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*Gaillard (E. S.)*  
A N

ESSAY

ON

INTERMITTENT AND BILIOUS REMITTENT  
FEVERS:

WITH THEIR

PATHOLOGICAL RELATION

TO

OZONE.

BY

E. S. GAILLARD, M. D.

— 'Tis a cause that hath no mean dependence  
Upon our joint and several dignities.

TROILUS AND CRESSIDA—II. 2.

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TO  
S. HENRY DICKSON, M.D. LL.D.,  
PROFESSOR OF THE INSTITUTES AND PRACTICE OF MEDICINE  
IN THE  
*Medical College of the State of South-Carolina,*  
AS A MARK OF ESTEEM  
FOR HIS PROFESSIONAL AND PERSONAL CHARACTER,  
AND  
AS A SINCERE ACKNOWLEDGMENT  
OF THE  
CONCISE YET COMPREHENSIVE COURSE OF INSTRUCTION  
RECEIVED FROM HIS CHAIR,  
THIS ESSAY  
IS RESPECTFULLY DEDICATED,  
BY  
THE AUTHOR.

HENRY DICKSON, M.D., LL.D.

LECTURE ON THE HISTORY AND PROGRESS OF MEDICINE

DELIVERED AT THE UNIVERSITY OF TORONTO

IN THE YEAR 1887

FOR HIS PROFESSIONAL AND PERSONAL SERVICES

AS A FELLOW OF THE ROYAL SOCIETY

AND FOR HIS CONTRIBUTIONS TO THE SCIENCE OF MEDICINE

REMOVED FROM HIS CHAIR

THIS ESSAY

IS PUBLISHED BY THE UNIVERSITY OF TORONTO

THE AUTHOR

*Henry Dickson, M.D., LL.D.*

## PREFACE.

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THIS Essay was originally prepared and presented, by the Author, as an Inaugural Dissertation, at the period of his graduation.

By those to whom were intrusted the Scales of Justice, it was awarded the Annual Premium of the Medical College of the State of South-Carolina.

This is mentioned with much reluctance and delicacy, yet it is conceived necessary; for on this account, with the repeated requests of his old class-mates and friends, is it, that the Essay, in its original form, is committed to the press.

That part of the subject relating to the Fevers mentioned is old and familiar; every step of the road bears the impress of the multitude who have carefully threaded its intricacies.

The magnitude and boundless extent of the views and theories in regard to these Fevers rendered detail and consecutive discussion, in the comparatively limited space allotted, impossible. The Author has, therefore, by briefly considering the older and more modern views of the best available authorities, attempted both a condensed and comprehensive style. Than this, nothing can be more unwelcome to the reader, or unsatisfactory to the writer; yet necessity not unfrequently renders its adoption imperative.

The subject of Ozone is comparatively a recent one with the profession; and it is on account of this novelty, rather than because of any intrinsic merit in its discussion, that the Author feels well assured his production met with so gratifying and favorable a reception.

*Waukegan, Middle-Florida, Jan. 1st, 1856.*

*New York - 163 Lexington Av.*

# CHAPTER

The first part of the book is devoted to a general survey of the subject. It is divided into three main sections: the first deals with the history of the subject, the second with the theory, and the third with the practice. The second part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The third part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The fourth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The fifth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The sixth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The seventh part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The eighth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The ninth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice. The tenth part of the book is devoted to a detailed study of the subject. It is divided into two main sections: the first deals with the theory, and the second with the practice.

INTERMITTENT AND BILIOUS REMITTENT FEVERS,  
WITH THEIR RELATION TO  
OZONE.

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ABNORMALITY is not disease, as we may have the first without the last, though the presence of the last presupposes the existence of the first. Disease, being a perversion of a natural process, is necessarily progressive; for as the presence and manifestation of disease argue a previous abnormality; and as we may have abnormality without disease, it follows as a necessary consequence, that for the production of the last we must have a progression of the first. We see, thus, that the generation of disease is proximately the result of a progressed abnormality; or that disease is a constantly, though not a uniformly, progressive abnormality; progressive as the effect of a cause whose only claim to be thus considered, consists solely in its element of progression; which element not existing, we should have abnormality simply, and not disease. More briefly: Disease implies the progressive action of its cause; and the relation between disease and abnormality is alone dependent upon the extent of this action. Seeing, then, that disease is, in its definition, but a progressed abnormality, and knowing how illimitable are the causes which produce this state, it remains for us but to recollect that the continued action of any single cause is sufficient to originate in the system its correlative effect, and thus to explain the innumerable phases in which disease is presented to us.

It is our purpose to write of that which gives a title to this article, speaking of it thus in the singular number as having more immediate reference to a community of type, than to that signification which the plurality of names would imply. The two diseases, though separated by authors for descriptive and



therapeutic convenience, should not, on this account, be considered as distinct specialties; for most of our modern authorities would find the relative exposition of their opinions in the words of him who defines "Intermittent the type; Remittent Fever as a manifestation of the aggravation, or modification of the type."

Before, however, stating the abundant reasons why these Fevers may thus together be treated, it would be more relevant in an introduction to the subject, first to speak of the great class which claims them as a sub-division. In doing so, it will be only to repeat what every student has felt and every writer dwelt upon—the impossibility of defining the long catalogue of symptoms which uniformly should be present, to constitute that peculiar condition of the system, to which has been given the generic term, *Fever*. The failure of "The Great Scotchman" in such an attempt, and after him (we would almost say necessarily) a host of others, proves the obscurity of the subject and difficulty of the task. It has been a professional search after the Philosopher's stone—a futile attempt "ex fumo dare lucem." Cullen, in meaning, regards Fever as a cold stage, succeeded by a hot and then a sweating stage. Now, as we *may* have the hot without the cold stage, and the sweating without either; or again, any one stage, neither preceded nor followed by its correlative, it is clear that there can not be the least claim to a definition of that state, whose phenomena are all to be classed under the word in question, and all on which his warmest admirers may insist is, that he has furnished the most correct *description* which had ever previously been given of the subject—the least proof of interruption, or anomaly in his stages, transforms the definition into a description. Fever has never been elucidated by the records, or researches of Morbid Anatomy; and at present we have no better definition than that of Fordyce's, that "Fever is a disease affecting the whole system." We have, of course, all the evidences in these Fevers which characterize Idiopathic Fevers generally—remission, and still more remarkably, intermission—in those uniform and peculiar effects which, never to an incidental, can only be attributed to a specific cause: the frequency of pulse, as vitally affecting our prognosis, (so entirely the reverse in the Symptomatic Fevers,) and lastly, that sub, and sometimes defibrination of

the blood, as relative to the proportion of the red corpuscles so invariably observed. Our attention is next riveted by that incomprehensible element, periodicity, so conspicuously stamped on every page of their history; not that periodicity is unobservable in all Fevers, for we know the contrary to be the case; but that it is in these Fevers so uniformly and palpably manifested, that they are themselves cited as the very type of the phenomenon. Any periodicity, contradictive in its manifestations of that which is impressed upon us by the harmonies of nature, implies an unnatural, or it may be, a diseased state of the system. *Natural* periodicity is exhibited in diurnal and septenary periods, and when otherwise, is the effect of a cause which we recognize as disease. Chossat remarks, that there is even in the diurnal cycle a periodicity in respiration, and consequently in calorification; proving his position by *explaining*—a phenomenon but hitherto *observed* by all—the greater difficulty of bearing exposure to cold between midnight and early morning, than at any other period in the twenty-four hours. Scharling observes, that the maximum of carbonic acid is exhaled before and after noon; the minimum before and after midnight; corroborating thus, by *proof*, the truth of Chossat's assertions; while, at the same time he gives us the rationale of the fact. By the unprofessional this mystery has not gone unobserved; and Dickens chronicles this truth, when one of his characters is described to us, in the quaint language of the people, as “going out with the tide;” shewing, in some obscure way, the periodic effect of lunar influences, even upon the sands in the glass of life. In the inorganic world we observe this periodicity in that obscure causation, under which the massive volcano emits into the superincumbent ether the liquid contents of its bosom; in the material, from the exquisitely exact revolution of our globe and its sister planets; in the progress of the tidal wave, registering in its course the effect of a cause, resident in “the liquid orb” which controls it. The vegetable world shows it to us, in the specific duration of time which, as well in the highest as the lowest of its specimens, governs the several and specific stages of their existence; whilst, when we look at the animal, we mark the impress, in the manifestations of those habits which so strictly rule, as to simulate their Creator

