one ounce of the *fucus helminthocorton*, or of half a drachm to one of *semen-contra*; cakes, jellies, biscuits, and syrups, containing those substances, are very useful for children. Enemata made of a decoction of garlic or of fern are very proper against ascarides vermiculares that are lodged about the rectum. The Americans make a successful use of the spigeliæ, as a decoction, containing a handful of the herb to a quart of water reduced to one half; four ounces of this decoction are afterwards given every six hours. Another decoction made with two drachms of the azedarack in a pint of water is also a favourite remedy in the New-World. From two to twelve grains of the powder of cevadilla with honey or syrup of rhubarb, form an equally useful remedy. Emollient drinks, and occasionally gentle purgatives, will greatly promote the action of anthelmintics.

The *crithmum maritimum* of Linnæus is considered by Dr. J. Lavini as a powerful vermifuge. According to this physician, the juice of that plant, or its volatile oil, forming an *oleo-saccharum*, or even the cataplasm of its leaves bruised and applied upon the abdomen, are very powerful against lumbrici, which they cause to evacuate either by vomiting or by the stools. This virtue supposes in the *crithmum maritimum* the existence of a very stimulating property on the digestive canal, but new facts must be collected, before we can place as much confidence as M. Livini does in that remedy.

Lumbrici and ascarides vermiculares are easily expelled, but teria sometimes baffles all the efforts of art. Physicians have imagined a host of special remedies and even of complicated therapeutical methods for its destruction. Among those that have enjoyed the most credit, it is proper to mention the treatment of widow Nouffer. It consisted in administering to the patient one drachm of male fern, in four or six ounces of the distilled water of that vegetable, or of linden-tree or even of common water. On the preceding evening, he was directed to take water in which a great quantity of butter and a piece of bread has been boiled, and afterwards an enema composed of marsh-mallows, muriate of soda and sweet oil. Two hours after the fern had been taken, a lobus was given composed of mercurial penacea, and resin of scammony, of each twelve grains, and of gamboge five grains. As soon as alvine evacuations came on, several cups of green

tea were administered, and continued until the expulsion of the tenia. If the purgative was not deemed sufficiently powerful, the patient was directed to take, after the lapse of a quarter of an hour, from one drachm to one ounce of the sulphate of soda, renewed as often as occasion required.

Æther, as recommended by Rosen, has been revived by Bourdier, against tenia. That physician gave one drachm of sulphuric æther in one glass of a strong decoction of male fern, and, one hour after, two ounces of castor oil. This medication was renewed on the second, and sometimes on the third day; but the first dose was generally found sufficient. When colic pains and disorder in the lower part of the abdomen announced the arrival of the worm about the rectum, Bourdier added to the other already prescribed two drachms of the same remedy, extended in a sufficient quantity of the decoction of fern, in the shape of a glyster. This process is still the safest that therapeutics can even resort to.

The hydrocyanic acid has been employed against tenia by Dr. Gelnecke of Stettin. This physician having observed the good effects of strawberries for worms ordered one of his patients to eat them for two days. On the third day, at six o'clock A. M., he administered one ounce of castor oil, and afterwards, every half hour, three powders composed each of fifteen grains of the root of male fern in powder; at half past eight, a second dose of castor oil was given which brought on stools and fragments of the tœnia. The portion of the worm which protruded was then secured, and hydrocyanic acid applied to it to the extent of four inches. The tenia was much agitated, and attempted to return into the rectum; but not being able to do so, it protruded about one yard more, and then remained motionless as in a state of stupour; half an hour after, the child had another evacuation, which brought out the tenia entire and dead. It remains to determine whether we are to attribute the expulsion and death of the worm to the hydrocyanic acid, or to the combined action of the fern and of the purgative.

Dr. Brayer, who has resided a long time in Constantinople, assures us that, in Abyssina, a frequent and successful use is made of a plant of the family of rosaceæ, which, according to the learned botanist Kunt, forms a new gender, next to agrimonia, to which he has given the name of *brayera*. The *brayera enthelmia* must then take its place among vermifuges; but more facts are necessary to establish its efficacy. The

root of saffron employed in powder by Dr. Chisholm, has not yet been sufficiently tried to become a substitute for so many other means which the art possesses.

The bark of pomgranate root, used against tenia from time immorial in India, seems to be the most powerful remedy we yet possess against that animal. The observations which come in support of its efficacy are multiplying every day, since Buchanan has informed the Europeans with the use the people make of it in India. M. Breton, and especially Gomes from Portugal, have published several cases in which it has completely succeeded; in France the same result has been obtained. In India, two ounces of the bark of the fresh root are boiled in a pound and a half of water, reduced to one half; two ounces of this decoction are given every half hour. This is the mode of M. Breton. Gomes only reduces the liquid to one pound. Buchanan boiled two ounces of the bark of the root in two pounds of water, reduced to fourteen ounces. This bark may also be used in powder, in the dose of one scruple for children, and two for adults, every half hour.

After five or six doses of the remedy, it is not uncommon to observe uneasiness, vertigo, nausea, pain in the bowels, and other symptoms of a violent excitement of the alimentary canal and of the nervous system. The liquid must be suspended six or eight hours, until the accidents disappear. It is generally given in the morning, fasting. If the first five or six doses do not bring out the tenia, the same number of doses is given in the evening, and the medication resumed in the morning, until the *vermifuge effect*, as Gomes calls it, has taken place.

This bark seems to act in the same manner as acrid narcotics; several of the symptoms it produces are very analogous to those following the use of tobacco. Darbon's potion is very likely composed of such substances, and is not more efficacious.

CHAPTER VII.

OF STIMULATIONS DIRECTED TOWARDS THE LYMPHATIC SYSTEM.

Since the theory of absorption by means of the lymphatics has been overthrown, or at least considerably shaken, and since scrofula and sub-inflammations have been brought under the same head as slow or acute phlegmesia of organs, it is very difficult to determine the circumstances in which we are to stimulate the lymphatic system, and the means that might serve to fill that indication.

The materials taken into the digestive canal may, indeed, penetrate the lymphatic tubes as far as the torrent of the circulation; but they pass straight through the thoracic duct, without deviation in their course, as far as the subclavian vein, and once mixed with the blood, they spread to every part of the body. These medicinal particles, therefore, cannot, as was formerly believed, immediately modify the lymph itself, nor the organs in which it is contained. This is also the case with the remedies absorbed through the skin; and even supposing them taken up by the lymphatics, and not by the capillary veins, they could only go to the ganglia situated on their passage, leaving all the others beyond their sphere of activity. Hence we cannot conceive how the whole of the lymphatic system can be immediately affected by direct therapeutical medications,

Some have pretended that mercury, barytes, muriate of ammonia, iodine, and some other substances, possess an elective action on the organs elaborating the lymph. No positive phenomenon can justify that opinion. Taken internally, these substances evidently excite the digestive canal and sanguiferous system. Mercury produces an increased action in the parotid and the other salivary glands, iodine occasions atrophy of the thyroid and mammary glands, and perhaps of the testicles; but those organs have no connexion with the lymphatic system, of which they are as independent as the liver, the pancreas, the kidneys and all the secretory parenchymata.

When used in friction or plaster, mercury and iodine frequently produce a resolution of solid, indolent tumours of

long standing, situated in the lymphatic ganglia, the cellular tissues, the mammary or thyroid glands. This effect cannot proceed from a special stimulation of the lymphatic vessels. There exists then, in the parts affected, a chronic inflammation, the products of which cannot be removed by iodine or by mercury otherwise than by modifying the mode of acting of all the organic elements.

The question respecting the excitation of the lymphatics, and especially of their ganglia, is, therefore, reduced to determining the cases in which the inflammation of those parts requires the employment of local stimulants. In this shape, the problem revolves in the general rule, that we are not to resort to stimulating measures except after the acute and sanguineous phlogosis of the organs has been subdued by antiphlogistics. Mercury is indebted for the credit it might have at first enjoyed against external tumefactions, to the property it was thought to possess of dividing and dissolving substances thickened and coagulated in the living tissues, as it divides and penetrates organic matter; but the action of those topics which contain that metal in their composition is too uncertain to deserve much confidence. In exchange for a few resolutions of local mercurial frictions, or of Vigo's plaster, we have tumours persisting, becoming more solid, and acquiring a dense and fibrous texture which can no longer be cured. It would seem, either that the liquid materials accumulated in the parts, are precipitately absorbed by the effect of the topic, or that, under the influence of the local excitants, the tissues have experienced an additional degree of alteration and hardening. Emollient applications have more beneficial effects, and are free from similar inconvenience.

Iodine, employed in friction over indolent and tumefied lymphatic ganglia, as well as on the thyroid gland, the mamæ, and other organs of a similar texture, seems to possess a much greater efficacy than mercury.(1) Reparations of iodine not unfrequently give rise to redness of the skin, ac-

(1) The most celebrated pomatums of this sort are composed: 1st, of hydriodai of potass \mathfrak{Dss} , and hogslard $\mathfrak{3jss}$; 2d of hydriodate of potass \mathfrak{z} , pure iodine \mathfrak{zj} , gastric juice, a sufficient quantity to operate its digestion in twenty-four hours, and hogslard $\mathfrak{3j}$. One scruple of these pomatums is employed morning and evening. The second is more active than the first, and is to be preferred when there is no sensibility in the parts. M. Richond employs the tincture of iodine externally in the dose of one or two drachms, and believes it is more efficacious than the pomatum.

accompanied with small pustules, and with pain and acute inflammation in the tumours. When this takes place, the frictions are to be suspended, and the parts covered with emollient cataplasms until the inflammation has subsided. M. Zinck thinks that this irritating action of the ointment of hydriodate of potass arises from its rapid decomposition which can be avoided by preparing but a small quantity at a time, in order to have it always fresh. The yellowish and violet colour which preparations of iodine imparts to the skin, soon disappears, and ought to produce no anxiety. MM. Richond and Eusébe de Salles have employed with success iodine in frictions for venereal buboes, after the cessation of the inflammatory symptoms. The last mentioned physician has also used them in chronic engorgements of the testicles.

Some have attempted to combine the influence of galvanism with the action of iodine, by applying the latter in friction to one side of the bronchocele, whilst the positive pole of the pile was directed to the opposite side. The friction and electric actions are changed alternately every day from one side to the other. The most decided and extraordinary benefit is said to have resulted from this mode of proceeding, which, however, wants further confirmation. The same may be said of the observations of Dr. Ullmang of Marbourn, who asserts that he has cured cancerous ulcers of the lips, nose, breast, and uterus, with the ointment of hydriodate of potass, or with injections containing that salt in solution.

Preparations and ointments of iodine, and especially the proto and deuto-iodurets of mercury, in the proportion of twenty grains to one ounce and a half of hog's lard, applied in small quantities with the end of a quill, have been much extolled against syphilitic ulcerations. M. Biett is the first who executed this combination of mercury with iodine, and he has obtained the most decided benefit from it.

But, in order fairly to judge of the effects of iodine, we must wait until the enthusiasm excited in favour of that remedy has subsided. As soon as a new medicinal substance proves successful, in certain given cases, the generality of physicians use it almost without discrimination in all instances. It is soon converted into a sort of panacea, administered in the most opposite circumstances, and every day brings new results in its favour, until repeated failures or some new object draw their attention to another quarter: an unjust disdain then takes the place of a no less unreason-

able enthusiasm. It is in this manner that the science of therapeutics has been kept in the dark, and submitted to empiricism, and, in some degree, to the caprices of fashion. Such disgraceful incumbrances can only be removed by the efforts of wise men, accustomed to reflect and calculate, and who appreciate the value of medicinal agents by the test of facts and of physiological reasoning.

CHAPTER VIII.

OF STIMULATING MEDICATIONS DIRECTED TO THE NERVOUS SYSTEM.

All the sensible surfaces of the human body present to the physician inlets through which he can modify the vital action of the nervous system, and increase, lessen, or equalize the exercise of its functions. Nearly all the means employed for that purpose act through the medium of the sympathies; the stimulation they produce is extended to the cerebro-rachidian center, from whence it irradiates to the whole system. Others produce their effect by the absorption of their particles, which, being carried with the blood into the parenchyma of the brain, excite in that organ an immediate impression which is more or less rapid and extensive. Whatever may be our uncertainty on this point, it is no less certain that, in all cases, the excitants of the nervous system first stimulate the surface with which they are brought in contact, and that this stimulation has a great share in the production of the phenomena to which they give rise.

These medications always occasion, either in the centre or in the ramifications of the nervous system, a more considerable afflux of blood; they accelerate the circulation as well as the intensity of the vital actions. But two secondary and almost opposite results may arise from them: the one is the exaltation of the nervous actions and of the motions submitted to their influence; the other is the weakness of these same actions, and the torpor of the organs. It is by produ-

cing the one or the other of these effects, and by thus changing the mode of feeling and of acting in the brain and nerves, that all such stimulants operate.

SECTION I.

Of the excitation of the nervous functions.

Among the agents used in therapeutics for the purpose of increasing the action of the nervous system, we must give the first rank to those which writers on materia medica have called excitant, diffusible and *nervine*. A great number of plants of the family of the *labiatæ*, such as rosemary, sage, mint, &c, belong to this category; but coffee, camphor, musk, castoreum, amber, æthers, possess more energetic properties. Electricity, magnetism and galvanism also have an evident exciting action on the nervous system. Lastly, we are to include in their number, the moral impression which occasion joy or anger, exercise of the limbs, and all the energetic stimulations of surfaces abundantly supplied with nerves.

These means may be resorted to in two opposite circumstances, according as the nervous system is actually affected with astheny, or when, possessing too much susceptibility, it has become the seat of primitive or sympathetic irritations more or less violent.

In the former category we are to place asphyxia, which is only a suspension of the nervous action, after the interruption of respiration, or after inhaling gases unfit for the transformation of venous into arterial blood. Whenever asphyxia takes place, all the means employed for reviving the patient from the state of apparent death by which this accident is characterized, must be directed with the view to rouse the nervous system from its stupour, and produce a first inspiration. The first indications to be attended to without delay, and which contribute the most powerfully to ensure efficacy to subsequent therapeutical measures, consist in placing the patient in a salubrious atmosphere, and removing all objects that may keep up the morbid condition of the air. Sometimes the action of those organs is restored merely by pressing alternately the chest and abdomen, in imitation of natural breathing. But this proceeding is generally found inadequate. Immediate inflation, from mouth to mouth,

whilst the nostrils are kept closed, has a twofold injurious effect ; first, because the air sent into the lungs has already been in a great measure deprived of its oxygen, and is impregnated with a proportionate quantity of carbonic acid ; secondly, because the inflated air, instead of penetrating into the larynx, goes through the œsophagus, and fills the stomach. The laryngian tube of Professor Chaussier is much safer. In order to use it, the jaws are opened, and the index carries the basis of the tongue forwards and downwards, and upon this finger the end of the instrument is introduced between the lips of the glottis, which is completely filled by the tube. Then the physician, by a movement of aspiration, brings up the vitiated air, and part of the mucosities contained in the larynx and trachea ; air is afterwards introduced by means of a bellows or bladder, in order to excite a gentle, but salutary motion of the lungs.

Whilst these measures are carry on, the most sensible external parts are to be strongly stimulated. The burning sulphur of common matches, volatile alkali, spirituous liquors, acetic acid, or other substances emitting penetrating vapours, are put under the nostrils ; whilst these cavities are excited by the introduction of similar substances with the hairs of a quill. Dry frictions will be made with a rough hair brush along the spine, at the soles of the feet, in the palms of the hands and about the precordial and epigastric region. Lastly, the rectum is to be acted upon by means of glysters composed of water, vinegar, sulphate of soda, and magnesia.

These are the necessary measures to be resorted to in cases of asphyxia, and they are to be continued, by varying and combining them, until every hope of success has entirely disappeared ; that is, in certain cases, for the space of eight or ten hours. This treatment must be modified according to the cause of the accident, and the pneumonia attending it. Thus, in asphyxia produced by carbonic acid, or by emanations from a privy, the body is to be put in a cool place, and frictions applied with vinegar, camphorated spirits, cologne water, or other spirituous liquors, the parts being afterwards wiped dry by means of hot linens. When the body has been a length of time under water, or exposed to cold, and when heat seems so be almost gone, we are to endeavour to restore it by frictions over the whole skin, with hot flannels soaked in spirituous and stimulating liquors. The easiest and most appropriate means consist in placing a bladder fill-

ed with hot water upon the epigastrium, hot bricks to the soles of the feet, the axilla, and the groin, and passing heated irons over the various parts of the body. In almost every case of asphyxia, chlorine, and especially the chlorates of soda and lime, placed under the patient's nose, are highly beneficial. When the disease arises from the effluvia of privies, or other infected places, the affinity of chlorates for the putrid gas is such that it must decompose it even as far as in the trachea itself, and the most decided benefit can be expected from their introduction into the lungs in the cases under consideration. M. Labarraque relates a very important observation in support of this proposition.(1)

In every species of asphyxia, the redness of the face, fullness of the veins of the neck and head, projecting and injected eyes, indicate the existence of a cerebral congestion, and the necessity of bleeding at the foot, or the arm, or rather from the jugular. This operation is more frequently required after strangulation or the action of carbonic acid, than after submersion or asphyxia from privies.

Tobacco enemata, formerly so much in use for the recovery of drowned persons, are to be proscribed: their irritating action on the intestines renders them inferior to other remedies; whilst their narcotic and stupefying effect is highly injurious in subjects whose brain is gorged with venous blood, and unfit to perform its functions. Laryngotomy can never be useful except in those very rare cases where the epiglottis, forcibly brought down upon the glottis, from which it cannot be separated, prevents the introduction of an aerian tube. When asphyxia occurs after a copious repast, or when the subject has swallowed a great quantity of the liquid into which he has been immersed, it may become proper to excite vomiting. This will be produced by injecting into the stomach, after the respiratory motion has been restored, a quantity of tepid fluid, or by irritating the uvula and pharynx with the fingers or the hairs of a quill. The suspension of the body by the feet, the head downwards, is a barbarous practice, long banished from the treatment by all intelligent men.

(1) Note sur l'asphyxie produite par les émanations des matériaux retirés des fosses daisance, suivie d'expériences sur les moyens de désinfection propres à prévenir de pareils accidents. *Jour. Compl. Diction. Scienc. Méd.* Vol. XXI. p. 150.

In a general point of view, the measures constituting the treatment of asphyxia, have for their object, 1st, to bring a salubrious and pure air in contact with the internal surface of the lungs; 2d, to excite and promote the action of the nervous system; 3d, to attend to all the modifications of the disease, such as coldness of the body, sanguineous cerebral congestions, &c. Among these, exciting the sensible surface is the most important, because the bronchiæ would in vain be filled with oxygen if the nervous action be excited so as to produce a first inspiration. The dark blood stagnant in the lungs is then converted into arterial; the pulmonary veins bring it to the heart, of which it stimulates the fibres; from whence it is sent to the brain and all other parts of the body, thereby causing the vital motions to resume their normal functions. In some subjects, notwithstanding the apparent immobility of the heart and lungs, the circulation is still going on, though in very small degree, in the chest; in this case, inflating the lungs, and thereby restoring oxygen to the blood, will be sufficient gradually to excite the action of the circulation, and of all the other organic functions. But even in these cases, the phenomena attendant on asphyxia will only disappear at the moment when the nervous system resumes its influence, and again directs organic action. In many subjects, especially asphyxia from carbonic acid, hydro-sulphuric and putrid gases, the brain retains traces of irritation, which are afterwards to be dissipated by means of antiphlogistics, as laid down in the second division of this work.

If palsy were always the result of debility of the nervous system, the irritating measures which are resorted to for its cure ought invariably to produce beneficial effects. But in the greater number of subjects, the disease being occasioned by the chronic inflammation and material alteration of a part of the brain or spinal marrow, excitants either prove insufficient or increase the extent of the malady. I do not mean to apply this remark to cataneous frictions, blisters, moxas, or internal irritants which act merely by revulsion, but to electricity, nux vomica, and other means especially destined to stimulate the central parts of the nervous system. Notwithstanding the experiments of Manduyt, and all the wonders related by numerous physicians, electricity is useful but in a very limited number of asthenic diseases. It has, for instance, been successfully employed in pale, feeble subjects, whose vital actions were but imperfectly developed, and in

whom certain organs were weaker and more languishing than others. It has succeeded in some cases of amenorrhœa, produced by a defect or an insufficiency of uterine excitement, by directing a nervous influx to the womb. We should, however, never resort to it before having employed other means calculated to increase the energy of vital actions, without which it might possibly prove insufficient, or the relief produced by it soon disappear. In amaurosis and deafness, unaccompanied with incurable material defects, electricity may have changed the condition of the nerves, awakened their action, and restored to a certain degree sight and hearing; but facts of this kind are extremely rare.

Electricity, in whatever way it is employed, appears to possess no other property but of imparting to the nervous system a more or less violent shock, an almost invariably transient impulsion, the results of which are either null or of no duration. It is, however, much to be desired that this agent should be submitted to a severe investigation, and that expert physicians should make it the object of a series of physiological and pathological experiments. M. Pascalis has already ascertained the good effects of galvanism in certain habitual difficulties of breathing; but it would be necessary that the patients should then be attentively examined, by means of percussion and of the stethoscope, in order to determine the state of the heart and lungs, whether the experiments prove successful or not. It would also be required that the cases of failure should be published as well as the successful ones; without this it is impossible to acquire a correct knowledge of the utility of a remedy, and of the cases in which it is most advantageously employed.

The treatment of palsy was still vague and uncertain when M. Fouquier, guided by the experiments of MM. Delille and Magendie, thought proper to introduce the *nux vomica* for its cure. This substance gives rise to accidents which had before been noticed by Bonnet, Wepfer and Murray, indicating its powerful agency on the spinal marrow. Its effect is an artificial tetanus of more or less intensity and duration. One grain of the dry extract of *nux vomica*, repeated two, three, four, five or six times a day, is the proper dose. The quantity is to be increased until the desired symptoms appear, when the remedy is then discontinued in order to prevent accidents. Its effects are generally produced in half an hour. The muscles subservient to the will are seized with

spasms, which, slight at first, acquire in a few minutes the highest possible degree of intensity. This rigidity of the muscles occurs in sudden and rapid strokes; it attacks, in the first place, the palsied muscles, without affecting the sound parts. When the tetanus thus remains confined to the muscles which the disease has deprived of sensation and motion, the remedy is to be considered as exhibited in the most proper dose. In some subjects, this irritating substance only occasions a constriction of the chest, an unpleasant oppression, a sense of great heat, and an exalted sensibility in the diseased part. At other times it produces a tickling, or a painful prickling sensation, pulsation, retchings, cramps, or merely a sense of boiling in the parts affected.

Under the influence of *nux vomica* in small doses, the appetite increases; several patients have experienced vertigo, and a kind of intoxication; others complain of ardour in the epigastrium; and out of three women who had died after taking that substance, two have shown evident marks of inflammation in the stomach. In poisoning by the *nux vomica*, we observe delirium and a loss of intellectual faculties; on opening the bodies, the vessels of the brain are found distended and injected with blood; the mucous membrane of the stomach is red and inflamed.

This remedy, therefore, operates, 1st, by irritating the stomach, 2d, by stimulating to the highest degree the cerebro-spinal organs, especially the spinal portion.

M. Fouquier has even gone so far as to say that *nux vomica* is a new specific against palsy.(1) It cannot, however, be administered with any hope of success except where no material or deep seated affection exists, either in the brain or in the spinal marrow. Palsies arising from onanism, excess of venery, an abuse of spiritous liquors, lead, fright, or other similar causes, are nearly the only cases that can be cured by the *nux vomica*. It is more successful in paraplegia and palsy of the extensor muscles of the hands and fingers, so common among painters, than in hemiplegia arising from apoplexy. It is almost constantly followed with injurious effects in subjects whose stomach is very irritable, where the circulation is active and full, or where the brain is actually

(1) *Mémoire sur l'usage de l'empoix vomique dans le traitement de la paralysie. Bulletins de la Faculté de Médecine, Vol. V, p. 219, 270, et 352.*

diseased, or disposed to cerebral congestions. It should never be given but to those whose digestive organs and nerves are not very susceptible of irritation. If the stomach be already over-excited, and the remedy not contra-indicated by the state of the brain and spinal marrow, it may be injected through the rectum, as was successfully tried by M. Asselin.

Nux vomica has been introduced in the treatment of all diseases complicated with general or local debility of the nerves and muscles. M. Edwards has cured, by its employment, an amaurosis, complicated with palsy of the superior eye-lid. M. Magendie has tried it with success in debility of the genital organs, incontinence of urine, torpid stomach, and atrophie of the upper and lower extremities. These indications are too vague to guide the physician in the employment of so energetic a substance, whose effects may also prove as quickly injurious. When slow effects are to be produced by the nux vomica, half a grain of the extract a day is generally as much as is required.

The plants belonging to the family of *strychnos*, derive their property from a vegetable alkali, which MM. Pelletier and Caventon have called strychnine. Alcoholic extracts of the nux vomica, not being always prepared in the same manner, and varying in the energy, it would be preferable to use pure alkali, if the extreme violence of its effects did not make it in the highest degree dangerous. The pills are never to contain more than the eighth or the twelfth part of a grain; and when we reflect that the increase of the dose may cause great danger, it is impossible not to shrink from resorting to it. In this respect, brucine, associated with strychnine in nux vomica, in St. Ignace's bean and upas, and which is found alone in the bark of the false augustura, to which it imparts its poisonous and tetanic property; *brucine*, I say, may be prescribed without danger, as shown by M. Audral.⁽¹⁾ The dose may be gradually increased from half a grain to four or five grains, taking care to choose exclusively that which is obtained from the false augustura, because the brucine, which is had from the nux vomica generally contains a quantity of strychnine, and might thereby occasion serious mischief.

(1) Note sur les propriétés de la Strychnine et de la brucine.—*Journal de physiologie expérimentale*, t. III, p. 266.

In fine, the preparations of those substances are much less worthy of attention than a proper discrimination of the cases in which they are called for, and an analysis of their effects on the constitution in health or disease.

If it is true that the great susceptibility of the stomach, lungs, and other organs, has been attributed to debility in those parts, and treated with stimulants, it is equally certain that many physicians have not failed to assign the same etiology and to oppose similar therapeutical means to the exalted nervous susceptibility so common in some subjects, especially in females. It is in such cases that æther, musk, succinum, castoreum, assafœtida, and aromatic infusions, have been profusely exhibited under numerous formulæ, the ordinary resort of ignorance and empyricism.

