

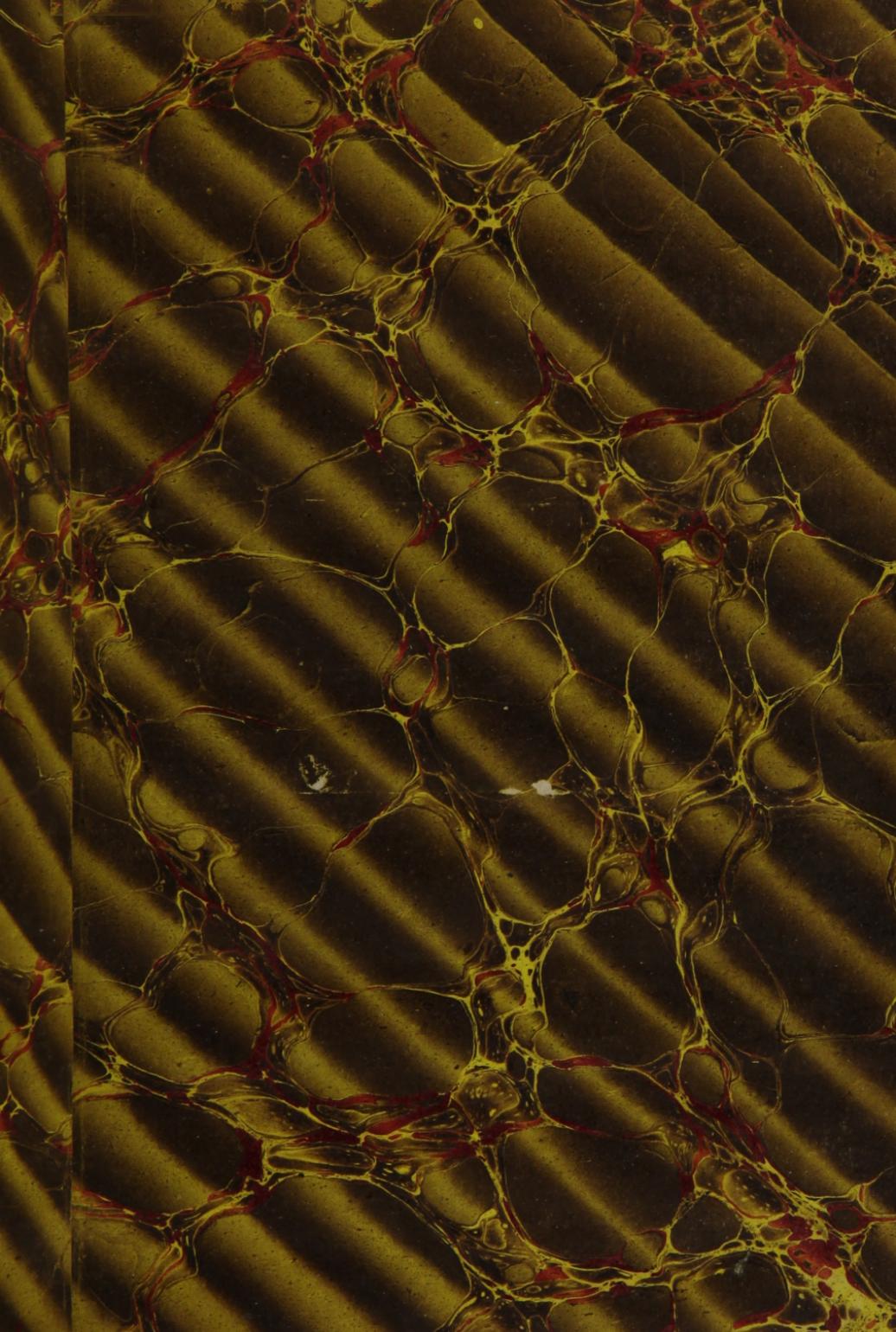
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APPLICATION
OF THE
PHYSIOLOGICAL DOCTRINE

TO
SURGERY:

By **L. J. BEGIN, M. D.**

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EDITOR OF THE CHIRURGICAL PART OF THE MEMOIRS OF MILITARY
MEDICINE, SURGERY, AND PHARMACY, PUBLISHED UNDER THE
SUPERINTENDENCE OF THE COUNCIL OF HEALTH OF
THE ARMIES; AND MEMBER OF SEVERAL
LEARNED SOCIETIES.

TRANSLATED FROM THE FRENCH

By **WM. SIMS REYNOLDS, M. D.**



CHARLESTON:

PRINTED BY **E. J. VAN BRUNT,**

1835

WO

B417a

1835

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PREFACE

OF THE TRANSLATOR.

THE science of medicine has been much improved of late, by the labours of French physicians ; and it is to Broussais and his followers that we are principally indebted, for the reformation which has taken place both in Medicine and Surgery. The growing importance and increasing popularity of the New Doctrine, have caused many works involving its principles, to be translated into the English language ; but amongst them all, I have not yet seen one professedly treating of the application of the doctrine to Surgery. The subject is alluded to by some, and passed over in a cursory manner by others. M. Goupil, in his *Exposition of the New Medical Doctrine*, makes some few remarks in relation to it, and concludes by referring the reader to the present work of M. Begin. It is with a view, therefore, of offering something upon this important subject, to those of the profession who are unacquainted with the original tongue, that I have undertaken the translation of the following pages.

It is unnecessary for us to say who the author of this work is : M. Begin has been long and favourably known as one of the most zealous advocates of the New Medical Doctrine ; and his *Traite de Therapeutique*, which was translated some years since, was universally allowed to be the ablest production of the Physiological school.

On the merits and demerits of the New Medical Doctrine, enough has been said to preclude the necessity of my making any considerable comment here. That it contains errors, cannot be denied ; but that it is rich in benefits, must equally be admitted by every candid and intelligent physician. We may regard it as a new light emitting some of its luminous particles over the wide and extensive field that lies before us, dispelling some of the clouds and mists which have long hovered over it, exposing new paths, and pointing out new directions, to the wanderer after truth, and the impartial votary of science. It becomes us then, in relation to this as well as to every other doctrine, to select those truths which are consistent with our own reason and observation, and to reject those assertions which our experience does not sanction : in a word,

“ ————— doctrinam acri
 Judicio perpende ; et si tibi vera videter
 Dede manus — aut si falsa est, accingere contra.”—*Lucret.*

I have endeavoured to give the reader a correct translation : whether I have succeeded or not, it remains for others to judge. Errors have occurred in the printing of the work which escaped

PREFACE.

v.

my observation until it was too late to correct them : the most important of these, I have placed in the Errata ; the rest, the intelligent reader will quickly detect, and alter for himself.

CHARLESTON, Feb. 1835.

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ERRATA.

Page.	Line.	For.	Read,
30	2	of cancers which.....	cancers, which
"	13	effects.....	effect
41	20	far for.....	far from
43	4	through.....	in
45	15	circulating.....	circulatory
48	7	animal broths.....	broths
50	19	they are.....	it is
"	21	them.....	it
51	8	they produce.....	it produces
52	1	ought to be necessarily.....	ought necessarily to be
58	18	supply.....	supplies
79	20	continued.....	continual
91	4	depend.....	depends
96	17 24	The <i>stupor</i>	<i>stupor</i>
97	6 17 23	the <i>stupor</i>	<i>stupor</i>
114	16	fistulas.....	fistulae
127	10	<i>Chirurgical nosography</i>	<i>The Chirurgical nosography</i>
149	15	is.....	are
152	222	parches.....	parch
180	5	have given.....	give
"	9	it depends.....	they depend
200	6	gives.....	give
205	8	this.....	that

PRELIMINARY DISCOURSE.

THE domain of medicine is, they say, too extensive to be cultivated entirely, by a single individual. This proposition is not entirely correct. It might have suited an age when all diseases had their particular theory; when the history of each of them was composed almost exclusively, of the more or less fantastical assemblage of hypotheses advanced by authors upon this subject; finally, an age in which there did not exist in physiology and pathology, any general principle founded upon observation, and which could serve as an only and incontestable basis, to the history of the functions, as well as to that of diseases. Then,

without doubt, the best organized head, the mind the most studious and most opinionated, aided by the longest life, could not have been able to embrace all the parts of the science of man; that is to say, to retain and classify those contradictory opinions, those abstract theories, those incoherent results of observations disfigured by the imaginations of those who collected them, of which but lately the greatest part of medicine was still composed.

These obstacles have almost entirely disappeared in our day. The field of science has been disembarrassed of the useless materials which encumbered it; and its soil, exposed to view, and cultivated in a manner more rational, is at length covered with rich harvests. On the one hand, all the doctrines which observation does not sanction, are rejected, whatever may be the celebrity of their authors; on the other hand, all the results which appear to be the exact expression of facts, are admitted, in spite of the opposition that may exist between

them and the most accredited ancient theories. It is only by proceeding with this vigour and this independence, that we can arrive at the perfection of Physiology and Pathology.

Great advancements have been made to attain this end; and if new investigations are still necessary, we ought to hope that they will serve very soon to elevate medicine to that degree of certainty and regularity which distinguishes actually physics and chemistry. Already do the general principles established and universally adopted, permit us to have a glimpse of that happy epoch; and as these principles are actually in relation with the amount of the known facts, it is very probable that future discoveries will serve to confirm still more, their exactness.

These improvements are common to medicine and to surgery; for both ought to found their basis on pathological physiology. To maintain that surgery consists in nothing more than the application of mechanical means to

the body of man, is to give it an incorrect definition ; and which, contradicted by the actual nature of things, could not be just, but in the ages when this science was cultivated by physicians, or when the performance of operations was abandoned to the hands of the ignorant and barbarous. This definition only serves to restrict the ideas of students who are destined to undergo a surgical course, and to make them believe that they can keep within the bounds of the list of operators. The surgeon has a task more important and more noble to fulfil. At the same time that he devotes himself especially to the performance of operations, he ought to make an especial object of study, the diseases which require the employment of those extreme resources of a conservative art. There exists, therefore, one part of pathology, which forms in some sort, the particular dominion of surgery.

But in adopting such a principle, it must not be forgotten, that the affections termed surgical,

are constantly complicated either with derangements in the rhythm and intensity of the organic movements, or the result more or less slow of modifications contributing to the exercise of these movements. The surgeon cannot forget without danger in practice, that at the same time that he remedies by operations the derangements of our parts, he acts upon sensible, irritable tissues disposed to become the seat of violent inflammation, and united to the principal viscera of the living economy, by sympathies more or less close. He ought to remember, moreover, that medicinal means properly administered, often render unnecessary the most serious operations, and are constantly necessary to facilitate and secure the success of these operations.

It is therefore indispensable, that the practitioner who makes surgery his principal occupation, be at the same time a skilful physician: he ought to know both the anatomical disposition of the diseased parts, and the laws which

preside over their functions and the manner in which the tissues are affected by the lesions which he remedies. Without this knowledge in some measure preliminary, how can he judge of the necessity of performing most operations? If he is ignorant of the laws of the sympathies, how can he institute an internal and external methodical treatment? how can he prepare the patient to support the action of instruments, and prevent or combat the affections which that action frequently determines. The surgeon who would confine himself to manual operations, would be only an ignorant and rude workman; knowing neither the disposition nor the properties of the matter upon which he acts, we would see him in his blind and undeviating attempts, commit at each step the most fatal errors.

The practitioners who cultivate surgery especially, could not evidently remain strangers to the improvements of medicine, without incessantly compromising the honor of the art, and

without exposing the afflicted to the most serious accidents. But it is incontestable, that it is only within a few years, that the physiological doctrine has given to medical studies and practice a new impulse, and has rendered them eminently philosophic. The actions and sympathies of different organs better known ; the nature, the immediate effects and remote results of irritations, explained with exactness ; the theory of inflammations and of hemorrhages called passive, brought to light ; the etiology and the principal phenomena of scurvy, explained by an unexpected alteration in the composition of the nutritive materials ; the entire class of essential fevers effaced from the tables of nosology ;* finally, this grand principle, that all diseases consist in the lesion of one or more organs, established upon immoveable foundations : such are some of

* Among the works best written, and which are the most proper to place beyond doubt the true nature of fevers, we cannot too often cite the excellent *Pyretologie Physiologique*, recently published by M. Boisseau. This book is remarkable

the ameliorations accruing to the history of diseases, by the new doctrine. The works of M. Broussais, and those of the physicians of the physiological school, have given to the science a new aspect : it appears that by their efforts, observation has been rendered more scrutinizing, experience more sure, and medical reasoning more luminous and more productive.

If any thing ought to be surprising in the midst of the general agitation of minds, it is, that surgery has participated scarcely any, in the recent improvements in pathological physiology and internal medicine. It suffices to open the most esteemed elementary works, those which have been published most recently upon the science, to be convinced of this truth. Their authors appear to have undertaken the task of reviving the most antiquated opinions, of sustaining errors the most completely refuted,

for the talent which has presided over its composition, for a criticism of the ancient theories as luminous as just, and for the solidity of the proofs which it contains in favour of the soundest doctrines.

and of religiously preserving, even the most dangerous therapeutical principles. I need not cite any of those books; we can easily perceive the hypothetical doctrines, the humoral, mechanical, or Brunonian theories which they contain in each page.

A small number of isolated observations, relative to the treatment of certain acute or chronic inflammations of the external parts of the body, by leeches and topical emollients, constitutes almost all that we possess, relative to the application of the physiological doctrine to surgery. M. Gama, chief surgeon to the military hospital of instruction at Strasburg, has, however, composed upon this fruitful subject, a discourse too little known, but remarkable for profound and attentive observation, and for considerations as extensive as judicious. In fine, if I were permitted to mention myself here, I would claim the honor of having a long time since, and perhaps one of the first, applied the principles of the new doctrine, to the theory and

treatment of surgical diseases.* But it remained to consider the lesions of the external parts of the body in their *ensemble*, to make obvious the general laws according to which the local and sympathetic phenomena which they determine, manifest themselves; and finally, to establish the most rational basis of treatment which it is proper to oppose to them. All sound minds, convinced that physiological medicine ought to be as useful to surgery as to internal pathology, have waited impatiently for a work appropriated to the demonstration of this truth: it is this desire which I have endeavoured to satisfy in the following pages: happy, if in spite of my efforts, I have not remained too far below the object which I have wished to attain.

I am far from having embraced in this work, the whole dominion of surgery. There is, moreover, an important part of this science which

* See the articles, Abces, Articulation, Arthrocacé, Blessure, Brûlure, Carie, Cerveau, Crane, Dent, Fistule, Fracture, Entorse, &c. in the *Dictionnaire abrégé des sciences médicales*.

has no need of examination or revision, and which has not occupied my attention: it is that which has for its object, the study of the mechanism by which certain physical lesions are produced, and the descriptions of the practical proceedings and methods of operating. Here, all is after a certain manner, we may say, subject to calculation; the true principles, if not the limits of the art, are fixed; and the different systems of pathology, can have no influence, either upon their theory or their practice.

Whatever may be the extent, which I have been able to give to my labour, it was equally impossible for me to embrace, all the particular cases, in which could be made a useful application of physiological medicine to surgery: Thus, fractures of the scull; the disturbances, contusions, and separations of the brain and its membranes; the solutions of continuity in the thoracic and abdominal viscera; the sanguineous, purulent, or serous effusions into the cavities of the pleura, or of the peritoneum;

the various lesions and abscesses of the liver; intestinal incarcerations; foreign bodies lodged in the digestive canal: these are some of the lesions, the methodical treatment of which, requires a thorough knowledge of the new medical doctrine.

Wishing then to compose, not so much a treatise on surgery, as a sort of introduction to the study of that important branch of the healing art, and being obliged to confine myself to general rules on the theory and treatment of surgical lesions, and the affections which may complicate them, the plan which I have followed, although very proper to fulfil my views, may appear, perhaps, not sufficiently methodical; nevertheless, I could not adopt the classification of the diseases in physical, vital, and organic lesions; simple, it is true, but anti-physiologick. The greatest part of physical lesions, are, in effect, constantly followed, either immediately, or after a very short time, by derangements in the rhythm and force of the organic movements.

It is for this reason, that wounds, fractures, and luxations, give rise always, to inflammations more or less lively, and ordinarily so intense, that it does not suffice merely to reunite or to replace the parts, but also, to prevent or to combat in an energetic manner, their irritation and its effects. The vital lesions, in their turn, determine, in nearly all subjects, alterations more or less profound, in the texture of the parts of which they are the seats; alterations which constitute, notwithstanding what may be said, true organic lesions. Finally, the degeneracies of the living tissues, the development of new pathological tissues, are constantly and exclusively the result of vital lesions, which, after having formed those tissues, ~~are~~ ^{them} enlarged, and preside over the numerous transformations which they are to undergo. In all cases of schirrus, cancer, melanose, etc. it is the irritation, or the vital lesion, which is the nearest and direct cause of the morbid organic production: the last is but an effect, a conse-

quence of the other: it ought not to excite more than secondarily, the attention of the physiologist and the practitioner. We must then admit, ultimately, that vital lesions accompany, almost always, physical lesions; and that organic lesions are constantly produced, kept up, and modified, by the same vital lesions. What confidence can one give to a classification which enjoys in so high a degree, the privilege of separating arbitrarily, that, which in nature, is always one and indivisible?

I have then to follow another route. It appears to me agreeable to divide surgical diseases into two grand classes, the one to comprehend the acute lesions, and the other the chronic affections. Among the first, I arrange those diseases which appear rapidly, and which have a tendency to run their course in a very short time: such are wounds, fractures, contusions, and violent inflammations. It belongs less to me to examine those lesions, in relation to their etiology, and the mechanical operations which

they require, than with respect to the local and general affections of which they are the source, the influence which they exert upon the principal viscera, and the medicinal remedies, internal or external, by which they may be counteracted. Such are the subjects which are treated of, in the first five chapters of the work. I have afterwards collected under the title of chronic surgical lesions, all those which succeeding to the former, or which developed by other causes, have a prolonged, and as it were, indefinite existence. I have endeavoured to trace back as far as the vital lesion which provokes and keeps up the most important affections of this kind, in order to establish on solid foundations, both the curative indications which they present, and the treatment the most proper to combat them. After having examined the sympathetic influence exercised by chronic surgical diseases, whether on the whole of the animal organization, or aspecially on different parts of the body, it has been easy for me to point out the

means that should be employed to remove these secondary affections, and show in what should consist, the preparation which the patients should undergo before performing great operations. But having spoken in the first chapter, of the effects of these operations themselves, and exposed the treatment which those operated upon should claim, the sufficiently extended circle of ideas which I proposed to myself to develop, was finished.

I may be reproached, perhaps, for not having presented in this work, any considerations on surgical diseases which may be said to arise from the debility of certain tissues, or of the entire organization. I am far from denying the existence of this class of lesions; but they do not appear to be quite as extended as certain persons think. Besides, other things of more importance demand our attention; and as there has been so deplorable an abuse made of stimulants, in surgery as well as in medicine, and the methods of strengthening the parts, or the

whole of the animal economy, so much extended and perfected, that it is actually less necessary to show when these methods should be employed, than to point out the more numerous cases, in which they are injurious.

Finally, I have endeavoured in this work, to give physiological reasonings for a basis to surgical pathology and therapeutics. Certain persons, enemies to all researches, all reflection, I will say, to almost all theories founded upon an observation of the laws of the living organization, will accuse me, perhaps, of temerity. Nevertheless, there must be, at some future day, a wholesome physiology, that will enlighten and command all medical sciences; it is indispensable, that it should extend its empire over lesions, the theory and treatment of which, seem necessarily to have escaped its influence. Men who actually deny the importance of physiological medicine, the rapidity of its progress, and the happy results which it produces, resemble the sophist who denied the reality of motion, even

when he saw his adversary walking before him: but neither their obstinacy, nor their efforts, will be able to hinder the medical revolution which is in operation, from receiving its entire development.

APPLICATION
OF THE
PHYSIOLOGICAL DOCTRINE.
TO SURGERY.

CHAPTER I.

Local affections produced by acute surgical lesions.

Inflammation supposes always the previous action of an irritating cause, upon the tissues which are its seat. This action determines the acceleration of the local organic movements, or irritation.

The afflux of the fluids, the engorgement of the capillary vessels, the passage of the red globules of blood into the canals which do not admit them during a normal state, and as a consequence, the swelling, heat, pain, and redness

of the part; such are the results, more or less immediate, which irritation carries after it. If the acceleration of the organic movements be recent, the attracted fluids are not yet combined with the organic structure. By soaking the inflamed tissues in water, and washing them repeatedly after death, we may succeed very easily in getting rid of the whole of the red colouring matter, and restore them to their original size and appearance. But, if the local afflux has persisted for a longer time, the globules of blood combine in some sort with the parenchyma of the part effected; they appear to make an integral part of it, and we cannot detach them from it, by any mechanical process. Some persons have proposed to designate the first of these states, by the name of congestion or fluxion; and not to give to any but the other, the title of inflammation. Without entirely rejecting this distinction, it would not be right to attach to it too much importance; for, as Bichat has observed: the state of freedom or combination of the attracted fluids in the irritated parts, is only a secondary phenomenon, a consequence of irritation. This constitutes

alone, that which is truly fundamental in inflammatory diseases : it alone determines the more intense sympathetic phenomena, independently of the material alterations of the effected organs.

Whenever an irritation develops itself in a part of the living body, we see a process commence, which can be terminated by a prompt healing, or by the destruction and death of the inflamed tissues or by the slow degeneration and complete disorganization of these same tissues. In the first case, the irritation being abortive at its birth, if I may use the expression, we observe a more or less rapid resolution of the inflammation ; or else, the phlogosis determining the secretion of a particular fluid, suppuration takes place. In the second, the parts not being able any longer to support the excess of action which their irritation imposed, cease to live, and become gangrenous. Lastly, in the third, the stimulation continuing itself in a slight degree, the nutrition of the organs which it usurped, is modified ; their parenchyma loses its physical properties ; its aspect is changed ; and we see developed, masses

or thin plates of fibrous, cartilaginous, and scirrhous tissues; and finally, of cancers which extend their ravages very far. The most simple acute irritation, that which aggravates a wound otherwise slight, may determine each of the phenomena which I have just enumerated.

The consideration of the different shades of alteration which the inflamed parts may present, merits, nevertheless, to fix the attention of the practitioner: it permits him frequently to discover, by a simple inspection of the organs, the violence and duration of the phlegmasiæ which effects them. The skilful and experienced observer, by examining with attention the traces which complicated diseases leave after them on dead bodies, can distinguish the parts which have been the seat of recent and sympathetic phlegmasiæ, from those on which irritation first made its invasion.

These general principles being admitted, we will examine the influence which they ought to exercise, over both surgical theory and practice.

All bodies capable of wounding our organs, may act as very powerful causes of irritation. When a part has been violently contused, its

tissue separated and has experienced a rough and sudden displacement, we very soon observe the organic movements of the part become more violent, and the fluids penetrate its tissue in a greater quantity than in the normal state. An inflammatory swelling proportionate to the susceptibility of the individual, and the degree of local sensibility, as well as the more or less vascular texture of the parts, appears in some cases, and extends to some distance. The irritated tissues then acquire new properties: they are more red, and more compact; their functions cannot be exercised but with great difficulty; and many others of these, such as the cellular tissue and serous membranes, become inextensible and easy to tear, whether we wish to stretch them out, or tie them by means of ligatures. This last disposition, we may remark *en passant*, is the cause of the little success which follows the tying of arteries at the points where the cellular coat of these vessels is already inflamed. In such cases, we observe the cellular tissue to be cut under the threads; and as the middle coat of the artery is inevitably likewise cut, the internal coat, which alone remains un-

injured, being too feeble to resist the force of the blood, it breaks, and hæmorrhage takes place.*

Irritation, and the inflammatory action which it produces, are, when they become too considerable, almost the exclusive causes of all the danger to which the patient is exposed, by those surgical lesions, of which death is not the immediate and mechanical result. After wounds of the brain, the lungs, and the abdominal viscera, if the person does not perish at the instant when he receives the wound, the period when the inflammation of the parts injured by the wounding body develops itself, is that, when life will be most strongly menaced. If no violent inflammation manifests itself after lesions of the external parts of the body, we will never observe either those acute fevers which cause the wounded very often to succumb, or those enormous swellings, in which the termination most ordinarily consists, either in the formation of large and multiplied abscesses, or in inexhaustible suppurations, or finally, in those

* Vide—Sabatier's *Medicine Operatoire*, nouvelle édition, tome 1, Prolegomenes.

intense gangrenes which allow of no other resource than the amputation of the limbs.