in the development of another nature. Lastly, though more beautifully, does it speak to us, in the *menstrual* revolution, of that mysterious function which, no less obscurely than surely, presides over the very perpetuation of our being. Periodicity is one of those obscurities of nature which we yet "see through a glass darkly;" totally incomprehensible and unexplained. It is, in a medical point of view, the Gordian *knot* which, unable to untie, we yet cut with the Alexandrian sword of specific medication. The effect of this is as unintelligible as the cause which demands it; but serving to prove to us, that though the chart of nature be constantly before us, and studying ever, we seek to be guided by it, yet the needle of Science, which directs our course, must not unfrequently be corrected by the observations of tradition and experience. It is no very flattering fact to those enthusiasts in the profession, who look alone to Science for revelation, that accident, and a praiseworthy obedience to the dictates of tradition, have contributed some of the most valuable weapons, in our therapeutical armory. Accident has revealed to us the value of cinchona; and when the Chemist teaches that morphine and beoberine are isomeric, or in composition identical, we must, before acting on the information, *learn* with surprise our practice, from the infallible records of experience. These collaterals, then, though not the legitimate offsprings of Science, are by no means to be despised, and should, to the profession, as its many branches are to nature, be always useful and effective handmaids. As an intimate and a close study of periodicity is essentially requisite to a satisfactory and correct practice; so the increase, climax, and decrease of disease must be accurately noted, to build upon so good a foundation the structure of a rational medication. The incomprehensibility of disease, without the previous study of all the phases of periodicity, has been beautifully illustrated by the utter baldness and lack of interest which the perusal of the most enchaining Epic must induce in the mind of him who, neglecting the argument and the introduction, seeks instruction and amusement alone in the conclusion. Diseases, from the operation of this law, have been classified into the self-limiting, the doubtful, and the unlimited—terms so self-explanatory as to need no relative comment. It may be observed, that the second

class has been much diminished, though each diminution has been the subject of the warmest controversy. Of this there cannot be an apter instance than the attempt to class Typhus Fever under the head of the self-limiting. Taking as a rule, that diseases of this class cannot be abbreviated; that each attempt to do so originates a danger not otherwise existing; that the *médecine expectante* treatment is chiefly required; and the fact that Typhus can be, and has been "jugulated" in each and all of its stages, and we have the strongest argument against the reasonableness, or justice of such a transfer. We must hope, however, that this second class may be yet farther diminished, as thus shall patients be saved much of that harsh medication which would otherwise be imperatively demanded. "It is worthy of remark, that all those diseases which have been doubtfully assigned a place among the Eruptive Fevers belong to this second class." Many diseases, which once were classed under the head of self-limiting, have been transferred to the last class. Among these diseases so transferred, we find Intermittent Fever assigned its former position, from the incorrect induction which would classify a disease, not by its cause, but rather by the characteristics which mark its paroxysms. Before the discovery of that great specific—so inestimable a boon to mankind—it was extremely difficult to check this disease, lasting, as it did then, thirty, seventy, not unfrequently one hundred days; and with that Procrustean spirit of accommodation, innate, as it would seem, in the minds of all men, it was proposed and argued that the disease was, in itself, salutary, and any attempt to abbreviate it altogether hazardous. The absurdity of this proposition was only acknowledged, when the ability to control the subject of it was exhibited; and happily the disease is now stricken from the roll it once so conspicuously occupied. The latent period, or that of incubation, is extremely various and uncertain, extending, as 'tis said, from ten to twenty days. A favorite theory would make the duration of this period, and the efficiency, or intensity of the impressing cause in an inverse ratio. Of this there is much uncertainty; for in the Fever of our Southern States we not unfrequently find, that the termination of a nine-day incubation will usher in an attack of the most virulent character. When on the African

coast, as Burnett informs us, after the most imprudent exposure, fatigue and subjection to all of those agents which most aggravate the symptoms and danger of this disease, there is not the slightest manifestation of indisposition until the eighteenth, and frequently the thirtieth day. The virulence of the attack is most *generally*, if not universally, in a direct ratio with the intensity and efficiency of the impressing cause; but circumstances, as well as facts, forbid our believing that this intensity, and the duration of the incubation, are always relative. The predisposition of the individual, doubtless, frequently modifies the duration of this period. We have frequent instances, recorded in the books, of a six-months', or even of a year's incubation; and though these cases are well authenticated, the so-styled facts too far tax our credulity, and we cannot but believe that some collateral circumstances, or contingencies have been omitted, sufficient in themselves to explain these monstrous anomalies. During an incubation in these Fevers, as in all recurrent affections, the patient is in apparently perfect health; proving that we cannot, in disease, from the non-manifestation of effect, infer the simultaneous non-existence of a cause. All that can be said on the subject, therefore, is, that there is a latent period, *varying in duration*, from the action of causes, as yet imperfectly understood.

As to type, we may state, before entering on the subject, that there have been the most multifarious and heterogeneous theories urged, on which to build a relative argument. There is no one uniformly selected; and this is to be much regretted, for only in this way can we hope to avoid the confusion, obscurity, and diversity of opinion which now prevail in our Pyrexial Nosology. Copeland's theory, that the constitution, habits, and even manners of a patient, may change the type of Fever, has, though so frequently commented upon, no more of the Utopian about it, than those of many whose names might be cited. The causes that he urges may *modify* the type of Fever; but to produce a change of this must be impossible. In *modifying* the type, we have an instance of the effect of age in Infantile Remittent, changed as it is in its symptoms, from the ordinary Remittent, by the imperfect digestion, and vermicular obstructions which so characterize the subjects of it.

Again, we have the analogue of Copeland's views, in the effect produced on disease by sex. We know that cerebral congestion, producing coma and strabismus in the male infant, is as marked as chorea and epilepsy, which characterize the *spinal* congestions of the female. The most consistent ground on which to found a type in Fever, has been stated, as that which bears a direct relation to causation. Thus the zymotic action of malaria gives us many kinds of Fever, as manifested by their respective symptoms, *but all of a single type*. *Ozone produces its type—Catarrhal Fever*, and lastly the zymosis of ochlesis and contagion, respectively, Typhus Fever, and the exanthemata. There are some Fevers which we cannot thus classify, as Yellow Fever, *etc.* This should, however, form no argument against the justice of this theory, but rather as only showing our inability farther to *illustrate* the truth of it; a difficulty which must terminate on the revelation, or discovery of the cause, in each peculiar and particular disease. The truth of this theory—and it is, we think, almost a professional axiom—must prove the falsity of that doctrine which advocates the unity of Fevers. How the simple manifestation of periodicity in continued Fevers, or their amenability to the quinine treatment, could suggest such a doctrine, is, indeed, incomprehensible. This periodicity has, to a certain extent, been always manifested in continued Fevers, and where this prevails in a malarious region, or supervenes upon a malarious Fever, it is only reasonable to suppose that this agent will, in some measure, *modify* the disease. Where this is the case, the patient is, *of course*, improved by the quinine treatment, because the effects of the agent in question have become a *part* of the disease, and these effects are more amenable to this peculiar antidote than to any other known. Where, however, malaria does not exist, it has been *clearly* proved that quinine is of *no value whatever* when administered in *any* of the stages of continued Fever. Again, it is well known that a few of the cases of Pleurisy, Pneumonia, *etc.*, prevailing in the Southern sections of our country, are *modified* by malarious influences, thus becoming periodical; and that these yield promptly under the quinine treatment; so that reasoning in this very