In all nervous affections, we are always to look to, and direct our treatment, as I have before demonstrated, against the primary irritation: this is the only rational treatment, the only one that can have a lasting success. Yet when the nervous system is only possessed of great susceptibility, and too easily affected by stimulants, the substances just mentioned sometimes produce good effects. In these cases, diffusible stimulants act, at first, in exciting vital action in the parts to which they are applied, then in changing the direction of nervous action, and substituting different and more regular oscillations for the morbid agitations seated in them. Let a man who is low spirited, morose, not disposed to work, take a few drops of sulphuric æther, or a cup of coffee, he will instantly feel a great heat in the stomach, spreading thence into the chest, whilst at the same time the intellectual functions recover their harmony and hilarity. A gastro-cerebral stimulation is here manifest, and changes in a few minutes the state of the nervous system.

But these measures are not always successful, and their remote effects in particular are almost never beneficial. They are constantly ineffectual, whenever a focus of irritation exists in the organs which keeps up the nervous susceptibility. They increase the accidents in all cases where the organs of the senses do not yield to the change they tend to operate; hence we meet in practice with so many persons in whom ordinary anti-spasmodics occasion convulsions and spasms. Finally, where the sanguiferous system and the heart are irritable, diffusible stimulants serve to increase that irritability, and occasion disorder in the circulation.

When nervous individuals persevere for some time in the use of excitants, they are subsequently compelled to increase the dose. The nervous system, incessantly agitated, either by the morbid causes that stimulate it, or by the remedies employed against its stimulations, becomes more and more irritable; the accidents to which it gives rise, return with increased facility, and finally resist the largest doses of substances which at first occasioned relief, by producing contrary irritations. Then also the viscera are almost constantly irritated; digestion is impaired; the action of the heart is interrupted with habitual palpitations, and life is consumed in the midst of constantly returning pains and agitations.

The use of diffusible stimulants is then always attended with danger. It is more proper to prefer exercise of body and cold baths, which give a new direction to the nervous actions, destroying their susceptibility, and substituting more intense and regular organic motions for the stimulations existing in the brain or viscera. But this treatment is almost entirely revulsive, and its mode of operating will be considered hereafter.

Habit possesses the most extensive influence on the nervous system, and by properly directing its actions, we are often enabled to destroy the irritations with which it was affected, or prevent their return. Hence, with perseverance, we may be able to substitute more correct notions for that train of ideas constituting certain monomaniæ; in this manner also bodily labour will often cure spasms and convulsions. In all these cases, the nervous system is not debilitated; it is, on the contrary, excited, but in a manner to occasion regular and normal actions, instead of the disordered motions to which it had been habituated.

Encephalitis and meningitis, sympathetically occasioned by irritations of the stomach, have sometimes been treated with diffusible stimulants; but it is only sufficient to compare for a moment their mode of acting with the nature of the complaint, in order to be convinced how their impression must be unseasonable, and even dangerous. This practice, however, is at present totally abandoned by all skilful physicians.

SECTION II.

Of sedatives applied to nervous action.

The substances employed in therapeutics with the view to relieve general or local excitements of the nervous system, are generally taken from the class of narcotics. Toxicologists have divided those agents into narcotics properly so called, and narcotico-acrids. Among the former, we find opium, morphia and narcotine, henbane, hydrocyanic acid, laurus cerates, amara dulcis, morel, lettuce, taxus, ervum, saffron, azote and its protoxyde. The second include belladonna, stramonium, tobacco, digitalis, pimpernel, the large and small cicuta, aquatic hemlock, rue, laurus rosatus, ticunas, woorora, curare, camphor, poisonous mush-rooms, alcohol in large doses, secale cornutum, carbonic acid, and emanations from odoriferous plants.

M. Orfila also places tetanic substances among narcotico-acrids, such as the nux vomica, St. Ignace's bean, false angustura, and the various sorts of upas. But in the action of these substances, narcotism does not always take place, and it even appears but an accessory phenomenon; they ought, therefore, to be separated in therapeutics from those substances, the special action of which consists in producing numbness and sleep.

The division of stupefacients into narcotics and narcotico-acrids is in itself arbitrary and useless at the bed side of patients, because all substances of this kind are more or less acrid, in as much as they irritate in various degrees the surfaces with which they are brought in contact. Opium and henbane are undoubtedly less susceptible of inflaming the digestive canal than tobacco or rue; but let their doses be increased, and given to very susceptible subjects, or let them be applied to organs already stimulated, intense local irritations will soon take place, or those which already existed will be exasperated. This fact does not militate against the experiments of Nysten, M. Orfila and other observers, who have seen no gastritis follow the poisoning of animals by opium, because it rests upon the most attentive examination of the effects of that substance upon the body either in health or disease.

In a large dose, opium occasions, soon after its exhibition, a

general numbness, a well marked drowsiness; the head becomes heavy and afflicted with vertigo, accompanied with hiccough and vomiting; the pulse is soft and large; the face pale, livid, and stupid; the abdominal extremities grow weak, and are, at intervals, partially or completely paralysed.—These phenomena, which characterise the state of drunkenness, indicate a too great impetus of blood to the brain, and a sort of compression of that organ. Some time after, a more or less violent reaction takes place. The pulse acquires force and hardness; the various parts of the body are seized with convulsive motions which, being slight at first, gradually grow more violent, accompanied with stiffness and agitation; the pupil is dilated, the respiration high, laborious, interrupted, and often groaning. This excitement of the cerebro-spinal organs sometimes continues until death, whilst sleep is at the same time so gentle that the most feeble contact, the slightest noise, the approach of a light, cause the eyes to open and the limbs to fall into convulsions. But in the greater number of cases, a profound torpor, immobility of the body, decomposition of the countenance, irregularity, smallness and intermittence of the pulse, immediately precede the extinction of vital actions. On the opening of the body, more or less violent traces of gastritis and gastro-enteritis are to be observed; the brain is strongly injected; the vessels of the pia-mater and the sinuses are found gorged with blood; serum or a sanguineous serosity is extravasated in the ventricles; the lungs are red, heavy, almost void of crepitation; having on their outer surface redish and livid spots; the heart is generally flabby and filled with black blood.

The following observation will again show the mode of operating of opiates. A young girl, four years old, swallowed, at about seven o'clock in the morning, two drachms of the liquor opii of Chaussier. One hour after, she was seen in agitation, convulsions, and cries, reiterated at short intervals. At eleven o'clock, her face was swollen and of a violet colour, the upper eyelids dull and hanging, the eyes half open, the tongue and lips of a deep violet, all the capillary tissues evidently injected, the muscles paralysed, the head and limbs incapable of the least motion. Deglutition was impossible, the pulse was small and unequal; the animal heat seemed to diminish gradually; the extremities were cold, breathing slow, and occasionally interrupted with sighs resembling those of infants after a long fit of crying. The jugular was opened

in vain, and death occurred at two o'clock without any reaction having taken place. At the opening of the body, the dura mater was found red, and blood was flowing from its surface. The arachnoides appeared injected with a serosity which formed a sort of coat covering the whole periphery of the brain. The number and size of the vessels covering the cerebrum were equally remarkable, forming a dense net round the organ. The cortical substance was darker than natural, and its vessels were distended with blood. The ventricles contained about one spoonful of serum. The plexus choroides was uncommonly red, firm and conspicuous.—The brain was so much loaded with blood, that a large glass full of it remained in the base of the cranium after the removal of the brain. The lungs were of a violet-like colour which extended to the pleura. The stomach was sound, capillary injections existed to the lower end of the jejunum.(1)

Apoplexy is so well characterized in the above case, that we cannot entertain the slightest doubt of the manner in which death was produced. In small doses, opium does not act so powerfully, and produces other effects. A few grains only of the substance occasion an excitement in the nerves and blood-vessels, which is characterized by an exaltation of the intellectual faculties, a large and full pulse, a disposition to joy or anger, and an increased energy in every bodily motion. This state is followed by lassitude, drowsiness, and grief, which can be removed only by new and repeated doses. Thus the people of the Levant habituate themselves to taking large doses of opium with impunity.

This substance, in the dose of one-fifth of a grain, gradually increased to one grain and more, increases the tone of the stomach; the pulse becomes fuller and stronger; the general heat rises; perspiration is more abundant; sleep, or an excitement of the cerebral functions supervenes. Opium generally occasions constipation, and sometimes imparts its peculiar odour to the sweat and the urine. Finally, it may produce vomiting, or a partial palsy of the digestive canal, and inflame its mucous membrane. It may cause a violent fever, similar to angiotonic fevers, or inflammation of some remote organs, such as the lungs, and even death.(2)

(1) Barbier, *Traité élémentaire de Matière Médicale*, t. II, p. 661.

(2) Schwilgué, *Traité de Matière Médicale*, t. I, page 347.

This mode of operating of opium is not obscure to men accustomed to physiologico-pathological analysis. The greater number of practitioners considering only the external effects of excitement or prostration, have endowed it, some with a powerful stimulating, others with a debilitating property, and others again with both. M. Fallot, after a mature examination of facts, has lately shown that opium concentrates the vital actions in all the nervous ganglia, and increases the sensibility and the influx of fluids in the internal organs. (1) This opinion is not strictly correct. Bichat has, it is true, said that the nervous system of nutrition presides over the internal functions of the viscera that are independent of the will; but this sort of opposition, established by our great physiologist between the two principal divisions of the nervous system, is not so extensive and complete as was formerly thought, and is still believed by M. Broussais. The viscera may be excited and inflamed; their irritations may be removed from the one to the other by means of the sympathies; but the cerebro-spinal apparatus always intervenes in these phenomena, and it is doubtful whether it be possible to stimulate the nervous ganglia independent of the brain.

The principal effects of opium are, an increased vitality of the parts with which it is put in immediate contact; secondary actions on the brain produced by sympathy and especially by absorption; subsequent disorder in the functions of the heart, lungs, and muscles. It does not debilitate, but stimulates the nerves, and occasions an afflux of blood in them; and according to the various degrees of that excitement, it gives rise either to greater energy of the organic functions, or a more or less extensive general prostration, and to apoplexy. These contrary effects, proceeding from the various degrees of cerebral excitement, occur every day in practice. Hence, in a healthy subject, a moderate excitement of the stomach sympathetically increases the cerebral functions; in other persons, the same cause will produce apoplexy. A slight cold increases the impetus of blood to the brain, occasions torpor and death. In crowded meetings, after a good repast at which all have made equally free with the bottle, some will be merry, confident, and communicative; others will be

(1) Considérations nouvelles sur la manière dont l'opium agit sur l'économie vivante. *Annales de la Médecine Physiologique*, t. II, page. 29.

silent and morose, unable to move or speak ; the former have their face florid, the eyes brilliant, the pulse large and strong ; the latter are low spirited, their face is pale or livid, their countenance stupid and melancholy ; the delirium of some is gay or furious ; that of the others is dull and gloomy ; here, we discover a general prostration, and a disposition to comatous sleep and apoplexy ; there we find an evident exaltation of the nervous, muscular, and circulating motions, restlessness, and sometimes convulsions.

After the use of stimulants, their secondary results of increased or diminished energy of the functions are to be viewed as when we determine, in pathology, the action of morbid causes and the nature of the impressions they have made on the organs. This rule is one of the most important in medicine.

In the effects of opium, it is important to distinguish what belongs to its stupefying principle properly so called, from what is to be attributed to the various substances with which it has been combined either by nature or by art. Crude opium contains extractive matter, mucilage, fecula, resin, a fixed oil, a gum-elastic, a vegeto-animal substance, and some remnants of vegetable fibres, which, combined with the meconate of morphia and with narcotine, the real stupefying principles of the remedy, do not increase its energy. These accessory substances tend to diminish the narcotic action to a certain degree, and to render it variable or imperfect, because they are not always contained in the same proportions. This uncertainty with respect to the intensity of action in opium, is the same with regard to its vinous or aqueous dissolutions, and to all its extracts. The wine or tincture of opium, and especially the liquid laudanum of Sydenham, which contains saffron, cinnamon, and cloves, infused with opium in Madeira wine, constitute as many compounds in which alcohol, wine, aromatics, or the pills of opium, have each a particular effect. They all irritate the stomach more than pure opium.

Narcotine, an alkaline matter discovered in opium by M. Derosne, is not likely to be eventually of great utility in therapeutics. According to M. Magendie, one grain produces a profound stupor and even death. In a case related by M. Barbier, one grain afforded sleep, but the next morning there was a violent frontal cephalalgia, and general stupor ; two grains made these effects still more conspicuous, for, thirty six hours after taking the remedy, the face and lips

were discoloured, the body cold, some drowsiness existed, without delirium, but accompanied with vertigo, dimness of sight, heaviness in the head, and contraction of the eyelids. There was neither tumefaction of the face, nor drooping of the upper lid, nor that stupid look which characterizes narcotism. This state lasted three days, when the patient recovered. Recent facts, collected by M. Bally, seem to invalidate these results, and to show that if narcotine is really of little use, it may, however, be administered in very large doses with impunity. Men have taken from twenty to one hundred and forty grains of that substance a day, without considerable inconvenience. (1) These experiments ought to be repeated, for there must have been some causes of error in those of MM. Bally, Magendie, Orfila and Barbier. However, the effects of narcotine may be combined with those of morphia. Animals subjected to the action of both these substances combined, soon experience the somnolence and sleep caused by morphia, whilst the irritation produced by narcotine is evident and counteracts the ease and calm to which the animal seems much inclined.

Opium owes its calming and narcotic property to morphia. This substance has been deemed a subtle poison, which cannot be used with safety in medicine; but a number of instances show that this opinion is exaggerated. According to M. Orfila, morphia may, owing to its insolubility, be carried to the dose of twelve grains, in the stomach of the most feeble dog, without sensible effects. Six grains of the acetate of morphia have produced narcotic effects which have disappeared after twenty hours. Another animal resisted the action of twelve grains of the same salt. M. Vassal, in a very interesting memoir, asserts that he gave to a dog one hundred and eighty grains of the acetate of morphia in the space of thirty six hours, and that far from its producing death, the animal seemed to habituate itself more and more to its action. This fact is too wonderful not to require further authenticity. It is proper to believe that if the acetate of morphia acts more powerfully than the gummy extract of opium, it is owing to the latter containing something else than morphia; but it appears true that the

(1) *Journal Complémentaire du Dictionnaire des sciences médicales*, t. XXII. page 189.

meconate of morphia which it contains is much more active and poisonous than the acetate, sulfate or hydrochlorate prepared by art. From his observations, M. Vassal thinks that the activity of the acetate of morphia is to that of the watery extract of opium, as 4 to 1. He has carried the dose of the former to twelve grains in twenty four hours, without accidents. (1)

From these data, it follows that the narcotine of opium is an injurious principle which must be separated from it ; that after it has been thus divested, the extract of opium is less irritating than its other preparations ; that the salts of morphia, and especially its acetate, sulphate and hydrochlorate, are the most simple, the safest, and the easiest to administer and controul. (2) M. Magendie has ascertained that by varying these salts, their action can be of longer duration on the animal economy, without its being necessary to increase the dose.

Henbane and lettuce, owing to their narcotic effect on the nervous system, without too strongly stimulating the stomach and intestines, have been proposed as succedaneous to the juice of the poppy. But in other plants of the same species, such as *cicuta*, *belladonna*, *laurus rosatus*, *digitalis*, tobacco, *secale cornutum*, the stupefying action is merely equal or even inferior to the irritation which those substances exercise on the digestive canal. The cultivated lettuce furnishes a juice which, when brought to the consistence of an extract, has been much praised by Duncan, Anderson, Scudamore, and more recently by MM. Bidault de Villiers and François. This juice, called *lactucarium*, by the three first mentioned physicians, and *thridace* by the latter, is said to possess the property of alleviating pain and procuring sleep,

(1) *Considérations médico-chimiques sur l'acétate de morphine.* Paris, 1424, in 8 vo.

(2) A syrup is made with four grains of the acetate of morphia to a pound of sugar which, given by tea spoonfuls every three or four hours, is a good substitute for the syrup of poppies. Sixteen grains of the same salt in every ounce of distilled water, with the addition of three to four drops of acetic acid, and of twenty four drops of alcohol, constitute a mixture which is preferable to that of Rousseau, and which may be equally given in the dose of six to twelve or more drops, in proper vehicles. Lastly, the acetate of morphia may enter in the composition of pills, opiates and juleps, by dividing it so as to give one fourth or one sixth of a grain, at different intervals. (*Note of the author.*)

without occasioning excitement; it is even alleged to have succeeded when opium had failed, or could not be retained. The *lactucarium* requires new trials. *Digitalis* lessens the action of the heart but by occasioning in the nervous system such disorder that the viscus is thereby less stimulated by the nerves.

Prussic acid, and the substances in which it is contained, deserve at this moment all our attention. M. Magendie was the first who employed prussic acid as a remedy. It produces a pretty strong stimulating action in the mouth, throat, œsophagus, and stomach. After its exhibition, the patient often experiences pain at the epigastrium, nausea, anxiety about the præcordia, and an acceleration of the pulsations of the heart. To these succeed a sense of weakness, slow respiration, less frequency and force in the pulse, tendency to inaction, and a more or less profound calm. It is not uncommon to observe constipation or dyarrhœa, when some irritation exists in the intestines. There is neither perspiration nor sleep, as after the exhibition of opiates. However, the hydrocyanic acid also stimulates the nervous system, by increasing the impetus of the blood to those organs, and occasioning when given in large doses, convulsions, tetanus, a sort of electrical commotion, and death.(1)

(1) Various hydrocyanic acids are prepared for medicinal use. That of Schiele is abandoned as too variable in its effects. Practitioners prefer that of M. Gay-Lussac. In the *Codex* it is diluted in about thirty-five parts of water; M. Magendie mixes it with six or eight parts of that liquid, M. Heller with three, and M. Bobiquet with one only. Among these preparations, the one which affords the greatest facility for calculating the greatest quantity of acid administered at one dose, must be considered the best, and in this respect, that of M. Heller appears entitled to the preference. Every time that a dose is exhibited, the bottle containing the acid must be shaken: for, being lighter than water, it remains on the surface, and might all be taken in the first spoonful, so as to produce serious accidents. The best mode of exhibiting it, is to have a portion of it dissolved in water, and a few drops of the mixture added to every spoonful of the patient's drink, at the moment of taking it. The acid which is prepared according to the process of M. Vauquelin, appears less liable to be affected by the contact of air, and, when kept with a little alcohol in the dark, it is the most fit to be given by drops, so as constantly to produce gradual and identical effects. Several experiments made by MM. Robiquet and Villermé seem to prove that the hydrocyanate of potass, formed by the hydrocyanuret of potassium, possesses the same properties as the hydrocyanic acid, and is to be preferred for medicinal purposes, because it keeps longer and produces more identical effects.* Experience has not yet decided on the value of this new preparation, and on the dose at which it might be administered.—(Note of the author.)

* *Journal de physiologie expérimentale*, t. III. p. 224.

The *cerasus*, *lauro-cerasus*, and *amygdalæ amaræ*, vegetable productions containing large quantities of hydrocyanic acid, from which they derive their properties, are not much used in medicine. These substances produce the most variable calming and narcotic effects, and, at the same time, their irritating principles may prove very injurious to the digestive canal.

Alcohol and fermented liquors possess, like the narcotics properly so called, the property of stimulating the nervous system, drawing the blood into its tissue, and of increasing and then obstructing its functions. But, as M. Orfila observes, there is no perfect identity between the effects of alcohol and those of opium. The former acts more powerfully upon the stomach; its action on the brain proceeds more from sympathy than from the absorption of its particles; and its long abuse tends to excite chronic gastritis, but more especially apoplexy or a latent irritation in the brain. At any rate, alcohol is never used in medicine but as a vehicle, and its action is then so modified by that of the ingredients it holds in solution, that it becomes difficult to appreciate its proper value.

There are but few diseases accompanied with nervous excitement, in the treatment of which narcotics have not been prescribed. Sydenham considered that it would not be possible to practice medicine, if physicians did not possess opium in *materia medica*. Yet there are few remedies so inconsistent, and, as it were, so treacherous in their effects. In acute inflammation, it is never admissible but after bleeding and antiphlogistics have been properly administered; and even then, should violent pain and nervous agitation still exist, warm bath and demulcents are infinitely more proper than narcotics.

When applied to an inflamed part, preparations of opium, hyoscyamus, solanum, and belladonna, do not diminish the redness and tension of the tissues; they produce in them a sort of numbness, by their modifying the nervous action of the part, but do not allay the irritation; on the contrary, they sometimes increase it. Hence narcotics are not to be applied externally except upon healthy or very slightly irritated parts; their effect will then extend along the nerves, or, through the sympathies, to the central parts of the nervous system.

When taken internally, narcotics are always modified, or

changed in their effects by the digestive organs. Opium, administered through the rectum, exhibits more of its stupifying property, and in a shorter time, than when taken in the stomach; it operates with still more force, and soon proves mortal, when injected into the veins. It is by its isolating the brain, which is then overloaded with blood, from the rest of the economy, that it soothes the pain and spasms occasioned by acute inflammation. It creates a sort of artificial apoplexy, during which the sensations being either diminished or suspended, the subject ceases to suffer and the muscles to be agitated, but without checking the progress of the local affection. The stimulating action of opiates seems, on the contrary, to increase their effect and accelerate the disorganization, whilst the disorder induced in the nervous system prevents the regular performance of organic action, and of the sympathies. Narcotics are always dangerous in acute irritations, and they can never be justifiable except in those nervous disorders, the intensity of which is much above the possibility of resistance from the tissues, and which compromise the life of the patient; but even in such cases, narcotics must be placed at a distance from the affected parts, and totally abandoned when somnolency, stupour, and signs of cerebral congestion exist.

When spasmodic affections merely proceed from a gentle excitement and momentary derangement in the nervous system, the disorder occasioned by the narcotics, may cause it to disappear, and the healthy functions be restored after the influence of the remedy has disappeared. The same result occasionally takes place in subjects affected with slight irritations of the viscera, or of some branch of nerves; opium or the other narcotics will cause a metastasis of the irritation, first upon the stomach, and afterwards upon the brain.

But, as all the stimulants destined to change morbid actions into others that destroy them, narcotics cannot operate this mutation except in very slight cases; they prove inefficacious whenever violent nervous excitements exist, and are kept up by permanent causes of irritation.

In subjects affected with chronic phlegmasiæ, narcotics may suspend pain, interrupt the functions of the brain, and produce an artificial sleep of greater or less duration; but with his sensibility, the patient recovers his agony, which cannot be alleviated without additional and stronger doses of the remedy. The brain gradually habituates itself to the action

of narcotic stimulants, in the same manner as the skin to irritating functions, and the stomach to spices and alcohol.

But narcotics can never be long and incessantly prescribed with impunity. Their repeated use gives rise to a very remarkable sort of gastric irritation. The appetite becomes null, the mouth clammy, digestion difficult, the stools are voided with great efforts, and at long intervals; the digestive canal appears paralysed, and its villous coat is much injected. The heart acquires a greater excitability; the muscles are weak, trembling, and cannot perform any violent exercise; the brain is disordered in its functions. The persons who make an habitual use of opium, present, during the interval between each dose, a languid countenance, livid eyes, a gloomy silent temper; hypochondriacs appear much worse. This condition will give way only to a fresh dose of the stimulating substance; and the sensation of ease, comfort, and hilarity, which follows, becomes a want of primary necessity. But the time comes when the cerebral tissue, being often excited, is altered, its functions annihilated, and death takes place, either from apoplexy, or in consequence of organic lesions which the stimulant has gradually developed in the brain.

The difference observed in practice, relative to the faculty of resisting the effect of opium and of analogous substances, is very remarkable. The decoction of one poppy head, as an enema, is sometimes sufficient to produce narcotism, whilst in others half or one drachm of laudanum will be taken with impunity. Those remedies should, therefore, be given in small doses at first, and repeated until they produce the expected effects. In this manner, the danger is avoided of giving either too large or too small a dose. This is always to be proportioned to the susceptibility of the patient, the disposition of the organs, and the violence of the disease.

Some physicians have prescribed opium as a tonic; but, as Nysten observes, the substances that disorder the functions of the stomach are never proper to increase general strength. When opium is given in too small doses to produce narcotism, it always gives rise to a state of inebriation, and to more or less consecutive debility.

Laudanum is said to have been successfully employed in gastro-enteritis accompanied with bilious symptoms. This method has been strongly recommended by Dr. Hernandez, but he has never had any follower. In this case, laudanum, like all other stimulants, displaces the morbid excitement, and

substitutes a different sort of irritation ; it proves beneficial in some mild cases, and ineffectual in all others. But it is remarkable that persons labouring under acute gastritis can sometimes take one drachm with impunity. (1)

Narcotics have been more serviceable, and are more proper, in enteritis accompanied with violent pain and considerable dyarrhæa, after evacuations of blood, diet, and other means had somewhat subdued the irritation. The testimony of Sydenham, Stoll, Willis, Romazzini, Wepfer and Latour, and the experience of several modern physicians, leave no doubt on the efficacy of opium, especially the gam, taken along with small doses of a mucilaginous tisan, after the first symptoms of dysentery have subsided.

Opiates will alleviate the sufferings that accompany *enteralgia* which does not proceed from violent inflammations. In dyarrhæa, they diminish the peristaltic motion of the small intestines, cause the chyme to stop in these cavities, and perhaps give rise to a sort of irritation which operates upon colitis as a revulsive. In gastralgia, M. Vaidy has made a successful use of the extract of the *lactuca virosa*. He thinks that two grains of this substance have the same effect as one of the aqueous extract of opium. Dr. Muhsbeck, of Denning, has succeeded in checking chronic vomiting by means of the extract of *calendula*, at the dose of four grains four or five times a day.

It is by acting in the manner of narcotics that the anti-emetic draught of Rivi-*re* sometimes cures repeated contractions of the stomach. But like all the preparations above mentioned, it is injurious when the inflammation of the stomach is intense ; and even in the absence of that irritation, the most proper demulcents and antispasmodics are emollients and local bleeding.