Inflammation is, nevertheless, an action of the living parts, without which, none of the wounds inflicted upon organized beings can be cured. Under this relation, it is the most powerful agent which nature employs to remedy the lesions of the organization. But for it to be salutary, this inflammation should be confined within just bounds, and consist only in that degree of excitation which is indispensable for the displacement of disorganized parts, and the formation of cicatrices.

The human body, in the case which we now consider, is not susceptible of contracting several kinds of inflammations, some of which might be adhesive, the others suppurative, or ulcerative, etc. We observe in nature, only different degrees of intensity, in inflammatory actions; degrees which produce varied results, by reason either of the disposition of the affected parts, or the more or less considerable quantities, or different qualities of the fluids which penetrate them.

Not only does irritation and inflammation of the living tissues succeed constantly to lesions produced by external bodies, but these affections are the inevitable result of most of the operations of surgery. Make an opening in the parieties of the chest, penetrate into the bladder to take out a foreign body, extirpate a cancerous tumour; finally, cut off a member entirely; you will always observe an irritation develop itself in the parts which the instrument has divided, and often extend itself, by continuity of tissue, or by sympathy, to organs quite remote; and as after accidental wounds, if the patient does not sink immediately, either from pain, or loss of blood, the period of the development of inflammation, will be that when life will run the greatest risk. The surgeon can never forget this important observation without danger: it ought to serve as the basis of his practice.

CHAPTER II.

Local treatment of acute surgical diseases.

It results from the preceding considerations, that in all cases, either of external injuries, or surgical operations, the most formidable affection which the practitioner has to contend with, is the local inflammation which has to develop itself. It is not necessary for us, notwithstanding, to endeavour to hinder entirely, the manifestation of inflammatory action. This end cannot be attained; nature herself having an irresistible tendency to produce an afflux of the fluids to the stimulated parts. Besides, even when such an indication could be fulfilled it would be hardly right to undertake it, as it is only by means of an indispensable inflammation that the cure is effected. Neither should we, in the treatment of wounds, bruises, and other affections of the same kind, endeavour to produce the development of an adhesive or resolute inflammation, at the same time that we use our efforts to repress suppurative or gangrenous inflammations. To adopt a similar language, it

would be to enter anew into the domain of hypothesis or useless abstractions: it would be to substitute metaphorical and inexact expressions, for such as are always simple on account of their truth. Under the circumstances which we are placed, the practitioner ought to confine himself exclusively, to moderating the inflammatory action which is about to develop itself in the wounded parts, and to keep it in those bounds, where it is advantageous without the power of becoming hurtful.

After having reduced the fractures and luxations, reunited the simple wounds, and dressed those properly which are bruised, lacerated, or accompanied by a loss of substance, he should employ the general and local anti-phlogistic means most proper to prevent the occurrence of serious accidents. General blood-letting and local applications; at the same time anodynes and resolatives are perfectly adapted to the first stage of the wound. If the skin is cut and suppuration inevitable, it would be advantageous to cover the wound with nothing but dry lint. It is almost useless to add, that rest of the whole body, and especially of the part effected,

soothing drinks, and the more or less complete abstinence from all solid food, are the means which he should add to those of which I have already spoken.

The combination of these first mentioned medications has for its object: 1st, to diminish the quantity of blood which becomes a very powerful secondary cause of augmenting the pain and local irritation whenever it penetrates with abundance the already stimulated parts; 2nd, to render this fluid more serous, and to suspend the introduction of the nutritive materials which serve to regenerate it: we have observed that it is much more exciting, and, of course, much more hurtful to irritated organs, when it contains a greater proportion of nutritous particles, and that it is more rich from principles furnished by an animal diet: 3d, lastly, to relax the whole of the organization, to diminish the stimulation of the principal viscera, and, in rendering the sympathies less active, to prevent the development of a part of those serious affections of which they are the source.

Do the local bleedings which are so useful in the more advanced stages of the disease,

have the same efficacy in the first moments which follow the wound, and before the inflammatory action has commenced? The cause of the inflammatory congestion about to take place, consists at this time entirely, it is true, in the wound itself, that is to say, in the contusion, laceration, or division of the tissues: It is still independent of the presence of blood, since there does not exist any engorgement of the affected parts. It may be thought, even, that local bleeding can neither modify in any notable manner the impression which the parts have received, nor, as a consequence, diminish the effects which it ought to produce. Nevertheless, leeches applied immediately after the accident, to the parts contused, distended, affected with sprains, fractures, or other affections of the same kind, have been very advantageous. They seem, at the time, to prevent the local congestion; and their bites yet bleeding at the time of the afflux of the fluids, furnish an easy issue to the blood, which drains out in proportion as it is drawn into the parts by irritation: in this manner the capillary system cannot be engorged to any great extent, and the phlogosis miscarries, in a

manner, before birth. You must not however, abuse these local preservative bleedings; they are not indispensable, and in general, we ought to have recourse to them only in cases of extensive and serious injuries, and especially in wounds of the viscera. The simple and superficial affections, at first, require only the employment of the topical emolients and resolutives, of which I have already spoken. Those substances which do not irritate, such as a small solution of the acetate of lead, or cold water a long time continued, diminish directly the stimulation and pain of the injured parts; they attack even the principle of the disease; and it would not be right to abandon entirely their use after fractures, distensions of the fibrous tissues, or contusions of our organs. These topical applications, no doubt, may not succeed completely in all cases; but, aided by the other medications which have been mentioned, they contribute to render the excitation of the tissues less lively, and the inflammation which it determines less considerable.

There is, besides, another remedy which has been put in use, with the greatest success, in

cases of contusion, sprain, and those of wounds of the soft parts, and which assists very much the preceding remedies in preventing the inflammatory fluxions, and diminishing their violence: that remedy is compression. Extolled with a little exaggeration, perhaps, by the English surgeons, and among others, by Dr. J. Young, compression has been used for a long time with the greatest success, in those cases in which it has been used by M. Dupuytren: its effects seemed often wonderful. It appears, by bringing nearer, and making more firm the contused or drawn parts, and in diminishing the capacity of all the vessels, to oppose the access of blood into the diseased part and to hinder somewhat the inflammation. Practiced on the muscles, it hinders their contraction, and maintaining the luxated bones or fractures in their situation, it opposes the new irritation which they would determine, if their displacement was reproduced. But, for it to be salutary, the compression ought to extend from the portion of the member the most distant from the body, to above the wounded part. This disposition is necessary, in order to prevent the ab-

struction of the inferior part of the extremity. It is likewise necessary that the compression have not more than a moderate degree of force, to fulfil the indication which we propose; if more violent, it would be painful and injurious; and in augmenting the irritation it would increase the danger of the patient. Compression, finally, is rendered more efficacious when we dip the bandages and compresses which are used, in some resolute liquor; or when we sprinkle them continually with cold water.

The most judicious surgeons have, for a long time, sanctioned the propriety of that common custom which consists in covering the wounded parts with a solution of the muriate of soda, wine, or camphorated spirits, and some other topical irritants which they lavish in great abundance in cases even of wounds of fire-arms. Experience has proved, that these liquids, far from preventing or moderating the swelling and inflammation, are only proper to hasten the moment of their appearance, and to render them more considerable, by augmenting the excitation of the parts. Pure water has seemed, with reason, to be the topical remedy the most sim-

ple and the most salutary which we can employ in a great number of cases. Applied cold and for a space of time sufficiently long, it eases promptly, the pain; opposes the effects of the stimulation produced by the wound; and the afflux of the fluids. Employed lukewarm, when the inflammation is developed, it possesses in a high degree an emollient property: it calms and relaxes the tissues, it moderates the organic movements, and favours very much the termination of the inflammation by resolution. It may be recollected, that it is in the military hospital of Strasburg, that experiments have been made by Lombard, one of the most learned military surgeons, and by the illustrious academist Percy, which have most contributed to verify the good effects of water in the treatment of surgical diseases. I have myself employed it many times in the army, in cases of gun-shot wounds of the hands, or in the neighborhood of articulations, and have never failed with it, nor have I found that the above gentlemen, have overrated the advantages which are to be derived from it.

It would be superfluous to say much of making incisions for the purpose of dividing the adhesions following the wounds of fire-arms, or punctures through the members which are surrounded by strong aponeuroses: the utility of these operations, considered as the means of rendering local inflammation less violent and less dangerous, and in preventing the obstruction of the parts which are affected, has been a long time since demonstrated; and the point of practice which concerns those cases in which we ought especially to have recourse to them, is too solidly fixed, for it to be necessary to insist here, on the importance of their employment.

It is above all, after surgical operations, that the practitioner ought to watch with extreme care, to prevent any inflammatory affection capable of risking the lives of the sick. His attention ought to be directed with so much more perseverance towards this object, as he often introduces the instrument into the parts already irritated or inflamed, and, the operation being his work, he is, in a manner, immediately responsible for the results which it may bring on. "If surgeons," says Broussais, "have ob-

tained but little success from the operation of trephining, it is, because after the performance of the operation, they have not combatted with sufficient energy, the irritation of the brain and its membranes, and because they have had recourse to revulsives on the intestines before the proper time: that is to say, before having sufficiently diminished the cerebral excitation, by local and general bleedings. If after the operation of cutting for the stone, they have often to deplore the loss of the patient, it is because they have not attacked with sufficient energy, the cystitis, the peritonitis, and the gastro-enteritis consecutive to the incision of the bladder, and the extraction of the calculus." These reflections are applicable to divisions of the articulations, those of the neck of the womb, the operations for empyema, paracentesis, strangulated hernia, and most of those which may be called the capital operations of surgery. "In a word," again adds Broussais, "if those operations, in spite of the incontestable skilfulness of the French surgeons, are frequently followed by misfortune, it is because they do not pay sufficient attention to prevent the inflammations by

which they are succeeded, and because they do not use sufficient perseverance and vigour in the debilitating treatment, and in those sanguineous evacuations by which they should oppose them."

For this reason then, as soon as, in spite of the rational employment of the means most strongly indicated, we see that the pain, the swelling, and redness are developed with force in the wounded parts, it is necessary to have recourse again to sanguineous evacuations. But at this time, general bleedings are less suitable than those which operate in the neighbourhood of the wound. The former act on the whole of the circulating system, and moderate its excitement; but they are only proper when the subject is strong and plethoric, and when the pulse is full, large, and jerking: besides, they scarcely ever render it unnecessary to have recourse to local bleedings. The latter, in effect, produce their action directly on the irritated capillary system: by emptying and carrying off the blood which increased the stimulation, they keep the inflammation in proper bounds. M.

Gama has justly given them the name of regulators of local inflammations.

To obtain all the good which can be derived from local bleedings, it is necessary to apply the leeches in the very place where the wound is situated, if the skin is not inflamed; or in its neighbourhood and as near as possible, if the integuments are divided or irritated. It is important, likewise, after a first application proportionate to the violence and extent of the disease, to repeat the employment of those animals, when the inflammation continues to progress. But then, instead of proceeding again with large numbers of leeches, it would be better to divide and apply them successively. In this manner, we keep, in the neighbourhood of the inflammation, a permanent afflux of blood, a sort of canal of derivation, which, in a little time, puts an end to the inflammation. M. Demours employs local bleedings in this manner, with the greatest success, in cases of ophthalmia, or other inflammations of the eye and its accessory parts. I have several times combated in the same manner, and always successfully, gastrites, cystites, and inflammations

of the joints following wounds in the neighbourhood of these parts. One observation which it is important to have presented to the mind in employing this remedy, is, that the number of leeches which remain applied to the parts and whose bites constitute the canal of derivation, ought to be proportioned to the violence, extent, and danger of the disease. Thus, in cases of ophthalmia, or whitlow, we may confine ourselves to keeping two or three leeches around the eye, or upon the finger; the articular inflammations, those of the encephalon, the bladder, or the peritoneum, often require that eight, ten, fifteen or twenty should remain. We commence, then, by applying the number which ought to remain, and, as one falls off, we replace it by another. The duration of the application ought to be prolonged until the pain, the redness, and swelling are notably diminished. When it has come to this point, the draining, which continues for some time still by the bites, suffices ordinarily to accomplish the subsidence of the inflammation. I have often times proved, that twenty, thirty, or forty leeches, applied in this manner, produce a great deal more ef-

fect, than if we apply them at one time, or in two or three portions.

To local bleedings, it is necessary to join the application of fomentations or emollient cataplasms, baths, general and local, total abstinence from all kinds of solid aliment, and even animal broths; the use of acidulated drinks and mucilaginous lavements. It is rare, that a treatment thus combined, directed with prudence and perseverance, does not succeed. If, in the meanwhile, the irritation does not yield, it becomes necessary to join to local anti-phlogistics, the use of revulsives, applied, either on the gastro-intestinal mucous membrane, or on the integuments, by means either of purgatives continued in small doses, or vesicatories placed in the neighbourhood of the seat of the disease. But, it should not be forgotten, that these means should only be used, when the sanguineous evacuations have produced a salutary disengorgement, and a great diminution in the violence of the inflammation. Previous to this, far from being useful, the stimulation which they produce on the other organs, augments sympathetically, that which we wish to combat.

In a word, making an abstraction of the cause of the disease and the physical alteration of the tissues, it is necessary to act in the treatment of acute surgical affections, as if there existed only one intense inflammation of the affected organs.

Clinical observation proves every day more strongly, that local bleedings constitute the most certain method of combatting inflammations. The acute phlegmasiæ of the lungs, and the liver, are, perhaps, the only ones which make an exception to this rule, and for the treatment of which, general bleedings are more efficacious than the others.* But in all cases of affections of external parts of the body, it is to these last that we should have recourse. Among the sur-

* This difference appears to me to arise from the fact, that the liver and lungs receive, independently of the blood which is carried to them by their proper and nutritive vessels, another quantity of this fluid which they are destined to receive and elaborate. Now, the abstraction of a part of the blood which ought to be modified by these organs, is the only means which we can possess of relieving their functions and procuring for them a kind of repose. The general bleeding acts then in such cases, less in diminishing directly the inflammation, than in rendering less considerable the labour which the lungs and liver are destined to execute in a given time. This circumstance is again exemplified but in a less degree, by the spleen and kidneys, parenchymatous organs, which, receiving large arteries, have scarcely any direct communication with the exterior of the body.

geons who have made a use of this remedy, as successful as frequent, M. Janson, surgeon in chief to the Hotel-Dieu of Lyons, merits a distinguished place. This practitioner, having observed that the veins which branch off from the inflamed parts, are almost always tumified and filled with more blood than in their ordinary state, has made it a practice to open those which are bordering upon the wounded or irritated parts. Are local bleedings of this kind as efficacious as those which we obtain by the application of leeches? I do not think so; but experience alone can determine positively this question. In all cases, the opening of the veins near the inflamed organs presents great advantages. First, it can be executed without increasing, even momentarily, the local pain, as do sometimes the leeches applied too near the seat of the disease. In the second place, they are not expensive, which is of great importance in hospitals, and we can perform them in all countries, and under all circumstances. In the army, above all, where one is often deprived of pharmaceutical resources, bleedings practised in this manner, constitute a precious remedy which

military surgeons can often make use of. Finally, the opening of veins permits us to measure exactly the quantity of blood evacuated: that which is always very difficult to do when we employ leeches. But, although the opening of veins which have their radicles in the irritated parts, acts directly on the capillary vessels of these parts, the depletion which they produce is, perhaps, too rapid, to produce effects as happy as the application of leeches. Whatever may arise from these conjectures, we ought to feel indebted to M. Janson for having fixed the attention of practitioners, on this method of performing local depletions. It is to be desired, that we could bring together promptly a sufficient number of comparative observations, to fix definitely their value.

If there was any necessity to produce here new arguments in favour of the efficacy of a suitable anti-phlogistic treatment applicable to acute surgical affections, I would be only embarrassed in the choice of observations necessary to be made. Why, for example, are the wounds penetrating the great ginglymoid articulations, still fresh, considered as cases where

amputation ought to be necessarily performed? Why were complete luxations with rupture of the ligaments, of the articulations of the knee, the elbow, and the leg with the foot, thought so dangerous, that most surgeons did not hesitate to sacrifice the parts of which they were the seat? This fear exaggerated by dreadful accidents and inflammations often fatal, depended, incontestably, on the little knowledge practitioners then had, of employing local bleedings with sufficient energy, to prevent or combat efficiently, the acute phlegmasiæ which succeed the affections of which we speak. We have known for a long time, that absolute rest of the limbs, attention to not letting the air penetrate the synovial cavities, and emollient applications, are means very useful in all cases of wounds of the articulations. J. L. Petit has taught surgeons not to dread making extensive incisions about these parts. But, it would be necessary to add to these remedies, abundant and repeated local bleedings, without which they are ordinarily insufficient. Therefore, for some years since, they have made general use of this remedy: we can already reckon up a

sufficiently great number of examples of gunshot and other wounds of the great articulations, which have been cured not only with a preservation of the parts, but still without the disturbances having proved of a very considerable kind. I could cite as readily a great number of counter-proofs, that is to say, observations where it may be seen that a forgetfulness of the precepts pointed out, has been followed by the most deplorable consequences. Among the facts of this kind which I possess, I shall confine myself to relating the following. A man entered, in the course of the year 1816, into a hospital; he had received a wound from a sword, on the external and posterior part of his right knee. The external lateral ligament of the joint was divided; and the capsule extending open about two inches, the fibro-cartilage on that side could be seen, and likewise, the posterior part of the external femoral condyle. The wounded person was young, vigorous, and of a sanguinous and nervous constitution. There was nothing in the wound, nevertheless, which announced that it must have a fatal termination: there only existed at its borders a moder-

ate separation, which disappeared by the flexion of the leg; there was no contusion, and the part was not yet the seat of any pain. The surgeon engaged in the service wished however to proceed to amputate on the field; but, hindered by the observations of some assistants, he placed the limb in a demi-flexed position, brought together the lips of the wound, and bled from the arm.

The first night and the day following, he was sufficiently easy. Towards the evening of the second day, lively and lancinating pains were manifested; their intensity increased gradually, and very soon became insupportable. They extended, as by irradiation, from the point of the wound to the rest of the joint, and the patient being extremely agitated, had the pulse hard, frequent and firm. The surgeon in attendance applied three leeches around the knee. A great quantity of blood flowed out by the bites, and it was favoured in its exit, by means of an emollient cataplasm. Scarcely was the local bleeding commenced, when the pain disappeared as by enchantment; the patient became easy, and slept until morning. On the

night following the pains reappeared, but with less intensity than the night preceding, and as the application of the leeches was not renewed, they were very violent by the visit in the morning. Some persons then proposed to have recourse again to local bleeding; but the chief surgeon declared that he would temporize no longer; adynamia appeared to him, must be the inevitable result of another sanguineous evacuation, and he decided that amputation be performed immediately. It was endured with admirable *sang-froid* by the patient, and crowned with entire success. On examining the parts we did not find any notable redness in the cartilages, nor in the synovial membrane, nor in the fibrous tissues which strengthen the articulation. It appeared, that there was still, only a simple irritation in the parts, the afflux of the fluids had not yet commenced, or having been so feeble, that the section of the neighboring vessels during the operation, was sufficient to dissipate the slight traces of the commencement of inflammatory action.

This fact furnishes a new proof of the baneful influence, which that phantom adynamia

exercised but a short time since, on surgical practice. In joining the preceding observation to many other analogous facts of which I have been a witness, I cannot but vindicate the belief that anti-phlogistic means, more active, and continued with more perseverance, might have preserved to the patient, the limb of which he was deprived.

Local bleedings are useful in a great number of subjects, to insure the success of surgical proceedings. Thus, for example, after the exact reunion of the lips of a wound, if the local inflammation is too intense, we see that adhesion cannot take place, and suppuration renders useless all the efforts employed to promote it. In these cases, the application of leeches near the tumified and painful borders of the division, removes, as M. Gama has observed, this excess of irritation, and safely maintains the inflammation within the limits by which it produces the agglutination of the contiguous parts. After amputations we often see the stump become the seat of a vast inflammatory swelling; it may be by the action alone of the cutting instrument, or it may be in consequence of the

tying of some nervous filaments, or by the too sudden interruption of the blood in the vessels which give rise to the arterial trunk above the point of the ligature. On these occasions, after one or two general bleedings, nothing can serve the place of leeches: applied on the tumified part, they prevent certainly, those extensive effusions, which dissect, in a manner, and separate the muscles from each other; those denudations of bone which give rise to those interminable suppurations, and retard the cure of patients for many months; those conical forms of stumps which render the cicatrices so easily torn, and prevent the application of mechanical means, by the aid of which they can serve the place of lost limbs. Finally, when, after a ligature of the large arterial trunks, we see the blood penetrate the collateral branches with too much force, distend and irritate the capillary vessels which terminate them, and provoke the augmentation of the temperature of the superior parts of the limb, whilst the inferior parts remain cold, the application of leeches on the first, at the same time that we envelop the latter with warm satchels, contribute very

much to regulate the circulatory movement, and to insure the preservation of the parts.

The use of antiphlogistic means and local bleedings in the treatment of most of the acute affections of which the exterior parts of the body may be the seat, actually render more rare than formerly, the occasions in which surgical operations are indispensable. By its union with a medical treatment more rational, and more physiological, surgery is now rendered more conservative. Wounds of fire arms, extensive and deep contusions, are actually cured without its being so often necessary as was believed by our predecessors, to retrench the diseased parts. After wounds of the head, the application of leeches to the throat, the back of the neck, and the temples, or what is still better, to the injured parts themselves, supply the place frequently, of the operation of the trephine. This remedy, aided by general bleedings, diet, and acidulated drinks, is more useful, especially in the first periods of cerebral irritation, than the detergent emetic, the advantages and efficacy of which, Desault so much exaggerated to himself. The

same observation can be made in those cases of wounds of the chest or of the abdomen. When we arrive at the second part of this work, we shall still see, in treating chronic diseases of the exterior parts of the body, that, under a crowd of circumstances, local bleedings can render unnecessary the most serious operations of surgery. In effect, scrofulous degeneracies, cancers, eating ulcers, white swellings, sarcoceles, and a multitude of other affections considered as incurable otherwise than by steel or fire, have been recently cured by a general and local antiphlogistic treatment, proportioned to the extent of the disease and the strength of the patients.* These conquests of surgery during these latter years, are as glorious, and perhaps more profitable to humanity, than were the numerous improvements in operating and surgical instruments, during the latter end of the last century.

One of the most remarkable results of the application of the principles of physiological medicine to surgery, is, that the practitioners who

* For some interesting remarks and cases by M. Foucart, with regard to the utility of antiphlogistics in certain surgical affections, see the *Annales de la Médecine Physiologique*, tome 17 p. 50
—*Trans.*

have adopted the basis of the new doctrine, have scarcely any more occasion to observe those enormous inflammatory swellings which were formerly so frequent, and which, disorganizing the parts, rendered amputations necessary, when they did not cause the patients to die. These results are analogous to those which we have obtained, by the new treatment of gastro-enterites, affections almost all of which terminate unfavourably, and which do not arrive, but amongst a small number of patients, to that degree of intensity which gives place to the phenomena of adynamia and ataxia, The great quantity of leeches that is applied with so much success in visceral inflammations, ought to encourage surgeons not to be sparing of the number with which they cover the external irritated parts. A local bleeding not sufficiently abundant, is frequently more injurious than useful, as it determines towards the region of which it is the seat, a congestion more strong than that which it was destined to counteract. It is necessary then to act with energy, and forty or fifty leeches employed at a time, are, in general, necessary in all those cases of intense irritations; it is even often indispensable to have

recourse to them several times, when the inflammation is obstinate.