logical method, we might as rationally class them under one general head, and in the place of advocating the doctrine of "unity of Fevers," go one step in advance, and claim to have established a unity in disease. There can be no correct type established in Fevers if we are to found this upon the manifestation of symptoms; and this truth we should think clearly illustrated by the following passage, in a letter from one of the most eminent Physicians in the British Navy. Speaking of the Fevers he had been called upon to treat, he observes: "It has not been considered necessary to adhere strictly to the various names which have been applied to Remittent Fever in our Nosological returns, partly from the conviction that to do so would only lead to misapprehension and confusion; partly because it was, in many instances, altogether impossible to reconcile the classification there adopted, with the symptoms recorded in the cases which were contained in the journals for the corresponding periods. The Bilious Remittent of one person was found to be the Climatorial of another; the Endemic of a third, the Typhus Icterodes of a fourth; the adjectives ardent, yellow, congestive, inflamatory, had all been used in describing the *same* disease. The character of these Fevers is, in fact, such, that the Synocha of one day may become a Remittent on the next, and probably ere long terminate in an Intermittent. The ephemeral of little force may suddenly become one of high vascular action, or at the same time, but in a different subject, pass rapidly through the stage of excitement and at once enter upon the Typhoid; while that which invades with great intensity of action, may frequently be of ephemeral existence only. It is therefore obvious that it is not until the Fever *approaches its termination*, that it can be brought under any one of the previous heads; consequently, in a practical point of view, such visionary distinctions are of little, or no importance." We want, then, no better proof of the impracticability of a classification, founded on *symptoms* in Fever, than the Nosological *mélange* here introduced, and cannot conceive of any system, in which a worse mistake could be made. *That classification* which leads a truly scientific mind to confound a simple Intermittent with Typhus Icterodes should no longer be tolerated. We certainly could have no better theory, or

basis of classification, than that which has now so many able advocates, viz : that *every* type in Fever should bear a *direct* relation to the cause of the disease ; and each subdivision of Nosology should be but an exemplification of this simple and rational law.

It is now better, before entering minutely upon our subject, that we should give the reasons which actuated us, in uniting under one head, the two diseases which give the title to this article. In doing this, with comparative want of experience, we are of course governed entirely by authorities. Wilson observes: "When the fits of the Quotidian are lengthened there is no time for any *apyrexia*, and the Intermittent is changed into a Remittent." Dunghinson: "The prodromic symptoms of Remittents are analagous to those of Intermittents ; differ so little indeed from them, as not to require enumeration." Watson, speaking of Intermittents, observes: "When the intermissions are imperfect, the patient remaining ill and uncomfortable in a less degree than during the paroxysm, then the complaint is said to be a Remittent Fever." Again: "Bilious Remittent Fever is closely allied, in its nature, the localities in which it chiefly prevails, and in many of the phenomena, to Intermittent Fever, of which, by many, it is considered as a mere modification." Dickson speaks thus of the two Fevers: "In low, flat, alluvial regions, the inhabitants are subject to known forms of disease, *varying less in their character* than their intensity and violence, according *to the degree of solar heat* to which they may be subjected." The degree of solar heat is productive, in a measure, of the duration of that intermission. Where intense, as on the coast of Africa, the West India Islands, Santa Cruz, Cairo, Barbadoes, and Cumanna, where the mean temperature of summer rises from 75° to 85° Fahrenheit, we have Remittents of malignant character ; in more Northern, and comparatively more genial climes, we find chiefly the Intermittent Fevers prevailing. Again Dr. Dickson observes, when on the subject of Bilious Remittent Fever: "We must not confound the subject of our present discussion with any of the other forms of Fever—Continued Inflammatory, Ephemeral, Ardent, or by whatever names they may be known. Its analogies in course and history with malarious Intermittent are, as we shall hereafter see, very close." To increase still farther the strength



of all this testimony, Dr. Burnett observes, that even on the coast of Africa, Bilious Remittent, whether endemic, epidemic, or sporadic, if imperfectly cured, become Intermittent.

We pass on, therefore, to the subject of our discourse, as it can now be seen that there is no error or singularity in our treating, together, those diseases of which we are about to write—diseases, in fine, which, though different in name, are not only identical in type, (and, therefore, readily convertible into each other,) but simulate each other closely in symptom; similar in cause; frequently in effect; often in treatment; and always in those remedies upon which, as well for their immediate as prophylactic agencies, we invariably rely for their removal. These Fevers now occupy a prominent position, as unwelcome as to be regretted, in the catalogue of unlimited diseases. It is this class which forms the chief arena in which the profession has to struggle for the mastery; a struggle in which those about to enter, must look for encouragement and hope to the bright records of the past, to those glorious triumphs which have crowned the illustrious efforts of their honored predecessors; and lastly, to the magnificent results of microscopic examinations, fully equalled and supported by the delicate though accurate analyses of the laboratory. The microscope, the scalpel, and the retort, form, indeed, the medical tripod, from which the Pythian Goddess of Research delivers to us her oracles—oracles which command our respect for the labors of the past; which should induce our coöperation in those of the present; and reasoning from both, cause us to look with mingled emotions of pleasure and hope upon the gilded horizon of the future.

For convenience, we will first describe the varieties, symptoms, and treatment of Intermittent Fever; pass on to Bilious Remittent; and, lastly, note the causes, complications, etc., which necessarily appertain to both diseases.

In Intermittent Fever we are struck with the correctness of that enlarged view of disease which frequently ascribes “functional and organic derangement to general and constitutional disorder.” In reasoning as to the nature of Inter and Remittent Fevers, we argue, or infer an identity of cause, from a similarity of effect; the effects being always the same, prove a similarity of cause. In no one disease does the present view

of the subject more strongly corroborate the lessons of tradition. This Fever, though most generally endemic, has not unfrequently been epidemic. Where endemic, dependent, of course, upon its peculiar and only cause, *malaria*. If epidemic, it must be locally so; for we cannot learn that it has ever extensively and regularly prevailed where "opposite or contrasted conditions of cold, heat, dryness, moisture, and peculiar winds" have existed; or beyond the scope of notable exhalation and favoring winds. The contrary of all this, Dr. Ferger-son has *attempted* to prove by facts: stating that he has seen these Fevers prevailing "upon level plains of sand," and among those living "upon the banks of pure and limpid streams, running through a rocky and sandy country." It is well for us, however, not to be misled by such assertions; for though true in the *main*, they may all be capable of explanation. Who shall say that these exhalations did not prevail, though unknown to the examiners; or developed in such quantities from neighboring, it may be distant sources, as to impregnate the whole atmosphere? We know that this agent can be suspended in the watery vapor of the atmosphere, and this, here a ready vehicle, is constantly moved—driven back and forth—by prevailing winds. How more than probable, then, that this poison, taken up from mephitic localities by the atmosphere, and thus driven before favoring winds, that the contagion should be deposited in dew throughout healthy and distant regions. The prevalence of this Fever is in an eminent degree dependent upon temperature. Apart from other countries, we see this fact proven by the winter table of the Charity Hospital in New Orleans.

Of Intermittents, we have chiefly three divisions: Quotidian, Tertian, and Quartan, with their special peculiarities and complications. Authors have mentioned many others, but of these, a large proportion is entirely hypothetical, and the small remainder rarely met with—the Quintan, Sextan, Hebdomadal, Octan, Nonan, Menstrual, and even Annual Intermittents: very nearly all of them existing rather in imagination than reality. The Septiman should be excepted, as there are well authenticated accounts of its fatal existence in Russia. Not satisfied with this long catalogue, the ingenious have amus-

ed themselves by giving names to this disease, founded on the *symptoms* which characterize, at times, its various divisions. Thus we have the Pernicious, Congestive, Choleric, Dysenteric, Hepatic, Cardialgic, Peripneumonic, Pleuritic, Nephritic, Cephalagic, Diaphoretic, and Algidic, *etc.*, Intermittents; all serving to show the ludicrous mistakes which one *must* make who seeks to designate a disease, not by its cause, but by the list of *symptoms* manifested in its course.

Of the three great divisions mentioned, the second, or Tertian, is most frequently met with. This variety, with its complications, may be said to form a large proportion of the cases of Fever which, in the alluvial sections of our country, we are called upon to treat. We will, however, take them up in order, and as their characteristics and the history of their course have in latter days been reduced almost to a formula, dispose of them as summarily as possible.