All the various sorts of *neuralgia* have been treated with narcotics, and a very free use has been made of opium in large doses. MM. Grimaud highly recommends pills composed of *hyoscyamus* and camphor, which appear to possess a strong irritating property over the digestive canal. (2) According to M. Heller, a mixture composed of twenty four drops of

(1) *Annuaire des hôpitaux et hospices civils de Paris*, Paris, 1819, in 4to, pages, 229.

(2) *Nouveau Journal de Médecine et de Chirurgie*, t. III.

hydrocyanic acid, and four ounces of alcohol at thirty six degrees, is highly proper when applied to the region corresponding to the part affected. M. Vaidy has cured several cases of neuralgia of the head by means of half a grain to one grain a day of the extract of stramonium.(1) The same remedy has been successful in the hands of Dr. Begbie against tetanus, in various sorts of neuralgic and rhumatic pains. He employs it at the dose of a quarter of a grain every three or four hours.(2) The reports of the Royal Institute of Holland for the years 1820 and 1821, contain the interesting narrative of a woman affected with mania after a laborious parturition, in whom the effects of stramonium were followed with a cure. This extraordinary fact cannot sanction a similar practice. In neuralgia, the extract of stramonium operates only by disordering the nervous functions and irritating the stomach; it cannot be made use of whenever there exists either an inflammation in the alimentary canal, or a disposition to cerebral congestion. One grain of this substance, in one of the cases related by M. Vaidy, gave rise to vertigo, and dryness in the throat, which disappeared shortly after its ingestion. Remedies of this kind are never to be employed except after a long continued use of antiphlogistics.

Every physician knows to what enormous doses, and with what uncertainty in the results, opium has been prescribed for tetanus.(3) It is somewhat astonishing that none ever thought of giving a trial to prussic acid against that terrible complaint. * Dr. Anderson, of Trinidad, asserts that, in

(1) *Journal Complémentaire du Dictionn. des Scienc. Méd.* t. VIII. p. 180, et t. XI. p. 175.

(2) *Transactions of the Medico-Chirurgical Society of Edinburgh*, 1824.

(3) M. Blaise has given in ten days, by gradually increasing the dose until sleep was induced, four pounds, seven ounces and six drachms of laudanum, and six ounces, four drachms and forty-five grains of solid opium. The patient recovered. (*Note of the author.*)

* On referring to my papers, I find a letter from a young but indefatigable physician of Canada, Dr. J. B. Meilleur, in which he mentions, on the subject of prussic acid, that this remedy has been employed in tetanus with as much success as can be expected from any other medicine against what may yet be considered an incurable disease. Dr. Meilleur's communication was originally intended for publication in the *Quebec Medical Journal*, but the circumstances which led me to suppress that work for some time to come,

several cases of tetanus, he has obtained the most decided benefit from tobacco in cataplasms to wounds, fomentations to the neck and the contracted parts, and in glysters. This medication evidently operates as revulsive upon the intestinal canal, and causes stupefaction in the nervous system. Its effects are the same as those obtained from the extract of stramonium in the same circumstances by M. Begbie, who thinks that it has also been beneficial in his own practice. When opium is combined with musk and camphor, it becomes difficult to analyse the mode of acting of the compound thereby produced; but it certainly acts with a great force that tends to cause a revulsion upon the digestive canal. The same effect takes place when the carbonate of potass and opium are alternately made use of, according to a process lately recommended by Drs. Stuly, Percy, and several military surgeons, in whose hands it has proved serviceable.(1) Such is also the case with Maderia wine used by Dr. Hosack, at the dose of two ounces every hour, and with the mixture of alcohol and warm water recommended by Darwin.

Hyoscyamus and belladonna, which are sometimes prescribed in chorea, are generally inefficacious; the hydrocyanate of zinc, recommended by Hufeland at the dose of one grain, gradually increasing to four in the twenty-four hours, has, according to that physician, the effect of occasioning nausea, costiveness, and of curing convulsions. Like remedies have been proposed against epilepsy and other spasmodic affections; but it cannot be too often urged that the cases related by authors on this subject are almost void of practical utility, owing to the obscurity that surrounds the causes to which the accidents observed and cured are attributed. The effects of narcotics in such cases are merely to change the condition of the nervous system, check the morbid process, and constitute a different mode of sensibility in the parts. But how often does not the nature of the disease prevent such mutations? and

Have been the cause of his essay not being made public. As soon, however, as I will be enabled to resume the continuance of the Journal, that communication will be published, along with an essay on the *Carbon* of Canada, and other valuable papers from the same writer.

(1) *Mémoires de médecine militaire*, t. V. et XIV. The dose of the carbonate is from half an ounce to one ounce in a draught of six ounces, a tea spoonful every hour. The extract of opium is given separately, in the intervals.

how important is it not to enquire into and ascertain the seat and nature of the organic affection, before resorting to such measures?

Narcotics have lately been extensively used against irritations of the lungs and cardia. Let us now enquire into their mode of operating in those cases, and endeavour to appreciate their inconvenience or advantages.

Hyoscyamus, cicuta, lactuca virosa, and the extract of the pseudo-narcissus, are highly praised by many against whooping-cough. Belladonna in pills of one fifth of a grain, as recommended by Schoeffer, Hufeland, and Vetzler, is also spoken of by Dr. Janin. According to M. Guersent, this substance possesses the inconvenience of producing dryness in the throat, thirst, a difficult and accelerated respiration. This physician makes a frequent use of a mixture of equal parts (*a quarter of a grain*) of oxyde of zinc, belladonna and cicuta; this dose is repeated three times a day, and increased according to the effects produced on the patient. This preparation lessens the expectoration; its effect is to irritate the intestinal canal, and produce a more or less considerable degree of narcotism. It is proper merely in subjects who are not endowed with plethora, where cough seems to proceed more from habit than from bronchitis when this has been properly treated. With regard to the combination of emetics and purgatives with opium, which is so generally resorted to, we must say that this strange combination is altogether contradictory, and seldom otherwise than injurious; under their influence the whooping-cough very frequently degenerates into pneumonia, especially in irritable sanguineous temperaments. The diseases of the lungs called nervous, such as whooping-cough and asthma, have been successfully treated by Dr. Krimer, with inhaling the vapours of the distilled waters of the lauro-cerasus. The physician of Halle has never found it hurtful, not even useless in any case. According to him, this remedy never fails to allay the violence and frequency of cough in pertussis, if it does not produce a radical cure. In its application, the following circumstances must be attended to: 1st, the strength, which is apt to vary, of the liquid employed; 2d, the constitution of the subject; 3d, the presence or absence of pulmonary inflammation. From one drachm to half an ounce of distilled water is sufficient for each fumigation, which is to

be continued for five, ten, or fifteen minutes.(1) M. Krimer has also made a successful trial of the leaves of stramonium, smoked in lieu of tobacco, three or four times a day, in spasmodic constrictions of the chest, asthma called essential, and other similar affections.(2) This is a domestic remedy in England. It must be kept in mind that inflammation of the lungs, and a disposition to cerebral congestions, contra-indicate the employment of narcotics in the diseases under consideration.

Some physicians have thought that prussic acid was more certain and less dangerous against the excitement and irregular functions of the nervous system, in spasmodic diseases of the chest. M. Heller asserts that he has succeeded in diminishing the violence and frequency of accesses in asthma, by means of this substance. When he is called during the access, he does not hesitate to prescribe from six to ten drops of the acid, in a vehicle composed of syrup of barley one ounce, distilled water of orange flowers one drachm; a teaspoonful to be taken every ten or fifteen minutes, with the precautions already mentioned. In this manner, the remedy operates within twenty or thirty minutes; breathing, he says, becomes fuller, and less difficult, and afterwards regular and free. By continuing the use of the acid at proper intervals and doses, the accesses are rendered less frequent. The same remedy has proved beneficial in children affected with the whooping-cough, at the dose of four drops in twenty-four hours, gradually increasing it according to the effects produced.(3) This medicine does not appear, in these cases, to possess a decided superiority over the other antispasmodics, and it is equally prohibited until the irritation has subsided.

Narcotics have also been resorted to in acute pneumonia. The Italians make a very frequent use of the distilled water of lauro-ceratus in the same disease. Opium, and even prussic acid have also had their partisans. All these remedies cannot arrest the progress of the disease; they may allay the

(1) *Journal Complémentaire du Dictionn. des Scienc. Méd.* t. V. p. 282.

(2) *Idem*, t. V. p. 335.

(3) *Nouvelles recherches sur l'emploi de l'acide hydrocyanique dans différentes maladies, particulièrement dans les maladies nerveuses.* Paris, 1823—in 8vo.

sufferings of the patient, but never put him out of danger. Narcotics must, therefore, be totally banished from the treatment of those diseases, except in irritable subjects, when, the irritation having subsided, the cough has a tendency to become habitual, and keep the patient in agitation and wakefulness. M. Heineken pretends that prussic acid has invariably proved, in these diseases, a most powerful antispasmodic, the principal effect of which was to diminish the cough, promote expectoration, and remove the sense of suffocation.

Narcotics have also been used in chronic inflammations of the chest. We have already said that in such cases, opium combined with mucilaginous and bitter substances, might ease the cough, and promote expectoration. Some have even gone further; from experiments made by M. Magendie, prussic acid has been tried against phthisis; but the observations related in support of that method are not generally satisfactory. The disease has been relieved, but sometimes accelerated in its progress; the cough and expectoration have appeared to be improved, but death has not been thereby retarded. M. Heineken, however, says that he has advantageously combined it with decoctions of saleg or Iceland moss; but experience teaches us that theory does not sanction its being called, as by M. J. Bouchenel, a *special sedative* in chronic inflammations of the bronchiæ.(1) It may have allayed the cough, and procured some relief in subjects labouring under great agitation, without being, for that reason, entitled to the great credit it enjoys. The only way of contributing to the progress of therapeutics is to enquire into the nature of diseases, and determine the mode according to which remedies perform their cure.

If narcotics have but a palliative effect in chronic inflammations of the lungs, they appear to be more beneficial in aneurisms of the heart. MM. Fodéré, Gilbert, Tartra, and others, following the observations of Thilenius, Dæltz, and Wuzer, have, in some cases, made a successful employment of the distilled water of lauro-cerasus, at the dose of a few drops, daily increasing it one or two until the pulse is reduced, or vertigo or giddiness require its discontinuance. Some have gone so far as give eighty or a hundred drops in twenty-four hours. Prussic acid has also allayed the palpitations,

(1) *Nouvelle Bibliothèque médicale*, Août, 1824.

and produced relief. But digitalis is deservedly entitled to more credit. It lessens the pulsations of the heart in a more certain and speedy manner. But the stomach must be perfectly sound; for, without this condition, it would accelerate the circulation, and even the fever, by increasing the gastric irritation. This substance has also a remarkable effect upon the kidneys, and produces a flow of urine which appears to relieve the patient's sufferings; hence it has been highly recommended, not only against organic diseases of the heart, but also against dropsy and anasarca, which, according to Withering, it has caused, at least momentarily, to disappear. It has, however, been unsuccessfully tried by M. Alibert at the Hospital St. Louis. In dropsy, arising from obstacles to the circulation, it produces relief in giving more regularity to the pulsations, and stimulating the kidneys. By its revulsive effect and action upon the kidneys, it is possible that it may cause the absorption of the accumulated fluids where no local inflammation exists; but it is, and always will prove ineffectual against all the other species of dropsy.

Where the stomach is so irritated as not to retain digitalis, the tincture may be used in frictions externally, about the præcordal region. M. Rasori makes an extensive use of digitalis, in large doses, in the treatment of acute pneumonia; but what good effects can we expect from a sort of perturbation which does not at all impede the progress of the irritation? Digitalis always complicates pneumonia with an irritation in the stomach, in the brain, and with disorder in the circulation; and if the patient recover, it is in spite of the remedy, and not in consequence of its beneficial effect. The leaves of digitalis, applied externally, in the shape of a cataplasm, induce redness of the skin, and they have been employed with the view to promote suppuration in the indolent tumours formed by the lymphatic ganglia. This plant, which was recommended internally by Haller against scrofula, is very uncertain and ineffectual in that disease; it is now banished from the internal treatment of inflammations accompanied with tubercular transformations of the tissues.

Narcotics have also been extensively used in syphilis and cancer; it is impossible to conceive that it can operate upon the former otherwise than by stimulating the nervous system and the digestive organs; in this point of view, they act as substitutes for mercury, ammonia, carbonate of potass, and other like remedies. They are never indicated, except in

painful corroding ulcerations, or where the nervous system has been irritated by the abuse of mercury. Opium, combined with emollients, analeptics, and moderate exercise, has been beneficial in these cases. The observations of Cullen, Dehaen, Rahn, and others, have totally excluded from the treatment of cancers belladonna, which was so constantly recommended by Alberti and Juncker. Cataplasms made with the leaves of solanum have been applied, with some degree of success, to parts affected with engorgements and ulcerations accompanied with violent pain. The extract of cicuta, so much extolled by Storck, is now deservedly abandoned, owing to the uncertainty, or rather the nullity of its effects upon cancer. Local blood-letting and emmollient applications are much more efficacious. Prussic acid has been remarkably beneficial in cancerous ulcerations. Applied in the form of lotion or injection to the part, it is said shortly to ease the pain, induce sleep, allay sympathetic febrile excitements, but without checking the progress of the disease and disorganizing process: such are at least the most positive results of its employment in cancers of the uterus and mammæ. It is easily conceived that the physician's aim is rather to combat and destroy the irritation which constitutes the essence of the disease, than to palliate and conceal, as it were, under the appearance of a prestigious relief, the disorders it occasions, and the destruction of the organs affected, which it promotes in its unmolested course. Alleviating remedies and prussic acids, far from constituting the basis of the treatment of chronic inflammations with lymphatic transformation or cancerous degenerescence of the tissues, should never constitute but accessory means, destined only to resist secondary phenomena, and accidental complications of the disease.

Belladonna, so highly practised by MM. Muenche, of Hanover, and Bucholtz of Weimar, against hydrophobia, must be ranked among the myriads of specifics to which that disease has given birth, and which experience never ceases to pronounce useless. Yet, it may be reasonable to conceive that a complaint in which the nerves are so evidently and so actively engaged, might find some remedy among the substances that possess the property of disordering, perverting, and annihilating, to a certain degree, the nervous functions. It would not be surprising, if prussic acid, combined with general bleeding, leeches to the neck, temples, and epigastrium, and with injections of water into the veins, should prove bene-

ficial: analogy, at least, pleads sufficiently in favour of this remedy to sanction its further trial.

The celebrated Hahuemann thought he had discovered in belladonna a safe preservative against the contagion and invasion of scarlatina. This extraordinary property became the subject of numerous experiments in Germany. In 1818, Dr. Berndt, of Custrin, ascertained that out of ninety-five children submitted to the operation of belladonna, and daily exposed to the contagion of scarlatina, fourteen only contracted the disease, which was then accompanied with milder symptoms than usual.(1) These facts have been confirmed by M. Mëglin, of Colmar, who, in the midst of an epidemic of scarlatina, preserved every subject exposed to the contagion by means of belladonna.(2) Mushbeck of Denning,(3) Dusterberg of Warbourg,(4) Behr of Warnbourg,(5) Benëdick of the island of Rugen, Wesener of Dulmen, and Zeuch of Tyrol, have obtained like happy results. In 1818, Dr. Koreff, by means of that plant, succeeded in averting the progress of a fatal epidemic scarlatina which was raging in the neighbourhood of Berlin.(6) In 1824, Dr. Benke was equally successful.(7) The observations which prove its efficacy have been multiplied in Silesia and almost every part of Germany, as may be seen by the reports of MM. Genebert, Suttinger, Kohler, and others, extracts of which are consigned in Dr. Hufeland's Journal.(8)

S. Hahnemann has highly recommended belladonna in scarlatina, as a consequence of his doctrine of homœopathy. Indeed, this plant administered for some time, gives rise, especially in children, to a fugitive or momentary redness of the skin, dryness and ardour of the throat, dilatation of the pupil, fixity of the eyes, and other nervous symptoms in different degrees of intensity. There is a great analogy between

(1) *Hufeland's Journal*, August, 1820.

(2) *Nouveau Journal de Médecine*, t. XII. p. 287.

(3) *Journal de Médecine pratique*, Février, 1821.

(4) *Idem*, Octobre, 1822.

(5) *Ibid.* August, 1823.

(6) *Bull. des Scienc. Méd. troisième section du Bullet. Univ. des Scienc. et de l'industrie*, t. I.

(7) *A gemeine Konster Letterbode*, No. 8, 1824.

(8) *Hufeland's Journal*, November, 1824.

these phenomena and those which characterize scarlatina. They are evidently the consequence of a well-marked gastro-cerebral irritation.

According to Dr. Brandt's preserving method against the contagion of scarlatina, a solution is made of two grains of the extract of belladonna in one ounce of cinnamon water, a drop of which is to be given above the number of years of the patient, that is, two drops to children of one year, three to those of two, and so on in the same ratio, until twelve drops, a dose never to be exceeded in any case. These drops must be taken morning and evening, during the first days, and afterwards in the morning only, on an empty stomach, for the space of four weeks and more. According to another formula used by several German physicians, two grains of the powdered root of belladonna are carefully mixed with ten drachms of white sugar, the whole divided into sixty doses. These are administered four times a day in the ratio of half a dose to one for subjects between the age of six months to two years, of one to one and a half between three and six years, of two to two and a half from six to nine, and of three to four and four and a half from nine to twelve. M. Brandt's process which is no less safe than this, is also less embarrassing, and is better adapted to the difficulty of administering remedies to children.

If we may be allowed to compare the mode of operating of belladonna against scarlatina with that of other substances, I believe it possesses great analogy with the effect of bark in intermittent gastro-enteritis. It substitutes an artificial irritation of the stomach and brain for that which the disease tends to create, thereby preventing its invasion. And as Peruvian bark is not the only preservative against intermittents, so belladonna does not likely possess the exclusive property of protecting the constitution from the invasion of scarlatina. It does not prove a constant preventive, in all cases, as the vaccinal virus is against variola, but merely for a certain limited time, which does not probably extend much beyond the period that the remedy continues to operate upon the tissues. Whenever a new epidemic occurs, it becomes necessary to resort again to the preventive, in order to be again protected against the contagion. This subject is well worthy the meditations and experiments of every practitioner in France. Every one knows that M. Tourtual thinks himself authorized, from some experiments, to proclaim sulphur

as the preventive against rubeola. The simple fact is that all irritations prevent, to a certain extent, the development of other disorders of a similar nature.

CHAPTER IX.

OF DIRECT STIMULATING MEDICATIONS EXERCISED UPON THE SANGUIFEROUS SYSTEM.

The vascular system, being connected with the whole of the animal economy through the medium of the nerves, is awakened to all intense therapeutical stimulations, in such manner that it participates in all morbid irritations of some considerable intensity existing in the various parts of the body. If the heart is thus stimulated in consequence of all slow or acute phlogosis of the living tissues, there are also but few stimulant medications which do not affect its functions, and of which the pulse cannot indicate the degree of violence.—But what influence does this artificial over-excitement of the sanguiferous system possess on the effects exercised by the stimulants of our organs? Is it indifferent, favorable, or contrary to the results they are expected to produce? Those questions are easier proposed than solved, and in this respect, therapeutical physiology has yet a great deal to do, before it can explain the mechanism according to which the action of most of the modifying agents it employs is exercised and propagated.

We may, however, assert that, in the greater number of cases, when a stimulant produces a considerable acceleration of the pulse, or even fever, this effect shows that the agent acts with too great intensity, and that its impression is too strongly communicated to the principal viscera, in which it excites irritations which may prove too intense to be overcome or at least successfully controuled. The physician is then compelled either to retrograde, or entirely to suppress the remedy which occasions such disorders. This rule admits of no exception, and must be considered as one of the fundamental principles of our practice.

The only medium through which the practitioner can sti-

mulate the heart and vascular system, is the sympathies. The absorption of the particles of medicinal and alimentary substances will, it is true, enrich the blood, and make it more stimulant and better fitted for nutrition; but the general effects then produced are, in a great measure, the consequence of a stimulation excited in the digestive canal, and which is to be taken into account. The brain, the skin, and the stomach, are the organs through which the secondary action of the heart and blood-vessels is most commonly excited.

We have already noticed the influence which joy, grief, and anger, possess upon the irritation; but these causes are better adapted to giving use to diseases of the heart and large vessels than to curing them. Nevertheless, the uninterrupted tranquility and calm of the nervous functions contribute in a great degree to equalize and restore to their normal energy the disordered or debilitated contractions of the heart.—The removal of anxiety, sorrow, and of violent passions, has performed the cure of violent palpitations and incipient organic lesions of the heart; but the art of directing our sentiments and affections belongs to that moral medicine, the operations of which are as multifarious as they are salutary, and into which this is not the place to enquire.

The stimulating impressions exercised upon the integuments are easily propagated to the circulation, and useful in many circumstances, with the view to increase its action.—The heat of a bath, of a *sweating room*, and of the atmosphere itself, excites the contractions of the heart, accelerates the course of the circulation in every part, and gives fulness, frequency and hardness to the pulse. Heat evidently promotes the process of sanguification, and the various elaborations. Dry, aromatic, or irritating frictions on the skin, restore the motion of the heart, which is either diminished, or perhaps even suspended in asphyxia, syncope, or copious hemorrhage. The sudden action of cold upon the skin produces a sort of constriction which is propagated to the heart and vessels, suspending their action to a certain extent, and which may prove useful in checking hemorrhage. This action is very analogous to that of astringents; it produces in the parts from which the blood flows a more or less powerful astriction, and may easily give rise to violent inflammations.—Cold, which diminishes the vital functions of the skin, possesses, therefore, a sympathetic stimulating action over the parts situated internally; it frequently happens, also, that, by

offering a sudden obstacle to the organic actions that are carried on with force in the external parts, it compels other tissues to increase their action, and creates in them a real inflammation.

But the impressions the most strongly and rapidly felt by the heart are those received by the mucous coat of the stomach. This communication is so sudden, that the effect of stimulants upon the stomach is communicated with the quickness of electricity to the heart, which is suddenly disturbed in its functions. The sympathies are so intimate that both organs appear simultaneously excited, and receiving, as it were, the same impressions.

The excitement produced upon the mucous membrane of the stomach by warm and aromatic substances accelerate the contractions of the heart, and increase the energy and rapidity of vital action in all the capillaries. According as the kidneys, skin, uterus, or other organs are then more sensible, and better disposed to be over-excited, the stimulation of the sanguiferous system will be followed with a copious secretion of urine, of perspiration, or of the menses.

The increased action of the vascular system is, as it were, the common principle, and the general condition of all sympathetic excitements of the secretory organs; it is by producing that effect that diuretics, sudorifics, emmenagogues, and other substances of the same kind operate. The only constant effect of all these agents is, next to the excitement of the surface to which they are applied, that of the circulation. The parts in which that excitement is afterwards concentrated, vary according to the disposition of the subject, the relative sensibility of the organs, and the existence of more or less inflammation in the viscera. The sympathies and vital actions always converge towards the part which is the most excitable. Hence the same substance will sometimes promote perspiration, the urinary secretion, the menses, or an epistaxis, and at other times increase the inflammation of the stomach, the lungs, or pleura, which was sought to be cured by that substance.

Astringents, on the contrary, produce in the mucous coat of the stomach a constriction of its fibres which appears to communicate to every part of the vascular system. Perhaps also their particles being carried by the absorbents into the circulation contribute in modifying and diminishing its action, and in condensing its tissues. But it is impossible not to

perceive the force with which the impression produced upon the stomach, operates through the sympathies, since the effects of that impression are frequently visible before any part of the ingested fluid has been carried into the vessels.

Such are the principal sources of the stimulating medications which the therapist can desire to propagate to the circulation. The circumstances which require their employment are somewhat rare. Indeed, if we except the small number of cases of hemorrhage which resist the employment of debilitants, and require the use of astringents both internally and externally; of anæmia, a disease in which the arteries are almost completely inert; and of passive dilatations of the veins; excepting those cases, I say, all the other affections of the vascular system proceed from irritation, and require the use of antiphlogistics.

When the vascular system appears, as in lymphatic and scrofulous subjects, to possess but little development and activity, it is proper to stimulate it, improve the condition and increase the quantity of the blood, and thus give a new direction to the nutritive functions. Such is the mode of operating of the most celebrated anti-scrofulous remedies. A regimen composed of roasted meat and wholesome bread; continued exercise in the open air, and in warm and clear weather; alcoholic, bitter, and aromatic liquors; alkaline solutions, (1) the muriate of barytes and iodine itself; dry frictions, cleanliness, and residence in the country, are evidently calculated to excite and increase the action of the vascular system, and thereby diminish the predominance of the lymphatics. I conceive this therapeutical proposition is too well established to require further demonstration.

Among the substances which, after having stimulated the digestive organs, excite an evident tonic action in the circula-

(1) Dr. Farr, guided by the experiments of M.M. Henning and Bartish, highly recommends, for the cure of scrofula, a solution of potass prepared in the following manner: Take of lime eight ounces, dissolved in two pounds of boiling water; add afterwards to the mixture six ounces of the carbonate of potass; when the solution is cold it is passed through a funnel lined with lint, and filtered; water is at the same time added so as to make three pounds of the solution, which is afterwards kept in a wise bottle, well corked. This liquor must be taken morning, mid-day, and at bed time, in a proper vehicle. The dose is at first three or four drops, afterwards gradually increased according to the age and sex of the patient, and to the condition of the digestive viscera.* (*Note of the author.*)

* *A treatise on the nature of scrofula, &c.* London, 1819, in 8vo.

tion, iron is the most prominent. This substance is never used in a pure state, for the powdered filings always acquire, during that process, a degree of oxydation which becomes afterwards more considerable, in consequence of its mixture, either with the substance with which they are combined, or with the liquids contained in the stomach and intestines. Metals can only modify the organic functions, in as much as their combination with oxygen or with acids has rendered them susceptible of acting upon the living solids or fluids. Iron has been highly and justly praised by the majority of practitioners. Hallé, and after him M. Lebleu of Dunkerque, have derived considerable benefit from it in anæmia.* Like all the substances that easily excite the circulation, it has been recommended in asthenic amenorrhœa, chlorosis, all sorts of mucous discharge, and in lymphatic and scrofulous subjects. Experience, indeed, has shown that, in all those cases, when no irritation exists in the organs, and especially in the digestive viscera, ferruginous preparations may prove useful, by their assisting the effects of regimen, and of all other dietetic means.