These general therapeutical principles are applicable to inflammations of external parts of the body, such as phlegmon, erysipelas, furunculus, and anthrax, as well as to those irritations produced by wounds, contusions, fractures, etc. It must not be forgotten, however, that, in furuncle, and anthrax, the cellular tissue having been deadened by strangulation, it is necessary to have recourse to incisions, which shorten and facilitate the work of nature, by releasing the parts and giving issue to the matter. These incisions, made crucial or starlike, and prolonged to the limits of the tumour, constitute the means the most efficacious in putting a stop to the progress of anthrax. In cases of carbuncle and malignant pustule, it is necessary to cauterize the gangrenous parts and those which are more immediately threatened with mortification; in fine, to destroy the disease, and to excite in the neighbouring tissues, a more salutary inflammation, which preserves them from destruction. Except these cases, gangrene being the result of the excess of local inflammation, judicious practition-

ers will take good care, not to endeavour to prevent or limit it by the application of topical irritants. These means are only proper to increase the intensity of the inflammation in the still living parts, and to hasten the period and progress of their mortification. It is by the aid of anti-phlogistics that we may prevent most certainly the manifestation and progress of external gangrenes, by keeping the inflammations that determine them, within just bounds. The adage, which has had, in the practice of surgery, as well as in medicine, the most pernicious consequences, is thought to be the following: "When," says a modern writer, more remarkable for the brilliance of his style than for the profoundness and justness of his opinions; "when prostration of strength, complicates an inflammation, whatever be its seat, do not fear to augment it by the use of tonics."* It is at this day perfectly demonstrated, that, this prostration depends, almost always, on the excess of local inflammation, or the sympathetic inflammation of the stomach and intestines,† and that the above axiom, independ-

* Nosographie chirurgicale, tom. 1, page 204, 5e. edit.

† This is one of the most important truths of Physiological Medicine; but it is overlooked by physicians and surgeons edu-

ently of that which is absurd in theory, would be very dangerous if it were strictly followed in practice.

cated in the principles of the ancient doctrines. They do not know that an exaltation or diminution of the vitality of the organs cannot be general and uniform, and that the exaltation of one or several organic systems, or of one or several apparatuses, always produces languor of some other system or apparatus. Thus, when the gastro-intestinal mucous membrane is super-excited, muscular innervation diminishes. When the locomotive apparatus is in a violently convulsive state, the action is deficient in the vascular system; the secretions are suspended; nutrition languishes; and the heart directs the circulation of the blood in a defective manner. By giving stimulants, we aggravate the local inflammation, and by augmenting this inflammation, increase the debility which it caused, and which we wish to remedy. It is to Broussais that we are indebted for exposing such errors, and taking correct views of pathology.—*Trans.*

CHAPTER III.

Sympathetic phenomena determined by acute surgical lesions.

When ever an active irritation is developed on the external part of the body, it determines sympathetically a more or less considerable disturbance in the functions of the principal viscera of the economy. Fever is developed. When the febrile action is simple, it presents to the observer the characters of that which we call inflammatory fever; and when it succeeds to wounds or other external injuries, we give to it the name of traumatic fever. In those subjects in whom this fever exists at the same time with an abundant bilious, or mucous secretion, and among those in whom either great debility of the animal organization or a perversion of the action of the nervous system follows, practitioners say, ordinarily, that it has degenerated, or that it is converted into a bilious, mucous, adynamic, or ataxic fever. Let us examine under what circumstances, and by what mechanism, these pretended degeneracies are brought about.

The viscera are not all disposed to receive with equal intensity, the sympathetic irradiations produced by affections of external parts of the body. The brain, the stomach, and the heart, appear to form in the midst of the living organization, the central points towards which converge all the unusual vital actions, determined by the irritations of other organs. The first of these viscera receives, through means of the nerves, the sympathetic impression produced by the part irritated, and reflects it throughout all the divisions of the nervous system, and above all, towards the epigastric centre, and towards the heart. Then the signs of gastroenterite and acceleration of the pulse are manifested, and the febrile action commences. But, if upon the invasion of the disease, all the organs are in their normal state, and the external affection be moderated, the febrile excitation is not violent, and does not present any danger. We observe the following phenomena: strong, full, and frequent pulsations of the arteries, moderate thirst, want of appetite, disgust for animal substances, desire to take cold and acidulated drinks, redness of the end and borders of the tongue,

the middle part of which, is moist and whiteish, augmented heat and halitus of the skin, urine at first scanty, limpid and colourless, afterwards sedimentitious and abundant. Towards the second, third, or fourth day, all these phenomena diminish, at the same time that the suppuration manifests itself in the wound, and the intense inflammation of the parts affected disappears.

Such is the ordinary and most advantageous progress of diseases. But if, at the period that the symptomatic fever develops itself, the viscera have the excitation which is due to them, they are subject to the influence of other causes of irritation, or if they are already more or less strongly irritated, the phenomena above mentioned, acquire an increase of intensity, or even other affections are manifested. Let us suppose, for example, that a bilious person, in whom the gastro-hepatic apparatus is very irritable, is wounded; is it not evident that the gastro-enterite which he experiences at the period of the inflammation of the injured parts, will be more intense than in a man furnished with a different organization? In his case, the irritation of the

stomach is complicated with an abundant bilious secretion, nausea, vomiting of greenish and bitter stuff, bilious diarrhœa, a yellow tint spread over the whole surface of the body, in a word, all the signs common to bilious fevers. Let the wounded person of whom we speak, be, on the contrary, disposed to mucous secretion; let him have a great quantity of saburral matter in the alimentary courses; will it be surprising that these circumstances determine great modifications in the symptoms of gastro-enterite, and produce all the phenomena of mucous fevers? If the external inflammation is very considerable, or if the gastro-enterite having had at first one of the above forms, has been opposed by vomits, purgatives, and bitters which have exasperated it, it may happen that the inflammation of the stomach and the intestines will acquire a still higher degree of violence, and determine the symptoms of adynamic fever. Finally, if it is a nervous subject, very irritable, and endowed with great cerebral susceptibility, we will observe the brain or its membranes, participating in the irritation of the digestive canal, give place to the aberrations of sensibility,

determine convulsions, or occasion delirium, sometimes cheerful, at other times melancholy, or furious; in a word, excite those perversions of actions which characterize the ataxic state.

Thus it is, that, the principles or the causes of diseases remaining the same, the attentive observer sees those last multiply themselves, if we may use the expression, and assume a thousand variety of forms, following the nature and infinite modifications of individual constitutions.

One general rule, the consideration of which is of the highest importance in the subject which we now occupy, is that the intensity of symptomatic fevers produced by external affections, is constantly in relation with the force and extent of those affections, and likewise with the sensibility of the parts of which they are the seat. For this reason, after simple fractures and uncomplicated wounds of the soft parts, the febrile excitation is but slight and transient: it acquires on the contrary very considerable force and becomes dangerous, when the limbs are broken by direct causes, or disorganized by projectiles put in motion by the powder of a cannon. Finally, an intense inflammation of the extremity

of the finger causes more suffering, and determines sympathetic phenomena more multiplied and more serious, than that of a portion, even more extended, of the sub-cutaneous cellular tissue of any other part.

It is not alone the different shades of gastro-enterite and cerebral super-excitation that may follow irritations produced by affections of external parts of the body. Whenever the wounded subjects have an organ more sensible or more irritable than the rest, this organ is eminently disposed to become inflamed at the period when the traumatic fever ought to appear. This fact, which is incontestable, depends upon this: the irritated organs form accidental centres of action in the economy, towards which converge all the sympathetic movements.

Clinical observation has demonstrated, for example, that pneumonias, pleurisies, hepatites, nephrites, cystites, and likewise arthrites, are manifested on account of the most simple wounds, in those subjects in whom the pleura, lungs, liver, kidneys, bladder, or the articulations, were already irritated or disposed to inflame. It is a law of the living economy, that the inflamed

parts constitute, as it were, new foci of vitality, which change absolutely, the order of sympathies. In the normal state, the organs have relations between themselves determined by the degree of susceptibility of each of them, and the stomach is above all, that which is united to the rest of the body, by the closest sympathies. But, in the pathological state, when some other part is endowed with an excess of vitality, it becomes, for this reason, the most sensible point of the organization; all the excitations converge towards it, and its acute inflammation may be the result of the disturbance excited by any other inflammation.

The inflammations of which we speak, and the appearance of which, the wounds determine sympathetically in other organs than the digestive canal, do not, properly speaking, succeed gastro-enterite; they precede it, or are developed at the same time, and give to it an increase of force. By it, the fever becomes more violent; and the economy presenting more multiplied points of phlogosis and irritation, is thereby threatened with an augmentation of the danger which menaces it.

These considerations are of the highest importance in medico-chirurgical theory and practice; they serve to explain a multitude of morbid phenomena, and furnish the basis of the prophylactic, or curative treatment of a great number of internal affections with which wounds are complicated.

CHAPTER IV.

Treatment of internal irritations which complicate surgical affections.

The curative indications presented by internal diseases which may complicate the acute affections of external parts of the body, are easily determined, after the physiological and pathological details into which I have entered. They consist 1st, in rendering as feeble as possible, the local inflammation which is the primitive cause of all the ailments: 2nd, in combating the dispositions which patients often present, either to violent irritation of the digestive organs, or to inflammation of some other viscera: 3d, in removing from the wounded, all those causes of inflammation which are capable either, of rendering more intense the sympathetic affections with which they are threatened, or of developing in them other inflammations: 4th, lastly, in counteracting affections, the development of which it was impossible to prevent.

1st. *To diminish the violence of local inflammation.* The remedy the most sure and

most efficacious to render the traumatic fever less lively, and to oppose the manifestation of intense sympathetic inflammations in wounded persons, consists in making use of the anti-phlogistic treatment, the advantages of which I have already spoken. Mild dressings, a suitable position of the part affected, the application of topical emollients, and above all, local and general bleedings : these are the means, the employment of which we wish most to insist upon. We still recollect the observation of our excellent Pare, who, not being able to cauterize all the patients who had received gun-shot wounds, found those to whom boiling oil had been applied, a prey to horrible pains and agitated by very intense fevers; whilst the others, for the fate of whom he had become very anxious, were easy and without fever. I have been many times assured, of late, that it is always possible to arrest the progress of traumatic fever, or even to prevent its development, by covering the affected parts with leeches as soon as the inflammatory congestion begins to take place, and by submitting the wounded to a strict diet, such as the use of

emollient drinks and other means of the same kind.* I have had the good fortune, for example, to remove, in a few hours, an incipient whitlow, likewise the febrile agitation which accompanied it, by applying a few leeches on the finger of which it was the seat.

When the fever appears to be kept up exclusively by an intense local inflammation, it is frequently possible to remedy it by means of operations which stop the latter promptly. There is no surgeon who has not observed that the incision of the irritated and strangulated parts, is almost always followed by the prompt disappearance of the pain, the acceleration of the pulse, and the other circumstances which accompany it. These incisions and local bleedings are still the means the most efficacious which we are able to oppose to those acute in-

* M. Treille has related in the *Annales de la Médecine Physiologique*, seven cases of amputation of the limbs and breasts, in which complete cicatrization was effected, without the patients having experienced any febrile action. By keeping the inflammation within the limits of the wound, traumatic fever may almost always be prevented. This has been taught by Broussais, and numbers of his followers have proclaimed the same truth: it has become one of the fundamental axioms of French surgery. Formerly, this fever was maintained to be a necessary phenomenon and effect of extensive wounds.—*Trans.*

inflammations in which the sub-aponeurotic cellular tissue of the skull is strongly compressed, and which often make such extensive and dangerous ravages. In consequence of wounds of fire-arms, the inflammation is, among a great many subjects, the result of the openings not having been sufficiently enlarged, or from the course of the wound concealing foreign bodies.

These circumstances being known, suitable incisions ought to be immediately practised: it is never too late to have recourse to them. At Dresden, I could observe a great number of patients in whom, the wounds penetrating through the limbs, had not been enlarged by incisions on the spot, either because they did not consider it necessary to perform this operation, or because the women or other ignorant persons had applied the first dressings. About the fifth or sixth day of their wounds, these unfortunates were a prey to horrible pains; extreme agitation, and violent fever tormented them; their limbs, swelled, heated, and bent, could not support the slightest pressure. The courses of the wounds were obliterated by the swelling of the flesh. Notwithstanding the violence of

these inflammatory accidents and the local irritation, notwithstanding the length of time that had elapsed from the invasion of the disease, I did not hesitate to practise extensive incisions among these soldiers, proper to give entire freedom to the inflamed and compressed tissues. The balls which were enclosed in several of the wounds, were at the same time extracted. Not only did no accident follow these operations, which were however more painful than those which we practice on the sound tissues, but amongst all those who endured them, the fever subsided, the agitation was calmed, and after three days, the evacuation march, which those men hindered, became disencumbered by their departure. We should not hesitate any longer if the inflammation is exasperated by splinters detached from the bones.

When, in consequence of fractures, an intense inflammation invades the soft parts, it is generally advised to put off the reduction until this accident is removed; but the most powerful cause of this inflammation consists evidently in the asperities of the bones, which lacerate the cellular tissue, the muscles, and sometimes the

neighbouring nerves. To delay, is to allow this permanent stimulation the means of acquiring the highest degree of violence and of disorganizing the parts. It is then necessary to proceed immediately to the reduction. The bones being placed in apposition and maintained in this situation, the local tumefaction diminishes very soon, and at last is completely removed. This is the only practice that is reasonable, and worthy of an enlightened surgery: it has been for a long time since followed by Dupuytren.

2nd. *To combat the previous irritations of the viscera.* Celebrated surgeons, and amongst others the illustrious Lamartiniere, have established, especially in the army, the custom of vomiting almost all the men receiving wounds from fire-arms, before the development of traumatic fever. This method has found partisans even in our day, notwithstanding the immense progress of pathological physiology. The emetic, say the followers of Lamartiniere, has the advantage of evacuating the first passages and of preventing the appearance of gastric and intestinal disorder so frequent among soldiers.

These practitioners think likewise, by this vomiting medication, to oppose efficaciously, the manifestation of supposed bilious, mucous, or putrid fevers, to which the wounded are, according to them, much exposed.*

It is true, that soldiers during a campaign, submitted to great fatigue, to the use of bad food, abandoned to those excesses in eating which not happening often, are so much more dangerous as they alternate with painful privations; it is true, I say, that men exposed to all these causes of disease, have, almost constantly, the digestive organs, either irritated, or disposed to contract serious inflammations, at the period when their wounds determine the development of traumatic fever. But nothing authorizes the abuse, nevertheless, which certain persons make of emetics and purgatives. It is sufficient to examine soldiers having wounds from fire-arms, to see that this baneful and perturbing practice ought only to be employed with extreme

* See : Richerand, *Nosographie chirurgicale*, 1, p. 257.

Boyer, *Traite des maladies chirurgicales et des operations qui leur conviennent*, tom. 1, p. 390.

reserve, and can only be suitable among a very small number of them.

Among those men who are received into an army on the march, there are some who, for a long time, have made use of raw, indigestible food, little nourishing, and furnishing a great deal of excrementitious materials, such as farinaceous pot-herbs, unripe fruits, the remains of vegetables, etc. These men have ordinarily a cold skin, the pulse feeble and tranquil, the tongue covered with a thick, whitish, mucous coat, without redness at its point or its sides; the epigastrium is not painful; the belly, large and clammy, seems to be filled with stercoraceous materials; finally, there is no appetite, slight thirst, and a mucous diarrhœa often exists. The wounded who present this aggregate of phenomena have the digestive canal obstructed by sabburral materials, which, produced in a great measure by the continued excitation of the mucous membrane, irritate it in their turn, and hinder the exercise of its functions. Under ordinary circumstances, this indisposition will yield to diet, and the use of cooling and gently aperient drinks; but with the wounded, there per-

haps, would be an inconvenience in allowing the traumatic gastro-intestinal irritation to develop itself, whilst the mucous membrane of the digestive canal is in contact with foreign substances, the alteration of which, will not fail to add to the violence of the inflammation; and as the period when this inflammation ought to take place is very near, it is important to act promptly, that is to say, on the day or at farthest the day after the wound. Emetics will frequently answer for such persons; but we ought promptly to succeed them by soothing drinks, to remove the stimulation which they must produce. By the aid of these means we very soon see the appetite restored, and the dejected forces repaired; and when traumatic fever is developed in its turn, it is moderated, and exempt from all complication.

It should not be forgotten, that, for it to be advantageous, the emetic ought to be administered in the first twenty-four or thirty-six hours after the wound. As much as this practice may be advantageous in the patients above mentioned, it would be as little suitable if delayed a longer time. It would be better, after the sec-

ond day, to confine them to an expectant medicine, and to insist on cooling drinks and laxative lavements, than to expose them to a return of the fever during the disturbance produced by the emetics, and whilst the stomach still feels the stimulation which they have produced. It is useless, no doubt, to add, that this method never answers when the internal viscera are at the same time affected by wounds.

It is observed, in the army, that the greatest number of wounded, present other phenomena than those which we have just mentioned. These men have the tongue red at its point and at its sides; the pulse frequent, quick, and firm; the skin dry, harsh, and burning; the epigastrium painful; the right hypochondrium often swollen; and the alvine evacuations rare. They manifest a very striking aversion to all animal substances and alcoholic drinks; the thirst is intense, and they have a strong desire for acidulated liquids; there exists frequently, nausea and bilious vomiting. These patients can never be vomited without danger. Their stomachs are, in fact, the seat of an intense irritation, participated in, by the duodenum and

liver. The digestive mucous membrane is already, perhaps, in a state of violent inflammation, and evacuants exasperate certainly, all the symptoms. Bleedings on the epigastrium, an entire abstinence from all solid aliment, cooling and acidulated drinks, emollient clysters, and baths, are the most suitable means of treatment which we can employ. These medications have the effect of mitigating the gastric irritation, likewise that of the duodenum, and, as a necessary consequence, the super-excitation of the liver, in such a manner, that at the period of the development of the traumatic fever, these organs are restored to their normal state.

The maladies of which I have spoken in the first place, are sometimes quite numerous in cold, humid, and marshy countries, during the winter campaigns, and after long and difficult retreats. We have very seldom encountered them in hot, dry, and elevated countries, or when the war was carried on in the summer, and when the army, abundantly supplied with provisions, marched forward, and when victory crowned their enterprises. In the first case, the physical and the moral soldier were equally dejected; in

the other, all contributed to give to the organs extraordinary energy.

Lastly, whenever men, having received serious wounds, are not only indisposed, but already diseased, and affected with gastro-intestinal or other very violent irritations, it is necessary to employ the most energetic means, in order to remove promptly such dangerous complications. The most active anti-phlogistic treatment ought to be then constantly put in use. If the stomach and intestines are the seat of inflammation, general bleedings, and above all, leeches to the epigastrium, and emollient fomentations on the abdomen, should be added to the ordinary means. If the lungs, pleura, kidneys, or the other organs be painful and inflamed, it is towards the regions which they occupy, that we ought to direct both the local bleedings and topical emollients.

3d. *To remove from the wounded all those causes capable of provoking in them, internal inflammations.* We fulfil this indication by prescribing the rigorous execution of the precepts of hygiene. Thus, the wounded ought to be placed in buildings conveniently situated;

the wards in which they are put together, sufficiently elevated and large for the number of men which they contain, ought to be pierced by windows on the opposite walls, and furnished with ventilators: in this manner the atmosphere can be easily and frequently renewed. A simple alimentation, wholesome, proportioned to the state of the digestive organs, to the intensity of the affections, and the development of the forces, maintaining a sufficient nutrition without disturbing the exercise of the organic movements. It is important to preserve the wounded from all too intense passion, and especially from sad impressions. The proper dressings, and in which we employ only bleached linen and tow, without odour, and not damaged, preserve the good condition of the wounds, and favour their cicatrization. Finally, a small number of medicaments appropriated to different internal and external affections which often are manifested, are the agents which complete the series of remedies, the employment of which, the wounded most ordinarily require. Like nature, medicine ought to be simple, either in its instruments, or in its proceedings, and able to originate a

multitude of happy results, out of a very small number of divers actions. Experience has proved, besides, that during the latter campaigns, when the doctrine of Brown had a great number of partisans among the military officers of health,* that the hospitals deprived of emetics, of bark, and that crowd of irritating substances which has been so prodigally used; experience, I say, has proved, that these establishments not being able to furnish any thing but water, bread, wine, and broth, lost fewer of the wounded, than those where an assemblage of the greatest treasures of pharmacy might be found: a new proof, both of the power of hygienic means, and the abuse which they have made of excitants and tonics, in surgery as well as in medicine.

4th. *To combat the internal affections which complicate external injuries, when we have not been able to prevent their development.* Notwithstanding the employment of the means which have been mentioned above, it happens

* *Officiers de sante.*—This is a term applied to those persons whose duty, according to the reporters of the law, is the superintendance of such slight diseases as do not require the advice of the physician or surgeon. Their rank answers somewhat to that of surgeon apothecary in London.—*Trans.*

sometimes that the sympathetic inflammations produced by external affections, progress, and expose the lives of the sick. This result takes place, either because the local inflammation which succeeded the wound, being very violent, reacts with a great deal of force on the viscera, or because the inflammation of these last, has acquired a very high degree of intensity, from a predisposition of the subject, or by the action of foreign irritating causes.

In the first case, it is necessary to insist on the local anti-phlogistic treatment, and to endeavour in the end to combat the permanent causes of irritation which the part effected may contain.

In the second, the remedies against gastro-enterites and the other inflammations which are often joined to them, ought to be continued.

It is a general rule in pathology, that all sympathetic irritations, when they are violent, and when they do not yield to means employed to moderate the affection to which they have given birth, ought to be considered and treated as if they were primitive. Experience and reason accord to justify this maxim. It becomes ne-

cessary then, in all cases where the gastro-enterite is intense after the infliction of a wound, to direct against it all the efforts of art. We ought to act in the same manner when other important organs are the seat of the inflammation.

When, notwithstanding the employment of this method of treatment judiciously directed, the phenomena of adynamic fever are manifested, they indicate the prolongation and exasperation of the gastro-enterite. If the bleedings on the epigastrium have been sufficiently abundant and often, it is proper to exercise a powerful revulsion on the limbs: strong sinapisms to the feet, legs, and knees; frictions with very hot camphorated vinegar on the integuments; Spanish flies, with ammoniacal ointment, rubbed about the inner surface of the thighs, are the most active and most efficacious means which we can join to an anti-phlogistic treatment. The pulse and skin ought, nevertheless, to serve as a guide to the practitioner; as long as the first is hard and frequent, and the other presents a sharp and burning heat, it is necessary to insist on emollient medications; but when the pul-

sations diminish and become less quick, at the same time that the integuments loose their heat and the muscular forces disappear, the time when we should have recourse to revulsives has arrived, and we may employ with advantage, the tincture of bark, or other excitants to the exterior of the body.

The phenomena of ataxic fever may be developed in wounded persons, as well as in other patients, in two almost opposite manners. Among the greatest number of subjects, the gastro-enterite, sympathetically produced by an external injury, becomes very intense; it reacts then with force on the encephalon, and finding this organ already disposed to become the seat of a violent excitation, it irritates, and determines derangements more or less considerable in its functions. At other times, on the contrary, the sympathetic action, exercised by an external affection on the viscera, seems to affect at first, especially the brain, and to extend afterwards to the digestive canal, because of the powerful influence which the encephalon exercises over this organ. In the first case, the cerebral irritation may be considered as a tern-

ary affection, as it is the result of the gastro-enterite, produced by the wound itself; in the other, the inflammation of the stomach and the intestines occupies, on the contrary, only a third place, for it succeeds to the inflammation which the external affection has determined in the encephalon or its membranes. These distinctions are not simply speculative; they have facts for their base, and should be borne in mind in practice. The first of these varieties of the disease is recognised by the redness of the tongue, the dryness of the skin, the thirst, etc., preceding the appearance of disturbed ideas, irregular movements of the pulse, convulsions and other affections of the same kind. The second is characterized, by the reverse, because the phenomena depending on cerebral excitation, are manifested before those of gastro-enterite: these phenomena have moreover a violence more considerable than would seem to comport with the feeble intensity of this last affection. But, whether the disease first manifests itself by the stomach or by the brain, the observation of subjects whilst alive, and the examination of bodies after death, have proved that these two viscera

are effected when ever it has acquired its entire development. In taking for a model the description of M. Pinel, there is no more ataxic fever, than adynamic fever without gastro-enterite.