First, comes the Quotidian. This variety completes (as the name would imply) its revolution in twenty-four hours—appears always in the forenoon, seldom invading before daylight, or during sleep, (differing here so remarkably from Yellow Fever,) and rarely after 10 or 11 o'clock. Its cold stage is shortest, hot stage longest, (say ten hours,) and apyrexia very trifling. The Quotidian is the most severe form, lasting doubly as long as the Quartan, and its apyrexia least of all. Some authors have given twelve hours as the time in which the paroxysm is completed; this we would suppose under the mark, and think fourteen to sixteen hours more nearly correct. The Tertian attacks at noon, and is usually terminated the same evening; completes its revolution in forty-eight hours: average duration of the paroxysm six to eight hours. The Quartan attacks in the afternoon; cold stage very long; paroxysm very short, and rarely exceeds four to six hours; completes its revolution in seventy-two hours; supposed to be the most tenacious. "The Quartan has the longest cold stage and the shortest paroxysm; the Quotidian the shortest interval and shortest cold stage, but the longest paroxysm." The Tertian holds an intermediate position in the duration of its stages. "To express these facts mathematically, the length of the paroxysm varies inversely, as the length of the cold stage; inversely, also, as the length of the interval." These sepa-

rate types usually observe a distinctive character throughout their course, though it has been said that either or all of them may lapse into the Quartan form. Besides these simple varieties, we have their complications, chiefly relative to the Tertian and Quartan forms. Thus, when we have an attack every day, "distinguished from the Quotidian by the time of its access and duration of the paroxysm," it is called the Double Tertian or Tertian Duplex. This form may readily be recognized by the similarity existing in the paroxysms of alternate, and the dissimilarity which characterizes those of successive days. Again: there is a form in which we have two paroxysms in forty-eight hours, but these two occurring on the same day: this is styled Tertian Duplicata. Of the Triple Tertian we have two varieties also: Tertian Triplex, in which we have three paroxysms in forty-eight hours, two on the first, and one on the second day; and Tertian Triplicata, which exhibits the same number of paroxysms in forty-eight hours, but three of these dissimilar in nature, occur on the first, and no paroxysm on the second day. This last form is mentioned, we believe, only by Hossack, and in the past Summer we saw a *very well marked* instance of it, in the person of a young man residing on Cooper River. It proved to be extremely tenacious in character, resisting all the anti-periodic remedies administered by the attending physician. As it is a form so entirely rare, we will digress a little, for the purpose of a brief description. The patient, on *every alternate* day, was attacked by the *three* well marked and violent paroxysms, each running distinctly through the several stages. The first attack usually came on a short time after daylight, lasting until 10 or 11 o'clock; the second, some time during the afternoon, usually between 3 and 5 o'clock; and the last about bed time. The paroxysms were all of the most violent character; and the disease, after resisting all medication, was terminated only by the cool weather of Autumn. The patient was reduced to a skeleton, jaundiced, and with an extremely large spleen. He recovered slowly, and with extreme difficulty. An elastic and robust constitution alone saved his life.

We pass on, next, to the Quartan form of this fever. Dr. Cleghorn, in his work on the Diseases of Minorca, gives us instances of the Quartana Duplex, Quartana Duplicata, Quar-

tana Triplex, and Quartana Triplicata. We are told, again, of a Semi-Quartan, etc. These forms we seldom or rarely meet with in our country, and any description could only be given from foreign authorities. The simple Quartan is common, and this is the most tedious and difficult of cure. This being already described, we will omit its various and hypothetical complications, and next take up the symptoms usually characteristic of intermittent, as a class. After the termination of the period designated as that of incubation, the patient is first sensible of muscular debility and mental apathy; then comes on a distress in the epigastric region, listlessness, thirst and disinclination to either physical or mental exercise, sighing and stretching of the limbs, and sensation of cold water trickling along the course of the spine, the blood deserts the surface, and becomes inwardly congested, the cutaneous capillaries anæmic, we have what the books term *cutis anserina*, *horripilatio* manifested; the features shrink, and the patient complains of intense cold; then comes on the convulsive shaking of the body and limbs, the teeth chatter, (some authors say, so violently as to be shaken out of,) or broken in their sockets, the nose is pinched, lips and nails become blue, respiration disturbed, quick and hurried, pulse slow and feeble, pains in the head, bones and exterior muscles of the limbs, secretions suspended, (though the bladder is sometimes irritable and its contents passed in limited quantities, "pale and aqueous,") tongue usually dry and white. This, the cold, or *algid* stage, lasts for some time, and its duration, of course, characterizes the form under which the patient labours. The coldness now either gradually or suddenly ceases; we have occasional flushing, alternating with *spasmodic* chill; the blood becomes again centrifugal in its course, the cutaneous capillaries resume their action, and the skin returns to its *normal* condition. This state does not last long; for we have the law of action and reaction manifested, inasmuch as the whole circulation and system was depressed, so is there now a proportionate excess of action: the face and whole surface takes on a roseate hue, becomes turgid, hot and dry; sometimes this heat is excessive, and we have the "*calor modax*" of the old writers: the eyes become suffused, the pulse full, frequent, bounding and strong, occasionally *immaterially*

*intermittent*, violent cephalalgia, the respiration becomes slower, but deeper, and causing great depression, secretions entirely suspended, and the patient extremely anxious and uncomfortable. This is denominated the hot stage, or expansive stage of *Dubois*. This state, which causes the most suffering to the patient, passes gradually into the last, or sweating stage: the skin becomes soft, relaxed, and a copious perspiration breaks forth, the thirst, so tormenting in the previous stage, ceases, the secretions are all resumed, the tongue is soft, pulse is natural, pains lost, and the patient expresses himself as entirely well again. This, however, is *comparative*, for there is that peculiar condition impressed upon the patient by the disease which we term Intermission, a state in which the patient feels that he is not entirely well, and which has been said at times to be so well marked, that an acute and intelligent observer can by it predict the recurrence of the disease. This feeling the patient cannot himself describe; it has never been done satisfactorily or intelligibly in the books; yet it is familiar to every one who has experienced or closely observed this form of disease. We have not in our language words to describe it, the peculiar "*je ne sais pas quoi*" of the French is all that can be said of it.

In considering these varieties of Intermittent, we should carefully avoid the old error, of considering diseases as separate entities, but rather look upon them as merely "modes of being and acting different from those which are proper to the state of health." The older writers give us symptoms separate and distinct as characteristic of peculiar forms. This we would consider as tending too much to complicate an otherwise simple *diagnosis*; thus Wilson gives us the history of cases, as reported by Cleghorn, Senac, Frank, Jackson, Vogel, Burserius, Sohenkins, Stork, Pringle, Clark, Galen, Rush, and a host of others. Symptoms, or varieties, which should essentially form a part in the medical *history* of the disease, but which are not sufficiently uniform to be considered as diagnostic in a work on practice, where anomalies arise, they, of course, complicate the treatment, and may obscure our diagnosis; *but* as it is utterly impossible to classify by symptoms, so as to give these so completely and thoroughly that each case met with shall have its analogue described in the books, all that can be done, is to give the *usual*

symptoms; and where others are manifested, we should be prepared to treat the causes, of which we see but the effects, on general principles. Apart from the usual symptoms, we would remark, that those characteristic of the typhoid form—viz: great muscular prostration and deficiency of vascular action, nervous derangement, “low muttering delirium, mental dejection, alarm”—are at times met with, particularly among the negroes inhabiting the alluvial sections of our State. In all of our malarious fevers, whether preceded by chill, or not, we have the centripetal congestion of a *passive* character, and a consequent reaction totally unintelligible, unless this fact be known. There is, in the cold stage of an Intermittent, positive cold, as the blood has been found as low in temperature as 75° Fahrenheit; on the contrary, the heat, in the next stage, is comparative, (the patient deluded by the contrast,) seldom over 100° Fahrenheit. In the cold stage, the extreme depression under which the patient labors is *now* considered in character entirely neurotic, attributed either to want of action, or its peculiarity in the cerebro-spinal system; while the dyspnœa of this stage is entirely due to congestion of the internal viscera, pulmonary congestion, it would seem, being always excessive. The neurotic depression, in the cold stage, would seem to be the direct action of the poison of malaria; and one is somewhat supported in this view of the subject, by the effect of stimulus on the system: as in poisoning from the bite of a venomous reptile, or animal, stimulus produces no longer its normal and usual effects on the *vascular* system, so in the cold stage of this disease, the greatest amount of stimulus induces no increase of the vascular reaction developed in the succeeding stage. After having several attacks of Intermittent Fever, there are not unfrequently symptoms manifested, on the recurrence of a paroxysm, eminently calculated to mislead us. Thus, we are told of a lady on the “Neck,” who suffered repeated attacks of this Fever during the summer: the Fever was checked; but there supervened, at the usual time of its access, *periodic attacks of vomiting*: the case being properly diagnosed, this annoyance was speedily checked by the administration, in the ordinary manner, of quinine and other antiperiodics. Again, of a case of a man who contracted an obstinate Fever of this form, on one of our rivers: the Fever was

speedily made to yield; but, for some time after, he was attacked with *periodical sweats*. This case was managed and treated as successfully as the first.