Stimulants are always improper in organic diseases of the heart, pericardium and large vessels; on the contrary, the indication consists in subduing the over-activity of the circulation of the blood, disordering the functions of the nerves, and diminishing the frequency of the contractions of the heart by means of digitalis. In the last period of aneurysms, especially in sensible and irritable habits, the slightest stimulation, either of the gastro-intestinal surface, or of the skin, is sometimes sufficient to accelerate the circulation, and death. They are to be carefully avoided, at the same time bearing in mind that the heart, when diseased, receives, with a remarkable celerity, the sympathetic effects of stimulants, and that irritating revulsives are, in the last stages of its affections, much more injurious than beneficial.

Astringents taken into the stomach are often useful for suspending or checking capillary hemorrhage. Among them, mineral acids, the nitro-muriatic, the alcoholic sulphuric acid,

* This word being seldom used in the English language, and not found in all the medical vocabularies, it may not be unnecessary to say, that it signifies a privation of blood. It is the reverse of plethora.

or Rabel water, the root of ratanhia,(1) and some other similar substances, hold the first rank. But it must be remembered that they only operate in a remote, secondary, and partly revulsive manner, by means of the gastric irritation they produce, and that they would be inefficacious if unassisted with cold, general and local bleeding, and local astringents, such as the sulphate of alum and of potass. In obstinate cases, they are all to be employed in a methodical manner, and made to diminish the quickness of the circulation, and produce the cessation of the effusion of blood.

CHAPTER X.

OF STIMULATING MEDICATIONS DIRECTED TO THE WHOLE ANIMAL ECONOMY.

The more we reflect the more we are impressed with this truth, that there is no therapeutical or morbid stimulation, of some intensity, which confines its effect exclusively to the surfaces to which it is applied. The animal economy is, it is true, never modified at once in all its parts, by the agents with which it is surrounded; but there is no stimulating impression which does not tend to excite the sympathies, propagate to other organs, and disorder the exercise of the

(1) The root of rotanhia, the virtues of which were first ascertained by Ruitz and afterwards confirmed by the numerous observations of Professor Hurtado, may be administered in powder at the dose of two drachms, after it has been separated from its ligneous and central part. The extract is generally preferred to the powder, at the dose of one to two drachms in twenty-four hours. When dissolved in rose or common water, with the addition of acetic acid, it operates more powerfully when taken alone, than when associated with other remedies; it is asserted that there is no nemorrhage so severe but what it will check. M. Hurtado has seen it succeed in menorrhagia, hematuria, hæmoptysis, hæmatemesis, epistaxis, leucorrhœa, serous dyarrhœa, and gonorrhœa. He considers this preparation as the most certain and efficacious astringent that therapeutics possesses. It is useless to add that it is to be used only when astringents are themselves indicated.

principal functions. These extensions of local excitements are not always performed with equal facility and celerity. In very sensible subjects, small doses of stimulants produce as much effect as stronger doses upon less excitable habits. When stimulants are applied to an important organ whose relations are extensive, they cause more rapid and considerable sympathetic changes than when applied to parts less intimately connected with the sources of life. Finally, in those ordinary circumstances where one organ is more irritated or more susceptible than the others, it is always upon that organ that stimulants act with more force and rapidity; the sympathies converge towards it; it constitutes, as it were, the vulnerable point of the whole fabric, for all excitements produce in it disorder and irritation.

These facts are of the highest importance in therapeutics; they explain the action of a great variety of medications, and must serve as a guide in their employment.

Since all the parts of the body seldom require to be simultaneously debilitated, it is not less uncommon to see all the functions equally languid and necessitating at the same time a like degree of excitement. The disease generally exists in one organ or in one set of organs, and it never extends to the rest of the body but in consequence of the laws of sympathy. In some cases, it is an irritation of a viscus which consumes the strength, disorders the digestive process, prevents the formation of rich blood, and impairs nutrition in every part. At other times, the stomach and intestines are inflamed or weakened, and cannot perform their functions. In other cases, an unwholesome food, and a gloomy, damp and impure air, supply the animal economy with materials too imperfect and insufficient to entertain the vigour of its function. These are some of the most frequent causes of general organic debility. When once they are understood, the physician is enabled to reach them, and arrest the progress of destruction which threatens the patient, or remedy the disorders which have already taken place.

Should there be no irritation worthy of notice, and the general weakness proceed, either from debility in the principal viscera, or from the imperfect or poor condition of the materials they elaborate, a careful excitement of the impaired viscera will generally prove successful. A good regimen, a pure, dry, and moderately warm atmosphere; continued muscular exercise, are the first remedies to be employed.

Wine, bitters, and preparations of iron will afterwards be advantageously employed. Cold bath, and irritating frictions on the skin, are very proper. The absence of gloomy thoughts, and of anxiety, is also indispensable. Under this treatment, the appetite will increase, digestion will be easy, the pulse will become large and strong, the tissues coloured and firm, exercise easy and even agreeable, and all the functions will be simultaneously performed with force and regularity. But we must again repeat that these general results of the administration of tonics will never be obtained, unless every part of the body be perfectly free from irritation. If we analyze the mechanism of their production, it will be found to proceed, in the first place, from a gastro-intestinal excitement, and from the sympathetic influence which that excitement possesses on the whole of the vital functions; and afterwards from the supply which the vessels receive of nutritive materials in greater abundance and properly elaborated; finally, from the healthy composition of the blood, and the excitement it occasions in all the tissues to which it is distributed. In consequence of these primary modifications, the nervous system acts with more regularity and energy, and contributes in its turn to preserve and fortify the progressive improvements that are taking place in the whole fabric. In this manner all the vital actions are connected, and tend, by an incessantly increasing motion and a reciprocal influence over each other, to consolidate health, or extinguish the organic actions.

The increase of energy in the functions is always intended to consolidate the equilibrium that must constantly exist in them. It frequently happens that, when chronic morbid excitements exist in unimportant parts, but without evident increased action of the blood vessels, the general development of the organic functions, in consequence of the therapeutical means just mentioned, calls the vital actions to other parts, produces in them a sort of distraction, and, by equalizing them, breaks up the habit they had contracted of concentrating in some particular tissues. Hence we occasionally see leucorrhœa, dyarrhœa, and cutaneous ulcerations called scrofulous, disappear as the vital actions acquire strength and firmness. The same effect sometimes takes place in nervous temperaments, affected with spasms, habitual pain, convulsions, unattended with irritation in any particular part. But the medication thus executed is truly

revulsive, because it stimulates other parts than those affected with morbid excitement. It must be kept in mind that the stomach is the organ upon which the modifying agents operate in the first instance, and whose vital condition it is so important carefully to direct.

When a general state of debility complicates irritations, or when it proceeds from too long abstinence, copious hemorrhage, or excessive fatigue, it also requires such means as are adequate to the state of the organs. Hence, when chronic inflammations exist in other parts than the alimentary canal, substantial but not stimulating aliments may be allowed; on the contrary, alimentary and feculent drinks are alone proper, if the inflammation be acute. The extreme debility of the vital functions that accompanies chronic gastritis, must engage the physician to prescribe feculent vegetables, the white and mucilaginous flesh of animals, with the addition of emollient drinks in order to prevent the increase of inflammation. If the lower extremity of the intestines be alone irritated, feculent food is proper; red wine, containing bitter and cooling principles, is also very serviceable in giving tone to the stomach, and preventing the too sudden passage of the aliments into the large intestines. After copious hemorrhage, mild and gelatinous substances are the best. Those that afford the most nourishment under a small volume, and wine or alcohol in moderate doses, are very beneficial, when the strength has been exhausted by excessive fatigue. The irritation of the stomach that follows long fasting, always imposes the greatest circumspection with respect to regimen, which is to be exclusively composed of feculent decoctions, thin porrages, and light broths.

In every case, the following objects must be carefully attended to; 1st, the indication of exciting the stomach by means of tonics, must not depend upon the general emaciation, nor muscular weakness, but upon the wide and pale state of the tongue, accompanied with slow digestion, when mild substances have been taken; 2d, those who have long been kept below the degree of corpulence and strength appertaining to their constitution, cannot acquire a certain quantity of blood without experiencing all the phenomena of plethora, and being exposed to inflammations; 3d, we are often compelled, after removing general debility, to resort to demulcents, and even to evacuations of blood, because the acrid heat of skin, acceleration of the pulse, thirst, and redness of

the tongue, indicate the approach of inflammation which it is necessary to prevent. These precepts have been judiciously collected in several of the propositions of M. Broussais.

We are no longer to speak of the pretended specifics destined, according to ontologists, to destroy and neutralize the vicious conditions of the solids and fluids; pathology having demonstrated the absurdity of such hypothesis, therapeutics must follow the same course, and undergo a similar reform; and its theory must in future be confined to the explanation of the mode of acting, upon the various organs, of the substances exhibited for that purpose.

The first of these is the question of the origin of the earth. It is a question which has been discussed by philosophers and scientists for many centuries. The most common theory is that the earth was created by God in six days. This theory is based on the Bible, which states that God created the world in six days. Another theory is that the earth was created by natural forces. This theory is based on the idea that the earth was formed from a cloud of gas and dust. This cloud collapsed under its own gravity, and the resulting fire and heat formed the earth. A third theory is that the earth was created by the collision of two other planets. This theory is based on the idea that two planets of about the same size as the earth collided, and the resulting debris formed the earth.

CHAPTER I

GENERAL CONSIDERATIONS

The first of these is the question of the origin of the earth. It is a question which has been discussed by philosophers and scientists for many centuries. The most common theory is that the earth was created by God in six days. This theory is based on the Bible, which states that God created the world in six days. Another theory is that the earth was created by natural forces. This theory is based on the idea that the earth was formed from a cloud of gas and dust. This cloud collapsed under its own gravity, and the resulting fire and heat formed the earth. A third theory is that the earth was created by the collision of two other planets. This theory is based on the idea that two planets of about the same size as the earth collided, and the resulting debris formed the earth.

The second of these is the question of the age of the earth. It is a question which has also been discussed for many centuries. The most common theory is that the earth is about 6,000 years old. This theory is based on the Bible, which states that the world was created in 4004 B.C. Another theory is that the earth is about 4,500 million years old. This theory is based on the study of the rocks of the earth. It is found that the oldest rocks are about 4,500 million years old. A third theory is that the earth is about 10,000 million years old. This theory is based on the study of the stars. It is found that the oldest stars are about 10,000 million years old.

The third of these is the question of the structure of the earth. It is a question which has also been discussed for many centuries. The most common theory is that the earth is a sphere. This theory is based on the fact that the earth is round. Another theory is that the earth is a flat disk. This theory is based on the fact that the earth is flat. A third theory is that the earth is a hollow sphere. This theory is based on the fact that the earth is hollow.

BOOK IV.

REVULSIVE MEDICATIONS.

CHAPTER I.

GENERAL CONSIDERATIONS.

Next to direct debilitations, there is no medicinal process more certain, and that ought to be more frequently resorted to, than that of revulsion. It is induced by stimulating substances which elevate organic action in the parts to which they are applied or directed, and that are more or less remote from the inflamed organs. The remedies employed in this medication have been called by some indirect debilitants; but this denomination fails in accuracy, for all revulsives produce a stimulating impression; and, if their object is to allay irritations existing at a distance, their improper use, or their great activity, is followed, in many cases, with contrary results. On the other hand, all the remedies of this class are derived from the stimulants mentioned in the preceding book, and not from the class of antiphlogistics: it would, therefore, be improper to place them among the latter.

The use of revulsives is founded upon an attentive examination of the best established phenomena of pathology.—We have already seen that every irritation has a tendency to extend to the parts which sympathize with the affected organ, and even from thence to other tissues, so as incessantly to increase the number of central points of that irritation.—This extension of inflammations which is constantly in danger of taking place, has been put beyond every possible doubt by the labours of pathological anatomists, as well as by the analysis of the symptoms that successively appear during the greater number of morbid affections. But at the same

time that an irritation becomes the sympathetic cause of distant phlegmasiæ, it not unfrequently happens that the latter are afterwards substituted for the former. When this takes place, there is what is called metastasis. Should the organ primarily irritated sympathetically excite some of the secretory organs, and bring on copious evacuations, this phenomenon is denominated crisis. Authors call it a false crisis in those cases, unfortunately too numerous, where the irritation passes from one viscus to another, or when a sympathetic congestion does not produce the elaboration of some fluid. Repercussion takes place when internal over excitements are suddenly substituted for external irritations.

In all cases, the irritation is propagated from one part to another, and the primary affection disappears in consequence of the organ which has now become predominant.

This phenomenon, which the organic laws continually tend to produce, and which may be followed with happy or deleterious results, has been attempted to be artificially induced and directed, so as to render it constantly useful. It has lately been tried to deny the existence of revulsions, owing to the fact itself of irritations having a constant tendency to extend themselves. But had the authors of this strange paradox taken into account the cases of ophthalmia cured in a few days by means of a seton behind the neck; of pleurisia and bronchitis subdued by blisters; of gastritis, pneumonia, encephalitis, alternately developed and destroyed by the subsidence and restoration of articular inflammations, cutaneous eruptions, purulent secretions, or habitual hemorrhage; had they not, I say, forgotten these results which are daily met with in medical practice, they would have at least hesitated in their refusal to admit one of the best established phenomena in pathology and therapeutics. It would be superfluous to dwell longer on the topic: if the theory of attraction has been opposed; if this last partisan of phlogistics has but lately been defeated; if a celebrated writer has, until the commencement of the last century, maintained that the earth was elevated at the poles, why should we deny to a few disorderly minds the privilege of peaceably combatting an axiom which is as well established as the best demonstrated problems in physics, chemistry, and geography? Their endeavours will never mislead the practitioner; otherwise we might be compelled to admit the possibility of the theory of the circulation being overthrown.

Hippocrates has established, in one of his most admirable aphorisms, the law which presides over and explains revulsions: *duobus laboribus, non in eodem loco, simul obortis, vehementior obscurat alterum*. It is not for an insignificant motive that the idea of *process* (*travail*) has been substituted for that of *pain*, by which the greater number of translators have expressed the meaning of the father of medicine. This more accurate interpretation of the text *δύο πόνων* renders the sentence of the Porsican oracle applicable to physiology as well as to pathology, and to affections accompanied or not with pain.

The phenomenon of revulsions has hitherto been viewed in too limited a manner; physicians have not properly attended to the fact that all the medicinal operations by means of which the vital actions are excited in others than the parts affected, also belong to that class. It would seem that the cutaneous rubefacient, suppurative, or escarotic revulsives have alone occupied their attention, and that frictions, baths, cataplasms, in a word, all the agents calculated to draw the organic activity concentrated in the internal cavities to the external parts of the body, are not entitled to the appellation of revulsives; and, by a reciprocal consequence, the effects of stimulants upon the digestive organs, exhibited in the most acute diseases, and which do not always produce death, are still inexplicable for a great number of physicians, because they cannot form a correct idea of the revulsive effect which those stimulants occasionally produce. This medication, when it shall have been properly investigated, must become the object of more extensive and useful considerations in practice, until the whole extent of its influence, and the astonishing variety of which it is susceptible in its operations, shall have been better understood.

The circumstance that promotes the success of revulsive operations, deserve a serious investigation. The most remarkable among them may be reduced to the following:

1st. The extent of the surfaces receiving the impression destined to become revulsive, possesses great influence on the effects of this sort of medication. Hence the same pediluvium which, when applied to the feet, proves inefficacious, will produce the desired effect if the whole leg be immersed. Again, in a great number of cases, the dimensions of the stimulated parts sufficiently compensate for their exciting a lesser or greater degree of irritation. An extensive, though

moderate rubefaction, will produce greater effects than a violent inflammation, limited to a small portion of integuments.

2d. The duration of revulsive actions is another circumstance which greatly contributes to their efficacy. There is no practitioner who has not observed that a rubefaction daily reproduced, moxas applied in succession and for a long time, and the continued discharge of a seton, will occasion more considerable results than a momentary stimulation, however intense. Time must, therefore, be considered one of the elements upon which we are mostly to depend for the success of a great number of revulsive medications.

3d. The physician is next to direct his attention to the intensity of the artificial irritation. If too violent, it may create fever, affect the viscera, awaken or increase the disease, or even complicate it with other disorders. It is in this manner that blisters will frequently exasperate gastro-enteritis or pneumonia, and, in some nervous and irritable subjects, occasion convulsions and great agitation. If too inconsiderable, and totally unobservable amidst the disordered functions, the irritation, intended to become revulsive, will prove ineffectual, and increase the uneasiness already existing.

4th. Certain revulsions appear to be promoted by the complication and intensity of the organic disorder produced by them: hence the eruption of pimples and furunculi, the pustules arising from the ointment of tartar emetic, the supuration of setons, are among the circumstances calculated to ensure the desired revulsive effect. The elaboratory process produced by art concentrates the vital actions to the place upon which it operates, in proportion as it is more deeply felt by the various organic elements. This place then becomes, at the same time, both a centre of irritation, and a focus of sympathies, extending their influence to the rest of the animal economy.

5th. The waste of nutritive materials, in consequence of revulsive irritations, appear, also to ensure their effects. Hence the perspiration produced by heat, woollen cloths, oil cloaths, and like means, are often followed with results that would not be obtained from extensive and intense rubefactions. The copiousness of suppuration is certainly not without some influence over the result obtained from blisters and cautery. Finally, the loss of blood from the punctures of leeches, or from scarification, secures the revulsive effect sought to be de-

rived from them. In these various cases, the liquids drawn to the point artificially stimulated are discharged through it in this manner the habit of a new evacuation from the economy is established through that channel, whereby the nutritive materials are diverted from the other organs, and the intensity of vital action is diminished in all the remote parts. This habitual irritation, and its consequent discharge, cannot take place without benefitting the parts affected with morbid excitements, and diminishing the congestions existing in them.

6th. It is not immaterial for the success of revulsive stimulations that they should be exercised upon parts more or less sensible and important. Generally speaking, it is easier to substitute an internal to an external irritation than to operate vice versa. The revulsive process exercised upon the stomach and intestines is more beneficial for the relief of encephalitis, bronchitis, and urethritis, than excitements produced in the brain, lungs, and urethra, for the cure of gastritis. And if we add to this circumstances of the importance of the stomach and intestines, the extent of surface they present to the action of remedies, and the facility with which stimulating medicines can be continued and daily renewed, it will be readily conceived how possible it is to subdue external irritations, such as blennorrhagia or catarrh, without irritating the digestive mucous membrane to such a degree as to inflame it. This objection made by some of the adversaries of the new doctrine, and which consists in the assertion that it is impossible to displace urethritis without substituting in its place a gastro-enteritis of greater intensity, falls of itself to the ground. Supposing the quantum of inflammation in the urethra to be five, they hold it impossible that the patient can be cured by revulsion, without inflaming the stomach at least to six. This assertion might be founded if there were some equality between the three following circumstances, the importance of both organs, the extent of the surface they present, and the tendency of the vital actions towards the one and the other; but as they are different, and in favour of the alimentary canal, it is easily conceived that the excitement of this canal, without being so intense as to constitute a real inflammation, will yet destroy inflammatory vital over-actions in other organs; and besides, if this fact could not be satisfactorily explained by theory, it is accurately demonstrated by experience.

7th. It appears sometimes beneficial to combat morbid irritations by the artificial production of similar irritations in remote parts. Hence perspiration is favourable in acute catarrh and dyarrhæa; the suppuration of deep setons appears specially useful against suppuration in the viscera or other important parts of the animal economy; the revulsives that evacuate blood, such as scarifications and leeches, are the most proper against internal hemorrhage, &c.; yet, this rule is not so general and absolute, that irritations do not often prove revulsive, even where there is no analogy of phenomena and of results between them and the disorders against which they are exhibited.

8th. The circumstance of an irritation having been priorly suppressed in the place upon which the revulsion is operated, will also greatly promote its efficacy. When the organism has long contracted the habit of directing and concentrating the vital actions upon a particular part, this habit, if interrupted by the development of other irritations, has a constant tendency to return. Hence with this knowledge, a moderate revulsive action is much more efficacious than the most intense irritation exercised at a distance from the organ that had been previously affected. In this manner, the renewal of a blister which has healed up; the return of suppuration, otherwise considerable, in an old ulcer; the restoration of irritation of a nerve, muscle, and small articulation—the new development of a slight and circumscribed ringworm, have been efficacious against intense gastritis, bronchitis, acute ophthalmia, cystitis, and urethritis, after large blisters, moxa, and other internal or external revulsives had been tried in vain. The facts in support of this proposition are so numerous in the annals of medicine, that the first precept established by pathologists for the treatment of all diseases, is the restoration of the irritations that have been suppressed at the moment of the invasion.

It is evident that when gastritis, pneumonia, or pleuritis, cause the cessation of suppuration of a wound or of inflammation of the skin, irritations must be applied not to the seat of the new disease, but to that of the old. The precept according to which a blister is applied *loco dolenti* is generally fatal, for it tends to fix the irritation more firmly upon the important organ that it has invaded. A different course must be adopted; the chest or belly must be covered with leeches and emol-

lient topics, whilst a blister is made to irritate the cicatrized ulcer, or the portion of skin previously inflamed.

9th. Lastly, the revulsive process is more certain and easy, as the disease intended to be removed is less intense and considerable. Experience shows that, during the first period of inflammations, when the pulse is strongly agitated, and the principal organs sympathetically and violently irritated, revulsions are generally impossible. If they be attempted, a new irritation is added to the first, and gives it additional force, instead of suspending its progress. This phenomenon is one of the most essential to be attended to in practice; it shows that revulsives must always be preceded by local demulcents, evacuations of blood, and the whole range of antiphlogistics. Their use is admissible only when the irritation, having diminished in intensity, is no longer accompanied with fever, nor with considerable sympathetic disorder.

Phlegmasiæ have been attempted to be divided, in this respect, into stationary and changeable, the latter comprehending gout, erysipelas, herpes, rheumatism, &c.; but this distinction, as well as all those that have been established by the disciples of the same school, is but an artifice repugnant to reason and to clinical observation. All inflammations have, indeed, appeared either moveable or stationary, according as they were treated with more or less powerful and well directed revulsions. What can be more stationary than a wound, an abscess, or a dropsy? yet, the suppuration of the one, the accumulated liquid in the other, and the enormous quantity of serum in the third, have often disappeared on the sudden invasion of gastro-enteritis, over-excitement of the kidneys, or acute bronchitis. If we except the organic disorders that are too far advanced to be susceptible of a cure, it would be extremely difficult to quote one single instance that does not present more or less of that moveable character, or rather, that has not been susceptible of disappearing under the influence of another remote affection, either spontaneously or artificially produced.

However, all irritations that are accompanied with a predominance of nervous phenomena, hemorrhage, mucous discharges from the vagina and urethra, slight inflammations of the surface of the skin, and muscular irritations, are, in some manner, more easily affected by revulsives than the most intense and deep-seated inflammations of the tissues.

It is evident that circumstances contrary to those we have

just enumerated, will make revulsions difficult to be produced, and consequently contra-indicate them. Hence, in very strong subjects affected with intense irritations, accompanied with considerable febrile excitement, and having their seat in some very important viscera, or being propagated to very large surfaces, revulsion is next to impossible, and cannot even be attempted without danger. Such dispositions ought to engage the whole of the practitioner's attention, and compel him to confine himself to the use of antiphlogistics.

It has been repeatedly urged, and M. Broussais still maintains, that revulsive irritations must be stronger than those they are intended to replace, otherwise they turn to the benefit of the latter. This proposition, as may be seen by our preceding remarks, is too absolute, and, consequently, incorrect in its general sense. Sanguineous irritations may, indeed, be frequently suspended or destroyed by the development of less physiological stimulations. In chronic bronchitis, for instance, the process of digestion is alone capable of suspending dyspnœa, cough, and expectoration. In podagra, a moderate tumefaction of the great toe will cause the disappearance of violent symptoms of gastritis or pneumonia; too copious a meal, or violent emotions, will suddenly carry off erysipelas, or other cutaneous inflammations, &c. In all these cases, to which I might add many others, it is impossible to decide whether the process that takes place is accompanied with greater irritation, and with a more considerable impetus of blood, than that which it has displaced. But some of the circumstances above mentioned may render this process predominant, independent of its real intensity, and draw towards the place it has invaded the organic efforts and the nervous influence.

Should not these facts be conclusive, and allowing that a slight excitement cannot, in any case, notwithstanding its extent or the importance of the organ it invades, displace one more intense, it would still remain to show that it must constantly be added to it and increase its violence. An appeal is made for that purpose to the physiological law, in virtue of which the stronger process prevents the other. But this precept apparently favourable to the first part of the proposition, proves nothing against the second. Theory as well as practice show, on the contrary, that when an irritation is brought to that degree of moderation which permits the employment of revulsives, it is generally weakened by the influence of re-

mote stimulations, even where these are too inconsiderable to cause their total disappearance. In this manner, ophthalmia is partly cured by irritating frictions behind the ears; a blister to the arm relieves chronic pulmonary catarrhs, where it is not sufficient to produce a complete revulsion; urethritis, colitis, &c., are partially alleviated by various revulsives which are inadequate to their entire cure.

From the proposition against which I contend, it would follow that, in the practice of revulsions, there is no medium between cutting off and exasperating the disease. In that point of view, it will always be necessary to produce the strongest action at first, and every stimulation that could not have the desired effect would thereby prove injurious. Experience, however, shows the fallacy of this prognostic, and it is often proper to act in defiance of it. Prudence itself dictates the necessity, in a great number of cases, of trying the effects of different revulsives in order to discover which of them is best adapted to the disease, before resorting to the most active among them. The revulsives that are immediately applied to the intestinal canal require these precautionary steps.

If, under the influence of a slight artificial stimulation, the primary disease should increase, it is to be attributed, not to the insufficiency of that stimulation, but to the excessive irritability of the subject, the activity of the sympathies, and violence of the existing irritation. Instead of persevering and acting with renewed energy, as the law which I oppose would seem to dictate, it is necessary to suppress that stimulation, and substitute means calculated to allay the irritation and pain, otherwise the disease will be exasperated. We are not to consider revulsives as insufficient, except when they produce no sensible effect or results inadequate to what might be expected from them; here reason dictates that we are to increase the force of the stimulants, since they appear to be indicated, and tend to operate favourably. But whenever the irritation that is intended to produce revulsion gives rise to frequency of the pulse, heat of skin, anxiety, and increases the inflammatory process in the parts affected, the practitioner must be convinced that this revulsive irritation, however inconsiderable, is still too intense, and that instead of increasing it, it must either be diminished, or totally abandoned.