When the first of these diseases is manifested after a wound or an external inflammation, it is necessary, then, after having done all to moderate its violence, to apply leeches on the head and the epigastrium, placing them in the greatest number, or even exclusively on the parts which correspond to the seat of the first and most intense inflammation. It is in these very changeable affections, when the nervous system is especially affected, that revulsives procure often unexpected success.

Among the inflammations, besides the various shades of gastro-enterites, which most frequently complicate wounds, and which produce the greatest ravages in hospitals, acute colitis occupies the first place. It may confine itself to that degree of violence which we call diarrhœa, or it may arrive at such a degree as to form true dysenteries: it consists always in an active irritation of the large intestines, ordi-

narily produced by the use of bad aliments. It is proper, in consequence, to oppose it by a strict diet, and drinks containing some farinaceous and feculent substance, as rice water, white decoction, etc. A small quantity of opium, added to these liquids, is very useful, in as much as it tends to diminish the peristaltic motions of the small intestines, to retard the progress of alimentary substances in these organs, and to give a necessary repose to the last portions of the digestive canal, which the arrival of the fœcal materials constantly irritates. The local remedies the most suitable, are mucilaginous lavements, and, if the symptoms have a high degree of intensity, leeches applied to the anus, more or less considerable in number, according to the strength of the patients. It is by a similar treatment that Broussais can arrest in a few hours the most violent acute diarrhœas; and there is no doubt that the remedies of which this method is composed would produce the most happy effects, if we would make use of them in the army, to combat the epidemics, so frequent and so fatal, of that formidable disease. It is hardly necessary to add that when to the

symptoms of irritation of the large intestines are joined those which characterize inflammation of the superior part of the alimentary canal, the disease is more serious, and that it is necessary to unite to the medications which have been pointed out, those, the use of which gastro-enterite demands.

The details into which I have entered may seem minute to some persons ; but let the precepts on which I have thought it my duty to insist, be compared to the therapeutical methods still adopted by a great number of surgeons, and they will be convinced, I hope, of all their importance. Do they not every day see ippecacuanha used to combat the first stages of peritonites in cases of parturient women, and even those, which threaten the patients on whom the operation of cystotomy has been performed ? Is not an emetic recommended by the greatest number of writers, and administered in a baneful manner to patients having wounds of the head ? Do they not lavish tonics in every form, as soon as general debility complicates external irritations ? Do not the most powerful local stimulants yet appear too feeble to some practitioners to com-

bat the pretended passive inflammations which threaten to terminate by gangrene? Do not purgatives form a necessary part of the preparations which patients are required to submit to, who are about to undergo severe operations? In a word, does not surgery present a crowd of errors which compromises every day, both the interests of art, and the most sacred rights of humanity? The efforts employed for the refutation of these errors, and the establishment of truths which ought to occupy their place, will always be favourably received by men who think that medico-chirurgical theory and practice are still susceptible of improvement.

CHAPTER V.

Nervous affections determined by acute surgical lesions.

On the considerable development and powerful action of the nervous system in man, depend the manifestation of a great number of serious affections, in consequence of injuries produced by external bodies. When an animal has been wounded, almost always he remains easy and tranquil; no inquietude agitates him, and the phenomena of local irritation, likewise those of the sympathetic stimulation of the viscera are manifested without any thing occurring to prevent their appearance, interrupt their course, derange or prevent the order of their succession. This simplicity and regularity in the development of pathological phenomena is very rarely met with in man. The thousand circumstances by which he is attacked and which often strike his mind with terror; the exaggerated idea which he has of the danger of the wound, the passions which agitate him at the moment when he has been injured, are some of the causes, which

often, carrying with them a profound effect upon his nervous system, determine affections the most serious, and even death. It is true, that, on some occasions, opposite moral dispositions, seem to reanimate the subjects and prolong their lives: we have seen men in whom the mind has been borne up by fanaticism, or impressed with the idea that their wounds were trivial, become, in a manner, from this moral exaltation, this consoling hope, the preservation of their existence, after injuries, which, with others, would have been almost inevitably mortal.

The surgeon, like the physician, finds occasions when moral medicine can be employed with advantage. Thus, when the minds of the wounded are depressed by gloomy ideas, by the fear of imminent danger, or approaching death, he ought to combat all these, to prevent impressions so fatal. We have already done a great deal for the cure of the disease, when we have calmed these inquietudes, moderated these passions, and eased a too intense imagination. This indication is even urgent; and it is proper to be fulfilled, at the same time that we are oc-

cupied with the dressing of the wounds and the employment of means the most proper to prevent the local and general affections which often succeed them. When, on the contrary, the ideas of the patient are of such a nature as to conceal from him the seriousness of his disease, and to give him the hope of a happy recovery, it is important to cherish them, without neglecting on this account, the use of other more suitable means of treatment.

Among the most remarkable nervous affections which often complicate wounds, stupor, convulsions, traumatic tetanus and delirium are the most important, the most dangerous, and those only which will be considered in this chapter.

The *stupor*, ordinarily produced by a commotion or agitation of the nerves, is much more rare than we would be apt to think, after reading a great number of works on surgery. With the exception of those cases of wounds of the head, and direct commotion of the central parts of the nervous system, I have scarcely ever observed this affection. The stupor may be local or general. In the first case, the injured part

appears insensible, inert, and as if without life. The energy of the capillary vessels about it appears to be diminished; the integuments are cold; and very soon a livid engorgement which easily terminates by gangrene, manifests itself, and makes rapid progress. When the stupor is general, it produces a numbness accompanied with weight in the whole body; the visage is pale, sometimes yellowish and livid; intense coldness and shivering are manifested; the pulse is small, slow, and concentrated; we observe in fine, a sort of annihilation of all the organic actions and of all the functions.

These affections were attributed by the ancients to the deleterious action of projectiles put in motion by cannonry.

The stupor is ordinarily augmented by the terror of the patient; it may even depend almost entirely on this cause; at least we have observed phenomena not unlike those which characterize it, among persons who have happened to escape from very great dangers, notwithstanding they have not even received any wound. Often, the stupor is accompanied by a state of hebetude carried so far, that the patient cannot take any

interest in things which he ought to feel most. It was thus with the light-horseman, of whom Quesnay speaks; who, upon being asked if he would consent to have his leg cut off, answered, —that, that was none of his business.

The phenomena of stupor are ordinarily transient: to the concussion, and suspension of nervous action, succeeds very soon, among most patients, a strong reaction, which determines both the re-establishment of the heat of the skin, and the fulness and frequency of the pulse, the return of the general sensibility, and the development of the muscular forces. This change, sometimes takes place with such rapidity, that we have not time to oppose any remedy to the primitive affections. **But**, on some occasions, the state of stupor continues during many hours or even days, and we ought to put promptly in use, the means most proper to cause it to cease.

If for some time after wounds, the pulse is small and concentrated, the skin pale, cold, and shriveled, and the sensibility and contractility considerably weakened, the most pressing indication which the practitioner ought to fulfil, consists in restoring the forces, exciting the regular

action of the nervous system, and consequently that of the heart, the lungs, and the other organic apparatuses. Exciting substances, such as wine, infusions of linden, (*tilia europæa*,) distilled waters of canella, orange-tree flowers, ether, and other preparations of the same kind, are then administered with advantage. We obtain sufficiently excellent effects from warm frictions and superficial irritants on the skin. It is proper, in cases of local stupor, to direct especially tonics and stimulants towards the injured part. The practitioner ought to continue the employment of these means, until the state of stupor be completely removed; but as soon as the signs of sanguineous and nervous reaction are manifested, it is necessary to change the medication, and to have recourse to the general and local anti-phlogistic treatment which has been already mentioned, and the advantages of which I have many times already demonstrated.

One important remark which ought to be mentioned in this place, is, that we ought not to confound with stupor, either the state of insensibility and sinking which accompanies drunkenness, or the general prostration produced

by the strong sanguineous congestions of which the wounded viscera are frequently the seat. In the first case, the commemorative circumstances are sufficient to give light to a diagnostic, and the practitioner ought to wait for the cessation of the somnolency. In the second, the absence of all commotion, the manifestation of affections, not at the moment of the wound, but some time after, are the circumstances which ought to guide the surgeon, and direct him to employ general and local sanguineous depletions, sooner than exciting substances, which aggravate the disease in place of removing it.

Ordinarily produced, either by the lesion of some filament or some nervous trunk, or by the excess of pain of which the wounded and inflamed parts are the seat, *convulsions* constitute a very serious complication of external affections. Among certain very susceptible individuals, they have always a moral cause, as terror, or the impression produced by some spectacle of carnage and destruction. In the first case, it is necessary in order to put a stop to the convulsive movements, to make a section of the nerves, or to remove, by means of local bleedings and

emollient applications, the excess of irritation which produces them. Under the other circumstances, we obtain salutary effects from the administration of antispasmodics united with narcotics, and administered in small doses often repeated.

The causes of *tetanus* are still enveloped in a great deal of obscurity, and we are scarcely possessed of any positive knowledge, concerning the means of treatment which we ought to oppose to it. It appears nevertheless, that in almost all spasms, the affection depends constantly on an irritation of some important part of the economy.* Among the wounded, this irritation resides very often, no doubt, in the injured part itself: it is thus, that we see the tetanic rigidity manifest itself after wounds by tearing, and those which are accompanied by the dilaceration of very nervous and sensible parts; as the hands, the feet, and the neighborhood of articulations, etc. But causes of this kind are not those alone which can determine

* See the excellent article *Tetanos*, which M. Fournier-Poscay has inserted in the *Dictionnaire des sciences medicales*.

the affection of which we speak. Vicissitudes of heat and cold; the sudden suppression of the cutaneous transpiration; a gastrite more or less intense; the disturbance produced by intestinal worms; these are some of the circumstances which most frequently determine tetanus, even among subjects affected with wounds. It would be easy for me to cite observations where I have seen this disease provoked by each of the causes which I have enumerated. The wounded are much more exposed to tetanic affections, because they are more susceptible of impressions, and their nervous system is stimulated by the local lesion; finally, their sympathies are more active, and there exists already, a manifest disturbance in their organic actions.

Surgeons have committed a serious error, in wishing always to find in the wounds themselves, the causes of tetanus. A man, for example, is wounded on the finger; the wound, continuing to the tenth day, is a lively red, and covered by a healthy suppuration; there exists in the part neither sloughing, tumefaction, nor pain. In the mean while, the patient, after having taken exercise, lies down, fatigued, on

his bed, near an open window; he becomes chilly very soon; shiverings come on, and some hours after, tetanus is developed. They then lavish opium; they explore the wound in order to be certain that there is not any foreign body concealed in it; finally, they cut off the wounded part, and the patient dies. I demand, was it not absurd to search in the wound for the cause of tetanic affection? Did not this depend on the impression made by the cold on the integuments, and was it not developed after the same mechanism as the tetanus which destroys, under similar circumstances, children, and above all young negroes, between the tropics? How often have errors of this kind been committed, and how often have they not accused the wounds of provoking the tetanus which was manifestly determined by gastro-intestinal irritations! On some occasions, it has appeared to me that cold, falling upon the surface of solutions of continuity in a state of suppuration, could determine the affection of which we are speaking, by provoking a true metastasis of irritation to the central parts of the nervous system. Then, the wound becomes dried up, pale,

wan, and sometimes insensible, at the same time that the tetanic rigidity is developed and makes its progress.

In the same manner as surgeons for the most part have attributed tetanus to a single cause, some amongst them have wished to combat it by one common treatment applicable to all cases, thus joining to errors of theory, those a great deal more serious, of practice. Antispasmodics, opium in frightful doses, baths, sanguineous evacuations, have been employed over and over, and have procured some successes to a multitude of others the reverse. But if these means have been sometimes useful, they must necessarily have combatted the cause of the disease; and if observers could have enabled us to distinguish from all the others, the cases when this or that medication has succeeded, it would be actually possible to imitate them. But being deprived of this knowledge, we can only proceed by useless gropings in the dark, or by the often whimsical union of opposite medications. Hence, the hesitation of practitioners and the rarity of success. It is for pathological physiology, it is for those surgeons enlightened

by the new medical doctrine, to renew the history of tetanus. No doubt, that, to combat efficaciously this terrible affection, we ought to remove its true causes, and oppose proper means to each of them. It is thus that incisions, the section of nerves incompletely divided, the extraction of foreign bodies, and even the complete removal of the wounded parts, are sometimes necessary; it is thus that we can employ with advantage, when we are able to use with discernment, sometimes narcotics or vermifuges, sometimes diet and epigastric bleedings, finally, sometimes, sudorifics, baths, warm and stimulating frictions on the skin, etc.

To this treatment, variable according to the causes of the disease, it will be necessary, I think, to join bleedings produced by the application of leeches to the temples, the back of the neck, and along the spinal column. Every thing leads us to think, that, during tetanus, the brain, the spinal marrow, and the rachidian prolongation, are the seat of some irritation, or rather that the tetanic rigidity is no more than an effect of this irritation, which is itself determined by the stimulation of some other part of

the body. I have seen at Dresden, a soldier affected with tetanus, who presented all the signs of a considerable sanguineous cerebral congestion. I bled from the temporal artery, and all at once I observed his mouth open, his speech become free, and the general stiffness diminish a great deal. The symptoms, nevertheless, reappeared, and the patient died; but it serves to show how advantageous local bleedings might have then been. Of the rest of the plan of treatment which I have pointed out here, it has only reasoning and analogy in its favour; it is for experience to confirm or condemn the inductions on which it is founded.

Cerebral irritation, sympathetically determined by acute affections of the external parts of the body, sometimes gives place to a very remarkable affection, which has received the name of *traumatic delirium*. This delirium, characterized by a sort of moral exaltation, arises, either in consequence of wounds, or great operations. It manifests itself especially among nervous subjects, in whom the intellectual faculties are susceptible of receiving and retaining strong impressions. We observe it frequently

after attempts to commit suicide; among those patients who have made violent efforts to contain themselves or to affect a stoic courage during surgical operations; finally, in soldiers, after combats in which their valor and intrepidity have been depressed by great trials.

Traumatic delirium commences sometimes by unconnected words, and incoherent movements without motive. In the greatest number of cases, it takes complete possession of the patient. Sometimes we observe an extreme loquacity; the eyes are red and protruding, the visage animated, the movements of the limbs and body disorderly. The remembrance of the wound or the operation is entirely lost; and the nervous action is in a measure perverted, and we observe the patients disturb the affected parts, throw far off the pieces of dressing, and bruise, and mangle their wounds without manifesting any pain. We have seen the wounded in this deplorable state, walk on their fractured limbs, and on the projecting extremities of fragments; others take a barbarous pleasure in dividing their intestines through the abdominal wounds. It is not rare, in the army, to see soldiers run-

ning over the wards thinking themselves still on the field of battle. The men who have wished to put themselves to death, tear off with fury, the dressings which cover them, and renew their attempts at suicide. They are not sensible to the want of sleep; the patients remain vigilant as long as the excitement of their imagination is continued; the appetite is void; no excitation of the pulse, no febrile action is manifested; and the alvine evacuations take place with the same regularity as in the normal state.

The duration of this affection is very variable: sometimes it ceases in two or three hours; sometimes on the contrary, it agitates the patients for three or four days. It terminates ordinarily all at once, either by the recovery, or death of the patient. In the first case, its cessation is announced by a general oppression, and by a sleep of eight, twelve, or a greater number of hours; after which, we find the patient in a calm state, his reason returned, sensible of the pains produced by his wounds, and asking to be dressed, likewise not having any remembrance of that which he has experienced. When death takes place, which is rare, it happens

amidst the most violent agitation; we observe the forces then gradually diminish, the respiration become difficult, the pulse slow, and the vital actions become extinguished; the delirium, nevertheless, continues to the last moments. The bodies of patients who have sunk in this singular state, have not offered any constant affection, either of the brain, or the other viscera of the economy.

In considering both the temperament of individuals who are especially exposed to traumatic delirium, and the cause likewise, and the symptoms of this affection, it becomes incontestable that it depends on a cerebral super-excitation. It constitutes a true temporary madness, produced on the one hand, by the moral commotion which the individual has experienced at the time of the wound, and on the other, by the sympathetic excitation which the wound determines in the central parts of the nervous system. Pathological physiology explains these phenomena in the most satisfactory manner: this is a new proof of the importance of its study to the surgeon.

We have combatted traumatic delirium with anodynes, antispasmodics, revulsives, and bleedings pushed so far as to produce fainting, without these remedies having manifestly exercised any influence on the progress of this affection. M. Dupuytren, who has for a long time devoted the whole of his attention to the subject, has combatted it with the greatest success, by means of the laudanum of Sydenham injected into the rectum, in the dose of eight or ten drops mixed in two or three ounces of mucilage. These lavements, which are easily prepared, are to be repeated three or four times in the interval of five or six hours: they suffice almost always to produce sleep and restore perfect tranquility.*

The disease alluded to, consisting of a violent excitation of cerebral action without profound lesion of the tissue of the brain, narcotics ought to succeed better in its treatment than other soothing substances, and even bleedings. I am, nevertheless, disposed to think, that leeches placed on the back of the neck, at the same

* *Annuaire medico-chirurgical des hopitaux et hospices civils de Paris*, tom. 1, p. 145.

time that we cover the head with ice and place the feet in a hot bath or envelop them with sinapisms, will succeed as well. But as the method which we have pointed out, and which is very simple in its application, procures almost constant success, we should not substitute for it, another, before we have put the same in use.

However strange it may seem, it is very remarkable, that the preparations of opium have an action more rapid and more energetic when introduced into the rectum, than when they are administered by the mouth. I have had sufficiently frequent occasions for employing this medication, and I ordinarily employ a solution of gum opium for that purpose. Injected through the anus, this substance produces sleep, without determining the general excitation which we so often observe when it is made to come in contact with the stomach. Does this phenomenon depend upon this: that the nerves of the rectum have a peculiar susceptibility for transmitting the effects of opium, or, which is more probable, the intestines being deprived of the digestive faculty, alter this medicament less than the

stomach? This question is difficult to solve. It is proper to observe, that, in a great number of cases, the stomach being irritated, without the practitioners having taken account of this state, they have considered the results of the impressions made by that substance on the inflamed membrane of the stomach, as the phenomena depending upon the action of opium. Administered by the rectum, when it is in a normal state, narcotics have none of these inconveniences. Could we not employ them with advantage, in this way, in certain cases of madness? Analogy permits us to suppose so; but experience alone can give it demonstration.

CHAPTER VI.

Local alterations determined by chronic surgical lesions.

Under the title of chronic surgical lesions, I comprehend those which affect the external parts of the body, and in which the duration, almost always undetermined, continues for some time. This definition is not strict, and has no need to be so, for the end which I propose to attain: it is sufficient for me to have examined in the preceding chapters, the primitive, local, and sympathetic phenomena produced by acute surgical diseases, and to have established the basis of their treatment. If nothing complicates these affections, if there should arise no unforeseen accident, simple dressings, aided by a suitable regimen, are sufficient to conduct the patients to a recovery, in which nature herself effects almost all. I have then, no more need of occupying myself with them. In the following chapters I will give a history of the diseases which have not had a place in the preceding category, and in which, their march,

far from tending to a recovery, seems to consist, on the contrary, in making always increasing progress.

Nearly all chronic surgical diseases are formed by different irritations, fixed on certain organs, and extending themselves, ordinarily, to many tissues. Wounds which suppurate, ulcers, tumours produced either by engorgement of the lymphatic ganglions, or by the afflux and solidification of the fluids in the capillary vessels, or in the cellular areolæ; the numerous lesions of articular parts, which some have hitherto confounded under the name of *white swelling*; ulcerations of the bones, hydrops articularum, ulcerations produced by the residence of foreign bodies in living parts; fistulas formed by the perforation of the excretory canals or the reservoirs of certain fluids, such as the tears, the saliva, the bile, the urine, the stercoral materials, etc.; all those diseases which occupy almost all surgical nosographies, are evidently the result of chronic inflammation of the organs of which they are the seat, or at least, inflammation formes their principal character. These affections, among the greatest number of individuals,

succeeding wounds or acute inflammations, present the fundamental phenomena of irritation: they give place to pain, swelling, suppuration, and all the symptoms which accompany the too intense excitation of the organic movements.

Diseases, even those which seem to remove most positively all idea of irritation, as necroses, varices, infiltrations called passive, either of blood or serum, in the cellular tissue, muscular or fibrous relaxations, etc., are complicated very easily, and very frequently, with an irritation more or less intense. It is for this reason, that after necroses, often produced themselves by phlegmasiæ, the tissues which cover the dead portion of bone, are constantly inflamed and ulcerated: Varicose veins become, in a great many individuals, the seat of an inflammation which has for its effect, the destruction of the coats of these vessels, and the effusion of the fluid which they contain. The parts distended by the blood or by the serosity in hemorrhoids, or in anasarca, become easily red, hot, and painful, by the irritation which these fluids determine by dilating them beyond their proper size.

Finally, the fibrous or muscular relaxations, have often for effect, the fatigue of the articulations and shortly the inflammation of the ligaments, the cartilages, and the synovial membranes. Finally, every where, in surgical diseases as well as in those which are under the exclusive influence of internal medicine, we find evident phenomena of local super-excitation; and it is on the exterior as well as in the interior of the body, through means of chronic inflammation, that the affected tissues are ulcerated, destroyed, or acquiring new qualities, are transformed into abnormal tissues more or less estranged from the primitive type of their organization.

Among the diseases which I enumerate, there are some on which it is important to fix especially the attention of practitioners, because the physiologico-pathological principles which concern them, are not yet universally adopted, and many surgeons, having embraced incorrect theories, are far from combatting them by means the most suitable and most efficacious. Those diseases are scrofula, chronic inflammations of the joints, and cancer.

1st. *Of scrofula.* I think I have demonstrated and placed beyond all contention, that principle already admitted by Girtanner, that the lymphatic temperament is exclusively owing, to the excessive development and predominance of action, of the system formed by the ganglions and lymphatic vessels.* To this general disposition is joined, almost always, the exuberant nutrition of the cellular, adipose, and fibrous tissues; likewise the greatest activity of all the organs charged with mucous, serous and synovial secretions. In a word, in the lymphatic temperament, the white tissues seem to subdue by their extent, the organs which the blood animates almost exclusively, as the muscles; and the white elaborations prevail in energy, over the hæmatisation, which remains imperfect, and languishes.

These general propositions being admitted, it is incontestable, that the disposition to scrofula consists in the too great irritability of the lymphatic vessels and ganglions, and that scrofula

* Principes generaux de physiologie pathologique, in 8vo. Paris, 1821.

itself, is nothing more than irritations of these parts, more or less intense. Broussais has given to this disease the name of sub-inflammation; but this word is inexact, in as much as it does not indicate the part which is especially affected. I think then, we should prefer that of ganglionitis, which is better adapted to the nature and seat of the disease.

Those are its subjects, in whom we observe the lymphatic ganglions of the neck or of all the other parts of the body swollen, at the same time that they become hot and painful, and the redness of their tissue is propagated to the integuments which cover them. Ganglionitis is then manifested: irritation and inflammation are announced by unequivocal signs; and emollient applications, likewise local bleedings, have almost constant success. Is the *nature* of the disease changed when the same tumours are not accompanied by redness of the skin, and the pain is less intense and the heat less considerable? It is impossible to admit it; for, even in these cases, the tumefaction has presented, in its beginning, evident phenomena of irritation; phenomena which it is easy to renew by

making use of irritating substances, and which may reappear spontaneously after a time more or less long, when the tumour softens and is converted into an abscess.