Before considering the treatment, we would bear testimony to the truth of the prophylactic agency of quinine, one well marked case having come under our observation during the past summer. The patient manifested most decidedly all of the prodromic symptoms of an attack of this Fever; but being promptly placed under the ectrotic quinine treatment, even before having recourse to the usual and previous cathartic, or aperient course, was quickly and permanently relieved; having no return of the disease throughout the remainder of the season. The history of the case was one of extreme interest, but we have not room here to introduce it. We are firmly persuaded, however, that after having been exposed to the cause of the disease, if any one will adhere rigidly to the prophylactic treatment, viz: full and *regular* use of quinine, the avoidance of exposure, and all the predisposers to Fever, using at least *no less* of an accustomed stimulus, the disease may either be warded off, or made to abort entirely. We believe that quinine is fully as valuable and efficient in the precursory as in the incipient stage.

Perhaps in the history of no disease, have there been as many and various theories offered, as to the various indications which, by the action of our medicines, we are called upon to fulfil. Happily the long list of theories, as well as of medicines, has been curtailed, and our treatment now is reduced to the simplest and most intelligible form possible. We find here, on the *comparatively* unexplored ocean of Therapeutics, the needle of the magnet, not unfitly prototyping that of medical science: as the one, vibrating and oscillating between the opposing forces of natural and physical *laws*, finally settles to its pole, so the other, quivering and changed by every breath of opinion, no less surely rests at last, and as unerringly guides us on our way. Mighty, and always to be relied on, we would say of it, "*Veritas magna est et semper prævalebit.*" We have but to cultivate, diligently and conscientiously, the field in which we are called upon to labor; to banish imposition and presumption from the precincts; to fulfil the command, "Physician heal thyself;" and our course must be ever and still brightly forward.



TREATMENT.—We may say, generally, that *during* the paroxysm this should be palliative and protective; during the intermission, preventive and alterative. It is undoubtedly best that we should resort to the mildest means, for often these are alone sufficient: if so, we save the patient much suffering; and if not, we can in time, resort to the more active, or, perhaps, heroic remedies. Our interference by drugs is only warrantable, when their action becomes a minor evil to the disease itself; and we should always be careful that the action of the disease, relative to the strength of the patient's constitution, be closely interrogated, before instituting a harsh and painful medication. Our practice has, during later years, been much modified in this respect, and justly so; for Homeopathy has taught us that *unassisted* Nature is alone capable of successfully combating the attacks of disease. Years ago 'twas said, that, if on an accidental loss of the aqueous humour of the eye, the patient would only for a given time cover that organ with "a buzzard's wing," the wound would be healed, and the humour restored. This being successfully done, theory was rife for the scientific explanation of the phenomenon, until it was casually discovered that the same effect would be produced *without* a resort to the mystic agency. Thus it is with that specious piece of empiricism which its professors have attempted to dignify as the "Science of Homeopathy." Let us, then, be always sufficiently eclectic to profit by even the *errors* around us.

If the cold stage has not fairly set in, we may try the ec-trotic treatment of opium in some of its forms. This, in combination with some of the strongest stimulants, will be our only hope in preventing the accession on so short a notice. If, however, we do not see the patient, as usual, until in the cold stage, the opium may still be given, as it will abbreviate, at times, (Trotter says, always,) this part of the paroxysm. The warm bath, or the pediluvium, may be used; either will add to the patient's comfort. External warmth applied either by increased bed covering or by hot bricks, bottles of hot water, bags of hot salt, etc.; warm diluent drinks will be fancied, and *may* be given. One of the authorities tells us, "Give warm drinks in the cold, cold drinks in the hot, and tepid drinks in the sweating stage." If we suspect a foul, or loaded condition of the stomach, an

emetic may be given with great advantage, as not only is the first indication thus fulfilled, but the act of vomiting causes a centrifugal distribution of the blood, tending thus to prematurely induce this, its condition, in the hot stage. In addition, we have gained, thus, much time, and the system is in a better condition for after treatment. Emetics, however, need not be given, unless this state of the stomach be observed; when prescribed, the mustard and salt, or scruple dose of Ipecacuanha had better be given; Antimony and the prostrating emetics should rigidly be avoided. Though McIntosh, Twining and Reid speak so highly of venæsection at this time, still their testimony is more than negated by the experience of Stokes, Gill, Townsend, Law, and many others, all equally high and respectable authorities. This practice is, for the most part, now *proscribed* unless in the forms exhibiting extreme congestion, where it may be demanded. Venæsection, on the whole, is seldom, or never required, and milder treatment will often equally well fulfil the indications. Again, the experience of many now recorded, teaches us that the use of the lancet is not unfrequently dangerous: these diseases, occurring as they do in Summer, find the constitution in an atonic state, depressed by the combined effects of the heat and season. This last inculcation is, however, as old as Hippocrates; for one of the doctrines advocated in his treatise on regimen is, that "the quantity of blood drawn should be in proportion to the constitution of the body, *the season, the age, etc.*" When the lancet is used, however, the blood should be drawn from a large orifice, as thus shall we speedily create the *greatest impression with the least loss*. The patient should generally be seated upright, as this also tends to increase the advantage. Nothing more need be done in this stage; for here, at all times, a needlessly officious practice is not only injudicious, but absolutely useless, and it may be dangerous. Some authorities recommend the tourniquet practice of Kelly. There are favorable accounts in regard to it; but generally, it is but little used. Next comes on the hot or expansive stage. Here still less is required of us; for the cold stage passed, and with it much of the danger, (for in this disease the danger is peculiar to this stage,) the paroxysm progresses to a speedy solution. We should see that our patient have but light

covering, free ventilation and cold drinks *ad libitum*; some refrigerant diaphoretic may be given. Free sponging may be instituted, or what is still better, the much neglected practice of Dr. Currie, ablution, or affusion. The patient, though at first shrinking from the shock produced by the cold water, will, after experiencing its grateful and beneficial effects, soon crave its speedy repetition. At times we may meet attacks of the Typhoid character: here the patient passes, with difficulty and much danger, through the cold stage, and reaction takes place but feebly and imperfectly. Our sole indication here is to stimulate *heroically*; and, as in other cases, if dangerous congestions are manifested, to combat them on general principles, frictions, counter-irritations, contra-stimulant use of quinine, etc. Where reaction takes place, and threatens to run to a dangerous extreme, the lancet may be used beneficially. Of course, we have no reference here, whatever, to a Typhoid attack, as this practice would *most generally* be fatal, *though it has been tried and advised*. The cold ablution, or affusion, should, if at all, be used with extreme caution, if the patient be cold, feeble, incapable of reaction, or suffering from pulmonary disease. The sweating stage needs no medication, as it is the spontaneous and natural solution of the paroxysm. The patient should avoid currents of cold air, drink sparingly only of cold water; and ablution, etc., should, of course, be proscribed. It has been thought best that we should now commence the anti-periodic treatment, as the effects of the agents employed are most conspicuously manifested sixteen, or eighteen hours after its administration. Quinine (the disulphate) is most commonly used; six, or eight grains may now be given. There is, however, much variety in the preparation of quinine here given: the acetate, citrate, ferrocyanite, muriate, nitrate, phosphate, valerianate, disulphate, etc. The disulphate, if selected, may be given in a glass of water, with one or two drops of sulphuric acid, to bring it in solution. We may now give some gentle cathartic, in combination with a few grains of calomel; or, we may give the last alone, and the cathartic a few hours after. It is only necessary to act gently and effectually on the gastro-intestinal canal; after which, our attention should be directed chiefly to the anti-periodics. During the