With regard to their mode of operating, revulsive stimulants may be divided into two great classes, according as they

simply irritate or inflame the tissues to which they are applied, or as they produce in those parts evacuations of blood, secretions more or less copious, or merely an increase of normal organic action. The first may be called inflammatory, because they occasion pain in the viscera, and not unfrequently agitation and fever: the others, on the contrary, merely draw the nutritive materials to the parts they modify; the process therein established does not materially disorder any of the functions, and acts but imperfectly upon the sympathies. Such are, for the integuments, warm emollient cataplasms, dry frictions, and warm bath; for the intestines, gentle purgatives, and stimulating substances in small doses. The art of selecting revulsives and of proportioning their activity to the violence of the irritation intended to be destroyed, and to the susceptibility of the subject, is one of the most difficult and important parts of therapeutics.

Revulsives are always to be applied to the parts that have the closest sympathetic relations with those actually diseased. M. Richond very properly observes that artificial irritants should also be made to operate upon such parts as perform functions contrary to those of the irritated organ, and always at a distance from those which may sympathize with that organ.(1) The skin may be irritated with advantage in pulmonary catarrhs, owing to the balance of action that exists between it and the mucous coat of the bronchiæ; but not so in gastritis, because its over-excitement is too readily communicated to the stomach. This consideration is of the highest moment, and must, if not proscribe revulsives, at least command great care, in gastro-enteritis. It is always necessary to be very prudent when important organs are acted upon, either immediately, or through the medium of others.

Physicians have discussed at great length with the view to determine the cases in which revulsives are to be applied at a distance from, or near the diseased parts. This problem is very complicated, and its solution must vary according to the different periods at which the disease has arrived, and according to the nature of the revulsive agents. All stimulants draw the vital actions and the fluids to the spot to which they are applied; they should, therefore, never be placed within the sphere of the morbid irritation, which they would not fail

(1) *Exposition des principes de la nouvelle doctrine médicale*, Paris, 1829, in-8vo. p. 220.

to exasperate; otherwise it would be as well to apply them directly to the spot, and the effect would be the same. I am convinced that irritations have, in many cases, been kept up and concentrated in the organs primarily affected, in consequence of revulsives being frequently applied too near the seat of the disease. Such is the effect of irritants upon the integuments of the head in encephalitis or cerebritis, of blisters upon those that cover dropsical joints, &c. It is, therefore, highly necessary to direct revulsive applications upon parts whose capillary system is in a sort of opposition with that of the diseased organ, and proceeding from different trunks of vessels, in order that the blood, invited to the former, may thereby abandon the latter. This consideration is the same as that which regulates the employment of revulsive bleeding, with which the medication, which is the object of the present chapter, has the greatest analogy. It is in virtue of that same law that irritants are advantageously applied to the back of the neck during ophthalmia and pharyngitis; to the arm or thorax, in bronchitis and pneumonia; to the abdomen in colitis, &c.

The irritating agent must be applied to a more distant part from the diseased spot as it is more active, and operates upon a larger surface, and vice versa. In encephalitis, sinapisms must be put to the feet; but a blister would be too far from the spot, and must be placed upon the arm, or between the shoulders.

As the sensibility of the subject subsides, revulsives must be brought nearer to the seat of the disease. Rubefacients, after being applied to the feet and legs, in inflammations accompanied with adynamy, must successively be brought to the thighs, the belly, or the thorax. In chronic inflammations, unattended with intense general or local excitement of the blood-vessels, moxa, setons, cautery, irritating ointments, which promote a suppurative process in the skin, and are brought in opposition with the disorganizing action of the disease, must be placed near the diseased parts, and upon the region corresponding to them. It is in this manner these revulsives have been successfully applied to the part of the thorax corresponding to the disease, in chronic pneumonia and pleuritis; to the right hypochondrium in hepatitis; to the symphysis of the ilium and sacrum, in metritis; &c. Suppuration being once induced in the cellular substance excites but a moderate and continual organic process, which would

not be felt by a diseased organ, if at too great a distance from it. On this subject it must be remembered that the more intense the inflammations, the greater is the risk of revulsives being applied too close to them. These medications are to be confined to those cases where the parts affected possess but little susceptibility of again becoming the seat of a violent over-excitement in their blood vessels.

Revulsives are also employed with a view to obviate the results of the sudden cessation of irritations or evacuations to which the organism has become habituated. Hence, before amputating limbs affected with old ulcers or chronic articular inflammations, prudence requires that a seton should be established, in order to divert the course of the liquids in another direction, and protect the viscera from the inflammations to which they are then so much exposed. M. Roux has suggested, for the purpose of diminishing the intensity of inflammation after the operation for cataract, to apply a blister to the arm, or the back of the neck. Before operating, it would be necessary to wait until the blisters are raised, so as not to make the incision amidst the febrile excitement and general erethism which they frequently occasion.

Finally, when inflammations are still acute, revulsives must be active, and placed at a distance, in order to counter-balance by that remoteness the danger that might arise from the intensity of their action. For instance, in violent congestions of blood, when a viscus becomes affected with a sort of apoplexy, revulsives must be both large and powerful, so as to change the direction of vital actions, and concentrate them in the parts of the body the most distant from the affected spot. Chronic inflammations require powerful revulsives; but before having recourse to them, it is necessary to allay the excitement with which the disease is often accompanied. Without this precaution, the evil would be exasperated. It is also proper that the revulsives then made use of should be persevered in for a long time; for they are too soon discontinued, and before having exercised upon the organs all the impression they are able to produce. Should they often prove inefficacious, it is owing more to the impatience of a number of physicians, than to their want of activity. The application of sound principles of physiology to therapeutics will alone complete the solution of the problem concerning revulsions, secure the certainty of their effects, and prevent the inconvenience that often follows their employment.

CHAPTER II.

OF REVULSIONS OPERATED UPON THE SKIN AND CELLULAR TISSUE.

The revulsive stimulants that are applied to external parts, may be classed in the following order: 1st, baths at various temperatures; 2d, cutaneous frictions, either dry, or assisted with irritating substances; 3d, rubefacient epithema, such as synapisms, burgundy pitch plasters, blisters; 4th, lastly, suppuratives that operate to a great depth, like setons, cautery, moxa, &c.

Baths, whose mode of operating has been the subject of so many controversies, operate as stimulants, as soon as their temperature is either above or below that of the body. However, when tepid they distend the inflamed parts, and act in the manner of emollients. But recent improvements have shown that the case is different when the external tissues are in a state of health, and when irritations exist in the viscera. If very warm, I mean from 30 to $34^{\circ} + 0$ R., they stimulate the skin powerfully, make it red and tumefied, accelerate the respiration and circulation, and promote the injection of the external capillaries. The head feels heavy and obstructed; a copious sweat flows from the face, and the excitement may be carried to such an extent as to determine a great cerebral congestion, and even apoplexy. Baths at this temperature are seldom used; they are to be totally excluded from inflammations accompanied with over-excitement of the blood-vessels.

Temperate or tepid baths, I mean from 20 to $28^{\circ} + 0$ R. are the most extensively used, either as dietetic, or as medicinal agents. They also stimulate the skin, but the over-excitement they produce is moderate, and terminates by a state of calm and a gentle perspiration which generally prove beneficial. The liquids, being drawn to the surface, cease to engorge the viscera and to accumulate in such great quantities in the parts to which they are called by the irritation. M. H. Marcard, adopting the opinion of Asclepiade and of the ancients, considers baths as tonics. This opinion advocated by Zimmermann, and so ably defended by M. Alibert, is correct, though contrary to that of most authors, who have continued to class them among debilitants. In producing an

evident revulsive effect, tepid baths are proper in the greater number of slow irritations of the nervous system. Hoffman very judiciously considers them as the most powerful against spasms and inflammations. They are particularly useful in colitis, especially when gently stimulating frictions are made to promote their action, and increase the copious sweat they produce. Warm baths, says M. Broussais, relieve peritonitis by operating a revulsion to the skin; and should this revulsion fail to come on, the disease is exasperated. Hence a bath will frequently cause a relapse of peritonitis after it had been subdued by leeches; the case is widely different with emollient fomentations.(1) We must here remark that the more intense the internal irritation, the more moderate is to be the heat of the liquid into which the body is placed. When its temperature is but middling, it scarcely excites the circulation. Yet, owing no doubt to the painful pressure exercised by the fluid, tepid baths are sometimes supported with great difficulty in peritonitis, whilst the sitting bath does not present the same inconvenience.

Under the appellation of cold baths, we include those whose temperature is below 14 to $18^{\circ} + 0\text{ R}$. Their effect on the skin is owing to the reaction that follows the astriction at first produced. As I have before said, the immersion of the body into a cold medium, first occasions a sudden and violent concentration of the fluids internally; a general shivering takes place; the respiration is difficult, interrupted, and imperfect; suffocation appears imminent. This state is followed with a gentle heat at the surface; the skin becomes very red; the liquids are carried to the external parts; the respiration is full, free, and easy; the pulse large, full, and somewhat frequent; muscular strength is very considerably increased. This reaction, which is the more intense and rapid as the subject is more vigorous, is followed, if the body remains in the same liquid, with a new sedative effect, and soon after with the whole phenomena of diminished energy of organic action.(2)

It is not difficult to conceive how powerfully a like perturbation must operate upon the circulation and the nervous

(1) *Examen*. PROPOSITION 314.

(2) *Dictionnaire des Scienc. Méd.*, art. SCROPHULA.

system, and what influence it must possess upon the direction of the vital functions. Hence cold baths have been prescribed by a vast number of writers against scrofula, rachitis, general debility, and dispositions to spasms and convulsions. Very few agents can be found to act with as much force and efficacy ; none perhaps which, in irritable nervous habits, are more entitled to our confidence.

Under the head of warm baths, we have vapour baths, which are seldom justifiable in acute internal inflammations, although they have lately been held in great repute. Their special utility is in restoring suppressed eruptions on the skin; they are also serviceable in re-establishing the functions of the skin, in subjects affected with chronic visceral irritations. M. Itard has succeeded, in two cases, in producing a favourable revulsion upon persons labouring under acute hydrocephalus, by following this method. But the heat of those baths is too considerable not to expose the patient to the serious inconvenience of an increased excitement of the blood-vessels, and of an exasperation of the cerebral symptoms.

Cold affusions, the salutary action and effects of which have been so well described by Giannini, are sometimes substituted for cold baths. This remedy, which is specially indicated in gastro-enteritis complicated with adynamy, consists in pouring upon the body several dishfuls of water at the temperature of 12 to $16^{\circ} + 0$ R. The effusion must be continued so long as the vital actions lose but little of their energy. Six or eight minutes are generally sufficient. After the operation, the body is carefully wiped dry, and then placed in a warm bed, when a more or less violent reaction takes place. It is not uncommon to see, after such affusions, the skin covered with a gentle moisture, the pulse diminished in frequency, and becoming souple and large, and the febrile symptoms improved. Such are at least the effects observed in many cases by M. Récamier, who places the utmost confidence in that remedy. I am convinced that, if resorted to after local bleeding, it would prove a powerful revulsive, which would not have the inconvenience apprehended by M. Broussais, of producing or exasperating gastro-enteritis, and that it would frequently be serviceable. It is to be desired that affusions, properly administered, should be introduced among the remedies employed by physiological physicians: it would enable them to be sparing in the use of leeches, and would powerfully promote their action, in typhus and similar

diseases, where, notwithstanding their application, gastro-enteritis often continues in its progress.

Emollient cataplasms produce a gentle and salutary revulsive action upon the skin. When simple, or sprinkled with vinegar, and applied to the feet, they constitute a tonic which never stimulates to such a degree as to increase the acceleration of the pulse, the acrid heat of the skin, and the other symptoms of gastro-enteritis. I have often used them with success in nervous and irritable habits where more active stimulants were not admissible, and in cases where other revulsives would not have been free from inconvenience. The long continued application of those cataplasms brings on the skin a miliary eruptions, which fill up, suppurate, and succeed each other with rapidity. This eruption may prove serviceable in chronic irritations of the viscera, when practised upon the parts that cover the diseased organs.

Cutaneous frictions with the hand, a flannel, or a brush, are frequently made use of, either for the purpose of calling the blood and awaking the sensibility in emaciated parts, or in order to irritate the integuments, and produce in them a revulsive action, during those sorts of muscular, nervous, or fibrous irritations, called rheumatisms. Moderately strong percussions with a rod, have lately been had recourse to, not without some degree of success, in England, and by Ducamp France. Ammonia, camphor, vinegar, alcohol, tincture of cantharides, the balsam of Fioraventi, and opodeldoc, are generally added to the frictions, in order to increase their energy.

The pitch plaster, sinapisms, and blisters, differ only in the degree of irritation they produce. The first causes more inconvenience than pain; some physicians apply it between the shoulders during the course of bronchitis which tends to remain permanent. Its effects are so inconsiderable that they do not entitle it to much confidence. Sinapisms present this peculiarity, that they determine in the skin a rubefaction, accompanied with burning and acrid pains, and susceptible of producing agitation and fever, and of becoming, in many cases, quickly intolerable. This topic applied to the feet, and extended to the legs, is specially serviceable wherever the brain is the seat of a violent congestion which requires to be speedily alleviated. Its action, however, must be carefully watched, owing to its facility of exciting the sympathies.

The same remark applies to blisters, the stimulating action of which it is often necessary to subdue by means of emollient cataplasms. Generally speaking, these topics must be applied at a distance from the diseased parts, in order to prevent the congestion of blood they excite, from increasing the irritation which they are destined to produce. In this manner they would prove most efficacious against arachnoiditis in children. In many cases, the cerebral irritation is exasperated by the application of blisters to the cranium or the back of the neck; the same thing often occurs in ophthalmia. It also frequently increases, instead of diminishing the symptoms of pneumonia, when applied to the chest. Blisters are even contra-indicated, when there are a general excitement and fever, which they seldom fail to exasperate; and if such cases call for revulsives, others less irritating must be chosen, such as cataplasms, either simple, or combined with some vinegar or mustard, stimulating frictions, &c. In the application of a blister, it is necessary to take into account the facility with which the active principle of cantharides irritates the bladder in some individuals. This is said to be obviated by sprinkling the plaster with powdered camphor. Boiling water, and the ointment of ammonia, may often be advantageously substituted for the common blister, as they produce the same effect in a few minutes, and with greater force and certainty.

Among cutaneous revulsives, we must notice the emetic ointment called d'Autenrieth: it is composed of one part of tartar emetic to three of hog's lard. Frictions made with this ointment will bring out, in a few days, a considerable number of pustules, resembling those of variola, the centre of which, as they get dry, is converted into a thick and black scar, which leaves behind it a small ulcer susceptible of supplying a copious suppuration. This topic does not, in general, produce fever, excites no sympathetic accident, and operates very powerfully upon the external tissues. Autenrieth has made a successful use of it in frictions to the epigastrium, for the hooping-cough of infants. Dr. Tomelli has not been less happy in chronic inflammations of the lungs and pleura, by using the ointment in frictions either to the epigastrium or to the anterior or posterior parts of the chest, in the regions corresponding to the most voluminous divisions of the bron-

chiaë (1) M. Fallo, of Namur, has employed the tartar emetic ointment with complete success in a case of a sub-orbital neuralgia, which appeared to be the result of the suppression of a herpetic eruption in the face. (2) M. Chatelain, of Neuville, had already published observations similar to those of MM. Fallo and Tomelli: for instance, he has succeeded, after a treatment of five months, in curing a case of amaurosis of seven days standing, the consequence of the metastasis of ancient herpetic eruptions. (3) It will be seen hereafter that the same remedy has proved equally successful against intermittent fevers.

Seton and cautery are slow but powerful revulsives; they are specially employed against diseases that are already chronic or that have a tendency to become so. They have a different mode of action to that of the disease, without being less permanent, and their activity must be occasionally renewed by properly irritating the wounds. It is very seldom that they cannot be placed near the seat of the disorder. Hence cautery is applied opposite to vertebræ affected with caries; in the vicinity of the great trochanter, for coxalgia; to the parietes of the chest, for chronic pneumonia and pleuritis, &c.

The action of moxa is of the same nature as that of instantaneous irritants, and of suppuratives. Fire is, indeed, the most active and energetic stimulant we possess. We know that it has been successfully applied to the forehead against epilepsy. M. Regnault has derived great benefit from the application, to the head of children affected with arachnoiditis, of a moderate moxa, which was applied over a piece of wet cloth, in order to preserve the cranium from being over heated, and confine the action of fire to a mere rubefaction of the part. It is never to be used during the violence of irritation, but merely when it has passed to the chronic stage, or is followed with a collection of serum. A number of moxas successively applied to the vertebræ or articulations affected with chronic irritations, constitute one of the most powerful means of revulsion that therapeutics possesses. M. Vaidy has derived the most essential benefit from it in latent phlegmasiæ of the lungs and pleura, by

(1) *Annali universali de medicina*, July, 1824.

(2) *Journal Complémentaire du Dictionn. des Scienc. Méd.*, t. X.

(3) *Revue Médicale*, Janvier, 1812.

placing it upon the parietes of the thorax. It has not been less beneficial against hepatitis, nephritis, cystitis, and even some chronic gastritis.

Acupuncture, which has already been mentioned, must be classed among revulsives, when practised in the vicinity of, and not immediately upon the diseased part; but then it is not very energetic. M. Denours has, however, made a successful use of it in some cases of ophthalmia. He plunges the needles through a fold of the skin at the temporal regions, and allows them to remain in that position for a certain length of time, thereby constituting a real seton, with the only difference, that steel is afterwards left in the wound instead of thread. The inflammation arising from acupuncture is sometimes considerable; yet no suppuration ensues, but when the needles are extracted, they are found highly oxygenated, and adhering to the sides of the punctures. This modification of acupuncture might be made useful in a variety of other cases.

Considered in a general point of view, all the revulsives just mentioned possess the property of drawing the liquids and vital actions to the surface; but, independent of this property common to them, each exercises, if not a special action, at least a degree of stimulation by which it is made, as it were, appropriate to the various indications intended to be fulfilled. Hence, pediluvia containing mustard, and large sinapisms, may be opposed to comatous affections, and to congestions of blood tending towards the head or chest; tepid or cold baths, pressing the skin with the hand, (*massage*) and stimulating frictions, will destroy the susceptibility of the nerves and viscera, by changing the direction of the vital functions; issues, moxa, cautery, and setons, excite on the surface a suppurative process susceptible of checking morbid actions internally; lastly, the ointment of tartarized antimony appears specially indicated in all cases where it is necessary to recall old accustomed eruptions to the skin.

In conclusion of what we have said, with respect to the places where external revulsives should be applied, it will be seen that, in rapid and sanguineous affections of the abdominal viscera, revulsives must be applied to the feet. During the process of chronic inflammations of the eyes, it may be proper to irritate the back of the neck and of the ears: blisters to the temples are always too close to the diseased eye; this effect is sometimes produced when they are placed behind the

ears. The integuments covering the cranium must never be covered with blisters or moxa in acute encephalitis or arachnoiditis; they have sometimes relieved, but more frequently exasperated the irritation. The cervex is to be irritated in chronic inflammations of the larynx and pharynx. However, some slight cases of angina may be successfully treated by means of flannel dipped in a mixture of oil and liquid ammonia, applied to the anterior part of the neck. In phthisis laryngea, moxa may be successfully applied to the thyroid cartilage. Chronic inflammations of the lungs and pleura require setons, cautery, or moxa to the side affected, and to the regions corresponding, either to collections of fluids, indurations, or suppurating cavities. In chronic bronchitis, the seton should be placed on the arm. Habitual rubefacients should be applied to the legs, knees, and thighs, by means of bathing to those parts, cutaneous frictions, and vinegar cateplasms to the feet, in order to prevent those fits of suffocation and asthma resulting from obstruction to the circulation, in subjects labouring under obliterations of the orifices of the heart. All energetic stimulants susceptible of producing agitation must be strictly avoided; they would be more injurious than useful. Inflammation of the liver, spleen, kidneys, bladder and womb, require that artificial suppurations should be specially applied to the right hypocondrium in hepatitis, the left in the plenitis, the lumbar regions in nephritis, the hypogastrium in cystitis, and the sacro-iliac symphysis in metritis.

It is difficult to operate revulsions against enteritis, yet topics which rubefy the skin, without occasioning pain, are frequently serviceable. The ointment of tartarized antimony, applied to the epigastrium, has proved beneficial in chronic gastritis; blisters to the abdomen have checked intestinal hemorrhage, and this success must be attributed, not, as M. Broussais says, to the existence, in those cases, of anæmia of the intestines which prevents their being irritated, but precisely to the sympathetic irritation produced in those organs by very stimulating topics, giving rise to pain and to a sort of inflammation that checks the hemorrhage.

Such are some of the most important rules regulating the practice of external revulsives. They might be made much more numerous, but what we have said is sufficient to demonstrate that, by properly selecting and applying irritating substances, they may be rendered useful in almost every case of internal inflammation, after a judicious employment of anti-

phlogistics. It is in this manner that our art, simple in its elements, but inexhaustible in its proceedings, knows how nature varies its actions according to the forms of diseases, the susceptibility of the subjects, and the results it seeks to obtain,

CHAPTER III.

OF REVULSIONS EXERCISED UPON THE ORGANS OF LOCOMOTION AND THE NERVOUS SYSTEM.

The revulsive actions which the brain can operate with a beneficial influence in a great variety of chronic disorders of the viscera, consist in diverting the patient's mind from his disease, exciting his courage which should never fail him, and imparting a new direction to his intellectual faculties. These measures greatly contribute to the cure of hypochondriasis; also, of chronic irritations, gastritis, and of all the diseases accompanied with more or less debility of the nervous system, and with a profound sentiment of despondency.

The muscles are more easily and considerably operated upon by revulsives. Long-continued muscular exercise, aided with tepid or cold baths, is the surest preventive against the effects of nervous susceptibility which pervade so many individuals in populous cities. These means, altogether dietetic, increase the vitality of the limbs, promote the course of the fluids to the surface, and stimulate those parts of the nervous system which preside over the organs of motion, thereby adding energy to the vascular system, giving activity to the process of sanguification, awaking the action and regularity of the stomach, and finally diminishing that excessive sensibility and mobility that so often complicate diseases. Rural occupations, regular promenade, and especially a well directed gymnastic exercise, are all very powerful revulsives against chronic irritations of internal organs, tremblings, and the disposition to spasmodic and convulsive affections in children. These measures are also very proper for rousing general strength, giving a proper energy to the muscles, the organs of respiration and circulation; lastly, they secure be-

tween the principal functions that equilibrium which constitutes the state of health, and without which the intellectual operations are almost constantly languid, and bodily exertions in a complete state of prostration.

CHAPTER IV.

OF REVULSIONS EXERCISED UPON THE ORGANS OF RESPIRATION AND OF THE SECRETIONS.

SECTION I.

General Considerations.

Revulsions have been applied to the stomach and intestines in so many cases and under so many shapes, that it is somewhat difficult to introduce a methodical order in pointing out the therapeutical means that belong to that class of medications. On the other hand, writers, even the most accurate, have not generally paid sufficient attention to the susceptibility of the subject, and to the state of the digestive organs at the moment when they operated revulsions upon them, so that we most generally meet with nothing but uncertainty in their reports, as well as in the result of their practice. For this reason, some have expatiated on the uncertainty of medicine; but the hesitation which renders its exercise difficult and somewhat hazardous, should be attributed to the imperfection of the diagnostic, and to the ignorance of observers, who have been unable to discriminate all the conditions susceptible of causing the success or failure of the methods they employed.

However, revulsives given internally may be divided: 1st, into those which confine their action to the alimentary canal, and excite it with or without subsequent copious secretions and considerable excitement; 2d, into those which, after stimulating it, direct their action upon the sanguiferous system and the various secretory organs.

The greater number of stimulants belonging to the latter

category, administered by means of cutaneous frictions, penetrate into the circulation, and go to produce the same effects as if taken through the mouth. This phenomenon has induced the belief that the stomach and intestines might, in those cases, act the same part as the skin, and merely allow the remedies to be absorbed, without themselves contributing to that process. But the most simple reflexion, and the observation of phenomena, easily overthrow this hypothesis. No stimulating substance can come in contact with the gastrointestinal mucous membrane, without producing an increased action both of the digestive canal and of its blood-vessels. The more refractory the remedy is to the action of the digestive canal, the more it fatigues the organ before it is absorbed; and if it contain acrid, aromatic, astringent, or even more energetic principles, the excitement it produces may easily amount to real inflammation. The skin, being less sensible than the digestive mucous membrane, is not so strongly affected by stimulants, nor is its excitement followed with as much disorder in the whole of the animal organism.

Revulsions can never be safely administered internally except where the susceptibility is not considerable, nor the abdominal viscera affected with disease. This species of revulsion must obtain the whole attention of the physician, and requires the strictest vigilance. The sympathies of the stomach are so multiplied, and their influence upon all the other organs is so active and rapid, that its excitement is always attended with the danger of its being communicated to the parts affected, and exasperating the disease which it was intended to remove. It is a common occurrence in practice to observe herpetic eruptions, ulcers reputed syphilitic, rheumatic pains, and obstinate cephalalgia, incessantly increased by an injudicious exhibition of internal stimulants. These affections would, for the most part, be cured with facility when, after discontinuing the harsh treatment by which they were exasperated, the vital functions are allowed to restore their normal condition, and their equal distribution to every part, by the proper use of a softening regimen, continued exercise, baths, &c.

SECTION II.

Of revulsions confined to the digestive canal.

We all know the partiality of Desault for tartar emetic in solution in wounds of the head. This remedy is now generally abandoned; surgeons at the present day prefer, with good reason, diet, demulcents, general and local bleeding, which more surely obviate cerebral congestions, and at the same time prevent the gastro-hepatitis with which they are so apt to be complicated. Calomel, which is resorted to in such cases by the English surgeons, is replete with as much inconvenience as tartar emetic.