For the most part, the inflammations of internal ganglions depend on the inflammation of the mucous membranes on which are opened the lymphatic vessels which return to the organs affected. External ganglionites occur from analogous causes. It is ordinarily in consequence of irritations of the integuments of the skull, or of those of the gums and the mouth, at the period of dentition, that the ganglions of the neck among infants become inflamed. We see very often, the ganglions of the axillas and groins become inflamed and even turn into abscesses, after wounds, inflammations, or ulcerations of the fingers or toes. Now, all these ganglionites accidentally at first acute, persist, frequently, in individuals eminently lymphatic; and, when they become chronic, long after the causes which determined their appearance have ceased to act, they give them the insignificant and barbarous name of scrofula; they mistake their origin, and oppose to them a treatment the

most empirical and unreasonable. Nevertheless, the same vital modification which characterizes them at first, protracts them. It is the same when the ganglions are tumified on the exterior, without a known cause, and with more or less slowness. In effect, whether the ganglionites be accompanied or not by redness and pain, it constitutes only an accessory circumstance, which does not change at all, the nature of the disease; it proves only, that among certain individuals, the irritation is more intense, the congestion more rapid, and the sanguinious capillary vessels more stimulated, than amongst others. That which is fundamental, is the afflux of the fluids towards the parts; it is the morbid action which operates on these, and which announces always the existence of local irritation; for irritation alone can attract the the materials of nutrition to some points in a greater quantity than to others.*

* The view which Broussais takes of the manner in which the affection called scrofulous, takes place, deserves a place here. "In the human economy," says he, "there are a certain number of tissues, on which nature has bestowed but little irritability, which receive but few blood-vessels and nerves, and which remain unaffected by most of the emotions that we experience in the normal state. The sympathies of these appear latent, and inflamma-

§ II. *Of chronic inflammations of the joints.*

Authors have established different theories relative to diseases of this kind. Confounded under

tion attacks them more rarely than it does any of the others ; in arranging these tissues according to the inverse order of their vitality, we find the cellular tissue, the lymphatic system, of which the ganglions constitute the most complex part, the periosteum, the ligaments, the cartilages and the bones. In a well-organized adult, these tissues rarely and with difficulty become inflamed, and they always receive irritation from those that are more sanguineous more nervous and more irritable than themselves. In infancy, they are more readily irritated, the lymphatic system always feels very promptly any irritation of the surfaces of relation of the parenchymatous secretories, and soon contracts an inflammation, more considerable than that of the tissues from which the irritation had been transmitted to it. Nevertheless, this disposition varies according to the constitution of the patients; those in whom it is most marked are called *scrofulous* ; in them the skin and mucous openings are more irritable than in other children; the mucous and sebaceous follicles, and generally all the secreting capsules are also very irritable ; and the slightest phlogosis of these tissues heats and tumefies the adjoining capsules, as well as the lymphatic vessels which communicate with them. The neighboring cellular tissues are more or less implicated.

However, these irritations, far from advancing rapidly to supuration, become chronic, produce lymphatic tumefactions, which are more or less voluminous, and of various shapes, and cause disorganization very slowly.

Such is the first grade of the scrofulous disposition or diathesis. Its effects, as has been seen, are confined to the soft tissues of the periphery of the body ; the most striking fact it appears to us is, that these tissues are more irritable than they ought to be, and this even reaches such a degree that the action of cold on the skin, or the most trifling contusion, are sufficient to develop scrofulous sub-inflammations. Nevertheless, tissues which are more deeply situated, more dense and less vital, are not yet affected ; but, in a higher grade of the diathesis in question, they soon become so ; the periosteum, ligaments, cartilages, and bones, lose their density and their insensibility, and become the seat of white or lymphatic tumefactions ; true sub-inflammations, having still

the most ridiculous name of white swellings, they have been considered as the incomprehensible results of the development of a pretended

less heat than the preceding, and in which disorganization is still more difficult.

Let us examine this new fact without any bias, and as if we had forgotten all that has been written on it by authors. What do we observe? Is it not dependent on a vicious irritability of the tissues in question? Is it not from their want of cohesion, or their too great aptitude to soften and swell, in short, to their propensity to lose their peculiar character of insensibility and immobility, and to assume those of the other tissues, which they formerly resembled when in the fetal state, and from which, according to general opinion, they had definitively diverged? Is not the above the idea that would be formed of these diseases, by a person versed in anatomical knowledge, and habituated to rely on what he saw, if he had never heard of strumous virus or principles, of scrofulous humours, and of all the entities which the spirit of hypothesis has invented as respects this disease? Such a person would pity the unhappy sufferers afflicted with a white swelling of the articulations, from a fall on the elbows, the wrists, or the knees, not that their blood was impure, but for not having their bones and ligaments sufficiently solid, for having them too much allied to the constitution of the soft parts. Well! this person we think would have a much juster idea of the scrofulous state than the authors of all the nosological works we possess on this disease.

But what then is rachitis? It is still, in our view of the subject, the most palpable proof we can adduce to prove the assertion we have just made. There are young patients in whom the combination of the phosphate of lime with the gelatine of the bones is not sufficiently strong, sufficiently perfect, to prevent the weight of the body, the pressure of the viscera, or the constant contraction of the muscles, from causing the separation of solidifying salt. But compare this separation with that which happens to a bone in a vigorous adult, in whom the periosteum and the medullary tissues are inflamed; will you deny, in the latter case, that the inflammation of tissues closely attached to the bones and penetrating into their parenchyma, has not introduced irritation there, and that it was not by awakening their irritability that the phosphate of lime in them was separated? Certainly you cannot deny

scrofulous, gouty or rheumatic defect. They have made themselves ridiculous by explaining their formation and progress, and their different characters, by the accretion of the lymph, the debility of the affected parts, the obstruction of the vessels, etc. None of these hypotheses can stand a rigid examination; and none have been generally adopted by practitioners. These impure remains of a humoral and ontological pa-

these propositions. Well! add to this fact the cases where the two fragments of a broken bone become soft, that is, lose their phosphate of lime during the inflammation, and regain it when this action has disappeared: will it not result, that it is in losing their irritability that the gelatinous tissues, formed to be associated with the calcareous phosphate, can unite with this salt in infancy, and that, if by accident, they should recover this irritability, it necessarily happens that this phosphate must a second time be separated from them?

With such data, the fact of osteo-malaxis is as well explained as it can be: children in whom the osseous parenchymata retain irritability for a long time, are subject to softening, that is, to the separation or reabsorption of the phosphate of lime in such of their bones as are most exposed to irritation. It is in consequence of this law that we see osteo-malaxis developed in them in the regions of the spinal column, and the lower extremities, which support the greatest weight, and that phlegmasiæ which attack their articulations, induce more or less softening and tumefaction of these parts.

It is hence evident, that the principle of scrofula is the same as that of osteo-malaxis, and that if these two modes of alteration do not always act in concert, the difference can only arise from the degree of the vicious irritability, which we have mentioned, and the direction accidentally taken by the causes capable of inducing an attack of the disease. Principles of Physiolog. Med.

—*Trans.*

thology, are still found in works on surgery, the most recent, the most esteemed and the most extensively used. They reckon, even in our days, to the reproach of science, partisans who defend them with so much more violence, as they know that the period of their entire obliteration is not far off.

Study the causes, examine the beginning, follow the progress of articular lesions, and you will acquire easily the conviction that they are the result of a more or less intense inflammation of the affected parts. At first acute, and determined by some external violence, this inflammation is continued to the chronic state; primitively fixed on those tissues which environ or constitute the joint, it is gradually extended to others, and finishes by disorganizing completely the whole articulation. Considered in relation to their seat, articular inflammations may attack: 1st. The cellulo-fibrous tissue which covers the articulations; 2nd: The ligaments proper to the joints themselves; 3d: The periosteum on the extremities of the bones; 4th: The synovial membranes; 5th: The cartilages;

6th: The bones themselves.* If we make post mortem examinations at different periods of the duration of the disease, we will find constantly in one of the tissues designated, alterations more or less profound: such as thickenings, purulent infiltrations, *ramollissements*, ulcerations, or scirrhus, cancerous, melanose, or other degeneracies. Now, these disorders are constantly the product of a local inflammation. And, after the disease has made more or less considerable progress, we find the parts primitively affected, more or less completely disorganized, and the disorder extending itself more or less far in the other tissues, either to the exterior or the interior of the articulation. It is thus, that I have seen knees in which inflammation had required the amputation of the leg, present in some subjects, only a deep erosion of the articular cartilages; among others, *ramol-*

* This manner of studying articular inflammation is that alone which can permit us to give a satisfactory account of the phenomena of the disease, and to oppose to it a methodical treatment. The irritation, the inflammation and disorganization of each of the parts enumerated, are announced by particular signs which it is important to observe with care, and which furnish sure bases to the diagnosis and prognosis of the affection. I have demonstrated the advantages of the classification alluded to, in the article *Arthrocece*, in the *Dictionnaire abrege des sciences medicales*.

lissements, or fungous degeneracies of the ligaments, etc. Who has not observed, after chronic inflammations of the coxo-femoral articulation, sometimes the cartilages, sometimes the bones, sometimes the articular capsule, eroded, destroyed, or converted into a lardaceous substance? These varieties are multiplied almost *ad infinitum*; but it is only by studying with attention the progress of inflammation that we can form correct ideas of the nature, the extent and danger of the diseases which it constitutes.

§ III. *Of Cancer.* It would be of but little use to repeat here, for the sake of combatting them, the numerous and often incoherent opinions of physicians, on the nature of cancerous affections. The most recent, and perhaps, the least reasonable of the theories promulgated on this subject, is that which makes cancer to consist in a new organ, formed out of all the constituents of our parts, and which is developed in us like a parasitic plant, to which nothing has served as a germ. This metaphysical hypothesis, founded on a most excessive ignorance of the laws of the organization, is al-

ready almost entirely obliterated. Broussais has well demonstrated the imperfections, I might almost say the absurdity, which a small number of physicians, enthusiasts of Bayle, and confiders in the school of pathological anatomy of which he became in some sort the head, dare still alone to maintain, and to resist at the same time, better contested facts, and reasonings the most peremptory.

Chirurgical nosography, which appears to be the last refuge of all the errors which physicians have recently abjured, and which sees its editions multiply without participating in the progress of science; chirurgical nosography has preserved with care, the division of diseases into class, order, genera, and species. Amongst these genera, we find those of primitive tubercles and cancers, or those created spontaneously in the living parts, without these parts themselves having any thing in them to serve for the formation of these new productions. If it is curious to observe how the human mind can discard the voice of observation and logic, it is a great deal more so to observe, how it can

persist in its obstinacy in caressing ancient chimeras, and rejecting recent truths.

Nevertheless, nature seems to have undertaken the task of pointing out to those who observe without prejudice, what are the origin and progress of cancerous affections. She shows that almost all tumours of this kind are the result, more or less distant, of external violences directed against the parts of which they are the seat. The inflammation, at first acute, which has succeeded to these physical lesions, is only imperfectly removed, and a slight circumscribed engorgement, more or less solid and painful, succeeds it; which indicates, that a portion of tissue, more contused than the rest, has preserved the irritation, after all that which environs it, is restored to its normal state. If the rest of the irritation is methodically combated, a recovery is achieved; but if the disease is neglected, and, for a stronger reason, if we apply on the tumour irritating substances, it makes rapid progress; the fluids flow towards it in a greater quantity from the new degrees of stimulation which it acquires, and its development becomes considerable.

If any one pretends, that this theory is not an exact and rigorous expression of facts, new observations can be brought forward which can confirm its correctness. The external tissues of the body being frequently the seat of chronic inflammations, we see these diseases, when they are prolonged for a time more or less continued, determine notable changes in the nutrition of the parts affected. The heat, redness, and pain, signs of acute inflammation, disappear insensibly; the irritated tissues become more dense, more thick, and more compact than in their natural state; they seem to solidify themselves, to use the expression, and they acquire, in fine, the characters of that which we have designated, under the name of organic production, with or without analogy in the living economy.

Whilst the irritation continues to act, either because we have not given any thing to remove it, or because we have exasperated it by the application of irritating substances, we observe the tumour become infiltrated with a yellow serum, or a pulpy and whitish matter: the areolæ seem to dig into its tissue, and the latter,

compressed on all sides, finally disappears. The tumour is then converted into a cerebriform pulctaceous, melanose, or other mass.

Transformations of this kind operate constantly from the centre to the circumference of the affected parts, that is to say upon the portions of tissue which have been irritated first, to those which the inflammation has invaded only secondarily. This pathological labour operates at first with leniency and without determining intense pains; but when it is advanced, that is to say, when the *ramollissement* commences, the pains are awakened, the acute inflammation is renewed, and hæmorrhages take place in the middle of the tumour. Then a decomposing action seems to take possession of the latter; the parts which cover it are ulcerated, and the sore which they form, ordinarily covered with bleeding funguses and furnishing an abundant putrid ichor, makes more or less considerable progress, and carries the patient inevitably to the tomb.

These details of pathological anatomy are not founded on vain suppositions; they have not alone for their bases the researches of Broussais and his disciples, whom they might

accuse of prejudice; they repose on the labours and description of Bayle, Laennec, and anatomists who have occupied themselves of late with the greatest success, in the study of morbid organic productions.

We may then divide the progress of cancerous affections into four periods; which are, 1st., that of the passage of the inflammation from the acute to the chronic state; 2d., that of the thickening, the solidification of the tissues, and the development of the scirrhus state; 3d., that of the infiltration into the cellulo-fibrous interstices of the scirrhus, of a serous or pulctaceous matter, which distends, compresses, and destroys them, and finishes by producing a *ramollissement* of the entire mass; 4th., lastly, that of the renewal of the acute inflammation, which determines the ulceration and destruction of the parts which cover and border upon the tumour.

There is a point in this theory which merits especially to fix the attention of practitioners; it is the mechanism by which the *ramollissement* of the fibrous or scirrhus tissues which degenerate into cancer is produced. It appears to me, that the *ramollissement* is always the

result of an infiltration, of which the morbid tissue is the seat. We find, in effect, tumours hard and a little old, formed by a whitish shining tissue, composed itself of laminæ, or of concentric fibres, crossing each other diversedly, and cracking under the bistoury. In proportion as we examine these tumours at a period more advanced, and especially when the lancinating pains have become sensible, we find the original and firm state of the morbid tissue more altered by serous or pulpy matter. The entire mass being divided, it is easy then, by squeezing it as we would an orange, to press out the infiltrated substance, which leaves bare the fibrous elements of the tumour. Finally, at a period still more distant from the origin of the disease, we find the pulctaceous matter collected almost alone in the centre of the cancerous mass, the other parts preserving still a certain degree of solidity. The intense pains which are then manifested, the renewal of acute irritation, the exhalation of blood in the cancerous place, and the hæmorrhages produced by the rupture of vessels, depend, probably, both on the compression of the fibrous portion of the

morbid tissue, and the decomposition* of the cancerous mass, and finally by the stimulation exercised by it on the parts which circumscribe it.

It may be objected, perhaps, that the preceding theoretical explications, applicable to cancerous degeneracies of organs, cannot be applicable to spontaneous productions of tubercles and cancers. This objection is more special than solid; for it is impossible for any man who observes and who reasons, to admit, that cancerous organs are able to spring forth *spontaneously*, and to develop themselves without causes in our parts. Irritating actions, more or less active, have preceded their appearance; and when, they are developed, the cancerous tumours seem to destroy the neighbouring tissues, to wear them out by compression, without having any direct communication with them; they constitute a special form of the disease, but nothing proves that they originate sponta-

* By the term decomposition, I do not mean either a chemical decomposition, or a putrid alteration; I wish to designate the change of properties which the increased vital action, or irritation, impresses on the nutritive materials which it has made to abound in the parts, and on the morbid tissues, which it has, we may say, created.

neously. When, after an inflammatory engorgement more or less considerable, there remains in the parts, a hard, solid and moveable kernel, it may, and often does happen, that the small tumour, instead of encroaching successively, and spreading itself, to use the expression, in the neighbouring parts, increases itself by means of the vessels which penetrate it, and the irritation of which it is the seat enlarges it more every day. Then, its development takes place from the centre to the circumference, and its periphery remains distinct from the middle of the tissues which it displaces. It is almost always in this manner, that the fibrous tumours implanted either in the aponeuroses, the ligaments, or the bones, or in the mucous membranes, are formed and extended; and in the mean time we never think of presenting these tumours, as spontaneous organic productions, and to which, no tissue, no vessel, has served as the origin. The schirrhæ developed in the lymphatic ganglions, and of which the base is fibrous, are almost always in the same situation, and becoming softened, form among many indivi-

duals, those circumscribed cancers of which we have spoken so much.

Finally, the authors of monographies on cancer, have insisted a great deal on the infiltration of the cancerous matter into the meshes of the primitive tissues, in which they could recognize the structure disencumbering itself of the foreign substance which overloaded it. But in admitting the accuracy of this fact, what does it prove? Nothing else, than that under some circumstances, and amongst certain individuals, the fluids which the irritation called for, and which the affected part modified in this manner were deposited in the substance of the organs, not yet altered, being able then to acquire that pulpy softness, which we consider as one of the essential characteristics of softened cancer.— But if we admit, that this whitish pulp belongs exclusively to cancerous affections, these affections will be indeed more frequent than authors think.

After almost all chronic enterites, we find in the mesentery, ganglions disorganized, softened, and containing nothing more than a similar matter. This last is met with often enough, in

certain cellular engorgements on the exterior of the body. In all these cases, there is a formation of a pulctaceous matter, through the influence of local irritation; but this pulp is not of a cancerous nature, and the cancers diffused by infiltration, of which we have spoken, do not appear to me to exist naturally.

Do I speak here of cutaneous cancers, or of phagedenic ulcers? These terrible diseases, the progress of which it is so difficult to arrest, are indeed manifestly the result of a local irritation, and most ordinarily produced, by stimulation a long time continued, by solutions of continuity which nothing indicated as having a tendency to assume this character. It is thus that wounds of the face at first simple, vesicatories, those more superficial still, have acquired in consequence of the prolonged abuse of irritating substances, the phagedenic character. The cancerous pimples of which all authors speak, are not followed, for the most part, by the phenomena which succeed them, if the patients, instead of tearing their summits and the crust which is renewed on their surfaces, cover them with topical emollients, and above all, abstain

from irritating them. It is not until after a while, that is to say, until the ulcer is developed, that we recognize that the pimple which has given birth to it, was cancerous; knowledge which it is, nevertheless, neither difficult nor profitable to acquire, since the evil is done, and only requires to be combatted.*

* On the subject of cancer, Broussais makes the following remarks:—"When an eroding ulcer occurs at the surface of the body, physicians endeavour to discover its cause. If they can suspect a venereal, scrofulous, herpetic or other principle, for there are many other species of it, the ulcer is named and treated accordingly. If it be cured, it retains its epithet; if all attempts to arrest its progress are vain, it is declared to be cancerous. It even sometimes happens that it is necessary to recal this last epithet in consequence of its having been given too soon; and it is necessary to do that whenever the disease is cured, since it is agreed that cancer is incurable.

When no cause could be assigned for inflammations which were supposed to arise from a *humoral* principle, curable by specifics and depuratives, and in cases where the eroding ulcer was formed on a chronic engorgement, the title of cancer was at first bestowed on it; if, however, notwithstanding the prognosis of the physician, the patient was so fortunate as to recover, the first diagnosis was obliged to be abandoned, and if the ulcer could not be attributed to any virus or any morbid principle, it was finally said that it was an ulcer simulating cancer, but not of the same nature as that disease; and all this because cancer must necessarily be an incurable disease.

That a disease termed cancer should exist, which must necessarily be beyond all the resources of art, is what a young physician would readily suppose at first; but when he demands the distinctive characters of this disease, no one can give them to him; no practitioner knows whether an external ulcer was really of a cancerous nature, until the death or cure of the patient revealed to him this great mystery.

The appearance of the ulcerated surface not furnishing suf-

CHAPTER VII.

Local treatment of Chronic Surgical Diseases.

The theoretical principles exposed in the pre-

ficient data for the solution of the question, physicians have had recourse to the subjacent tumefaction. They undertook to assign characters to it, but did not agree what these characters were. Some thought it must necessarily be a medullary sarcoma, a kind of opaque lymphatic tumefaction, having some relation in colour and consistence to the brain; others that it was a lardaceous tissue; some preferred attributing it to a tissue having a fibrous appearance, formed of gelatine, resembling the pulp of an orange, (all the tissues may in fact partake in the ulceration of the skin, or of any other membrane of relation;) but eroding and incurable ulcers were also pointed out to them, developed on the surface of the skin and external mucous membranes, without any of these tissues having been previously formed. At the present time we can show them encephaloid, lardaceous, and scirrhus masses, some of which have been removed by the knife, and others have been cured by the application of leeches.

It may also be demanded of them, why, if there must always exist one of their tissues privileged for the formation of cancer, they do not give this name to scrofulous, scorbutic, leprous or herpetic ulcers, &c. when all their endeavours to cure them have been ineffectual. The same question may be put to them as regards all ulcerations which they do not attribute to any virus, and it will be seen that their answers will always be uncertain. They have no means of ascertaining either by the touch in feeling the tumour, or by the appearance of the ulcer, whether it will be cured or not, and as the essence of cancer is in its incurability, they cannot give or withhold this name till after the event.

Such was still the state of the science when the propositions in the *Examination of Medical Doctrines* appeared, for what the author had already written some years previous on the same subject had not made a sufficient impression. The erroneous circle in which medical men revolved, in reasoning on phthisis pul-

ceding chapter, and the exactness of which, the physiological doctrine has placed beyond doubt, are of the highest importance in surgery. They

monalis, equally served them as regarded the theory of cancer, and it was to free medicine from these disgraceful ambiguities, these shocking contradictions, that the author having given in a detailed manner in the *Examination of Medical Doctrines*, all the demonstrations which the nature of these two diseases appeared to him susceptible of, made a summary of them and inserted them in his general propositions. We have seen, in the proper place, those which related to phthisis pulmonalis; as to those under consideration, we have but little to say to explain them, it will be sufficient to refer to facts in as concise a manner as a subject will admit.

All chronic inflammations of the surface of the body, may, if immediately irritated whilst the gastric passages are stimulated, be converted into eroding ulcers; and these ulcers, becoming incurable by the destruction which they have occasioned, by the depth to which they have penetrated, as well as by the progress of the concomitant visceral irritation, become what authors have called cancers.

All external sub-inflammations are not precisely in the same predicament, because there are some among them, of such an indolent nature, that nothing can develop in them the degree of irritation necessary to induce the disorganizing phlegmasia.

As to phlegmasiæ of the viscera, it is seldom that they are so destitute of irritability that stimulation will not produce the eroding and disorganizing state in them, when it is repeated violently and incessantly. The only exceptions to this rule are the white or lymphatic engorgements, situated beyond the influence of irritants in the gastric passages, as tumefactions of the ovaries, those of the inter-visceral fatty tissues, which are often insensible to the stimulation of the internal surfaces of relation; we sometimes see them continue during life without undergoing the cancerous degeneration. There are cases, however, where their volume have occasioned their adhesion to the skin, this being more irritable and sanguineous than they are, and being excessively distended, is attacked with a chronic phlegmasia, which first ulcerates it, and after having destroyed it, reaches the hitherto indolent tumour, and invests it with the cancerous character.

throw strong lights on the treatment of that multitude of diseases to which they opposed almost nothing but general or local excitants, destined to dissolve the lymph, to correct the acrimony of the fluids, to give strength to the vessels to disencumber themselves of the matters which engorged them, finally, to render to all the parts the *tone* of which they supposed them to be deprived. These indications, which are still proposed in certain chirographical nosographies, and of which the system of Brown, or a loathesome humorism has furnished the basis, do not merit any more to be com-

The same alteration may take place in these tumours, from the ulcerated surfaces of internal mucous membranes, when they are situated sufficiently near to each other. It is thus that the tumours of the bronchial ganglions, which for a very long time were preserved exempt from any solution of continuity, may be implicated by an ulceration of the mucous membrane of the bronchiæ, which, after having destroyed this membrane, attacks the gland which adheres to it, and penetrates more or less into its substance.