apyrexia, the patient should be kept under the influence of these remedies. As the time approaches for a re-invasion, there is no one remedy of more importance than opium: we thus induce sleep, a sure and infallible prophylactic. Emetics, as prophylactics, are sometimes prescribed; but this practice is harsh, and unnecessary. Invasions have been repelled by appeals to the sympathies: thus, cobwebs, spiders, and other disgusting nauseants, have been administered. Deception has been successfully practised, and the old and well known trick of moving "adroitly forwards the hands of the clock," has often caused the patient to forget that he *must* have his chill. There is a tendency to anticipation of an attack, and this may, it is thought, be in a measure causative—external irritation producing peripheral distribution of the blood, and thus preventing that inward congestion which characterizes the chill. Phloridzyn, obtained from the bark of the apple tree, "and cetrarin, from the cetraria islandica," are among Dr. Dunglison's new remedies. Sulphur has been found very effectual—dependent altogether for its beneficial effects upon its tendency to excite the hepatic secretion. The ethereal acetated tincture of iron, called by Dunglison entropic, has been highly recommended. Many of these remedies may be administered endermically. We have recently had favorable accounts of the gossypium *herbaceum*, or cotton seed, from Dr. Peterfield Trent, of Richmond, Virginia. He thus prepares and uses it: Place 1 pint of cotton seed in 1 quart of water; boil to a pint—1 gill to be taken one hour previous to the expected chill. This is preceded by calomel, or some mild cathartic; and the practice, so far, is said to have been highly successful. Citrate of iron and quinia, and combinations of opium with quinine, are favorite prescriptions at many of the public institutions. Arsenic was once a prescription held in high esteem; but it is now being abandoned. In the opinion of Dr. Hunt, of England, who has taken much pains to accumulate testimony on this subject, it is not to be relied on. This is, we believe, fast becoming the opinion of most practitioners in this country. When arsenic is given, Fowler's solution is usually preferred; it had best be given in stationary or diminishing doses: given to excess, though not in sufficient quantity to produce its toxicological effect, it produces a cachexy

not easily removed. The success of arsenic is dependent upon its alterative or eliminative ("this word should be used, as it expresses the real action of the drug,") effect. This medicine has been known to reproduce the disease, irritating the gastrointestinal mucous membrane, creating thus a centripetal action of the blood; the cutaneous capillaries become emptied, and chills supervene. We have heard one case of this kind reported. When quinine is given, it should be continuously, as it is rapidly eliminated by the kidneys, and can be detected a few hours after in the urine. The action of this salt is now thought to be entirely catalytic. The stomach frequently revolts after quinine has been given for some time. When this is the case, by combining it with piperin, its disagreeable effect will be removed. Cinchona is superior to the salt of its extract in *tonic* property. In the first we have tannic and gallic acid combined with the anti-periodic agent; in quinine, only the last. This anti-periodic element is alkaline in reaction, and it is in this way that we may explain its speedy elimination by the kidneys. It is arbitrarily determined that 20 grains of quinine should be our maximum dose; its good effects are not increased proportionately if at all beyond this quantity. Quinine was once forbidden until there was complete apyrexia; it is now given frequently in the second and third stages. There are many remedies of minor importance mentioned in the books: narcotine, piperin, salicine, cornine, poplar and magnolia bark, quassia, gentian, the vegetable and mineral astringents, etc. There are many and *valuable* salts of iron now commonly used: citrate, prussiate, carbonate, etc. The Ferro cyanuret of iron is beyond estimation valuable, and *may yet usurp the place of cinchona*. It produces the *effects* of quinine, without the cerebral disturbances occasioned by the latter. Dr. Zollicoffer, of Maryland, deserves the thanks of the Profession, for its introduction. Pétrequin has recently furnished us with the recipes for many new and effective anti-periodic prescriptions and tonic agents: manganese and iron, effervescing solution of manganese and iron, carbonate of iron and manganese, ferro-manganic chocolate, lactate of iron and manganese, some of the salts of copper, zinc, bismuth, etc. The preparations of iron and manganese have recently received particular

attention, and are highly advised. Muriate of ammonia should here be mentioned, as it has succeeded in reducing a hypertrophied spleen, after quinine and other remedies have failed. It will be often found, however, that a case of Intermittent Fever will resist all of our remedies, and yield only to the beneficial effects of travel, change of our occupation, etc. In one case that came under our notice during the summer of 1852, all of the usual remedies were tried in vain; the cold of winter proved ineffectual, and the tenacity of the disease was only conquered by the patient's having exposed himself and contracted a violent pleurisy. There was here, enlarged spleen, anorexia, œdema of the extremities, and general cachexy. The blister applied for the pleurisy conquered both diseases.

Postponing diagnosis, prognosis, causes, etc., we proceed now to consider

### BILIOUS REMITTENT FEVER.

The causes and history of this disease have attracted no small proportion of the attention of physicians, from the era of Hippocrates (who graphically describes it in his treatise on endemics) to the present time. It is the disease which country practitioners, in the Southern sections of the United States, are chiefly called upon to treat, and which has, in some of the fatal years of its history, robbed many a hearth-stone of its ornament, destroyed the happiness of many a community, and made desolate many a village.

We shall say nothing of its history in our own State, for this alone is sufficient material for a volume, but pass on immediately to its description. To the derangement of the hepatic function and secretion, which, being so uniform, has given in part a name to this disease, we will briefly allude. The causes of this derangement still remain in obscurity; and though Dr. James Johnson has offered, in his work "on the liver," many arguments in favor of what he terms "a cutaneo-hepatic sympathy." still these views, though at the *time* received with respect and interest, have, from the rapid strides of physiology, lost much of their value. The physiology of the liver, though

comparatively still obscure, is so much better and satisfactorily understood, than was the case when he wrote, that many of the views, *predicated* on this knowledge of the organ, have since been abandoned. That this sympathy does exist, is even now generally admitted; but his explanation of the cause of this effect is, in many respects, controverted. The history of the residents of India, and of all hot climates, proves that this sympathy does exist; but Dr. Johnson's explanation of this, that "the contemporary action in any two organs will, in time, produce such an association that, when the impulse is given to one, the other will act by what is called sympathy," though very ingeniously and elaborately defended, (we can not say supported) is entirely illogical. The fact of this sympathy, be whatever may the cause, is undoubted. Taking for granted that high solar heat does increase the activity of this gland, in process of time deranging its functions, with, at the same time, a glance at the part which, in its normal condition, it is called upon to play in the animal economy, and we shall readily comprehend why it is, that during our Summer months the Fevers peculiar to them should be so modified in course and history, as to be designated by a word which we receive, as intending to imply a serious derangement of the organ in question.

Let us take a glance at the physiological *facts* now established in regard to the liver; and we can at least comprehend the effect, if not the cause, when its functions are obstructed, impeded, or deranged. It is clearly proved, that in the nourishment of the blood, and thus of the whole system, the lacteals only take up the oleaginous portion of the non-nitronized-ingesta; that this is converted into the true chyle, being, until it has passed through the mesenteric glands, little more than a fatty emulsion; that in the thoracic duct this comes in contact with a fluid lymph (elaborated from the arterial system just before it merges into the venous radicles, and thus proving its still vivifying power,) whose whole function is to modify and fit it for introduction into the circulation; that the other portions of the food, in the form of sugar, dextrin, gelatin, etc., are taken up by *venous* absorption; that the branches of this venous tree unite to form a common trunk which, under the name of the vena portæ, passes directly into

the liver, holding in suspension all of the nutriment destined to the support of the system, the small portion taken up by the lacteals being excepted: here it is for the time lost; but the analysis of the chemist teaches us that this important gland is not idle: the blood of the hepatic veins, as compared with that of the vena portae, now shews "an increased proportion of *sugar* and fat, which are generated from its other components during its passage through the liver;" and there is a decided augmentation in the quantity of fibrin: the blood then passes onwards; the effete matter contained, is first attacked by the lungs, and partly eliminated; the new matter taken in is now here vitalized; the blood next enters the circulation, and whatever of effete matter then remains, is then removed by the remaining eliminative organs of the body. Can any one be surprised at the Protean diseases, and modifications of disease, which are manifested to us, when this important organ is injured or deranged? For a time, thwarted by extraneous, or extrinsic causes, *venous* absorption is injured; *alimentation* stopped; the blood altered and impoverished by this detraction of those elements which form so conspicuous a part in its genesis; debility and depression are produced, thus increasing the susceptibility of the system to the invasions of disease; the action of zymosis, in its many forms, on the blood is favored; this becomes poisoned; nervous prostration succeeds, and disease supervenes. This may be somewhat Utopian; but we are, nevertheless, deeply impressed with the truth of the rationale thus offered.