All competent observers unanimously concur in proclaiming the injurious effects produced by irritants upon the digestive canal, when administered against the acute hydrocephalus of infants. Emetic in large doses, as prescribed by Rasori, cannot then be resorted to without an utter contempt of the best established principles of pathological physiology. M. Laennec, who seems to aim at the credit of propagating, in France, the errors of the Italian reformer, in vain asserts that it has succeeded in his practice; for no other has obtained similar results; and M. Guersent has seen it, in almost every case, irritate the intestines, and aggravate the cerebral and intestinal symptoms. Encouraged by the observations of Dr. Boyse, of Canterbury, the English physicians, and afterwards those of the continent, have made a deplorable abuse of calomel in the treatment of meningitis in children. They have combined it with rhubarb, jalap, scammony, gamboge, &c. It seems that pharmacy did not possess sufficiently strong drastics in order to excite the most sensible organ, in subjects the least accustomed to stimulants, and the most irritable. Dr. Heineker has extolled calomel administered in such manner as to produce salivation, I mean at the dose of thirty grains a day from the commencement of the disease. He considers the mercurial fever as calculated to diminish the violence of the cerebral symptoms. MM. Cheyne and Coindet entertain the same opinion. But these errors are already far behind us; no rational physician would now presume to be dictated by such blind empiricism; and if mercury and purgatives, recommended by Whitt, Fothergill,

Watson, Odier and others, can ever be admissible, it is towards the end of the disease, at the period when the irritation, tending to continue, although partly subdued by blood-letting, requires violent revulsives. Even in those cases, cutaneous irritants are generally preferable to those that operate upon the superior portion of the alimentary canal.

Phosphorus, employed by M. Coindet, at the dose of two grains to one ounce of the oil of sweet almonds, will always be banished from the cases under consideration. The preparations of squills, advised by Odier, and combined by M. Jadelot with other internal stimulants, irritate the digestive canal, without almost ever producing a favourable revulsion upon the urinary organs. Gratiola, prescribed by M. Sommer; arnica and valerian, recommended by MM. Bard and Heineken, and a variety of other like remedies, are equally objectionable. Lastly, digitalis purpurea can never be used with any chance of success except in cases of chronic hydrocephalus, where a serous collection has formed and continues to exist. In these cases, its irritating action upon the stomach and kidneys may prove salutary.

Irritation of the rectum is less injurious in acute hydrocephalus than that of the stomach. Independent of the irritating enemata employed with some success by all practitioners, when the cerebral excitement has been energetically opposed by direct antiphlogistics, M. H. Cloquet, and afterwards M. Mareschal, of Nantes, have made use of glysters containing bark.(1) The former was led to try this remedy by observing the exacerbations somewhat regular which often accompany the disease, and give it the character of intermittents. M. Piorry has also employed those glysters against acute hydrocephalus, accompanied with periodical exacerbations, and he has obtained some benefit from them.(2) These glysters contain from one to two drachms of bark diluted in a few ounces of water; they are thrown up the rectum so as to be retained there for some time. Experience has shown them to be injurious when the cerebral inflammation is intense, continued, and without any trace of remission, or when the colon itself is inflamed.

(1) *Nouveau Journal de Médecine*. t. I. p. 129, et t. IV. p. 298.

(2) *De l'irritation encéphalique des enfants*, in 8vo. 1823.

Since the late improvements have demonstrated that apoplexy is generally but the last period of chronic encephalitis, often kept up by an habitual stimulation of the stomach, internal irritants, formerly so extensively used in the treatment of that affection, are much more seldom employed. Emetics, in high doses, must be totally banished; for the opening of dead bodies after its exhibition, generally present violent marks of inflammation in the stomach, in the same manner that a severe colitis and rectitis follow the use of highly irritating glysters. Vomiting is justifiable only in cases of apoplexy brought on immediately after a meal, where the fulness of the stomach appears to increase the congestion of blood to the brain; tepid water, or titillation, are then preferable to the emetic. Blood-letting and cutaneous revulsives are good substitutes, in those cases, for irritants applied to the digestive canal.

The above considerations are applicable to every form of chronic or acute inflammation of the brain or of its envelops. It would be both useless and fastidious to repeat the same injunctions on every one of these affections.

Epilepsy has been treated with the most powerful gastric stimulants. The object of such a medication is to excite in the digestive canal a point of irritation and suffering capable of displacing and destroying that which produces the spasm. But it is evident that the result obtained from a similar treatment must depend upon an infinite variety of circumstances, such as the organic susceptibility, the age of the patient, the intensity of the morbid irritation. In this way, we find the reason why the oil of Dippel, at the dose of ten to twenty drops, with an aromatic mixture, and made into pills with the powder of valerian; why camphor, or the oil of turpentine, so highly recommended in England; the oxyd of zinc, sulphate of copper, deuto-chloruret of mercury, and the nitrate of silver, have failed in other hands. The nitrate of silver, in particular, has given rise to serious accidents, notwithstanding its being employed at a very moderate dose. The same irritating treatment of the digestive organs has been equally injurious against chorea. The hydrocyanate of zinc, however, has been tried with success against the last mentioned disease, by Hufeland, at the dose of one grain, gradually increased to four; but further experiments must be made before we can determine the proper value of this remedy.

Various stimulants of the digestive canal have been pro-

posed against tetanus, and generally without success. The vermifuges of Lombard act as revulsives ; it is in this manner that alkaline, and other substances that have already been mentioned, produce the desired effect.

Nevralgiæ are often treated in the same manner. Among the most accredited remedies against them, the oil of turpentine seems to hold the first rank. This substance, applied externally, irritates the skin considerably ; internally, at the dose of twenty to thirty grains, it occasions in the throat and œsophagus a violent heat, which is communicated to the stomach and the various portions of the alimentary canal. This is followed by loss of appetite, eructations, heaviness at the stomach, and difficult digestion. The urine is sometimes rendered more copious, and its evacuation is accompanied with a burning heat in the urethra. At the dose of two or three drachms each time, the essential oil causes nausea, vomiting, colic pains, heat in the abdomen, dyarrhœa, in a word, an intense gastro-enteritis. The kidneys, ureters, bladder, and urethra, generally participate in that over-excitement, and the subject is affected with dysuria, or even stranguria.

These effects clearly show that the oil of turpentine irritates the intestinal canal, and operates as a revulsive in nevralgia. M. Martinet, who has called the attention of medical men to this substance, observes that it is specially indicated in sciatica, and that it increases heat along the course of the affected nerve. The more intense the pain, the greater is the chance of success.(1) The oil of turpentine may be incorporated at the dose of two drachms to four of honey, three spoonfuls of which are taken every day. In order to obviate its disagreeable taste, it should be associated, in the shape of loochs and opiates, with syrups of mint or of orange flowers, with æther and sugar, so as to give one or two drachms of the oil every day in three doses. If a larger quantity were given at a time, as some practitioners have attempted it, it would give rise to useless or even injurious over-purging. M. Recamier employs it since several years, and it is said to have succeeded in many cases of sciatica ; but it is to be desired that the cases of failures should also be published, in

(1) *Mémoire sur l'emploi de l'huile de thérbenthine dans la sciatica, et quelques autres névralgies des membres.* Paris, 1823, in 8vo.

order that we might determine, both the value of the remedy, and the circumstances in which it may or may not succeed.

The oil of turpentine is not the only revulsive that has cured neuralgia. M. Meyer has made a successful employment, against *tic-douloureux*, of a powder composed of rhubarb, bark, the root of geum, and three grains of the deuto-chloruret of potass; this dose was repeated six times a day. The sub-carbonate of iron, proposed by M. Hutchinson, has been equally useful, at the dose of one scruple, repeated three times a day, and gradually carried to one drachm, according to the statements of Drs. Stewart, Crawford, Todd, Thomson, Liff, and others. Arsenious acid, at the dose of one sixth of a grain, has succeeded in the practice of M. Lalaurie, in a case of frontal neuralgia of old standing, when all other means had failed. Lastly, we know that bitters, the fixed tonics, emetics, and purgatives, have given some relief in irritations of the nervous trunks. These facts prove that the oil of turpentine is far from being a specific, and that, when revulsions are indicated, every substance susceptible of strongly irritating the digestive canal may answer the purpose.

Similar remedies have been prescribed in asthma, *hooping-cough*, and the pretended *neurosis* of respiration; but practitioners appear mostly to indulge the strongest gastrointestinal revulsives against acute *pneumonitis*. We have already spoken of the deleterious effects of large doses of emetic in such cases. The nitrate and carbonate of potass are not more beneficial. The diminution of the acceleration of the pulse, which those substances sometimes occasion, has led the Italian physicians into error, and prevented their recognizing the irritation they produce in the stomach and intestines. But the acrid heat of skin, thirst, and agitation, and in a great many cases, the exacerbation of the fever, leave no doubt on the existence of the gastric over-excitement. But bleeding is then resorted to, and the practitioner, by this combination of means both injurious and salutary, will sometimes succeed in not killing his patient, notwithstanding his barbarous treatment.

The partisans of so deplorable a method also avail themselves of the enormous doses of stimulants that may be prescribed in *pneumonia*, and of the *tolerance* existing in many constitutions. This phenomenon is worthy of attention. But it may be explained, by considering that the intense af

fection and inflammation of a viscus so important as the lungs, must draw to the parts all the vital actions, and often produce in the other organs a sort of indifference for stimulants. It is readily conceived that, amid the disorders then existing in the economy, it becomes more difficult to irritate organs that are remote from the affected viscus, than in the state of health. Stimulants are then tolerated at higher doses than in any other circumstances; and should they abate the symptoms, it is undoubtedly owing to their having diminished the morbid congestion, and carried to the stomach a part of the irritation seated in the lungs. But we cannot place any reliance upon such results. The stomach, being irritated by strong doses of emetic, most commonly re-acts upon the lungs, and both organs being thus violently inflamed, the primary disease is much exasperated and the danger increased. Hence we find that the idea of Rasori has but very few partisans in France: it appears to have been started rather for the sake of experiments than as a general method, even by its warmest advocates.

Purgatives have been employed against peritonitis, and ipecacuanha in small doses, against that form of the disease occurring in lying-in-women. But both reasoning, and the most deplorable experience, assert the dangers of that medication. I have seen a case of puerperal peritonitis, in which ipecacuanha rapidly increased the pain and fever, and brought on death in less than eighteen hours. Facts of this nature require no commentaries.

The same treatment has been more successfull, and is more rational, in dropsy. It may be had recourse to in the absence of pain, of heat in the belly, and where the alimentary canal itself is free from irritation. Drastics in small doses, such as aloes, jalap, gamboge, by titillating with sufficient force the intestinal mucous membrane, seem better calculated than other purgatives to produce the degree of excitement necessary for the absorption of the extravasated fluid. The exhibition of such remedies, in these cases requires additional vigilance on the part of the physician.

Purgatives have also been confidently recommended against the gout. In robust constitutions, they succeed for a long time in retarding and moderating the access; but they ultimately give rise to chronic gastro-enteritis, followed with dropsy, or debility of the vital actions, and marasmus. They frequently displace the irritation, and substitute a vio-

lent gastritis for the articular inflammation. No medication requires a more careful vigilance; and the best results obtained from purgatives may be procured by other less dangerous means.

In a great variety of cases, however, purgatives, administered with prudence, have produced the most decided benefit. They are often advantageously employed towards the termination of the treatment of chronic cutaneous phlegmasiæ. Bronchitis, slight pneumonia, laryngitis, and almost every inflammation about the head, after having been treated with energy by means of antiphlogistics, seldom fail to give way to the revulsive action of one or more purgatives properly administered. Nothing should be apprehended from them, when they are not contra-indicated by the state of the viscera and the susceptibility of the subject. The repeated stimulations of the digestive canal occasioned by purgatives, often promote the effects of antiphlogistics applied to external parts affected with chronic inflammations and threatened with cancer. They form the basis of all the secret remedies in use against those diseases; and if the more rational principles of medicine teach us to avoid the errors of empirics, they must also point out the circumstances in which we may safely administer remedies that are so blindly distributed.

We cannot too often repeat that those circumstances are, on the one hand, the cessation of irritation in the parts affected and of fever; on the other, a perfect healthy condition of the stomach and intestines. The predilection of Dr. Hamilton for purgatives must, therefore, be avoided in subjects labouring under typhus, scarlatina, diseased mesenteric glands, hæmatemesis; but a more judicious practice will sanction the results he has obtained in some cases of chlorosis, hysteria, tetanus, chorea, and other affections consisting in irritations of other organs than the alimentary canal.(1)

SECTION III.

Of revulsions exercised upon the digestive canal, the sanguiferous system, and the secretory organs.

Among the revulsives of this kind, we must place, on the one hand, diuretics, sudorifics, and emmenagogues; on the

(1) *Vide* Dr. Hamilton's work on purgatives.

other, iodine and mercury, the action of which, considered as specific by the greater number of practitioners, must be submitted to a rigorous physiological analysis.

Although the majority of excitants may determine, according to the cases, a flow of perspiration, urine, or menses, pharmacology still points out some substances as more specially calculated to produce the one or the other of these effects. Hence, among sudorifics, we remark guaiacum and sassafras, so highly praised in rheumatic affections; sarsaparilla which Quarin considered the best remedy for the gout; smilax china, a substance almost inert; arctium, which has been exaggerated as an anti-herpetic; rumex patientia, still employed against the itch; sambucus, scabiosa, and asplenium, that have become of a domestic use; canna, a sort of panacea more injurious than useful for lying-in-women; sulphuret of potass, antimonial preparations in small doses, and ammonia, which is often dangerous owing to its highly stimulating property.

The most favorite diuretics are parietaria, sparagrass, taraxacum, uva ursi, fragaria, pareira brava, and the nitrate of potass, which, according to M. Alibert, never operates with more efficacy upon the kidneys than when extended in large quantities of liquids. In the solid form, the same physician asserts that it fatigues the stomach, and seldom produces the result expected to be derived from its employment.

The emmenagogues upon which we may rely are more rare than our predecessors had imagined. It would be difficult, for instance, to relate positive facts in favour of matricaria, aristolochia, mugwort, and even saffron; rue and savine are dangerous; gum ammoniac and galbanum are also too powerful to be exhibited when some organ is affected with a violent irritation.

Diaphoretics, diuretics, and emmenagogues, have also been extensively used against phlegmasiæ that are supposed to proceed from the suppression of one of the evacuations which those substances are apparently calculated to restore. But these medications are always hazardous and injurious, during the first periods of acute irritations. The excitement of the digestive organs, and of the circulation, to which they give rise, has no less and even a greater tendency to concentrate in the affected parts that are, owing to their irritation, the most sensible points of the economy, than sympa-

thetically to affect the secretory organs. For this reason, we frequently see that, in bronchitis, sudorifics or warm emmenagogues have increased the pain, cough, and expectoration; as also in the incipient stage of pleuritis, in slight angina, and all the phlegmasiæ of the mucous membranes, the symptoms have been exasperated by stimulants of the same kind, instead of being displaced by the revulsion expected to be the result of their employment.

We are not to make mention here of the internal stimulants prescribed at the invasion of pretended essential fevers; they do not act as revulsives, but as direct stimulants of the organs affected. If they can ever succeed, it is only by substituting an irritation of a nature different from that which constitutes the disease.

No judicious practitioner can with propriety have recourse to diuretics and emmenagogues, during the progress of internal irritations, unless the symptoms having been diminished, the skin and vagina evidently make spontaneous and imperfect efforts to resume their functions. It is in these cases that, speaking the language of Hippocrates, we are to promote the tendency to crisis; this signifies that the organs towards which the economy directs spontaneous revulsive over-excitements, must be stimulated, in order to promote that mutation, which could not otherwise take place or would remain imperfect. But we are then to avoid all heating substances; on the contrary they might prove injurious. It is proper to prescribe some gently aromatic infusions, taken warm and in large quantities; and if we add to them the precaution of keeping the surface of the body warm, a copious perspiration will seldom fail to be induced. Some stimulants, such as the vapour of boiling water, with or without vinegar or aromatics, directed to the vagina, will be found sufficient to bring on the menses which have a tendency to return. It must be recollected that the organism always tends spontaneously to restore old accustomed evacuations, as soon as the internal phlegmasiæ which cause disorder in the vital functions, cease to be very intense. The first object to be attended to, therefore, is the direct treatment of those irritations: this method is the most simple, and the most free from danger; and the means that are employed for that purpose generally constitute the best sudorifics, diuretics, and emmenagogues, because they promote the return of the menstrual, urinary, and cutaneous evacuations.

We have already spoken of the stimulants of the sanguiferous system, in subjects where the lymphatic constitution has become predominant; the destruction of scrofulous tumours or of the general disposition to irritations in the ganglia, rests upon the employment of like remedies. The medication here employed is altogether revulsive, and has for its object (and I am one of the first who have demonstrated it,) to carry to the organs elaborating the blood, the excess of energy and irritability existing in the parts that are engaged in the composition and circulation of the lymphatic fluids. Such is the mode of operating of the most noted anti-scrofulous remedies. It would be useless again to notice the history of the modifications then induced in the animal economy by the analeptic and stimulating regimen, ferruginous preparations, alkaline compounds, exercise in a free, lively, and pure atmosphere, the influence of caloric, and light, &c. All these agents have a tendency to elevate the digestive functions, stimulate the respiratory organs, promote sanguification, and give a new direction and a stronger impulsion to all the nutritive actions. We have now to treat of iodine, a new and very highly esteemed remedy against scrofula, and all chronic and white indurations of the tissues.

Taken internally, iodine strongly irritates the stomach and intestines.⁽¹⁾ Even in very small doses, it creates a disagreeable sense of heat which extends from the throat to the œsophagus and stomach. The epigastrium becomes painful; in some subjects, a copious sero-mucous liquid comes up into the mouth; nausea, eructations, and often vomiting, are also present. The heat then extends to the intestines; there are colic pains, and in many cases, alvine evacuations. The

(1) The preparations of iodine destined for internal use are: 1st, the *tincture of iodine*, formed by the dissolution of 43 grains of that substance into one ounce of alcohol; 2d, the *solution of the hydriodate of potass*, which contains 36 grains of that salt, in every ounce of distilled water; 3d, the *solution of iodurated potass*, made by the addition of 10 grains of iodine to the last mentioned preparation; 4th, the *tincture of deuto-iodine of mercury*, in which 20 grains of that salt are put with one ounce of alcohol; 5th, lastly, *iodurated æther*, containing 6 grains of iodine to every drachm of æther. All these liquids are administered at the dose of four, six, eight, or ten drops, in sweetened water, or another like vehicle; these doses are repeated three times a day. There is no inconvenience in beginning by the smallest quantities, for too much boldness is always attended with danger. Iodine in a pure state, or the deuto-ioduret of mercury, may be administered in pills, at the dose of half a grain every morning and evening.

mouth is hot and not unfrequently inflamed. A great number of patients experience, from the first doses, a disgust, and a sort of invincible horror for the remedy, which they can no longer support,

These phenomena, that are, as it were, primary, are followed by a great variety of sympathetic disorders. It is generally observed that the pulse becomes quick, elevated, and frequent, the skin warm and turgescient, the respiration obstructed and accompanied with oppression and dry cough; the pulsations of the heart are sometimes deranged, and palpitations harass the patient. The nervous system is then subsequently affected. In general there is a violent cephalalgia, giddiness, want of sleep; the patient is low-spirited and morose; the sight is disordered, and the orbits become painful; a sense of uneasiness is felt along the whole vertebral column; lastly, there occur, in the muscles of the limbs, spasms and shiverings, which impede walking as well as the exercise of locomotion, and the intensity of which has been considered by M. Gairdner as the criterion of the degree of action produced by iodine. After some continuance of the remedy, nutrition is generally impaired, the body emaciated, sometimes even with the most astonishing rapidity. In some women, the *mammæ*, in particular, lose their volume and firmness; the menses become more frequent and copious; the whole constitution appears to have experienced a considerable impression, which has destroyed the normal exercise of its functions.

It would be difficult to mistake, in these symptoms, the existence of gastro-enteritis, which sympathetically alters the action of the principal organs. The irritation is sometimes very difficult to be destroyed, and it is not uncommon for some patients to retain for weeks, and even months, such a gastric susceptibility as to reject all solid food, and bring on an incurable marasmus.

I have deemed the following observations calculated to shed some light on the dangers attending the internal exhibition of iodine, whenever it is not directed with great prudence.

The dose of iodine having been increased in a young person who had been taking that medicine for some time, he was seized with pain at the stomach, anxiety, and oppression. These accidents were overlooked, and the remedy was persevered in for a week longer. The patient grew poor, and

was affected with frequent vomiting, and with intense and continual pain in the abdomen. Convulsions soon appeared in the muscles of the arm, back and legs. Vomiting and purging were unceasing, and the fecal matter coming through the anus was soon changed into bloody, viscous, and rare evacuations. The matter vomited was green, and mixed with some streaks of blood; the pale and contracted features of the face gave the expression peculiar to affections of the abdomen. The pulse was small, hard, and so frequent, that its pulsations could scarcely be reckoned. The emaciation soon became such that the body appeared to be totally deprived of flesh. The dyarrhæa and vomiting could not be relieved without the use of opiates, and it was a long time before health could be restored.(1)

On opening the body of a woman who had made an abuse of iodine, M. Zinck found the intestines tumefied, highly inflamed in several places, and exhibiting in many others, both within and outside, that brownish hue which characterizes gangrene. The stomach was very voluminous, distended, offering the coloured streaks of marble, and inflamed spots similar to those that existed in the intestines. On its external surface; two-thirds of the smaller curvature presented an excoriation of two square inches in extent. Internally, its mucous coat was inflamed near the cardia, and had the appearance of the advanced stages of inflammation as far as the pylorus; near this orifice, it even appeared almost corroded.

The mesentery had the same appearance, spots, and alterations, as the intestines. Other marks of irritation existed about the liver, at the spleen, and in the chest. In this case, and in another no less deplorable, related by M. Zinck, death came on slowly, and after protracted sufferings, because the iodine, which was administered in sufficiently small doses as not to produce instantaneous death, had had time to make very considerable ravages.(2)

Dr. Schmid relates that a lady, having used the tincture of iodine for bronchocele, was affected, after some days, with violent palpitations, vertigo, spasms of the muscles of the

(1) *Recherches sur les effets de l'iode dans plusieurs maladies, &c.* par le Dr. Gairdner.

(2) *Observations pratiques sur l'usage abusif de la teinture d'iode à l'intérieur.* Journ. Compl. du Dict. des Scienc. Méd.; t. XVIII. p. 126.

face, and general prostration, followed with rapid emaciation and obstinate wakefulness. She positively said that she had taken but very small doses of the remedy. She was labouring under a continual febrile excitement, alternating with heat and cold; her tumour became very painful, and she had continual desires to void urine.

In another woman, whose menses were generally copious and frequent, the tincture of iodine brought on menorrhagia which proved very difficult to cure.(1)

These facts, and a number of others which it would be too long to relate, prove that iodine is totally inadmissible when the digestive organs are already affected with irritation, or where the habit is nervous, irritable, and possessing a disposition to cerebral congestions. Fever, dyarrhæa, affections of the lungs, or other splanchnical viscera, positively contra-indicate the internal exhibition of preparations of iodine. They are admissible only where the habit is not very sensible, where there exists no predominance of the sanguiferous system, nor any tendency to gastro-enteritis or other affections of the viscera.

Iodine has been particularly successful against bronchocele. The numerous observations related by Drs. Coindet, Baup, Carro, Matthey, Formey, and a great number of others, can leave no doubt on the subject. This substance appears to possess the property of promoting absorption in all the organs, especially in the glands and glandular tissues, such as the thyroid gland, the mammæ, and perhaps also the testes and ovaria. Drs. Henning, Kolley, Guersent, Bénaben, &c. have derived some benefit from it in scrofula, and M. Brera in amenorrhœa, chlorosis, diseased mesenteric glands, and chronic engorgements of the external ganglia, scrofulous ophthalmia, and other affections of a like nature. MM. Baron, Naden, and Gairdner, give it in some incipient cases of tubercular consumption; but we may be permitted to entertain more than real doubts on the propriety of such a treatment. M. Baron has obtained, by means of that substance, the resolution of an enkysted dropsy of the ovarium; this effect is to be attributed, no doubt, to the powerful revulsion the remedy exercised upon the digestive canal. It has also been highly recommended for herpetic eruptions, schirrhous

(1) *Hufeland's Journal*, February, 1824.

wombs, rachitis, chronic inflammations accompanied with tumefactions of the joints, and, if we credit the reporters of the observations on this subject, with infallible success.

Prudence, however, requires that the physician should not place too much confidence in their assertions. The stimulating effect of iodine upon the digestive canal must ever exclude it from the treatment of such a disease as *tabes mesenterica*, which consists, in a great measure, in an inflammation of the mucous coat of the intestines. This substance sympathetically stimulates the uterus, and promotes the flow of the menses; how then could it be prescribed generally for cancer of the uterus? It disorders respiration, accelerates the pulse, and produces uneasiness and oppression about the chest; who could, therefore, presume to prescribe it in tubercular consumption or against hæmoptisis? I believe it is more likely to bring on phthisis, when there is a previous disposition to that disease, than to cure it, when it already exists. Yet, it will be said that iodine has succeeded in such cases. I am not disposed to deny it, but have physicians been strictly true in publishing the cases in which it has failed, where it has produced unfavourable results and perhaps death? Have not most stimulants been exaggerated in similar cases? Iodine may prove serviceable when prudently administered to pale, lymphatic, and obtuse subjects; against anæmia and chlorosis in females; or where menstruation is slow and difficult, owing to debility in the sanguiferous system; but if it be opposed to vacular excitements, or inflammations of the viscera, it will inevitably prove dangerous, and give rise to serious accidents.

The treatment of irritations called syphilitic by means of internal remedies, is not less founded upon the principles of revulsion than that of scrofula. A hasty sketch of the principal substances employed against such affections will be sufficient to establish the truth of this remark.

The first and undeniable effect of mercurial preparations taken into the stomach, is an excitement of the mucous coat of the stomach and intestines. Several of them are corrosive, and highly inflammatory, even in small doses; others operate in the manner of purgatives; the mildest, those in which mercury possesses but a moderate share of oxygen, are also the least effectual for the cure of the disease against which that remedy is employed. When the habit is irritable, and the viscera highly sensible, all mercurial salts readily

produce thirst, cardialgia, colic, loss of appetite and all the symptoms of gastro-enteritis. In vigorous constitutions, small doses of these remedies often increase the energy of the digestive organs, and gradually bring on a certain degree of irritation, which disorders the functions and gives rise to various accidents. For instance, it seldom happens that a man can be submitted to the action of the deuto-chloruret of mercury for several weeks, without being eventually affected with gastro-enteritis of some intensity, which cannot always be cured without difficulty.