The same disorder may invade the liver or the spleen, when ulceration has perforated the stomach or an intestine adhering to these indurated parenchymata.

It is only very dry or very moist engorgements which cannot be attacked by the disorganizing phlegmasia, and which are in no danger of cancer. Finally, to terminate by the most general fact, all chronic inflammations and sub-inflammations susceptible of being exasperated by the action of stimulants, may, if they be long subjected to this proof, be converted into cancers." Elements of Physiolog. Med.—*Trans.*

batted; they are in plain opposition to the least contested progress of pathology and pathological physiology. The details into which I have entered concerning the nature of those diseases to which they are applied, exempt me from discussing them here anew: the antiquated materials of the systems from which they are deduced being overturned, the practical consequences of those systems ought to be annihilated.

It has resulted from the preceding discussions, that irritation is the nearest cause of most of the affections which the surgeon ought to treat. It remains for me to examine what are actually the means, in general, the most proper to remove this irritation, and by what rules it becomes us to proceed, to cure the principal diseases which it constitutes.

For the most part, ulcers which are not continued, either by foreign bodies or local alterations which oppose mechanically their cicatrization, or by general disorders in the constitution of the patients, yield to the use of simple dressings, suitable hygienic means, and a regimen adapted to the state of the digestive or-

gans. When the solutions of continuity alluded to, are covered with granulations that are pale, fungous, soft, insensible, and bathed with a serous and badly elaborated pus, the cicatrization not progressing, if the patient is feeble without presenting the signs of visceral excitation, it is indicative of the internal administration of tonic substances and of having recourse locally to stimulating applications. Among patients placed under such circumstances, the ulcer presents a manifest irritation, but which is too feeble to cause the affected parts to undergo the successive transformations which the organization of the cicatrice requires. The tissue of this last has need, like the callus of bones, for a degree of inflammation sufficiently considerable for it to be formed; and in those cases where this inflammation does not exist, it is necessary to produce artificially, an excitation of the wound by pledgets soaked in wine, the decoction of bark, alcohol, the application of fused nitrate of silver, and even by the aid of direct cauterization.

To admit the existence of atonic ulcers, is to suppose that feebleness can destroy the continuity of the parts; that which is opposed to all

the laws of animal organization. It is true, that a state of general or local debility favours the action of the irritating causes which determined the ulceration ; but the latter is not less the incontestable result of the stimulation of the affected parts. Whether this irritation be feeble or considerable, its existence is not less attested by the presence even of the solution of continuity which it has produced and which it maintains. If they had called atonic those ulcers only which are not sufficiently inflamed to progress towards a recovery, there would have been some shadow of reason in this manner of discriminating ; but to attach that term to wounds produced by the irritating action of cold liquids, and accompanied by such inflammatory swelling that it is necessary to cover them, for many hours, with emollient cataplasms, can only take place by a strange reversion of the better demonstrated principles of pathological physiology.

The solutions of continuity which irritating dressings have for a long time maintained, and in which the edges, subdued by the influence of chronic inflammation, are covered with indurations, have healed with a remarkable promp-

titude, by means of topical emollients, and local bleedings performed by the aid of leeches. This observation is not new; but it merits to be recollected, because it gives undeniable proofs of the good effects of sanguineous depletions against external irritations sufficiently advanced for to have already profoundly altered the texture of the parts of which they were the seat. The case alluded to, is one of those where compression, methodically exercised and joined to gentle and loose dressings, is followed by rapid and almost marvellous success.

Tetters, scald-heads, and all those eruptions which authors have so eagerly strived to multiply the species and varieties, consist only in irritations more or less intense of the sebaceous follicles and exhalent vessels of the skin. Many amongst them are maintained by the same means which they employ to combat them; they increase in extent by the action of the irritating substances with which they cover them. It is but a short time since, that I saw a young person affected with a furfuraceous tetter on the right side of the thorax. At first slight, little painful, and characterized solely by the presence

of some scurfy desquamations, this exanthema made rapid progress under the influence of the waters of Baresges, and other topical stimulants; in a few weeks the integuments about it were red, tumified, and very sensible; the scurfs were more thick, and they appeared then to cover deep erosions, confirmed ulcerations. Baths, emollient cataplasms, relaxing fomentations, light purges often repeated, sufficed in a short time to disperse, with all the symptoms, even the last traces of the tetter which produced them.

The physiological doctrine is frequently useful in a great number of cases where ancient systems leave practitioners without a guide in the midst of contradictory symptoms. I have actually under my eyes a young girl, for whom I was consulted in the month of November, 1822. This young person was affected with an insupportable affection, which consisted in exhaling by the nose, an unwholesome and disagreeable odour. Her parents repelled her, none of her companions could associate with her in the sports and amusements of childhood, The physicians consulted, had declared that

the disease was situated in the bronchiæ or the lungs, which they supposed ulcerated and in a state of suppuration. Bitters, anti-scorbutics, and an animal diet, were prescribed without success: the disease instead of diminishing made continued progress. The patient and the whole family were in great affliction. I was then applied to. The chest of the young person was well formed, percussion and the stethoscope did not announce any alteration in the organs which it enclosed. The patient never had experienced any pain in this part; the complexion was good, the pulse without frequency, the coloration natural, the *embon-point* tolerable. This aggregate of phenomena made me judge at once, that there did not exist any profound and chronic alterations in the organs of respiration. But the young girl had experienced frequent pains in the head; a constant foulness manifested itself in the nasal fossæ; the mucous secreted by the pituitary membrane was yellow, thick, abundant, and presented the offensive odour which accompanied the respiration. Finally, by examining attentively, the nasal mucous offered evident traces of inflammation;

and all the time that the pains of the head, the stoppage in the nose, (*enchifrenement*) and the pituitary secretion were augmented, the odour became more offensive and insupportable. It was evident, after these symptoms, that the nasal mucous membrane was the exclusive seat of the disease, and that the latter consisted in a chronic irritation, or perhaps, in ulcerations of that part. In consequence of this diagnostic, leeches were applied during the paroxysms of cephalagia; emollient fumigations had been directed to the nasal fossæ; perspiration was excited by means of baths and under-waistcoats of flannel habitually worn next the skin; mild purgatives completed the system of revulsives which I proposed to follow. The disease had lasted many years, it had resisted all stimulants; and it yielded in two months and a half to the treatment which I have pointed out. The young person is actually exempt from all indisposition, her gayety is returned, her *embonpoint* has made progress, and for a long time no person has perceived any exhalation of a disagreeable odour.

Fistulæ, for the cure of which so many operations and so many different instruments have been contrived, are sometimes susceptible of being completely cured by a local antiphlogistic treatment, employed with method and perseverance. Lachrymal fistulæ, for example, depend a great deal more frequently than common practitioners think, on inflammation and tumefaction of the mucous membrane of the nasal canal. In those cases, when there is only a dilation of the lachrymal sac, or when the tears have already opened a passage on the cheek, emollient injections, pushed through the lachrymal points or through the fistulæ, and leeches applied to the great angle of the eye and on the side of the nose corresponding to the disease, frequently succeeds, as M. Demours has observed, in destroying the inflammation and thickening of the affected mucous membrane, in such a manner that the normal passage being re-established, the fluid takes its accustomed route. Then the tumour formed by the lachrymal sac or the perforation of this reservoir gradually disappears. It is necessary to acknowledge, nevertheless, that this treat-

ment is tedious, and that the result being subordinate to the patience and exactitude of the afflicted, success does not constantly crown the efforts of the most skilful practitioner. The compression exercised on the inflamed membrane by the canule of Dupuytren is a remedy far more expeditious and more sure. This instrument does not produce any inconvenience; when it is left in place for several months, and by accident it becomes detached and falls into the nasal fossæ, the cure which it has procured is no less continuous.

Fistulous passages, although organized and furnished with an abnormal, thick and resisting mucous membrane, is constantly obliterated in a very short time, under the influence of emollient applications, after we have diverted the course of the irritating fluids which maintained them.

Caries of the bones are incontestably the immediate effect of irritation and ulceration of the tissue of these organs. Therefore, it is necessary, when the affected part is painful and inflamed, to cover it with topical emollients, whatever be otherwise the general debility of

the patient. I have been witnessing for the last year, the spontaneous healing of a caries of the bones of the foot produced by a blow from the point of a scythe, in a full grown and vigorous man. The primitive wound, which had not united by the first intention, continued, and furnished some weeks after the accident, a grayish suppuration; a probe pushed into the deepest part, evinced that the bones deprived of their periosteum, were rough and softened. From this, the caries was evident, and they made use of stimulants of all kinds to the exterior. Far from yielding, the disease became more stubborn, and more extensive; an inflammation accompanied with œdema and a bluish colour of the integuments, had already invaded the whole of the middle portion of the foot, and the means employed to combat it, not being successful, amputation was proposed. To this the patient refused to submit. Having abandoned his foot to nature, he observed absolute repose, and confined himself to the employment of cataplasms and emollient baths. He very soon observed the pain diminish and entirely cease, the inflammation and swelling disappear, and

the ulcer take on a more favourable aspect. Three tolerable large pieces of bone came away successively, and the cicatrization of the wound was not long in taking place after their expulsion.

Observations of this kind are not rare in the records of science; they show that surgeons have made too general and too exclusive a use of topical irritants in caries of the bones, and that there are cases, more numerous than most practitioners think, where emollient applications, rest, and antiphlogistics are a great deal more suitable and more efficacious.

Nevertheless, when the caries does not yield to the soothing treatment, and when all the intense local inflammation appears to be removed, experience has proved the good effects which are produced by baths and pourings of alkaline, soapy, hydro-sulphurated, and chalybeate waters, etc. Applications and injections made with the tincture of myrrh and aloes, the use of essential oils, or of the oil of turpentine, are sometimes followed by the cure of slight and superficial caries. Aromatic vapour baths, directed on the affected parts, have been frequent-

ly advantageous. These remedies, all stimulating the parts, appear to change their mode of action, and to produce in them a degree of irritation different from that which maintained the caries. Cauterization, so powerful against this affection, determines, in like manner we know, the death or necrosis of all the portion of diseased bone, and provokes in the adjacent layers an intense excitation, which is followed by the development of cellular and vascular granulations of a healthy nature.

Since the experience of Tenon in the treatment of necroses, it is well demonstrated, that essential oils, alcoholic tinctures and other stimulating remedies, serve only to retard the separation of the osseous flakes destroyed by death. Emollient applications hasten, on the contrary, the development of cellular and vascular granulations, and the formation of a solid eschar which covers them. It appears that the topicals of the first kind augment the irritation, and, in a manner, parches up the vessels, whilst the others produce a general relaxation which is followed by a shooting forth of the capillary

texture, and a more active growth from the bottom of the wound.

After having taken a rapid glance at the treatment of some of the most frequent surgical lesions, it remains for us to examine the remedies to be employed against the diseases which have been especially the subject of the preceding chapter.

§ I. *Treatment of external scrofulous affections.* As soon as the tumours formed by the lymphatic ganglions have become pale, indolent and stationary, it is the custom to cover them with stimulating plasters. Now, experience proves, that these means are inefficacious and even injurious in the greatest number of patients. They are only fit to root more deeply the irritation in the affected organ. Under their influence, the tumours become ordinarily more hard and unyielding. Who has not seen ganglionites of the groin, when we cover them too much with the plaster of Vigo, or when we rub them with ammonical linament before resolution be almost already completed, acquire a considerable solidity, resist in consequence all resolvents, and continue in the same

state for many years? To say, that the repercussives have then dispersed the most liquid portion of the engorgement and that the debilitated vessels could not disembaras themselves of the rest,* is to reproduce those humoral and mechanical theories a long time since despised by enlightened physicians. We are astonished that doctrines so contrary to observation should still find partizans at the present day. The fact is, that stimulating applications augment the irritation, in the cases alluded to, and hasten the progress of fibrous and scirrhus transformations which it tends to impress on the parts which it invades.

It seems that in the cases of which we are now speaking, surgeons become impatient to have recourse to irritating substances: they fear of loseing a day in employing topical relaxants. I have, nevertheless, seen ganglionites which had obstinately resisted the most active resolvents and the most powerful tonics of the materia medica, disappear, as by enchantment, under the influence of leeches and emollient cataplasms continued with perseverance.—

* *Nosographie chirurgicale, tom. 1, page 174.*

Practitioners have not paid sufficient attention, among children, to the causes which have produced ganglionites of the neck; they do not take sufficient account of eruptions of the integuments of the skull, of denticular irritations, of habitual coldness of the head, of the neck and arms. Nevertheless, to remove at first the exciting causes of the disease, and then to have recourse to local bleedings and emollient applications, should form the basis of treatment to be employed against these pretended scrofulas. This is what reason indicates, and the advantages of which, experience already confirms.

If the patient is really in need, and the digestive viscera do not present any sign of irritation, this local antiphlogistic treatment does not prevent from having recourse to aliments that are nourishing and of a good quality; to the use of old Bordeaux wine; to elixer of gentian with the addition of the carbonate of soda or barytes; to gymnastic exercises in the open air; in a word, to all those means which, augmenting the energy of the sanguineous system, and distributing in a manner, the vital movements with agility in all the parts of the body,

destroy the morbid predominance of action which possesses the lymphatic system in general, and the affected parts in particular.*

Treatment of articular inflammations. The preceding observations are applicable to chronic inflammations of the joints. These affections are of the number of those, which, for the most part, surgeons have been in the habit of treating by means of the most energetic irritating substances. After having exhausted the long list of linaments and mercurial, ammoniacal, or sulphurous frictions; alkaline, chalybeate and sulphurous baths; cataplasms, aromatic plants boiled in wine, &c. they have recourse to vesi-

* Of all the hygienic means recommended against scrofulous diseases there is none more powerful, and more salutary than the gymnastic. And in relation to this, Paris offers resources which we in vain look for elsewhere. An extensive gymnasium, directed by M. Amaros, and patronized by the ministers of war and the interior, is here constantly opened to the public. This establishment surpasses by its extent, the multiplicity of machines which we find here collected, the method of instruction which is followed, and the precautions of all kind by which children are surrounded, that which antiquity has offered us as one of the most wonderful of the kind. A physician presides over all the exercises of the gymnasium, in order to adapt it to the nature of the infirmities which it is intended to oppose. We find already in this establishment, worthy of the benevolence of all philanthropists, a great number of examples of the cure of scrofulous diseases and of different deviations either of the vertebral column, or of the shoulders and limbs.

catories, moxa, and cauteries. A treatment of this kind, in which they make use of only exciting means, where revulsives are employed before the irritation has been sufficiently reduced, serves only to aggravate the disease; therefore, for some very rare successes obtained by this method, and which they cite every moment, we see cases multiply every day where chronic diseases of the joints terminate by the death of the patients or necessitate the amputation of the limbs.

In the mean time experience proves, that local bleedings, absolute repose of the parts affected, baths, and emollient applications, are the most efficacious means which art can oppose to chronic arthrites. **R**est alone, has procured for **M. Bouchet** of Lyons, unexpected success in diseases of the knee. **H**e keeps this articulation immoveable, fixing the entire limb in a gutter composed of two parts which can move one upon the other, either by flexing, or by extending the leg. These two gutters, in which we fix the two parts of the limb by means of straps, are re-united by a trammel placed on the side of the apparatus, near the knee, and which invariably confines the movements of

this articulation. Remarkable cures have been thus obtained, sometimes with the complete preservation of the mobility of the limb; in other cases, with anchyloses, sometimes fibro-ligamentous, sometimes osseous.

M. Janson, of the Hotel-Dieu of Lyons, successor to the celebrated practitioner whom I have already mentioned, continues to employ this method; he joins to it solely the application of dry and warm topicals and resolute sachels, or exutories around the tumour. This treatment is a great deal more simple than that, the pretended excellence of which is generally extolled by authors. Nevertheless, new observations have demonstrated, that to rest, it is more advantageous to join local bleedings frequently repeated, than excitants ornamented with the title of resolutives. Many authentic examples of healing of arthrites, old and almost entirely given up, have taken place recently at Paris, in one of the most frequented hospitals, and every thing induces us to think, that observations of this kind will multiply more and more every day, in proportion as the principles of the

new medical doctrine become more generally adopted by surgeons.

It is only when by means of local sanguineous evacuations, we have obtained a reduction of the irritation, that vesicatories, moxas and cauteries, are certainly useful to combat chronic articular inflammations. This practical truth is applicable to the treatment of all external inflammations. Until we have abated the fluxionary movement, likewise the pain and heat which accompanies it, revulsives will not produce any good effect; the irritation is too intense, too rooted, to be easily removed, and the stimulant action which they are intended to counter-balance, turns then entirely in its favor, and augments its intensity. It is thus, that in arthrites of the knee and of the hips, I have twenty times seen vesicatories and moxas exasperate all the symptoms and determine in the patients a violent fever. Begin then always with rest, local bleedings, a strict and soothing diet; if the pain is intense, cover the part with emollient cataplasms; otherwise be content with enveloping it with flannel. Heat, moisture, and cataplasms to the feet, frequently favour

the soft and œdematous swelling of the cellular tissue; they are consequently hurtful all the time that there exists an indolent engorgement of the external parts of the articulation. The patient should often take warm-baths, which advantageously serve the place of cataplasms, favour the perspiration, and are at the same time emollients and revulsives.

It is only when by means of this antiphlogistic treatment, we have obtained a notable diminution of the irritation and phlogosis, that vesicatories, moxas, or the actual cautery can be profitable; they then produce sometimes wonderful effects. The local irritants destined to strengthen the parts should not be used until the cure is finished: that is to say, when the last remains of the irritation being removed, they only serve to give the articulation, really debilitated, its primitive solidity. Then, baths and pumpings with sulphurous mineral waters, placing the affected parts in liquids charged with emollient principles, movements and exercise gradually increased, are highly proper to give pliancy and at the same time force to the muscular and fibrous tissues. Wine, aromatics,

and camphorated spirits, on the use of which they generally insist so strongly, are less suitable than the preceding means: they seem to contract and harden the tissues, rather than to favour their extensibility by strengthening them and rendering their nutrition more active. Their application rarely succeeds in men already aged, in whom the articulations are dry and rigid after old wounds.

Such is the most rational method of treatment which it is possible to oppose to chronic arthritides in all forms, from incipient gout and the most trivial white swelling, to the most inveterate articular rheumatism, and the most considerable engorgement of all the tissues which compose or which surround a joint. If the disease has a disposition to return, as in gout and rheumatism, the antiphlogistic treatment, general and local, shortens the attacks, and diminishes their violence; it removes and prevents the formation of calcareous concretions and the disorganization of the parts. The economy not accustoming itself then to an almost permanent irritation of the external parts, the metastases of this irritation on the viscera, in

consequence of which so many gouty persons die, do not take place. In a word, wherever there exists an inflammation of the articulations, whatever be the name which authors have given it, it is necessary to combat it by means of antiphlogistics, and endeavour to extinguish it, unless, however, the organization, habituated to its presence, cannot support the privation without danger. But then it is always important to moderate the violence and to combat the too acute exacerbations of this irritation.

A last observation, which will not fail to convince persons who reflect and who meditate on the results of the different therapeutical means which they employ, is, that when we apply the antiphlogistic treatment, and above all, local bleedings, with the most vigour and perseverance in the treatment of affections of the joints, we afterwards find, that the inflammations produced by these affections, pass less often into the chronic state and occasion the loss of the patients or necessitate the ablation of the parts. The following example, which was furnished me by M. Janson, seems to me to prove more and more, the astonishing success

with which local bleedings can be followed in the treatment of the most intense inflammations of the joints. A woman, on coming out of a bath, was taken, all of a sudden, with an excruciating pain in the left hip. In consequence of it she entered into the hospital. Two days after, the painful member presented an elongation of two inches and a half, and all the symptoms of spontaneous luxation commenced. The head of the femur was on the point of leaving the cotyloid cavity. Leeches were applied about the hip, after this, blisters, and all motion of the thigh was forbidden the patient. Six days after, the pains were entirely relieved; the limb shortened itself and reassumed its proper form and direction. In about three weeks the cure was completed.

§ III. *Treatment of Cancer.* In proving that scirrhous, cancerous, and other tumours of this kind, are the result of chronic inflammation and the alterations which this inflammation has determined in the nutrition of the parts affected, the new medical doctrine has already had a most happy influence on the practice of surgery. That fatality which seemed attached to

the existence of abnormal tissues, and which led to the supposition that when once developed they were no more susceptible of being cured; this fatality combatted with success by physiological physicians, is now generally destroyed. All practitioners have actually learned, that nature, aided by methodical assistance, can disembarass herself, irritation being removed, of the more or less heterogeneous products of this same irritation. In fact, if pus, cellular engorgements, lardaceous, fibrous, cartilaginous, and fatty productions, etc. disappear after the inflammations which have caused their formation, why cannot scirrhus, cancerous, melanose, cerebriforme and other tissues disappear in the same manner? No argument can prove that it cannot be thus. The adversaries of the new doctrine have confined themselves to saying that they never have seen such cures. But they have only dissected worn out tumours in dead bodies, or extirpated by means of cutting instruments. Now, nothing proves that such tumours cannot be removed by absorption in other subjects. It is not proved, above all, that the morbid productions, of which

writers who have devoted themselves to pathological anatomy have given such excellent descriptions, were not absolutely more susceptible of being cured by the same process, if the patients could have lived, or if, in place of operating, our observers had employed therapeutic means in relation with the nature of the disease. There is more clinical experience, with as much evidence as we can acquire without having the diseased parts immediately under our eyes, to prove, that scirrhus or cancerous tumours have been cured by the employment of means proper to remove the irritation which has provoked and kept them up.

There is one fact, nevertheless, the reality and importance of which, we should not conceal; it is, that the longer the irritation has existed in the parts, the more difficult it is to remove entirely the organic alterations which it has produced. This law is applicable not only to cancerous or scirrhus tissues, but to fibrous and cartilaginous productions, to cellular thickenings, to tumefactions of the lymphatic ganglions; in a word, to all the products of inflammation. It results from this, that when a

tumour, which is thought to be cancerous, after having been for a long time indolent and stationary, becomes gradually painful, and they still neglect to oppose it by a suitable treatment, it frequently resists all the efforts of art. But that which renders it incurable then by medicinal means, is less the presence in it of the tissues which form it, than the long continuance of the irritation, which is, to use the expression, identified with the organs, and which it is sometimes impossible to remove. Nevertheless, as we possess a sufficiently great number of examples of tumours already very old, which have yielded to a methodical treatment, we should constantly have recourse to it, and never abandon the hope of succeeding. And even should we not entirely cure the patients by this treatment, we at least will have alleviated them, and, in diminishing the irritation, we render the success of the surgical operation more certain.

Among the cases of chronic irritations the products of which have already acquired the cancerous character, and which prove incontestably, the possibility of a cure by means of anti-

phlogistics and local bleedings, I shall confine myself to relating the following.