We pass on, now, to the symptoms manifested in this Fever; and shall observe a marked coincidence between them and those developed in the previous disease—differing, as they do, mostly in degree. The symptoms of this Fever are, as we have said, very similar to those of the last; the chill is not usually as well marked; the gastric uneasiness a little more; the pulse is somewhat peculiar, after reaction has taken place being exceedingly quick, frequent and jerking; the tongue is coated with a yellowish fur, which increases in thickness and depth of hue, or shade, as the disease advances, sometimes swollen and indented; the irritation (this word has recently been suggested for the old word irritability, this last expressing a property of the stomach in its *natural* and *healthy* condition,)



of the stomach increases, and we have nausea and vomiting. This last symptom has been urged as a reason for considering this state as dependent upon a neurotic cause, and the anorexia, nausea, and vomiting, have been attributed to the sympathy of the pneumogastric nerve in the general neurotic disturbance. The matters thrown up are usually the ingesta, mixed with mucus, and very soon with bile. "There is some relief after such vomiting, but the organ continues disturbed, oppressed, and uneasy: cephalagia, of intense character, usually now supervenes; the bowels become constipated; there is jactitation and pervigilium; the alvine evacuations differ so constantly in consistence, appearance, etc., that they can not be considered as at all pathognomonic; the swollen tongue shows that the secretions are abundant and vitiated, while its darkness and dryness betoken danger; sometimes the urine shows an albuminous deposit, easily detected by subjecting this secretion to heat, etc. The disturbance of the circulation is attributed to nervous derangement, for a correct nervous influence is necessary to a healthy circulation—destroy one, and you destroy the other. These symptoms last proportionately with the intensity of the disease, varying from six to twenty hours; a remission now takes place, and the patient experiences extreme relief. The cutaneous exhalation *well* manifested here, is extremely favorable. As to the duration of these paroxysms, we will find them bearing a close analogy to some of the forms of Intermittent Fever: this is so uniformly the case as to be generally known throughout the country; the good and bad days are proverbial. Some authors mention a semblance in the course of this disease to the Triple Tertian. This "herosthesis" (peculiar to what is known as "country fever") is extremely dangerous; but, happily, comparatively rare. The remission lasts, also, in proportion to the intensity of the disease and the peculiar form which it simulates. When the exacerbation again comes on, there is a return of most of the preceding symptoms, either diminished, or aggravated in intensity, as the disease be of a mild, or virulent form; if the first, the patient gradually loses his fever, and progresses rapidly to convalescence; if the last, manifestations of danger are speedily exhibited; tenderness about the epigastrium, increased sensibility of the eyes to light,

restlessness and vigil. There is great anxiety, fretfulness, despondency; the pulse loses somewhat of its fulness, but is still tense, frequent, abrupt. The tongue assumes a dark hue, and the thick brown fur is even blackish along the central line; it is often dry, chapped, or cracked. The bowels, sometimes costive, refuse to yield; at others, tormina and tenesmus annoy the patient, with stools frequent, thin, offensive, or acrimonious, generally exhibiting a diminution, or absence of the biliary secretion; "respiration becomes embarrassed; there is great debility." In a few more paroxysms the constitution yields; lesions occur in some of the important organs; prostration, general and complete, comes on; the pulse, gradually sinking, becomes thread-like, quick, frequent, and weak; subsultus, colliquative sweats, floccitatio, hiccough, tympanetes, low muttering, delirium, supervene, and death closes the scene.

The duration of the disease varies from "seven to thirteen days," though there is a *general* prejudice among the common people, that the ninth is usually the critical day. This last cannot be determined or stated; as almost every day, from the seventh to the twenty-fifth, has been given, as that on which we are to expect a crisis in this disease. This is manifested in various ways; but most generally by copious cutaneous transpiration. The "critical sweat" has been much dwelt upon; but we are disposed to regard it "as rather the index, than the cause of a favorable change in the malady." Among the natives and the acclimated this form of Fever is not unfrequently lengthened out interminably, as these diseases "*pave the way to their own recurrence,*" and each attack increases the susceptibility to a repetition of it; yet the virulence of the disease is, in these cases, notably diminished. Of two persons exposed to the causes of Fever, the one a stranger, the other acclimated, the last will be more generally attacked, but with a milder form of the disease, while the first may escape for a length of time; but when attacked, the Fever will be of the most virulent character, and the chances of life immeasurably against him. When this Fever does not terminate as before mentioned, it most commonly passes into the Typhoid form. The remissions and exacerbations are now less marked; can generally scarcely be distinguished. The patient may continue

in this state for a surprisingly long space of time, getting neither better nor worse. Cases of this kind not unfrequently last, from thirty to fifty days. The stomach now becomes quiet; the tongue, lips and teeth, covered with a thick and tenacious sordes, dry and chapped. Some authors tell us that the tongue now becomes clean, fiery red, and dry; (?) stools are dark and offensive; meteorism and tenderness of the abdomen, on pressure, are now observed (this meteorism should be closely diagnosed: it may be pneumatosis, or exosmosis of air from the intestines into the peritoneal sac—this showing the impairment of vitality in the animal membrane is an unfavorable sign—or it may be tympanetes, in which our prognosis would not be as grave,) very conspicuously. We have now hiccough, (may not this be here explained by the fact, that the phrenic nerve, in its downward course, receives, where it passes near the chest, a filament from the great sympathetic,) “nervous tremors, and perpetual subsultus tendinum; the countenance becomes heavy and dull, with a disposition to heavy stupor;” delirium supervenes, with low fatuous muttering;

bly “the life of all his blood this  
 Is touched corruptingly; and his pure brain  
 Doth, by the idle comments that it makes,  
 Foretel the ending of mortality.”

This is the ordinary course of this disease. At times we have what is termed the “Congestive” form manifested. *This is no new disease, but a simple variation in the course of the original Fever.* It is well marked, and known to every physician in the Southern and South-Western country. We have here almost the reverse of the symptoms manifested in the ordinary Inflammatory Bilious Remittent. The contracted pulse; embarrassed and *oppressed* respiration; thirst and complaint of *heat* with *cold surface*, and profuse sweating; face livid; vertigo; insensibility to pain and danger: This last sign is most foreboding; for it shews that nervous action and sympathy are entirely destroyed: it has deceived many a physician, in common with the friends and family. We should always bear in mind that there is no pain in the palsied limb; that the consumptive speaks of life when, in his cheek,

brightly and ominously burns the spot that is the herald of death. The abdomen, tender on pressure, is but the precursor of colliquative diarrhœa; the remissions are no longer perceptible; the patient, becoming gradually more inattentive to impressions and objects around him, sinks into a profound coma, the usher of death. At other times we have the case still more complicated; and the "Malignant" Remittent is presented to us. "The skin is cold, and covered with a clammy sweat; pulse weak and fluttering; stomach irritable, with ineffectual and painful efforts to vomit; countenance pale and shrunken, or livid; low delirium, with muttering, shivering, and fainting. In some cases, no complaint; again, low cries and groans from the miserable sufferer. The vital powers are speedily exhausted; the third, fourth, or fifth exacerbation ending the distressing scene." There are other and various anomalies, the varieties defying description; but we have only to adopt with each and all of them the advice given us by Rush, to treat *symptoms* as they arise.