This immediate action of mercury upon the stomach and intestines, is soon followed with all the signs of vascular excitement. An artificial febrile excitement often appears; the pulse becomes quick, full, and frequent; the heat of the skin is increased; there is a tendency to congestions of blood and to hemorrhage; the pectoral and abdominal viscera are irritated; hemorrhoids, catamenia, and epistaxis, come on; if the subject be affected with bronchitis, the expectoration generally becomes more copious, the cough stronger, and breathing more difficult. But the effects of this over-excitement are particularly felt by the secretory organs. In the majority of cases, the bile is more abundantly poured into the digestive canal whose excitement is communicated to the liver; the quantity of the pancreatic juice is increased, as also the secretions of the skin and kidneys; the salivary glands are irritated, tumefied, and their secretion considerably augmented. The inside of the mouth itself is inflamed, the cheeks and tongue ulcerated; the gums are tumefied, let out blood, and cease to hold firm the teeth, which turn black, vacillate, and not unfrequently come out of their sockets.

Applied externally, mercury is absorbed and produces the same effects, but with less violence and rapidity. The sanguiferous system, the secretory organs, the mouth, and subsequently the salivary glands, are equally affected. The alimentary tube, although it is also irritated, is less highly inflamed.

It is not surprising that an action so extensive and violent, should exercise a great influence upon the progress of external irritations. These have a tendency to propagate, by means of the sympathies and of the tissues; it cannot, therefore, be a matter of astonishment that the disorder occasioned by mercury in the living organism, which directs the course of the vital functions to the other parts, should, as it

were, annihilate the impulsion they had received, and prevent the appearance of the phenomena that were to have been the consequence. If the irritations reputed sympathetic be not very intense, the subject being properly disposed, the symptoms will disappear; and, when the disorder occasioned by mercury shall have subsided, no ultimate accident nor relapse will occur: the morbid habit shall have been completely destroyed.

But this is not always the case; the organs, in some constitutions, are so deeply affected that the revulsive and disordering action of mercury has no salutary effect upon them; in that case the artificial irritation produced in the circulation, as well as the excitement of the mucous membrane and of the skin, will, on the contrary promote the extension of the evil, which is exasperated by the remedy with which it was to have been cured.

Should mercury be the specific, the antidote of the syphilitic virus, it might not invariably succeed in neutralizing the morbid matter; but at least it never would increase its activity, and prove an auxiliary to a principle which it ought to destroy. We never see the vaccine virus produce variola; the admission of a specific which entertains and aggravates the disease to which it is opposed, implies a palpable contradiction, and constitutes an hypothesis totally deprived of foundation.

On the contrary, if we attribute but a simply revulsive and perturbing property to mercury, we are entirely consistent with facts: for it is known to fail and produce accidents, when administered whilst the parts affected are still the seat of violent inflammation. Here therapeutical physiology resumes its prerogative: it prescribes a vigilant attention over the action produced by the remedy upon the various sets of organs, and interrupts or discontinues its administration as soon as it gives rise to irritation in the viscera. In a word, the treatment of irritations arising from impure coition, being no longer obscure and mysterious, falls under the dominion of the laws that regulate revulsive medications, and thereby becomes more methodical and salutary.

Let mercury be the surest revulsive we possess against syphilitic complaints; let it be better calculated than others to subdue the disposition, sometimes obstinate, that the tissues primarily affected preserve for new irritations, and let it be the most efficacious preventive against relapses; these

facts cannot invalidate the opinion I advocate. Among the remedies employed against a disease, there must always be some whose effects are more salutary and sure than others, since they vary both in their energy and in their stimulating property. But without denying the excellence, otherwise incontestable, of mercury, it has been known by every one to have produced the most serious accidents, such as inflammation and ulceration of those parts of the mucous membranes contiguous to the skin; sometimes violent gastro-enteritis, emaciation, slow fever, marasmus, latent pneumonia, phthisis, cutaneous eruptions, acute pains in the bones, tumefactions of the bones and periosteum; yet, besides exposing the patient to such inconvenience and dangers, it is not so infallible against the pretended lues venerea as not to have very frequently left the patient exposed to all the dreadful consequences of a relapse.

This sketch is so far from being exaggerated that, since the time when syphilitic complaints began to attract the attention of physicians, and to become the object of general descriptions, the ablest men have never ceased to substitute mercurial preparations more certain and less dangerous in their effect. Again; there is not one of those preparations that has not procured a great number of undeniable, solid, and radical cures; and as their mode of acting upon our organs is generally understood, we derive from this fact an additional proof, that, in order to destroy the syphilitic virus, nothing more is required than a violent revulsion upon the viscera, which should be continued sufficiently long as to restore the normal condition of the vital functions.

Such is undoubtedly the mode of operating of sudorifics, the use of which dates as far back as the sixteenth century, and which stimulate with so much energy the digestive organs, the muscles, and the exhalants of the skin. The same impression is produced by ammonia recommended by Teyrilhe as a substitute for mercury, and which forms the basis of the vegetable syrup of Velnos. The root of the *astragalus exscapus*, made use of in Hungary, and successfully tried by Quarin; the capsule of the nut of the *juglans regia*, which has sometimes succeeded in the hands of Swediaur, evidently operate as revulsives. It is also impossible to admit a specific and neutralizing property in the hydrochlorate of gold, or the hydrochlorate of gold and of soda, the oxyd of gold, and the other preparations of that metal, against a venereal virus that

does not exist. These remedies, the good effects of which have been ascertained by MM. Chrestein, Niel, Gozzi, Odhelias, and Fod ré, stimulate in the highest degree the intestinal canal, the vascular system, and the secretory organs; they appear to excite the brain in the same manner as inebriating substances. They are as efficacious as mercury. M. Lallemand, of Montpellier, places a great confidence in the preparations of gold—he even prefers them to all other remedies, when mercury has proved unavailing, and consequently with still more propriety when it has several times failed on the same subject. This physician also thinks that the salts of gold may succeed in recent attacks as well as in those of long standing. He gradually increases the doses from one sixteenth to one sixth of a grain every day; seven or eight grains are generally sufficient to perform a cure. Some experiments made by M. Cullerier have not been so favourable, and appear to demonstrate that the hydrochlorate of platina is no less beneficial than the triple salt of gold against syphilis.

About the end of the last century, Fourcroy and Girtanner expressed the singular opinion that corrosive is indebted for its anti-syphilitic property to the oxygen it contains, and which is disengaged in the living tissues. This hypothesis naturally brings to mind the oxygenated ointments and liquids. W. Scott, of Bombay, was the first who proved, by direct experiments, that lemonade with the nitric acid may, at least in India, be a good substitute for mercury, in cases of hepatitis or syphilis. Rollo and Cruickshank discovered the same property in nitrous acid, the chloruret of potass, and even lemon juice. Numerous cures of syphilis were performed at Edinburgh by means of these remedies. The same experiments were repeated in France, at the *hospice de perfectionnement* of the medical faculty of Paris, where Alyon obtained the same success as the English physicians. Among the practitioners who made further conclusive experiments, it is proper to mention Swediaur, in whose hands the oxygenated lemonade occasionally proved successful.(1)

According to this practitioner, all remedies saturated with oxygen increase the appetite, thirst, and the natural flow of urine, and impart to the blood a remarkable tendency to co-

(1) *Vide* Swediaur on syphilis, Vol. II.

agulate and form the buffy coat, after it is drawn from the vessels. Among the substances of this kind, chlorine has proved a much more powerful stimulant than nitric acid. The deuto-chloruret of potass, even at the dose of a few grains, produces considerable excitement, an artificial fever, which calls for the most vigilant attention on the part of the physician.

Such was the treatment of syphilitic affections with or without mercury, when several physicians, following the track of Dr. Coindet, introduced iodine into that part of therapeutics. M. Bielt had combined iodine with mercury for the use of lymphatic engorgements, herpetic, and other like chronic affections, in subjects suspected of having been imperfectly cured of syphilitic affections of old date. Since that time, M. Richond used it almost exclusively against recent attacks of that disease; and although he never employed a single atom of mercury, he positively asserts that he has cured his subjects at the military hospital of instruction of Strasbourg, with as much rapidity and efficacy as when that metal had been resorted to. He administered the tincture of iodine against blennorrhagia, buboes, and the like, at the dose of twenty, thirty, forty, and fifty drops, morning and evening. These enormous doses of so powerful a remedy were followed with no accident, owing, either to the strong constitution of his patients, or to the proportion of iodine being less than indicated in the formula of Coindet, as mentioned above.

We cannot here make mention of the empirical or secret remedies recommended against syphilis, such as the anti-syphiliticob, Feltz's tisan, those of Vinache, of Arnaud. &c.; they have all afforded some real benefit. Antimony enters into the composition of the generality of them. They operate, by means both of the excitement they produce in the internal organs, and of the excessively severe regimen that the patients must observe during the treatment. No food containing salt, for example, is allowed during the whole course of treatment by Arnaud's remedy; and it will be easily conceived that such a severe regimen, persevered in for a month or six weeks, must have a powerful influence over the living economy. The diaphoretic property of those tisans is rendered more active and efficacious when assisted by wearing woollen cloths, rest in bed or in a room, and avoiding cold and dampness. Every thing about it appears

calculated to increase the violence of the perturbation occasioned by the remedy.

It is worthy of remark, that, in many cases, the pretended treatment by corrosive sublimate owes its efficacy to regimen, baths, and other means of that kind. This salt is most generally decomposed by the drinks to which it is associated. If combined with flour or gluten, as prescribed by M. Taddéy, not one atom of it would probably be taken into the economy. How can we then rely upon its effects? We must acknowledge that the antisyphilitic modes of treatment by mercury are but deceptions, more calculated to induce the physician into error than to cure the patient.

There is an error, with respect to the effects of mercury, which it is important to destroy, first, because it is in contradiction with facts; in the second place, owing to the disagreeable or injurious mistakes to which it has given birth; I mean the opinion of those who continue to consider as syphilitic all the affections that are cured by the use of mercurial preparations. In vain have experience and reason long proclaimed its injurious consequences; some physicians still persist in considering it as the touch-stone, or the re-active agent upon which they are enabled to establish the existence of the syphilitic virus. Notwithstanding, experience shows that mercury does not cure all the diseases reputed syphilitic, but often exasperates them; it also produces by itself accidents similar to a number of those that are considered as belonging to lues venerea. On the other hand, mercurial preparations have been proposed against cutaneous affections several centuries before the idea ever occurred of applying them to the diseases arising from impure coition; and even at the present time, it is applied without scruple against sarcocele, and inflammations accompanied with lymphatic indurations, and the English make a most exaggerated use of it in chronic affections of the viscera. Can we admit, in all the cases that have been cured by that remedy, the existence of a virus to the contagion of which several of the patients had even never been exposed? The most intrepid imagination would shrink before such consequences. We must, therefore, acknowledge that mercury, as a revulsive and powerful perturbing agent, in subjects affected or not with syphilis; and in either case, it possesses no specific action, nor does it de-

stroy a virus the existence of which is repugnant to the best established laws of pathology.(1)

Such are the principal facts relating to this important therapeutic question. I am bound to add that I have seen M. Charmeil, at the military hospital of instruction of Metz, submit his syphilitic patients separately to every one of the treatments indicated, and obtain from them all the same success. It is to be wished that this esteemable practitioner will soon publish his valuable observations on that subject.

By reflecting upon these results, and accompanying them with what has been said in the second division of this work, we are led to acknowledge that a great number of venereal affections can be cured by the most simple antiphlogistics both local and general; that the internal treatment added to them is always composed of stimulants that operate by producing a revulsive irritation in the viscera and the excretory organs; lastly, that a great variety of stimulants may then be substituted, with advantage, for mercury, whenever that metal proves inefficacious, or is contra-indicated by the state of the constitution.

(1) The medical Journals have dwelled with much complacency on the history of an inoculation of pus proceeding from venereal ulcers, which three pupils had performed upon themselves. In one of them, the axillary gland became the seat of a sympathetic inflammation which terminated in supuration; an ulcer apparently syphilitic, occurred on the second, and one of the professors told the patient that mercury was indispensable for the cure; the young man returned home, and killed himself by opening his crural artery. We are not in possession of the symptoms that occurred in the third. The benevolent editor of a medical periodical has very charitably charged with a similar misfortune all those who deny the existence of the venereal virus and the specific property of mercury. This conduct is not surprising in our days and on the part of some men. I will only observe that the physicians who deny that mercury is the *specific* or the antidote of syphilis, have never presumed to say that the disease is not contagious, nor that they never make use of mercurial preparations for the treatment of the accidents attributed to that disease: but they only prove that it is not indispensable for that purpose. Consequently the three experimenters above alluded to might well have taken mercury or any other revulsive, as soon as they found that the most simple antiphlogistics had failed. Now, if there be an idea susceptible of creating despair in the mind of the most resolute patient, is it not that which terrifies the imagination by the existence of a virus which is said to be indestructible, and susceptible of being propagated in families through generation, and of infecting not only the unfortunate individual who has first contracted the disease, but also his posterity for ages? Such is the cheering doctrine with which our adversaries presume to comfort the timidity of some individuals, and make them cherish an existence which they represent as susceptible of being poisoned for ever. (*Note of the author.*)

CHAPTER V.

OF THE TREATMENT OF INTERMITTENT IRRITATIONS.

All continued irritations may present themselves under the intermittent form. This axiom is at present generally adopted ; it rests upon all the facts observed by physicians of all ages and countries. No solid objection has yet been opposed to it since its introduction in medical theory, because no argument can ever invalidate the immediate testimony of our senses, rigidly drawn from the observation of morbid phenomena.

Intermittent irritations have been called fevers ; the intermittent fevers being those that are accompanied with febrile excitements, and *pseudo-intermittents*, those that have none of the stages of heat and cold, and which are seldom any thing more than external irritations, unattended with acceleration of the pulse or disorder in the principal functions. The former are more frequent than the latter.

Whatever be the cause, still obscure, of the intermittence of irritations, they must be divided into those that are simple or slight, unaccompanied with any alarming or immediately dangerous symptoms, and in intense, or pernicious, according to the language of pathologists, characterized by violent congestions in some important viscera, or by intense sympathetic stimulations in the cerebral portions of the nervous system. In both these sorts of fever, the stomach itself is most generally the seat of the morbid irritation, which may still also exist in the lungs, the heart, the large intestines, the brain, and act but gently through the sympathies upon the stomach. Observation enables us to discriminate between these various cases at the bed-side of the patient.

The type of the fever, I mean the interval between these accesses, possesses no remarkable influence in choice of the therapeutical means to be employed. But the practitioner must attentively observe whether the paroxysms are separated by a complete state of pyrexia. Between each paroxysm, the disease sometimes exists in a less degree, maintains a febrile excitement more or less intense, and thus constitutes a remittent disease. In other cases the interval between these paroxysms is so short, that the chills of one come on before those

of the other have entirely subsided ; the fever then takes the name of *febris subintrans*.

It was necessary that I should mention these distinctions, because they induce modifications in the treatment.

The first indication that presents itself in the treatment of intermittent irritations, consists in removing the subject from the place and circumstances in which he has contracted the disease. This measure is sometimes sufficient to perform a cure. A great number of cases of periodical gastro-enteritis, occurring among military men, during night stations in damp and swampy places, cure spontaneously, during the effect of evacnants, or after a few days of the hospital regimen. A very learned physician has very justly said that travelling, a change of habits, food, occupations, violent emotions, joyful thoughts, cure a greater number of intermittents than the best remedies.(1) This truth can be easily demonstrated in army medical practice.

The active treatment of the irritations under our consideration is composed, of the attendance required during the paroxysms, and of that which is called for during the intervals of pyrexia.

If the disease be simple, a gently aromatic infusion, such as that of elder, or of orange leaves, must be administered warm, frequently, and in small quantities at a time, at the commencement of the chill and during the whole of the cold stage. The external heat must also be entertained by means of warm blankets, hot bodies placed near the feet, legs, and thighs. Warm bath has afforded some benefit, and it ought to be again tried. Light meals taken at least three hours before the invasion of the paroxysm, will prevent the vomiting and indigestion that are liable to take place. Every practitioner has observed the injurious consequences of powerful stimulants in these cases, as they increase the internal irritation, and exasperate the phenomena of the second period of the paroxysm, during which diluent acidulated drinks, tepid, or even cold, are the most proper ; it is also necessary to remove what had been resorted to for entertaining the heat of the skin during the preceding period.

Whilst the sweating stage is going on, the physician is gently to entertain its evacuation, by keeping the patient in

(1) *Pyréthologie Physiologique*, page 511

bed and under the use of tepid drinks. After the access has terminated, rest and sleep are the most efficacious means of restoring strength and repairing the losses that the economy has sustained.

No energetic medication is to be allowed during the paroxysms of intermittent irritations, except where the nature and violence of the accidents require a special treatment. Tartar emetic, therefore, formerly administered immediately before the access, at the invasion of the cold stage, is a perturbing and often injurious remedy. Purgatives, as still recommended by Dr. Wilson, during the hot stage, can only increase the irritation, and make it stationary internally. Lastly, active diaphoretics, wine, and aromatics, prescribed during the sweating stage, increase the gastro-intestinal irritation. The effect of all these remedies is to entertain this irritation beyond the period of the access, and give the inflammation a continued type.

In the majority of cases, the physician must remain a simple spectator of the phenomena that take place during the febrile paroxysm. But, when the subject is plethoric, and violent symptoms of gastritis, pulmonary congestion, or cerebral irritation are present, blood-letting may prove highly beneficial. It is however, necessary to wait until reaction and the hot stage have taken place, before resorting to that remedy. Until then, irritating cutaneous frictions, sinapisms to the feet, and other like revulsives, should alone be employed. A large application of leeches is generally preferred to general blood-letting, as that topic operates in a more sudden and powerful manner, and draws blood more directly from the vessels of the affected parts. This treatment is often called for in young, vigorous, plethoric subjects, and during the intermittent fevers of the spring. As occasion requires, emollient fomentations, and sometimes revulsives, placed at a distance from the parts affected, may be added. In this manner, the most violent access is partly subdued, and the danger of permanent disorder of the viscera is thereby removed.

The fundamental indication in the treatment of intermittent fevers, consists in destroying the habit that tends to reproduce irritation at certain fixed periods. This object can be attained in two ways. The first consists in combating the disease by means of direct antiphlogistics, as often as it recurs, and in treating each return as a new and separate

affection. It is understood that the patient should be placed in such circumstances with respect to dietetic measures, that this tendency to a return should not be promoted but destroyed. The second rests upon the employment of stimulants which, by elevating organic action above the healthy type, prevent the recurrence of morbid congestion, and annihilate the connection, that has become habitual, between the vital functions, which gives rise to the re-currence of the access.

The former method is uncertain, often insufficient, sometimes injurious, in as much as, when it fails, it has uselessly debilitated the patient. MM. Boin of Rochefort, E. Broussais, A. Antoine, and several other physicians, have, however, related instances of success by antiphlogistics only, in severe and even dangerous cases. These observations are sufficient to show that the means indicated may succeed, and that even in some cases, as when bark and stimulants have exasperated the disease, they are entitled to the preference; but nothing seems to warrant their being generally substituted for stimulants.

The ancients were in the habit of treating intermittents with warm bath, and gradually increased doses of wine. At the moment of the access, they applied heat and frictions to the body, and attempted to prevent the concentration of the vital powers internally. Since that time, stimulants of all kinds have been classed among febrifuges, such as opium, muscular exercise, sinapisms, blisters, and all bitter, astringents, or aromatic substances; but none has enjoyed a more extensive and merited credit than bark, and its various preparations.

The mode of operating of that remedy has been the theme of numerous controversies among physicians. Some have attributed to it an occult virtue, and a specific property of destroying periodicity, as if this phenomenon were substance, a virus, which the particles of a medicinal agent can reach and neutralize. The best authenticated facts respecting the action of bark, go no further than to prove that it stimulates the tissues of the body with which it is brought in contact; that it increases the force of their action, makes them less liable to be excited, and thereby destroys the habit that periodically reproduced their irritation. But some may argue that bark is more sure and efficacious than other stimulants, and that it is, therefore, a specific against

intermittence, and that it attacks the very principle of the disease. To this we answer that bark, when employed against other disorders, stimulates the tissues, and consequently acts in the same manner against intermittents. The immediate properties of medicinal bodies are invariable; and when they produce remote and dissimilar results, it is to be attributed only to a change in the disposition of the living parts. Now, the most attentive examination of intermittent fevers discovers in them but a local irritation that makes its appearance at stated periods; consequently bark, by its stimulating properties, opposes to that irritation another kind of stimulation which prevents the return of the paroxysms. Such is at least the most natural explanation of the fact.

If we were obstinately to admit a specific property in Peruvian bark, the same virtue must be attributed to all irritating bodies, both medicinal and alimentary; for there is not one that has not cured intermittents, even where bark itself had failed. We cannot, therefore, call specificity a property that is possessed in different degrees by all the modifying agents of the living economy. And if gentian, opium, alkalis, wine, alcohol, and a variety of other substances, cure fevers only by stimulating the organs, there can be no necessity for admitting that bark, whose stimulating properties are not less incontestable, acts in a different manner.

Others will say that, if bark stimulates the living tissues, and thus prevents the return of intermittent fevers, we are bound to acknowledge that this disease does not consist in an irritation almost constantly seated in the stomach, since that febrifuge is generally exhibited through that organ. This objection has no foundation; and, as M. Boisseau observes, we might dispense with its refutation, for the simple reason that two facts well established cannot destroy each other, and that it is only necessary to point out their connection or succession. There exists no real contradiction in nature. A careful investigation of the symptoms and of the organs, shows that intermittent fevers called essential, are generally to be referred to irritation of the stomach; and a diligent enquiry into the effects produced by bark and all the febrifuges, proves that they operate by stimulating the parts to which they are applied. Supposing even that the mind cannot conceive the close connection of these phenomena, they must still be admitted, since we can entertain no doubt of their existence. But we have seen, on the contrary, that theory

explains them most satisfactorily, and unravels, as it were, the mechanism of their succession.

If bark be administered in the absence of an intermittent gastro-enteritis, it excites in the stomach a stimulation that prevents the return of the morbid congestion. When this congestion exists in another viscus, bark acts as a revulsive upon the stomach, where it creates a centre of vitality that prevents the renewal of the access. On the other hand, the absorbed principles of that substance impart to the sanguiferous and nervous systems an impulse sufficient to give to their action a regularity difficult to disturb, and so far powerful as to destroy the habit of irritations that were constantly reproduced in the organization.

These theoretical difficulties being raised, let us consider which is the last therapeutical process to be used for the cure of intermittent fevers.

Since the time of Torti, bark has been the most general remedy employed against the disease. Physicians have long been in the habit of preparing their patients to its employment by means of emetics, purgatives, or bleeding, with the view to diminish plethora, and remove obnoxious matter from the intestines or bilious affections, which they thought susceptible of complicating the principal disorder. These ideas are now totally disregarded. The only object to be attended to is the observation of the intensity of the intermittent irritation, and of the degree of pyrexia that separates the paroxysms. If the subject be irritable, vigorous, and present all the symptoms of intense irritation in the stomach, liver, or intestines, leeches, as we have already said, diminish the violence of the access, and pave the way to the successful exhibition of the stimulants administered during their absence. When, during the pyrexia, the gastric irritation perseveres in a moderate degree, it must be treated with diet, emollient fomentations, local bleeding, softening drinks, and other antiphlogistics, in order to render the intermittence complete, and destroy all existing irritations. Such are the only indications preparatory to the operation of bark.

As soon as, during the access, the tongue becomes pale, large, the skin cool, without tension or pain in the belly, nor frequency of the pulse, bark must be administered. All delays are superfluous, and can only serve to fortify the habit

that reproduces the irritation, and increase the disorders which it gradually determines in the organs.

The best mode of exhibiting bark is to give it in substance, diluted in a small quantity of wine and water. The doses should be so distributed that the patient shall have taken the prescribed quantity one or two hours before the invasion of the access. Two, four, or six drachms are generally sufficient for that purpose. In fevers where the interval between the paroxysms is very short, such as the quotidian or double tertian, the first and largest quantity must be taken three or four hours after the access that has just passed, continuing by decreasing doses, until the approach of the next. In tertians or quartans, one or two doses a day are sufficient, increasing them only during the twenty-four hours that precede the invasion of the next paroxysm.

In general, intermittent fevers, simple, moderate, and free from complication, are not very obstinate, and generally disappear after the first, second, or third paroxysm. But the remedy should still be continued for some time longer, gradually diminishing the dose, in order to ensure a permanent cure.

Bark is sometimes rejected from the stomach, or occasions great nausea and uneasiness. Other means must then be resorted to. Opium, in some cases, prevents vomiting; but its addition would prove injurious in fevers accompanied with an affection or irritation in the brain. When it cannot be retained in stomach, or if, instead of curing the disease, it increases the frequency of the paroxysms, and gives the fever a continued type, it must be given in glysters, or its tincture used in frictions on the skin. Both these methods have frequently succeeded.

M. Vaidy asserts that bark, taken during the paroxysm is as sure and salutary as when administered during the pyrexia.(1) Dr. J. Recacho, of Salamanca, and many other Spanish physicians, he says, follow this practice with complete success; yet, we have too much evidence of the injurious effects of bark taken at the invasion or greater violence of the fever, not to dread its consequences. It might, however, prove more frequently successful than is generally be-

(1) *Annales de la médecine physiologique*, t. III. p. 333.

lieved ; but when a method can never become general, and must be deemed liable to numerous and serious accidents. In all cases, it can never afford an objection to the physiological theory of intermittent fevers ; for some patients have been able to take bark with impunity, when labouring under intense continued fevers which no person denies being produced by gastro-enteritis. It is, therefore, necessary to analyse the observation of M. Vaidy, and to examine both the state of his patients, and the immediate effect of bark upon them ; and it might perhaps be found that the remedy had increased the violence of the access, and thereby imparted to the organism a high degree of stimulation, which had prevented the following paroxysm.