A lady of sanguineous and nervous temperament, aged twenty-five years, perceived, says Dr. Fallot, physician at Namur, that she had on the upper part of her right breast, a hard tumour, about the size of a peach kernel. She was then fifteen years of age; her health was perfect; and although she could not tell the cause of the tumour or the period when it was developed, she generally attributed it to a blow with the elbow which she had received in waltzing. A physician endeavoured to resolve the tumour by the aid of fumigations with boiling vinegar, mercurial frictions, and pills into which entered, very probably, the extract of hemlock. These remedies produced intense pains; she renounced them, and in 1817, the tumefaction equaled the size of a small apple. It was moveable under the skin, the colour of which had not undergone any change. We advised her to wear habitually a swan skin, in short, to keep the part at a mild and moderate warmth, and to remove every thing that could irritate it. In 1819, she married, and became

a mother in 1820; at first, the milk from the breasts did not appear to exercise any influence on the tumour. Nevertheless, wishing to suppress the secretion of this fluid, we prescribed a strict regimen and gentle laxatives. No accident took place at first; but the sixth day of her accouchement, the breast became inflamed all of a sudden, without a known cause, and in spite of the application of leeches and cataplasms, the pains became excruciating. Three small superficial abscesses formed and opened, and after having gone through a healthy supuration, they promptly cicatrized. During this inflammatory labour, the tumour had increased in size; it occupied a third of the breast, and, although always indolent, it troubled very much from its weight. At other times, but especially in the night, shooting pains were felt. A dozen leeches were then applied to it two days in succession, and stopped the pains, which reappearing in four months, yielded to the same means. The patient was always opposed to the repetition of the local bleedings; but five months after the application of the last leeches, the breast again became painful, and we cover-

ed it almost entirely with these animals. The bleeding was considerable and continued for twenty-four hours. It was not yet finished when the breast appeared already more light, and some hours after, the tumour had entirely disappeared.*

If we consider that the tumefaction had lasted for ten years; that it was hard, moveable, in a measure isolated from the surrounding parts, and of such an obscure origin that we might consider it as spontaneous, it will be difficult for us not to admit that it was formed of a genuine scirrhus tissue. Furthermore, the shooting pains of which it began to be the seat, announced either the beginning or imminence of the cancerous degeneration of the mass. Excitants had produced no other effect than that of augmenting its volume and rendering it more obstinate. Nevertheless, local bleedings were sufficient to make it disappear in so short a time. It is to be remarked, that whatever be the violence of the lancinating pains which invade the supposed cancerous tumours, the first applications of

* *Journal complémentaire du Dictionnaire des sciences médicales, tome 12.*

leeches, suffice, almost always, either to make them entirely disappear, or to diminish a great deal, their intensity. This important circumstance presents itself again in all those cases where we have opposed local bleedings to scirrhi or cancers.

Rose, of Havre, aged 23 years, of a remarkably lymphatic temperament, had, says Dr. Maurice Treille, at the age of 19, a child which she did not suckle. The health of this young person was made wavering from violent troubles; she experienced almost continued pains in the stomach; her digestion of aliments was tedious and fatigueing, her stools irregular, her menses less than usual; finally white discharges succeeded the sanguineous evacuation from the vagina. Six weeks after the invasion of these inconveniences the left breast became sensible, and a hard and moveable tumour made its appearance. An anti-cancerous treatment was then employed without success, and they advised the extirpation of the tumour. The patient refusing to submit to the operation, a host of remedies was administered to her. Under their influence her health continued to get worse,

and the breast was soon attacked with a rigid engorgement, little sensible to pressure, but the centre of which was the seat of lancinating pains. The right mamma, very soon afterwards presented a tumour of the same aspect as the preceding; pains of the stomach alternated with those of the breast; intense osteocopic pains were manifested; the muscles became soft; the integuments became discoloured and seemed altered. The features of the face, contracted and dried up, showed premature wrinkles. A diarrhæa was manifested at times; the palms of the hands were burning, the sleep disturbed and by no means refreshing: all announced the existence of what is better called a cancerous cachexy. But although the patient even begged for the operation, I feared to compromise the art by having recourse to it, and confined myself to prescribing the following remedies.

At first the patient was to abandon the use entirely, of coffee, wine, and all spirituous liquors. The aliments which I permitted her to make use of, were vegetables, and carrots especially, milk, and messes prepared with this liquid. I directed her to take from three to

eighteen ounces of sea water a day. Plasters of hemlock on the tumour; dry frictions all over the skin, and moderate exercise, completed the series of hygienic and medicinal means which seemed at first suitable. After employing them a month, the patient found herself better; she appeared less pale; the pains of the stomach disappeared; the tumours were of the same hardness and the same size; the pains were still felt in them; but the plasters had determined an erysipelatous inflammation on the skin which they covered. When this inflammation was removed, I applied ten leeches on the left mamma and eight on the right. The parts were afterwards covered with cataplasms made with the crumb of bread and the decoction of mallows and garden nightshade, which facilitated the draining of a thick, blackish blood. Two days after, the pains of the breasts disappeared, and the patient had slept the two preceding nights. To this treatment was then joined, pills of the extract of hemlock, aloes, and rhubarb. Their use, combined with that of the sea-water, brought on a kind of diarrhæa, which I was often forced to arrest by stopping the use

of these medicaments or diminishing their doses. The application of the leeches was repeated eight days after the first, and produced new relief. At this time the osteocopic pains were dispersed, and the tumours diminished in size. Encouraged by the first success, I applied fresh leeches every eight days or fortnight. After pursuing this treatment about five times, the bloom and *embonpoint* of the patient was restored, and there did not remain more than two tumours of a cartilaginous consistence in the left mamma, the size of which did not surpass that of a small pea, and which did not seem inclined to disappear entirely. Extirpation appeared necessary; but the patient was opposed to it, and the cure it seemed would be permanent without it. Three years after, Rose was married, she had a child which she suckled, and her health continued in a good state.*

The detractors of physiological medicine, I may add of Dr. Treille, will no doubt be convinced, in going over this statement, that we do not exclusively employ leeches as they have asserted. They will be able to see, that we know

* *Annales de la médecine physiologique, tome 1.*

how to profit from all the means proper to establish a normal state. This reflection is just, and the cure of the patient whose history we have related, is a new proof of the skilfulness of the practitioner who achieved it. Nevertheless, if cutaneous frictions, muscular exercise, and irritants directed to the digestive canal, constitute the valuable means of revulsion against chronic irritations of the external parts of the body, perhaps there may be found in the particular state of the patient of whom we speak the circumstances which counter-indicate the employment of some of these means. In effect, the habitual pains of the stomach and the irregular diarrhæa with which she was for a long time affected, attested the existence of a gastro-enterite which might have been exasperated by the use of purgatives. Even when the pains of the stomach had ceased, it was to be feared that the drastic pills might reproduce them. The hemlock, besides, which acts especially by irritating the parts with which it comes in contact, is far from meriting the praises which have been accorded to it by the admirers of Stœrcke; and, in the particular case which we

speak of, its internal use was able to produce some serious inconveniences. The observation of M. Treille is no doubt very important, since it furnishes an unequivocal proof of the possibility of the cure of supposed cancerous tumours already very advanced; but the following fact proves that we can attain this end by the aid of a much more simple treatment, and more exclusively antiphlogistic.

A girl, aged 24 years, of a sanguineous and nervous temperament, entered into a hospital to make her noviciate as sister of charity. The following year she experienced lancinating pains in the left breast which returned at intervals, and discovered a small tumour which rolled under the fingers. Five or six months after, the tumour having acquired the size of a walnut, was painful to the slightest touch. The patient returned to her family, and during a year, many physicians of Nantz employed different internal and local means without success; all the surgeons whom she consulted declared to her, that she had a scirrhus tumour in her breast which it was necessary for her soon to have extirpated. The disease very soon made new

progress, and the young person, despaired of, came to the **Hotel-Dieu** of Paris.

The tumour was at this period, hard, shrivelled, unequal, sub-cutaneous, and of the size of a large goose egg, and occupied the middle and external part of the left breast. It was the seat of habitual dull pains, and at other times intolerable shooting pains took place and extended over the whole corresponding side of the breast, even to the shoulder. The body of the patient was extremely emaciated, her skin hot, dry, and covered with furfuraceous scales. A febrile action which supervened every evening continued a greater part of the night, and terminated by an abundant and clammy sweat. The patient had been for five or six months a stranger to sleep; she had experienced many attacks of hemoptysis, coughed continually, and threw out a great quantity of thick and puriform expectoration. Professor Lallemand of Montpelier, who was then at the **Hotel-Dieu** and had charge of the ward in which this patient was placed, contented himself for fifteen days, with prescribing for her, emollient drinks, julaps, etc. But the pains of the breast were more exasperated, like-

wise the symptoms of pulmonary affection; the practitioner whom I have mentioned, applied eight leeches on her left breast; and a general bath and emollient cataplasms on the tumour were joined to the local bleeding. The pains, the fever and cough having diminished, four days after, he repeated the application of the leeches, and continued the use of baths and cataplasms. In about ten days, the tumour was less hard; the cough and expectoration had diminished; and there existed no fever. The same treatment was continued. The tumour gradually softened, re-established itself, to use the expression, and in two months and a half, it was reduced to the size of a small filbert; the symptoms of pulmonary affection had entirely disappeared; and the patient had recovered her bloom and some *embonpoint*. Notwithstanding, a hundred and twenty leeches had been applied during a small interval, and the alimentary regimen was composed only of soups, broths of milk, rice, and other similar substances. Finally, a month and a half after this period the tumour disappeared, and the patient attested

that her health had never been so prosperous.*

In comparing these results of the antiphlogistic treatment with those that follow ordinarily the employment of internal and external exciting means which are generally opposed to scirrhus tumours, it is easy to decide, to which of the two methods we give the preference. To the facts which I have cited, I have had joined a great number of examples of chronic and scirrhus engorgements of the axillary, cervical, or inguinal ganglions; of occult cancers of the parotid glands, the testicles, ovaries, and other organs of the same kind, which have been cured by the aid of local bleedings, baths, and an emollient regimen. These successes render more and more rare, the necessity of performing operations for scirrhus and cancerous tumours, which are often serious, always painful, and which deprive the subjects of important organs. Sarcocoele or sarco-hydrocele, for example, does not authorize any longer the use of an instrument on the testicle. None of the diseases of

* Observations cliniques, suivies de quelques reflexions generales sur les affections cancreuses, par M. Marechal, Montpellier, 1821, in 4to.

this kind which have been received in the military hospital of instruction at Strasburg, for more than six years, have resisted according to M. Gama, (chief surgeon and first professor in the establishment,) local bleedings alone, or assisted by revulsives, rest, and emollient fomentations. This gentleman avoids the application of cataplasms to the affected parts; he has found that their humidity and the thick glutinous deposit which they leave upon the skin, oppose the resolution of the tumour, by keeping the scrotum in a continual state of relaxation and opposing its tonic action. The seminiferous conduits which return upon themselves and partake of activity as soon as the first discharge is made, seem to remain inert under the influence of cataplasms. "It would be exacting too much," says M. Gama, "to pretend to obtain a rapid success by this treatment; but if the cure requires some patience, it is at least, infallible."

Let us add to these observations, that when the new medical doctrine shall be better known by surgeons; when, above all, glandular and cellular tumours shall be treated more methodi-

cally at their commencement, the number of cancers will diminish considerably, and the example of like diseases that resist local bleedings, become more and more rare.

Cancerous Ulcers, of which authors have given such faithful and horrible descriptions, yield frequently to a local antiphlogistic treatment. For, as I have already observed in this work, it depends generally upon quick and permanent irritations exercised on the simple solutions of continuity, and which nothing announced as having a tendency to assume this formidable character. It is thus, that my friend **Dr. Blaquiere** observed the beginning of a cancerous degeneration on the sore from a blister on the arm, that had been irritated with too much force and perseverance. The surface of the solution of continuity was already covered with solid and painful granulations; a pus of a bad nature flowed from it; the borders, tumified and turned out, were surrounded by a livid engorgement of the neighboring integuments. The suppression of all irritants, simple dressings, and a moderate compression exercised on the part, sufficed to dispel all the symptoms, and to restore the sore

to a normal state. If the disease had been more intense, and the irritation more lively, without doubt it would have been necessary to add local bleeding to the means employed. The following facts will show better than my reasonings, the good effects that we may expect, in such difficult cases, to obtain from it.

A man aged 50 years, of a sanguineous temperament, had always enjoyed good health, until at the age of 45 years, a small whitish pimple appeared in the middle of the border of the under lip. This pimple became cicatrized the sixth day after an application of nitrous acid. The ulceration, nevertheless, returned a month afterwards, and remained stationary for four years, during which time scabs were formed, fell, or were removed and immediately replaced by others which met with the same treatment. At the commencement of 1819 the patient consulted a surgeon who cauterised the sore with fused nitrate of silver: on the removal of the scab, an ulcerated surface of sufficient magnitude made its appearance. From that time the lip became tumified and painful. Another surgeon having again sought to produce cicatriza-

tion by the application of corrosive sublimate, all the symptoms augmented: the pain became more intense and concentrated; the borders of the ulceration turned out; and a considerable loss of substance was sustained to prevent the mouth from being closed. Professor Lallemand found the patient in this state, and saw, that from the aspect of the sore, the hardness and overturning of its borders, which appeared lardaceous, and from the lancinating nature of the pain, it was one of those cancerous ulcers for which, until now, no other remedy than that of ablation had been known. Nevertheless, before employing such a remedy, which does not prevent entirely a relapse, he wished to try such as had obtained for him, happy results in analogous cases. Eight leeches were applied around the lip, they were replaced by an emollient cataplasm, and a general bath was administered. Four days after, the lip was less hard and less painful, the same number of leeches was again applied, which produced a new diminution of symptoms. The next day a third and similar application was made: the cataplasm had been continued, and a cicatrice began to form. Final-

ly, after one month of this kind of treatment, the cicatrization was nearly complete; pain had almost entirely subsided; and there existed but a very small part of the border of the ulcer the size of a pea, which, hard, unequal and projecting above the cicatrice, retarded its reunion. It was removed with a bistoury: the next day the little sore was closed, and several days afterwards, the patient was enabled to quit the hospital.

The following observation presents an example no less remarkable, of the happy effects of the antiphlogistic treatment in cases of phagedenic cancerous ulcers.

A man, aged 55 years, was affected with an ulcer occupying the nose from its free margin to the root. The left ala of this organ was completely destroyed. On the right side, the destruction was less advanced; the anterior half of the division had disappeared. Above the opening of the right nasal fossa, existed a narrow and elongated perforation which communicated with the interior of the cavity. The borders of this ulcer were thick, whitish, turned outwards in certain points, and lardaceous in

others. A blackish scab resembling charcoal, covered the whole surface of the sore; the pain here was at times lancinating. The disease made its appearance two years before, by a small pimple under the left ala of the nose, which, having been several times removed, was converted into an ulcer, the progress of which was rendered more rapid from the use of local irritants and caustics. Two applications of leeches, at one time, eight, and another, six, emollient cataplasms, and general bathing, accomplished so much in thirteen days, that the cicatrice covered already the inferior part of the ulcer, as also the division of the nose. The perforation on the right side was obliterated: there were but several points of the surface of the cartilages to be cicatrised, which were already covered with fleshy granulations of a red and vermillion colour; every thing led to the conclusion, that from the rapid formation of the cicatrice, in two or three days the cure might be considered as complete.*

These facts show in an incontestable manner, the accuracy of what I have before said

* *Work cited by M. Marechal.*

concerning the irritation which exists during the development of cancerous ulcers. Is it not evident, that if local bleedings and emollient applications are sufficient to cure the disease when it is already far advanced, the same remedies might stop it in its beginning, prevent it from making any progress, and smother it, as it were, in its origin? It results also from the foregoing remarks, that these eating ulcers, even when they have destroyed the parts to a great extent, are not necessarily incurable, and that it is not always indispensable either to destroy their surfaces by means of caustics, or to remove them with a cutting instrument. Independently of the danger of poisoning, which follows the use of arsenical ointment, this remedy is sometimes incomplete in its cure of small ulcerations, and it would be useless to employ it in those of greater extent. A cutting instrument, it is true, presents fewer inconveniences, but recourse cannot be had to it when the ulcer extends over a great part of the face, and rests almost immediately on the cartilages and bones. Then, the surgeon is almost always the idle spectator of the progress of the disease, and the

slow and cruel destruction of the patient. The white-hot iron, which is, without doubt, the most energetic means that can be possibly used under these painful circumstances, often fails, either from its action not having been carried sufficiently deep, or from the impossibility of its penetrating into all the infractuositities of the sore. But whenever this operation fails, the disease redoubles its fury, and its progress is much more rapid than at first. This result should not astonish one: in fact, it is very simple, that the application of caustic, of fire, or the action of a cutting instrument, when they do not wholly destroy the affected parts, augment the irritation of which they are the seat, and by this means, give an uncommon violence to all the symptoms.

The ancients, knowing the danger which the exasperation of the ulcers which now occupy our attention, caused the patient to run, established as a precept, never to touch them, but to disorganize their entire surfaces. But the name of *noli-me-tangere* which they gave to these lesions, is not, at the present day, entirely applicabla to them: without doubt, you must not

touch them with irritants or caustics, but it can be done with emollient substances to some advantage, aided by local bleedings, revulsives and a suitable regimen.

CHAPTER VIII.

Sympathetic phenomena produced by external chronic irritations.

When irritations of the external parts of the body are prolonged, they exercise on the organic movements of the animal economy, an influence which is of great importance for the surgeon to be acquainted with. The patient who is in the first instance, in a normal state of health, sees his strength gradually diminish, his body grows thin, the skin discolours, becomes dry, stiff, and gradually covered with scurfs: every thing indicates a great alteration impressed upon the nutritive actions. If the disease consists in an old sore, the suppuration of which is abundant, or in the caries of a bone; in a word, in an irritation not accompanied by profound degeneration of the affected tissues, the paleness of the integuments do not present any thing remarkable. But when chronic inflammation determines the formation of a scirrhous or cancerous tissue, it may almost always be observed, that the complexion of the patient, while

he grows pale, partakes of a straw colour, very easily known, and which is sufficient sometimes to announce the nature of the malady.

It is equally to be remarked, that when a part is affected with chronic inflammation, it exercises a special influence over other similar parts of the economy. Thus, inflammation accompanied by a cancerous degeneracy of one breast, tends invariably to propagate itself to the opposite breast. Chronic arthritis, seldom, if ever, continues in one articulation without extending itself, sooner or later, to the other joints. The forms of this malady, which are known by the names of gout, articular rheumatism, and white swelling, furnish multiplied proofs without end, of the exactness of this proposition. Finally, irritations of the muscles, aponeuroses, ligaments, blood vessels, secreting organs, &c. have a remarkable disposition to extend themselves to other organs charged with analogous secretions, to other vessels of the same kind, and to other divisions of the fibrous tissue.— This law, already distinguished by Bichat, may offer exceptions; but it rests incontestably on almost the whole of pathological observations.

There is another phenomenon quite as important, and which merits no less than the preceding to fix all the attention of the physiologist and practitioner: it is, that the organic system which is particularly affected in the actively diseased part, is that which tends to become so in those organs over which it exercises a sympathetic action. The mode of irritation which constitutes the primitive disease, is also that which will develop itself in the part that is secondarily affected. When the capillary blood vessels, for instance, are particularly irritated and there exists a real inflammation, the sympathetic lesion determined by this affection will be equally inflammation. If the patient, on the contrary, is attacked with neuralgia, the nerves tend equally to become the seat of irritation in the other organs. Finally, ganglionites, white degenerations, and the organization of abnormal tissues, are so many diseased modifications which the parts sympathetically affected are disposed to contract. In a word, an irritation being given, its existence continued for a time more or less long, is enough to communicate to every part of the

body, and especially to those which are united by a close sympathy with the actual seat of disease, a strong disposition to contract a similar irritation which would give rise to the same products. If the sympathetic influence exercised by a diseased organ, is not sufficiently powerful to determine alone a similar irritation on other parts, a foreign cause of the most feeble kind, will be enough to produce the effect. Thus it is in individuals affected with white swellings, contusions, even slight, of another articulation, will occasion here a similar swelling. It is shown, that men do not contract, in general, but such affections as they are already disposed to by their organization; but irritation, in developing itself, renders this organic disposition more active and gives greater vigour to the appearances which characterise the various temperaments.*

Independently of these general phenomena produced by external chronic irritations, these irritations determine notable changes in the action of the principal viscera of the econ-

* Boyer principes generaux de physiologie pathologique Paris, 1821, in 8vo.

omy. It seems in the first place, that they give more activity to the digestive organs. The patients consume, during the first periods, and when the symptoms are moderated, more aliment, than when in a normal state. The entire animal organization, and particularly the viscera, are sympathetically excited by local irritation. The living economy appears to have need of more abundant materials, in order to repair the daily losses which it sustains. But very soon, whether from the stomach and small intestines being irritated after the excessive labour of which they are the seat, or from the prolongation of the sympathetic excitation determined by the external lesion producing the same effect, it is seen that the digestion becomes fatiguing and painful. The tongue turns red at its point and borders; the skin becomes dry and burning; the pulse small and frequent. At one moment the appetite continues, and at the next, it is diminished to nothing. In the evening a slight febrile exacerbation is observable, with a warmth in the palms of the hands, as also in the bottom of the feet, and sweats more or less abundant and viscous at the superior parts of

the body. These phenomena have been named hectic fever. Like all affections of the same kind, this fever is the immediate result of the excitation of the digestive canal, and of the heart and brain; excitation which is itself determined, in the case which now occupies us, by the external lesion.

Nevertheless, irritation after having invaded the stomach and the beginning of the intestines, gradually propagates itself towards the ileum, stops at the ileo-cæcal valve, finally penetrates the cæcum and extends to all the large intestines. As these progressions take place, diarrhæa is manifested. At first rare, irregular, and not returning but after some excess of regimen, it becomes at last permanent, and, if I may use the expression, continual. The appetite very often returns at this period, with much more vivacity, as the accelerated contractions of the digestive canal renders the stay of the aliments in the stomach and small intestines very short. Thirst is almost inextinguishable; violent colics are experienced three or four hours after meals, when the alimentary matter enters into the cavity of the large intestines. The losses

which the patient sustains, and the disturbances determined in the nutritive actions by local irritation, and small and abundant evacuations, sweats which are prolonged and bathe the whole body, finish by wasting the strength, and we may say, dry up the whole machine, and death succeeds a more or less advanced state of marasmus.

There are several remarkable varieties to be observed in the successions of these affections, the most ordinary course of which I have just traced. In certain individuals, acute or violent irritations determined by external lesions, such as extensive wounds, are prolonged to a moderate degree, but without ceasing to excite a manifest febrile action; it would seem to be a traumatic fever that persisted and degenerated into a hectic fever. In a far greater number of individuals, traumatic fever seems to subside completely in the beginning, and every thing seems to predict a happy recovery. Nevertheless, the local lesion not terminating itself, whether it be from foreign bodies remaining in the parts, cartilages, tendons or bones deprived of their envelopes that should exfoliate, it is soon

observed, that the irritation passes into a chronic state, and reproduces the internal excitation: then an interval more or less long, separates the cessation of the primitive acute fever, from the appearance of the hectic fever.

Whatever may be the modifications of this kind which take place, the phenomena themselves do not vary. In the first place we constantly observe the gastro-enterite manifest itself, then irritation of the large intestines, or *colitis*. Intervals more or less long, according to the constitution of the patients, separate the different periods of the affections, one from the other. In some individuals, gastro-enterite is slow to develop itself; the organization seems to oppose an obstinate resistance to the development of the internal super-excitation which the affected part tends to produce. And when this first inflammation is manifested, it may remain a very long time in a very feeble state, and not exercise any influence on nutrition, until diarrhæa comes on. It has been observed, that this great destroyer of the economy does not affect certain persons until for several years. Whilst in others, it brings on death in a few months: such is the

great difference that nature has made in different subjects, between the strength of the constitution and the firmness of the equilibrium of action of the different organs.

It would be, however, a great and sometimes dangerous error to think, that external chronic irritations direct their actions exclusively to the alimentary canal. I have already observed on the subject of traumatic fever and its complications, that in persons previously affected with irritations in other organs, there follows, in place of a simple fever, inflammations of these organs, which in their turn, give new force to the febrile action and complicate the primitive disease. But this mechanism again appears in the cases which we now consider. In subjects whose respiratory organs, for instance, are irritable, the mucous membrane of the bronchiæ, the pulmonary parenchyma or the pleura, often become the seat of active irritation sympathetically determined by the external chronic phlegmasia. In other cases, the liver, spleen, kidneys, and the peritoneum, by their excessive irritability, form centres of action, towards which the sympathetic irradiations direct them-

selves in an especial manner; and their inflammation shortly adding itself to that of the external parts, renders more rapid, the destruction of the forces and the progress of marasmus. It should not be forgotten, that these varied lesions are in a measure accidental: they depend more upon the particular state of the economy, and of the affection of certain organs, than the regular exercise of the laws of organization. Moreover, irritation, after having propagated itself from the place primitively affected towards a more or less important organ, does not continue its march the less towards the digestive canal, and we may constantly observe before the death of the patients, the ordinary signs of gastro-enterite.

There is a phenomenon unfortunately too common in large hospitals, and which merits here a special consideration. It often happens after great operations, and particularly after amputation performed in cases of white swellings, caries or other chronic diseases of the members, that the patients, whose general state of health appeared very good, die in several days or weeks. This fatal issue is announced

by the continuation of the thinness, feebleness and inappetence which precedes the operation. The traumatic fever, the developement of which generally follows this, is continued in a less degree, without its being possible to know the cause. On opening the dead body, one of the internal parts, such as the pleura, the parenchyma of the lungs, the liver, the peritoneum or the spleen, but most commonly the pleura, is found filled with pus, and in a more or less advanced state of disorganization. The most attentive examination of the subject, often, will not lead to a knowledge of the lesion that should produce death. A dry cough is quite common, a feeling of heaviness in one side of the chest, and a dull sound which this side gives to percussion, announce in a manner sufficiently positive, the suppuration of the pleura; but these signs do not become evident until this membrane is already filled with a large quantity of liquid and no further attempts can serve the patient. It is the same with the pain in the hypochondriæ or in the whole of the abdominal cavity, which accompanies the suppuration of the liver, the spleen, or the peritoneum. Lesions

of this kind are very serious and almost constantly fatal.

The profound study of the living organisation alone permits us to unveil the mechanism by which affections of this kind are produced. If it is considered, that these internal suppurations do not manifest themselves until after chronic diseases which have for a long time caused the patient to suffer, and fatigued the economy, it will appear reasonable that they are the result of stimulation sympathetically exercised by the irritated external organs, on the parts which are their seat. The super-excitation which is produced under these circumstances, often establishes itself with slowness, without producing a considerable disturbance in the functions of the affected organs, and without provoking an acute and violent febrile agitation. Then practitioners may mistake the too fugitive signs of internal lesion, and the opening of the body will shew him disorders, the existence of which he had not foreseen. This may happen with subjects who die of external chronic inflammations without ever having been aided by art. But, let a person operate ; let the diseased

part be retrenched at a time when some internal organ begins to be irritated; then this irritation, far from ceasing, continues its march, making new progress; the acute inflammation and traumatic fever which follow the operation, instead of contributing to extinguish, gives to it new energy, by the sympathetic stimulation and circulatory movement which they determine. Perhaps, at this time, the sudden withdrawal of a focus of supuration already of long standing, still disposes the economy to furnish a similar secretion elsewhere. However it may be, we cannot consider the internal abscesses of which we now speak, as independent of the external lesions to which they succeed: at the period of the operation, they either existed already, but were of too little magnitude to be discovered, or the organs which they invaded were not yet but sympathetically irritated, but with such force, that this irritation might not have ceased by the ablation of the part which had provoked it, and that, to the contrary, had made new progress after the operation.

The theoretical explications established in this chapter are not speculative and hypotheti-

cal; they evidently consist in the simple, and we may say literal expression of a great number of known facts. I have only pointed out in exposing the succession of phenomena, how the organs act to produce them; and this manner of explaining, which is employed by physicians and chemists, appears to me to be the only one suitable to medicine. The philosophical method of observing and drawing consequences from observations, is the same in all sciences. As to the proofs of the exactness of my assertions, they may be found plentifully at the bed-side of the sick and on the dead body. One may see at every instant during the life of the subjects, the signs of the lesions of which we have spoken, and follow step by step their successive development; and after death we may find traces of them on the affected organs.

On opening the bodies of persons who have sunk under the influence of external chronic irritations, in the first place we find disorganization produced by phlogosis in the affected member, which varies according to the surrounding tissues and the progress of the disease. Internally, we discover the disorders which result

from inflammations sympathetically determined to other organs than the alimentary canal, and which were the most sensitive and irritable; such as, the lungs, the liver, the serous membranes, &c. These disorders consist either in large abscesses, or in a more or less considerable reddening and thickening, or in diversified productions and organic degeneracies. We arrive, finally, at the lesions constantly developed in the digestive canal. These may vary almost without end. These are frequently brownish patches more or less extensive, disseminated in the stomach and small intestines. Accompanied by varicose development of the vessels, with softening, disorganization, and thickening of the mucous membrane. Those patches are large in the stomach, small and rare in the first parts of the small intestines, more numerous and crowded together in the vicinity of the ileo-cæcal valve. It is not rare to find in this place the intestinal tunics thickened, degenerated into lardaceous and melanose tissues, presenting on their internal surface, ulcers more or less large, at the bottom greyish, the borders of which are red, hard, protruding, shaped to a

point, and which furnish a bloody and sanious suppuration. In the large intestines the same disorders exist; we find there almost always a multitude of small ulcers in groups, and which seem to have for a base, the mucous follicles of those organs very much developed.

These alterations are so much the more extensive and profound, as the disease has been more tedious, and disorganization has had time to operate more completely. I still recollect the examination of a soldier for some time affected with a caries of the tibia, and who died in consequence of an irritation of the digestive viscera, after having been operated upon with the greatest success by M. Beclard, surgeon major and professor to the military hospital of Instruction at Strasburg. On opening the corpse, we found the mucous membrane of all the digestive canal reddened, thickened and engorged to such an extent, that the intestines, opened and spread upon a table, resembled a fleshy membrane. It is rare that the encephalon presents any trace of irritation. The patients almost always continue the free exercise of their intellectual faculties to the last. Nev-

ertheless, when melancholy, unwillingness to die, or other motives of disappointment act with force, we see the brain give signs of excitation, and we find after death, either serosity in the ventricles, an albuminous exudation on the arachnoid, or more profound disorders which announce the existence of an intense cerebral excitation already of long standing.

CHAPTER IX.

Treatment of internal irritations which complicate chronic surgical diseases.

The theoretical principles exposed in the preceding chapter, seem to me to throw a new light on the causes and seat of internal lesions which manifest themselves almost constantly in important surgical diseases of long standing. This theory should have an equal effect in making us adopt a treatment more simple and efficacious against the complications which now occupy us. Surgeons, in treating patients affected with chronic diseases in whom the viscera begin sympathetically to inflame, still combat the hectic fever with bark and its preparations; want of appetite, with bitters; diarrhæa, with astringents and opium; feebleness, with tonics in every form; and internal accidental phlegmasiæ which come on during this state of debility, with vesicatories and almost always exciting drinks. To restore lost strength, give tone to the stomach, contract the mucous follicles of the large intestines, combat the adyna-

mic phlegmasiæ, by removing local debility of the vessels, such are the general indications which they propose to fulfil. It seems that the whole of **Brownism** had taken refuge in this portion of the healing art. **But**, what are the most ordinary results of this practice? **Exaspe-ration** of the symptoms, and the rapid death of the patients.

Always when a surgical lesion tends to become chronic, it is necessary to examine the nature of this lesion, its seat, the manner in which it progresses, and the effects that may be expected from the internal and external treatment which is proposed to be employed. The temperament, the age, the strength and actual state of the constitution of the patient, are of great importance in determining what course to pursue. If it is thought that the patient is sufficiently strong to resist the violence and prolongation of irritation;—if, besides, the local lesion is of such a nature as to be able to subside spontaneously, or by well directed efforts of art:—we should most assuredly temporise and put in use such therapeutic means as may be most suitable. **But** when the result of the cal-

culatation of the practitioner is opposed to this proceeding, and the patient is threatened with immediate danger, or the local disease seems to be of an incurable nature otherwise than by operating, it is necessary without further delay, to have recourse to the latter. It is easily seen how much experience and skill are necessary to solve problems of this kind ;—how necessary it is to have a profound knowledge of the laws of the animal economy, the resources of nature, and the means of art, to avoid passing an erroneous judgment ;—how much it is necessary, in fine, to be circumspect and reserved, in order not to be contradicted by the result. What compassion should those practitioners inspire, who affect to pronounce at first sight and before any previous inspection, judgments, which chance renders sometimes correct, but which are much more often invalidated by experience ! It should be observed, besides, that in cases of uncertainty, we do not place the patient in any danger by having recourse at first to hygienic and medicinal means and in delaying, for there will still be time to administer, as soon as we

shall have acquired the conviction of the inutility of these remedies.

After these reflections, it is easy to understand how vain were the discussions which were raised among surgeons, relative to the period which is most favourable to the success of operations during diseases. The opposite opinions advanced by two military surgeons, on the subject of amputations which the wounds of fire-arms necessitate, are known. This question is at the present day, definitely resolved, and we constantly amputate limbs at the instant of the wound, whenever the extent of the lesion does not permit us to preserve them, and when the patient is not plunged into such a state of stupor or profound debility as not to be able to stand the operation. Relative to chronic diseases, Bell has maintained, that it was not necessary to amputate unless the patient became very much debilitated, and was already affected with habitual looseness and colliquative sweats. Such erroneous precepts have never been followed by many practitioners: they have feared, and with just reason, that the operation would only serve to aggravate the

affections, or that the wounds which they left after them could not heal in patients too much exhausted to furnish suppuration afresh.

Nevertheless, the same persons who have made these judicious reflections, assert, that the state of debility of the patients is singularly favourable to the success of the amputations which they have performed after chronic arthritis; and that they had then less to fear the inflammatory affections which succeed these operations. It is true, that in very feeble patients, acute inflammations do not have ordinarily the same violence as in robust and vigorous men; but these slight inflammations produce frequently in debilitated subjects, more dangerous effects than intense phlegmasiæ determine in strong men. The latter resist very intense external irritations; the former succumb often in consequence of the most trifling inflammations. In robust subjects, we can oppose violent inflammations by powerful antiphlogistic means; in very feeble patients, we cannot employ without fear, the smallest sanguineous evacuations. Supposing even, that it really existed, this advantage that is thought to be obtained in not

operating until an advanced stage of the disease, will be more than compensated by the pains to which the patient is condemned until he appears sufficiently weak, and by the internal inflammations which he is exposed to contract whilst he is submitted to the influence of a considerable focus of irritation exercised on the whole economy. Besides, is it not always more easy to combat by means of sanguineous evacuations, diet, and emollient drinks, the acute inflammations which may succeed operations, and to remove those latent irritations which so often develop themselves in the viscera of subjects in whom external phlegmasiæ have existed for a long time? It is sufficient to give a glance at the modifications in the vitality of all the parts of the organism, caused by these phlegmasiæ, to be convinced how unreasonable it would be to prolong without motive the disturbance which they determine in the most important functions.

It is constantly repeated, that feeble patients will recover from wounds made during operations, more easily than others; but it is not said how many patients before arriving at the state of feebleness desired, die, either of pretended

acute fevers, or of inflammations which they would not have contracted, if, operated upon sooner, they had been restored to health: it is not said how many patients do not arrive at that happy state of debility until affected by gastro-enterite, pneumonia, pleurisy, or other chronic inflammations which hinder the performance of operations which might have been practised with success at a less advanced period of the disease: it is not said, finally, how many patients perish in consequence of enormous abscesses, produced, as we have seen heretofore, by those internal inflammations, and which might have been easily cured if these formidable affections had not been allowed time to develop themselves. Thus it is, that observation and experience itself, can be dangerous and deceptive to those who are too ready to deduce from them, general principles and rules of practice.

It is necessary then, I repeat, to operate on subjects affected with chronic surgical diseases, as soon as these maladies are proved to be incurable otherwise than by this remedy. By acting in this manner, we prevent certainly the

manifestation of the internal irritations which they sympathetically determine, and which become almost inevitably fatal.

I have pointed out in one of the preceding chapters, the general plan of treatment which it is proper to oppose locally to chronic surgical irritations; it only remains for me to expose the means of combatting the internal affections which complicate them when it has been impossible to operate before their appearance.

It is to be observed, first, that an appropriate local treatment, in diminishing the intensity of the irritation of the parts and in shortening its duration, is the means the most efficacious which we can oppose to the development of internal lesions which it tends always to determine. We observe in cases of chronic irritation, what is so evident in those of acute inflammation: just as the traumatic fever is lessened and sometimes prevented by local bleedings, in like manner the internal irritations and hectic fever are kept off or rendered less intense by the use of the same treatment.

The regimen of patients affected with external chronic diseases ought to be rigid: light

and nourishing aliments; mucilaginous or acidulated drinks; small quantities of old Bordeaux wine during meals if the stomach performs its functions well, are the substances which they should use. It is proper to keep open the bowels by emollient injections; to favour the cutaneous transpiration by the aid of general baths and garments of wool proportioned to the severity of the season; to oppose the concentration of the vital movements to the interior, by means of moderate exercise appropriated to the nature of the disease and the strength of the patient. We should never but with great circumspection, direct revulsives to the alimentary canal: this organ is too much disposed to become the seat of a fatal irritation, for one not to fear accelerating the development of this affection, and rendering it more intense, by placing exciting substances in contact with the digestive mucous membrane. It is, on the contrary, to the external parts, that revulsions are directed with the most success: the means indicated above are proper to produce them: we may join to their use, frictions exercised on the skin

by flannel or soft brushes, and other operations of the same kind.

If, nevertheless, the gastro-enterite develops itself, it becomes necessary to retard or lessen its progress by means of emollient fomentations on the abdomen, gummy drinks, a very strict regimen, and even some applications of leeches, repeated as often as the renewal of the symptoms require and the strength of the patient will allow. When diarrhæa manifests itself, it is an indication that we ought to confine ourselves to prescribing aliments which are nourishing in a very small quantity, and without furnishing great quantities of stercoracious materials; such are rice, sago, and other analogous substances. When, finally, in spite of the employment of these remedies, the forces diminish more and more, and the alvine evacuations, likewise the habitual sweats, seem to exhaust the economy completely, it only remains for the surgeon to sustain some time longer, the remains of an extinguishing life; and tonics may be administered internally.

When the lungs, the pleura, the liver, or any other important organ is at first the particular

seat of sympathetic irritation determined by external lesions, it is proper to combat this irritation as if it was the result of any other cause:— that is to say, by means of antiphlogistics and local bleedings proportioned to the intensity of the phenomena, and the forces of the patient.

The progress of the disease having rendered necessary the use of surgical instruments, what preparation ought the patient to undergo, finally, to insure the success of the operation? Enlightened practitioners have for a long time since sanctioned the empirical and ridiculous method of bleeding, purging, and bathing all patients previous to performing the amputation of a limb, the extraction of a vesical calculus, the incision of a fistula in ano, etc. The surgeon enlightened by pathological physiology, confines himself to examining with attention the state of all the organs and the manner in which all the functions are executed. Having acquired by this investigation an exact knowledge of the different parts of the patient on which he is to operate, he determines easily what should be done in order to prevent the accidents which may succeed the operation.

If the patient is otherwise healthy, the only reasonable preparation consists in employing means the most proper either to diminish the sensibility, or to moderate the circulatory movement if it is violent and appears disposed to become more so, or finally, in producing a state of relaxation in the gastric passages, capable of preventing the too rapid and too intense development of gastritis. Baths, bleeding, some emollient lavements, diluent drinks, and a soothing regimen, are sufficient to fulfil these indications, to which, no doubt, it is not necessary to attach very great importance, but it will be dangerous to neglect them entirely. I know many surgeons of very great expertness in the execution of operations, and who are notwithstanding less successful than others, because they do not pay sufficient attention to methodically preparing their patients before the operation, and because they do not prevent and combat with sufficient attention and energy, the inflammatory affections which succeed operations.

If the person on whom we are to operate is in a feeble state of health, accompanied with

notable disturbances in the most important functions, the preparation which we ought to put in use ought to have for its object, the combating of the irritations of the internal organs. Thus, for example, if the patient who is to undergo an amputation, has the skin dry and burning, the stomach painful, the point and borders of the tongue red, intense thirst, a frequent and hard pulse; beware of operating under such circumstances. Abstain, above all, from having recourse to aliments for the purpose of increasing the forces, to sudorifics for establishing the cutaneous transpiration, to purgatives, with the intention of disembarassing the intestinal canal of supposed bilious or mucous saburral materials, finally, to bark, intended to prevent the return of the febrile action. Such a treatment, which some practitioners still adopt in the cases of which we speak, would be eminently dangerous; it would have for its almost inevitable effect, the exasperation of the symptoms; and even when it does not produce all the evil of which it is susceptible, whilst precious time is lost by administering in vain, the favourable period for the operation passes. It

is proper then at this time, to have recourse to general baths, soothing drinks, epigastric bleedings, and to a regimen composed of a small quantity of aliments that are light and easy of digestion. These means do not enfeeble the patients; far from it: the gastric phlogosis being diminished, the secretions are re-established; nutrition recovers a part of its activity; and the return of a colour in the skin and some firmness in the muscles, announce that the economy is in a state for supporting the operation.

Analogous means ought also to be employed, if other organs than the digestive canal become the seat of a sympathetic irritation determined by the external disease. The pectoral organs, the liver, the spleen, and the whole of the abdominal cavity should then be examined with great attention. If the patient cannot take a full inspiration without experiencing pain;—if he is troubled with a cough more or less frequent;—if percussion of the thorax does not give, above all, a clear sound;—if the stethoscope announces the existence of some lesion in the organs of respiration and circulation:—

expect to see an external inflammation arise, and thus rob you as well as the patient, of the fruit of the best executed operation. It is therefore of the highest importance to combat at this time, with energy, the already developed or only imminent irritations of the organs, by means of local bleedings, baths, soothing drinks, a strict regimen, and revulsives—such as vesicatories, setons, moxas, cauteries, etc. The same attention ought to be paid to the exploration of the abdominal viscera, and the same perseverance in destroying the very last vestiges of their phlegmasiæ. It is only after being assured of the proper state of all the viscera, that we are permitted to operate, and that we can do it with some security. It is here that medical knowledge extended and founded on a wholesome physiology, procures for surgeons who possess it, signal success; whilst under the same circumstances, operators limited to manual action, meet, in spite of their dexterity, only with inevitable reverses.

I have already observed, that if operations performed on account of chronic surgical diseases are not always successful, it is in a great

measure because they perform them at a period when the irritations which require them have all their intensity, and exercise the most powerful action on the animal economy. The entire organization is then sympathetically affected by the phlogosed and more or less profoundly altered tissues. There exists in all the organs a very striking disposition to irritation; and when the economy is suddenly deprived of the heat of inflammation to which it was habituated, the most light causes serve to develop others, which sometimes even seem to arise spontaneously. These secondary phlegmasiæ make progress so much more rapid, and are so much more promptly fatal, as they have their seat in parts already disposed a long time since, to allow themselves to be destroyed by them.

Applying these reflections to cancerous diseases, which are those in which relapse is most frequent, it is easy to demonstrate, that the same causes favour and determine the production of these affections. When we extirpate a cancerous or other ulcer, we do it commonly at a period when the local irritation is in all its force, and when the rest of the animal econo-

my, a long time since subdued by the sympathetic action of the affected organ, is already more or less profoundly vitiated. All the tissues being endowed then with a greater susceptibility to contract irritation, are disposed, for this reason, to become easily the seat of new cancers.

Experience has proved, that it is especially on the part primitively affected, that relapses take place. Reasoning explains this phenomenon in a manner sufficiently satisfactory. In effect, it could hardly be thought, that the tissues which have been for many years in contact with a tumour or a cancerous ulceration, may not have participated, or may not at least have contracted a strong disposition to the irritation which constitutes the disease. Now, this slight irritation, or only this disposition to irritation can, as it appears, exist without the texture of the parts being altered to the point of necessitating their ablation. It is thus that we find around cancers, portions of cellular tissue become yellowish, others infiltrated by serosity, others, finally, in which the density is manifestly augmented; muscular and aponeurotic fibres

have frequently experienced an alteration in their consistence and even in their organization. Now, is it surprising that the parts thus affected should become, after the destruction of the primitive disease, the seat of a secondary disease more grievous still? Ought not the new cancer to develop itself with so much more rapidity, as the derangement of the vital movements, the traces of which I have just pointed out, is longer continued? Ought not the tumour or consecutive ulceration to make, besides, more rapid progress than the primitive disease, since we find the parts which it invades and the entire economy already disposed to receive and give themselves up without resistance to its ravages?

What are then, in the cases where extirpation of the cancer is judged indispensable, the means the most proper to insure the success of the operation and prevent the return of the disease? The means are incontestably those which succeed best in bringing about the cure when it is not thought advisable to operate. Previous to removing a tumour or a cancerous ulcer, it will be proper, according to my view, to make always use of an antiphlogistic treatment:

leeches should be applied in a number more or less great on the tumour or around the ulcer, emollient cataplasms, baths, and soothing drinks should be prescribed, and we should not make use of a cutting instrument until the lancinating pains have been completely removed, and until the proper colour of the patient has announced the re-establishment of the nutritive functions. In a word, we should only operate at a period when the sympathetic phenomena produced by the cancer have very much diminished in intensity, and when the vivid irritation of the tumour or of the ulcer no longer existing, these diseases will only constitute lesions almost entirely foreign to the living organization, and the destruction of which cannot bring on any notable disturbances in the functions. By the aid of local antiphlogistic means, the disease will be confined, the tissues which border upon those which are disorganized will be restored to their natural state, and the chances of a return of the cancer will be greatly diminished.

The ulceration of cancerous tumours does not contraindicate the treatment alluded to, and which ought to be considered as preparatory to

the operation. I have often observed the suppuration become better under its influence, the edges of the wound settle down, the pains disappear, and the ulcerated tumours the ablation of which we scarcely dared to attempt, so certain did the relapse appear, become susceptible of a permanent cure. The extreme feebleness of the patient is far from constituting always an invincible obstacle to the employment of an antiphlogistic treatment. There exists a great number of examples of persons already reduced to a very advanced state of marasmus, in whom local bleedings and suitable hygienic and medicinal means, have raised the forces and re-established the nutrition, by causing to cease or by diminishing the irritations which destroyed the one and altered the other. Besides, if the patient is too feeble for it to be possible to make use of emollient medications, it is very probable that he will not be able to support the operation with advantage, or we will not be able to succeed on account of the profound affection and state of debility of all the organs. It would not then be proper to submit such a patient to pains that are useless

and more proper to hasten his destruction than to effect a cure.

Not only ought a well directed antiphlogistic and revulsive treatment to be employed to prepare the patient for the operation in the case of cancer, but it is necessary still to continue the use of this treatment after the ablation of the affected parts, in order to confirm the health of the patient. It is proper to watch the person operated upon, for whole years;—to prescribe for him a diet gently emollient;—to oblige him to take baths frequently;—and to keep the bowels constantly regular by means of mild purgatives and injections. Warm clothing, living in the country, moderate exercise, and tranquility of mind, are each of the circumstances which favour powerfully the return and establishment of perfect health. Some weeks before the operation, an issue ought to be established and continued with care, in order to supply as much as possible, the place of the irritation and suppuration of which the economy is made to stand in need, in cancers which have existed for a long time. If the patient contracts some new irritation, the practitioner ought to combat it prompt-

ly and with energy, in the end to prevent its passage into a chronic state, and a cancerous degeneration to which the parts affected will be still disposed. Finally, if the wound itself, or the tissues which cover the cicatrice already formed, should become, in spite of these precautions, the seat of an eruption consecutive to the cancer, it becomes proper to oppose to this new evil the treatment which has succeeded against the primitive affection. And although notwithstanding success be almost impossible, we obtain at least relief and a prolongation of the existence of the patient.

Analogous means ought to be employed in cases of scrofula: that is to say, before operating on subjects in whom the lymphatic system is irritated, it is necessary previously to remove this irritation, to give to the sanguineous apparatus its energy, and to continue this treatment a long time even after the operation, in order to insure the complete cure of the patient. In a word, in all the chronic phlegmasiæ of our organs, surgical operations constitute only a secondary means of curation: the practitioner ought only to have recourse to them after hav-

ing vainly employed more gentle means; and even when he makes use of instruments, it is the methodical administration of the assistance of medicine and the rigorous observance of the rules of hygiene, which insures and confirms the success of operations.

FINIS.