Torti had already maintained that bark, given during the access, may perform a cure ; but he alluded only to fevers of the remittent form. Here, indeed, we are to commence by administering the remedy towards the decline of the paroxysm, which is to be immediately succeeded by that which it is our object to prevent. As the patient is then in great danger, the general rule must be laid aside : hence bark is far from being always successful in such cases ; in some of them, it proves inefficacious ; in others, it increases the disease and even accelerates death.

An important distinction is, however, necessary to be made : either the fever is but an irritation of the brain, lungs, &c., and then bark administered even during the access, will operate as a revulsive upon the stomach ; or there really exists a violent gastro-enteritis, and nothing short of the most imminent danger can sanction the use of bark during the greatest violence of the paroxysm. It might perhaps be still better to give the preference to antiphlogistics, and wait until the access has passed before prescribing the remedy.

During violent, pernicious fevers, which it is important to check in their course, six, ten, or fifteen drachms of bark have been administered, first half that quantity at a dose, dividing and giving the rest in gradually decreasing doses until the first period of the paroxysm. This mode of proceeding is justified by the severity of the disease, and by the success of a great number of physicians. Dr. Sims has given as much as five ounces, and the Spaniards carry it still farther, without injury.

The discovery of quinine and cinchonine in Peruvian bark has rendered the use of that remedy, if not more sure, at

least more agreeable and easy. Quinine, in the form of a neutral salt, combined with sulphuric acid, is not less efficacious than bark itself. The observations of MM. Double, Chomel, Bally, Magendie, Villermé, Dufour, Tetroz, Duval, Honzelot, Martineau, Barker, and those of a great number of military physicians, have placed this fact beyond doubt. Cinchonine and its sulphate have proved less efficacious, and are, for that reason, not much in use. M. Duval, however, spoke highly of the stimulating property of the sulphate of quinine, and thought that great prudence is necessary in its employment. M. Ménard proved that it cannot be administered at a higher dose than six, eight, or ten grains at the utmost, in twenty hours, and M. Desportes says that it has produced an intense gastritis. But M. Martinet, in Italy, has ascertained that in the proportion of fifteen, eighteen, twenty-four, and even thirty grains, it breaks the fever at the first paroxysm, without occasioning the slightest accident. But the observations of that physician are not very numerous, and if a similar practice were adopted in hospital practice, physicians would soon have to repent. Dr. J. Ellioston gives from six to ten grains, every six hours, without regard to the access. Rasori has even dared to give one drachm a day during the paroxysm of gout, without apparent benefit, but also without compromising the existence of his patient.

The wisest practitioners observe the same rule in the employment of quinine as in that of bark itself, and its doses are divided into powders of three to five or eight grains, as when the latter substance is made use of. There are few cases in which the sulphate of quinine cannot be substituted for Peruvian bark; and if the latter is more frequently resorted to in pernicious fevers, it is to be attributed more to a desire of conforming to usage, and to the anxiety of being exempt from the blame of having abandoned an old tried remedy, than to a knowledge of the inefficacy of the sulphate.

The *lycopus europæus*, called in France *pied-de-loup*, aquatic horehound, is, according to Dr. Re, a most excellent febrifuge. It has been found efficacious against autumnal intermittents, which are somewhat frequent in Piémont. Thirty grains a day of that astringent plant are generally sufficient to arrest the progress of the fever. In a larger dose, it is a highly irritating substance. Drs. L. Franck and Ghini have observed that common cornee pepper, taken entire, at the dose of six or ten grains, two, three, or four times

a day, without regard to the access, is a powerful remedy against intermittent fevers. From sixty to eighty pills are generally sufficient. M. Puel has been equally successful with cubebs, the quantity of which need not be so considerable. The root of the *geum urbanum*, in powder, at the dose of two ounces a day, has been found very serviceable in the practice of MM. Verbert and Leroy and other physician in Holland. M. Molar has cured a quartan, which had resisted the use of bark, by the inoculation of vaccinal virus. M. Broughton positively asserts that cobwebs are a powerful sedative and an excellent febrifuge. In order to conclude this narration, I will only add that Dr. Charnay has, in two cases, had recourse to mercurial frictions, against intermittent fevers. This remedy, as well as the cobwebs, no doubt operate only upon the imagination of the patient, though it may be more difficult to believe in the sedative property of the former, than in the revulsive stimulation produced by mercury.

One of the most renowned substitutes for bark is arsenic, which has long been in use among the English, Germans, and Americans. In 1808, M. Colombot of Jussey was one of the first in France who made use of Fowler's solution, and MM. Halle and Laennec, in reporting in its favour, asserted that arsenic might no doubt be advantageously substituted for bark, even in pernicious intermittent fevers.(1) Since that period, MM. Fodéré, Desgranges, Gasc, Bouiller, and others, have published numerous observations in favour of that substance.(2) We cannot at the present time deny its efficacy, though it should never be used but in the absence of all other remedy: arsenic is a poison too violent, its exhibition requires too much attention, that we should not dispense with it when others can be used that are not less certain nor so dangerous in their effects.

Pharmacology has lately been enriched with another febrifuge, which its discoverer thinks will do away with the use of bark; I mean the emetic preparations of M. Peysson. One

(1) *Bulletins de la Faculté de Médecine*, année 1808, p. 125.

(2) The ordinary dose of Fowler's solution is twelve drops twice a day. M. Fodéré simply dissolves one grain of the arseniate of soda in sixteen ounces of distilled water, and gives one ounce of this liquor twice a day. Dr. Barton, of Philadelphia, mixes one grain of white arsenic with eight of opium and a sufficient quantity of soap; he then divides this preparation into sixteen pills, and gives one morning and evening. This last formula is, I believe, entitled to the preference over all the others.—(*Note of the Author.*)

of them consists in one grain of tartar emetic, dissolved in eight ounces of water, to which are added one ounce of the syrup of poppies, half an ounce of gum arabic, and half an ounce of the water of orange flowers. The second is an ointment composed of twenty-three grains of tartar emetic, melted in a sufficient quantity of distilled water, and incorporated into one ounce of fresh hog's lard. One spoonful of the solution may be taken increasing it one spoonful more every hour until meal times, resuming it two hours after, beginning again with merely one spoonful as before. It would be still more simple to administer the potion by spoonfuls, first every two hours, and then gradually shortening the interval until the patient takes one every quarter of an hour, or at least every half hour. The remedy is never to be suspended, except in the height of the paroxysm, or during sleep. It is understood that when dyarrhæa, colic, or vomiting occur, the potion must either be abandoned, or merely suspended; but such accidents very seldom take place.

With regard to the ointment, it is, says Mr. Peysson, as superior to the solution, as this is to bark itself. The ounce of ointment prepared as mentioned above, is divided into twenty four parts, with which as many as four frictions a day are made, on the thighs, belly, arms, and back, in order to avoid the pustules. The ointment is to be rubbed until its entire absorption; half an ounce of ointment is generally adequate to the cure.

Numerous trials repeated by MM. Peysson, Lalane, Jourdain, Hurtado, and several Spanish physicians, leave no doubt of the febrifuge property of tartar emetic in small doses, either internally, when, combined with opium, it stimulates the stomach, or externally, when it produces a revulsive irritation on the skin. It is said that Dr. Pommer made a successful use of the tartar emetic ointment, in 1815, against the intermittent fever; but his mode of proceeding is totally different from that of M. Peysson. He applied it in larger doses, and his object was to bring on a cutaneous eruptive irritation somewhat violent, to which he attributed a powerful revulsive property and the cure of the fever.

M. Peysson has rendered an essential service, by introducing a simple and cheap preparation which, besides being free from danger, is generally efficacious. Yet, M. Lalanne says that the solution is often thrown up, and MM. Varlet, Gos-

sart, and Ponta, have seen it fail, as well as the ointment. We are all bound to conclude from such observations that the preparations of tartar emetic are not so infallible as would appear from the statements of the physician above quoted; yet they may safely be tried in all simple cases, and especially where bark has failed. But it would be imprudent to substitute them for that remedy in very urgent cases, and where life immediately depends upon the sudden interruption of the paroxysm.

It is worthy of remark, that all the substances which have succeeded against intermittents, properly so called, are equally beneficial in all other periodical irritations. Hence bark, quinine, arsenic, and still more recently the emetic lotion and ointment, have cured intermittent inflammations, situated in other organs than the stomach, and especially cases of nevritis assuming that type.

Among the observations in support of this fact, I will only allude to those of MM. Rumzey, Pidagnet, Dupré, Peysson, and Hurtado, as being both recent and remarkable for the accuracy with which the results are therein indicated. These varieties of irritations cured by a multitude of stimulating substances, afford an additional proof that they possess nothing in their nature that entitles them to be distinguished from ordinary pathological affections, and that the remedies mentioned operate in the same manner as those direct or revulsive stimulants that therapeutics indicates against certain forms of irritations.

CHAPTER VI.

OF THE COMBINATION OF VARIOUS MEDICATIONS WITH EACH OTHER.

The physician who follows the path of rational therapeutical principles, founded upon the accurate knowledge of the nature of diseases, their seat, and of the mode of operating of the different remedies, must, when he begins his treatment, create in his mind a plan of operations, every part of which tending to the same object, and being arranged in a methodical

order. The physiological practice of medicine never implies the use of contradictory means of cure. The empiric alone, in the midst of his darkness, destroys with one hand what he labours to consummate with the other; and, deaf to the voice of a sound theory, he prosecutes his experiments, and multiplies at random both his success and his failures, without ever being able to account to himself for the cause of either. Hence we find him incapable of calculating the value of his treatment, or of foreseeing its effects with accuracy; nor can he adapt it to the various individual constitutions; and provide every means of ensuring its success.

A moment of reflexion will convince the practitioner that direct antiphlogistics, and the various stimulants of irritated parts, are contradictory means which reciprocally neutralize each other, and should never be combined together. No judicious physician, therefore, will ever draw blood from the epigastric region, and apply emollient fomentations to the abdomen, whilst at the same time he stimulates the irritated viscera by the internal exhibition of bark, valerian, alcohol, or drastics. Should direct stimulants be indicated at the decline of a disease, the state of the parts having been changed, the treatment must also experience a like modification; but in that case, one medication is substituted for another, without ever making an unreasonable combination of both. When stimulants are themselves eventually discontinued, and antiphlogistics resumed, this alternative indicates either that the situation of the patient had been misunderstood, or that the change in the treatment had been made without judgment or prudence. Such oscillations always prolong the sufferings of the organs, entertain or reproduce the morbid symptoms, and often compromise the life of the patient. The scientific principles of therapeutics, on the contrary, sanction, and not unfrequently prescribe the combination of antiphlogistics with revulsives. The latter may sometimes be advantageously combined among themselves. In the course of this work, we have taken frequent occasions to speak of cold emollient fomentations, and copious local bleeding, for the relief of sudden and dangerous congestions in the organs, whilst warm liquids, or irritating topics are applied at a distance. These combinations are useful, in as much as they promote the effects of antiphlogistics, and prevent the reaction that might be the consequence of the revulsives. The same prin-

ciple may also guide the practitioner in the treatment of chronic irritations, where cautery is applied at a greater or less distance, in order to direct the course of the vital actions, whilst he is endeavouring directly to destroy morbid irritation by means of emollients and blood-letting about the affected parts.

The combination of revulsives among themselves is neither so generally employed nor so equally sanctioned by experience. By multiplying the number of irritated spots at a distance from the diseased organs, we may often increase the danger of producing a sanguineous and nervous excitement that will exasperate the disease. Again, several revulsions being practised at the same time, the effect of each is uncertain, and we know not what to expect from their use when they become contra-indicated by the state of the parts. It is generally more proper to employ but one revulsive agent, proportioning its force to the disposition of the subject, the seat of the disease, its intensity, and the effect intended to be produced; in urgent cases, however, when the danger is imminent, this rule may be transgressed. Hence, during cerebral congestions, irritating applications are to be made to the rectum and feet; it is even sometimes proper to excite at the same time the contractions of the stomach. In chronic diseases of other parts than the digestive canal, it will be beneficial, in some cases, to combine cautery and moxa with purgatives at short intervals, in order to remove with greater certainty the congestions existing in the organ, and cause a stronger diversion of the vital actions concentrated in its tissues. But, I say it again, those associations should seldom be resorted to; and when they prove indispensable, the physician must calculate the effects of each, foresee their isolated action, and their general results. In a word, he cannot make one step without being called upon by the state of the organs, and having taken into account the probable consequence that may result from that medication.

This severity of principles imposes upon the physician the obligation of never combining among themselves, without necessity, therapeutical agents of the same class. Some persons think that, by associating a great number of like substances in their formulæ, there will be produced as many distinct effects which may all concur to the definitive result. But these ideas are contrary to experience. Every com-

pound preparation forms a new body, the real effect of which belongs to the most active of its ingredients. This impression of the ingredient which constitutes the basis of the remedy, is either increased or diminished by the other accessory medicines. If the former, the same effect might have been obtained by increasing the dose of the active substance; if the latter, it should have been given in smaller quantities. I make no mention here of the association of substances exactly similar, such as two or three mucilaginous or aromatic plants; this superfluity, however, can never be justifiable. Besides the want of utility of the greater number of complicated formulæ, their use throws additional darkness over the real effects of each of the substances entering in their composition. It is, indeed, impossible to determine whether the favourable or injurious consequences of the simultaneous employment of five or six different substances, belong more to the one than the other of them. From our imperfect observations, we are left without the means of discovering and removing the obnoxious element, and of preserving those only that are truly serviceable. The physician was frequently unaware that the pretended adjuvant, the excipient or even the corrective itself, often constituted the principal agent or the basis of the formula.

It is, therefore, necessary to restore therapeutics to its primitive elements, I mean the indications that diseases require for their cure. From the observations we now possess on the nature of pathological affections, those indications are almost always simple, easy to determine, and susceptible of being fulfilled by means of agents equally simple, and whose mode of operating is perfectly understood. Should it be necessary to bring on purging, produce calm and sleep, diminish the excessive intensity of vital action, irritate the skin and mucous membranes, promote perspiration, or increase the urinary secretions, &c., the practitioner will fulfil these indications by means of the most simple agents, carefully observing their effects, and all the modifications induced in the organs by the impression they produce; in this manner, he will soon acquire the habit of administering them in proper circumstances, of proportioning their doses to the susceptibility of the patient, and of appreciating and foreseeing the remotest effect of their employment; in a word, he will take rank

among the most distinguished practical physicians, and his observations will contribute to the improvement of therapeutics, because they will have been derived from that experience which is founded upon the best established principles of physiology.

THE END

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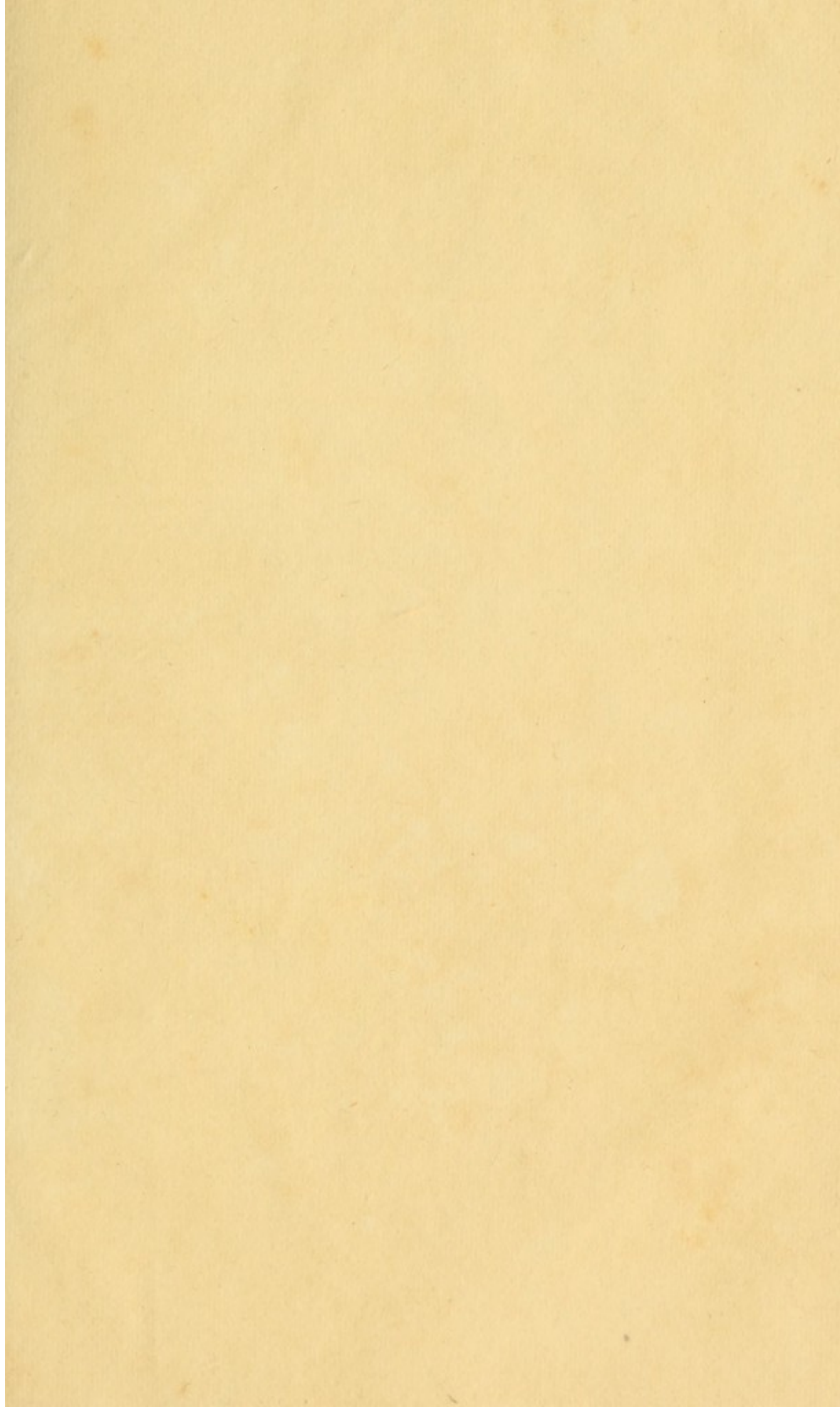
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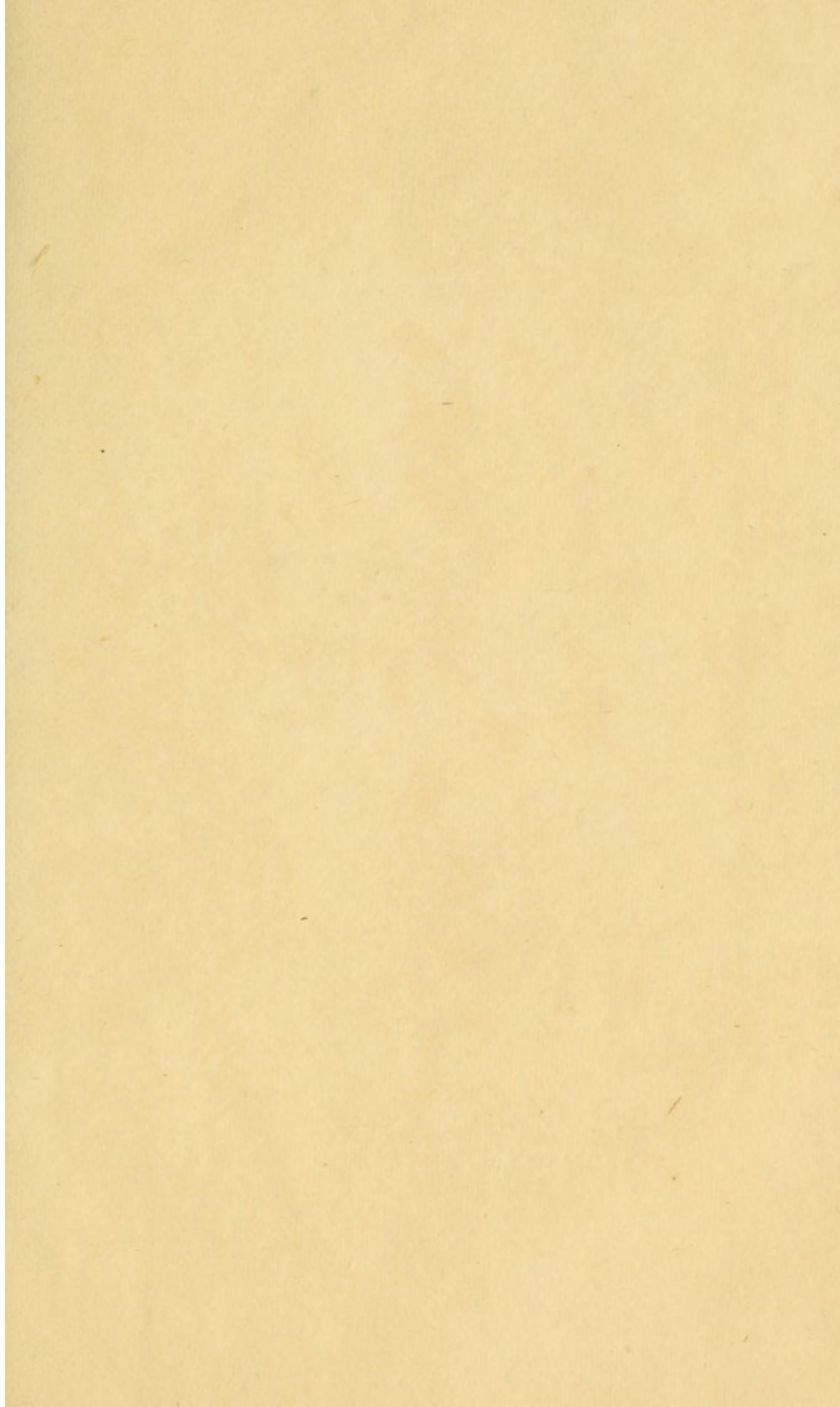


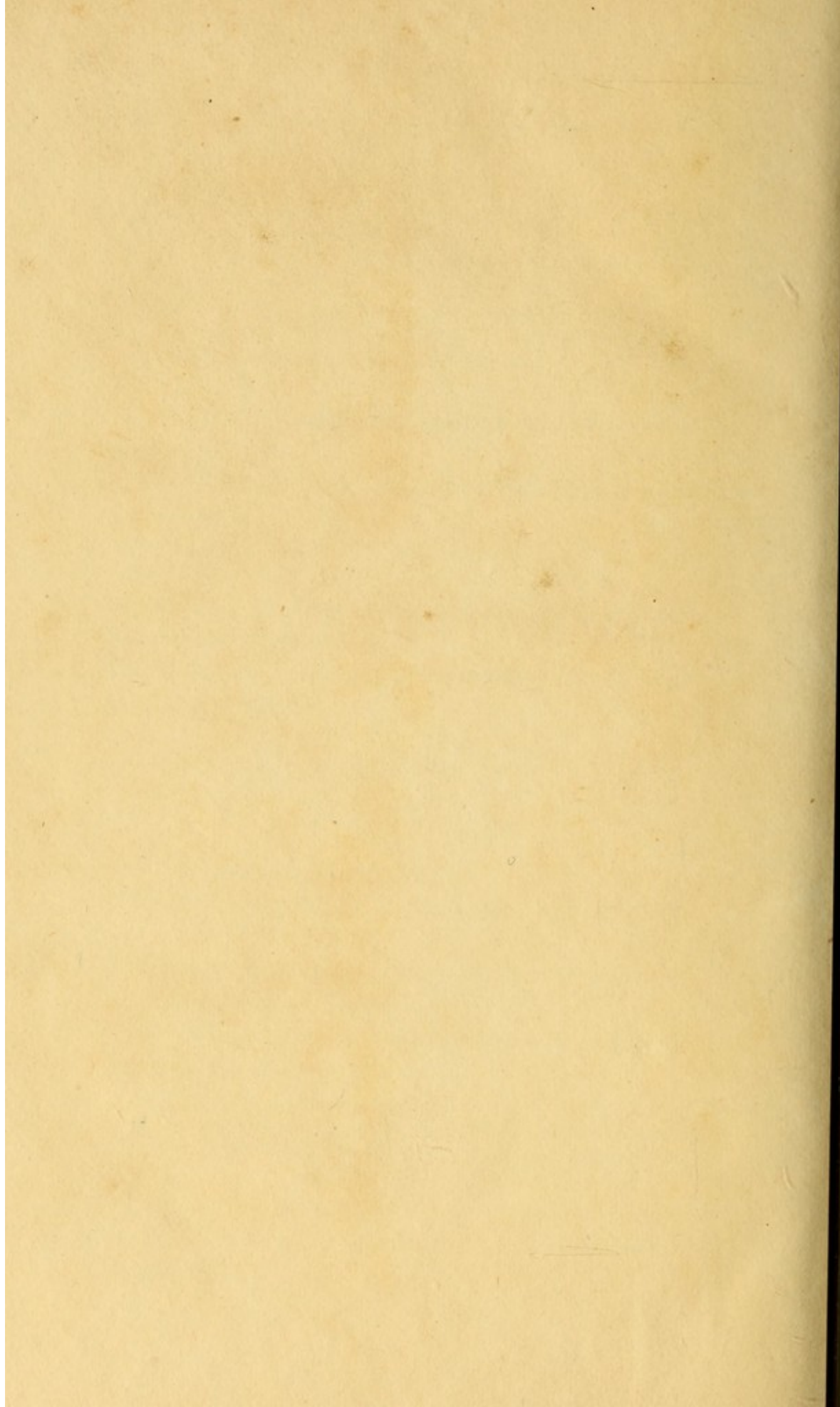
CHAPTER I
THE DISCOVERY OF AMERICA
The first discovery of America was made by Christopher Columbus in 1492. He was an Italian explorer who sailed for Spain. He discovered the New World, which was then called America. This discovery led to the European colonization of the Americas.

CHAPTER II
THE EARLY YEARS OF THE COLONIES
The early years of the colonies were marked by hardship and struggle. The colonists had to build their own settlements and defend themselves against Native Americans. They also had to establish a system of government and laws. The colonies grew in number and size, and they began to develop their own economies.

CHAPTER III
THE STRUGGLE FOR INDEPENDENCE
The struggle for independence began in the 1760s. The colonists were angry with the British government because of the taxes it imposed on them. They fought the Revolutionary War, which ended in 1781. The United States was born as an independent nation.

CHAPTER IV
THE GROWTH OF THE NATION
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