We pass on now to an important part in the history of the disease—*Treatment*. Where there is nausea, with foul tongue, etc., we had best administer a mild emetic: this will answer every purpose; and we save the patient the depressing effects so characteristic of the mineral emetics. An advantage of much importance is gained by the administration of ipecacuanha, as it is generally admitted that this drug promptly promotes the suspended biliary secretion. It is more than probable that *any* emetic would effect a similar result; but the harsh should be proscribed, and we have no better mild. An English physician of high distinction, thus writes of the mineral emetics: "These preparations have sometimes the effect of producing intense headache and prostration: they are not admissible in the dangerous forms of Fever; while in those which are mild they are not required." The remarks were made more particularly in reference to the different forms of antimony. There are idiosyncrasies which forbid the use of antimony; and as we may not make this discovery until extreme injury is done to the patient, a safe rule would be to avoid this entirely. This is extremely advisable with negro patients; as the feebleness of reaction in this race, from any depressing agent, is proverbial.

So marked is this, that many physicians are slow to use the lancet with them in even the acute stage of Pleurisy. As soon as the fever is at its maximum, the cold bath, unless contra-indicated, will be found of the happiest benefit. Generally, we need place no restrictions on the patient, or attendants, in the use of this valuable agent. It is said to be almost sufficient, of itself, to control this disease. Whether this be true or not, it is one of the oldest and most valuable remedies known in this country. We are cognizant of the fact, that an obstinate constipation, which has defied the influences of our most drastic cathartics, has been, and may be relieved, by the sudden dash of cold water upon the extremities. Americus Vesputius is said to have found this practice prevalent among the aborigines, and its good effects have never since been controverted. Ablution, or affusion, are either admissible; the first, most generally used in the earlier; the last, with free sponging, in the later stages of the disease. The choice may be left to the fancy of individual patients. After the use of the bath, the patient may be scantily covered until reaction takes place. There is usually no necessity for the employment of any collateral agencies to produce this effect, it being but the result of a natural law. If deficient, however, external warmth, frictions, etc., may be applied in the usual way. We will find, after the use of the bath, arterial action and heat of surface notably diminished; a more equable distribution of the circulation induced, and, consequently, determinations relieved; free perspiration breaks forth, and the patient falls into a sleep, from which he awakes comparatively comfortable. Venæsection was formerly constantly here adopted: we should have recourse to it with caution, as it may be depriving the patient of strength which, in the course of the disease, may be of the most vital importance; and bleeding has *certainly not* the effect so frequently claimed for it—the diminution in the *proportionate* quantity of fibrin in the blood. In addition to this, the depressing effects of heat and climate materially interfere with the reaction usually anticipated. The experience of this agent in the East and South-East has, of late years, been particularly unfavorable; still, there are cases in which we are called upon to adopt it. The “phlogistic diathesis,” and the “sanguineous

temperament," frequently require it; the newly arrived stranger will bear it well. The indications for the use of the lancet are thus given: "the throbbing temple, red eye, turgid visage, full, hard, and abrupt pulse; violent pain in the head and along the spine; hot, dry skin, etc." When called upon to bleed, it should be from a large orifice, with the patient in the sitting posture. Strong and dangerous determinations may thus be speedily controlled. Topical bleeding has been frequently advised; and though this practice, in these Fevers, is much neglected, we should be disposed to frequently adopt it, as thus we have the beneficial effects of abstraction, without the danger. We may frequently diminish arterial action, and constitutional excitement, by the rigid withdrawal of all stimulus; forbidding noise or company; excluding light; keeping the room cool, etc.

Upon, cathartics, however, we principally rely in combating this disease. These should be given freely in the earlier; but only occasionally, and always cautiously, in the latter stages. It is *only* as the case progresses that the vitiated secretions, poured into the gastric intestinal canal, may be regularly and efficiently removed. "Calomel is the most valuable of our purgatives;" and though frequently and foolishly objected to, we should nevertheless look to it, as does the sailor to his sheet-anchor in the storm. Though frequently denied, this drug is decidedly sedative. Beaumont, in his well known case, has satisfactorily tested this fact; and Burnett tells us that, in the most violent cases of Fever scruple doses of calomel have succeeded in arresting the nausea and vomiting. In this disease, then, where so much depends on the tranquil state of the stomach; and where medication is, at the same time, imperatively demanded, this drug offers us advantages which we shall vainly seek to find in any other. Its action is slow, and will require, generally, some adjuvant. The combinations for the fulfilment of this indication are endless: Dr. Rush's X and X is a favorite formula. With any of the resinous cathartics it will be found to combine and act well. Dr. Hunt speaks highly of the combination here of calomel and bi-carbonate of soda: Calomel, grs.iii or v, with bi-carb. sodæ, ʒi. The action, he tells us, is mild, and occasions nothing of the usual griping.

Calomel is frequently given alone, followed by sulphate magnesiae, ol. ricini, or an ordinary laxative enema. It is commonly the practice to administer some sedative diaphoretic in the early stages of this disease; and though it has been argued that the actions of cathartics, and diaphoretics, are *physiologically* opposed to each other, still these views are, in practice, disregarded, and the old Latin aphorism, "vis unita fortior" acted upon. As when looking at the bow, in the sky, we perceive one intermediate, produced by the blending of opposing colors, so may we thus expect, by the happy blending of opposite agents, to produce the modified action of each. Antimony, though objectionable as an emetic, is here frequently and beneficially used. Any of its preparations may be given, though the James' powder, or tart. of antimony and potash are usually preferred: the pulvis antimonialis too frequently adulterated, and often inert, can not be relied on. The different salts of potash will all answer very well: we have the nitrate, citrate, acetate, etc. The spiritus mindereri is always prompt and pleasant in its action; the list of sedative diaphoretics will, at all times, afford us the ability to offer an apposite prescription.

When cephalalgia is intense, counter irritation at the back of the neck, the cold affusion, or a bag of ice (a bladder most advisable) applied to the head, may be beneficially adopted. Cold drinks come under the head of diaphoretics, and may be freely allowed. Remission comes on, and with it a call for increased skill and judgment. We will find, now, that those remedies which occasioned nausea and vomiting, taken with comparative ease; if the contrary, however, this irritation of the stomach should be speedily allayed; as it is the extreme of impossibility, otherwise, that the disease can be controlled. We have a number of remedies for this purpose: the old preparation given us by Paracelsus, paragoric, is sufficient in most instances, and generally fully adequate in any emergency; counter irritation upon the epigastric region, by sinapisms, or stimulating cataplasms; brandy diluted, in small quantities; perhaps even a blister. Dr. Thomas Inman speaks very highly of chloroform for this purpose: three to ten drops in a glass of water. Stimulants applied to the nose; with the usual list of domestic remedies:

*Green mint applied to the epigastrium* ; lime water and milk, etc. Some of these applications will usually subserve our purpose ; and if not, our attention should be immediately given to others—for this condition of the system is too pernicious in its consequences, to be allowed long to exist. All of our remedies should be so timed as to act most efficiently at the period of remission ; and our revulsives, for the controlling of determinations, should be administered and applied at the time of the anticipated invasion. Cathartics should be given only frequently enough to keep the bowels open ; any thing beyond is injurious. If there be a constant tendency to constipation, frequent sponging with, or the affusion of cold water, will generally remove it. The effect of this agent may be explained on the principle of “reflex action,” as advocated by Marshall Hall. Mild laxatives, or an emollient enema, may be substituted, now and then, for the agents just mentioned. One evacuation in the twenty-four hours will be quite sufficient. Our diaphoretics should be gradually made more stimulating ; capsicum, carb., ammoniæ, serpentaria, acetæ ammoniæ, etc., may be now used ; the carbonate of potash, with paregoric, is an efficient and favorite prescription. Where there is coldness of surface manifested, resort should be had to steaming, epispastics, etc. Objections have been made to this last agent, as increasing constitutional irritation. This, however, (if at all true) is entirely disproportionate to the benefit produced. Blisters are clearly indicated where we have cerebral congestion, with tendency to stupor, or somnolency ; to watchfulness and delirium, or lastly, “where and when similar effects appear to be the result of nervous derangement.” Where we have cerebral congestion, with the attendant train of symptoms, the blister is best applied to the back of the neck ; when there is pain, distress, and uneasiness of the stomach, with nausea or vomiting, the application is of course made over the epigastric region. In the last stages of the disease blisters have been applied to the extremities, to rouse the vital energies, “as much, perhaps, in accordance with custom, as in the hope of their being of the slightest advantage.” In the first and second instances they are of undoubted benefit ; but experience does not testify thus when the applications are made to the extremities ; they certainly cause here



great prostration, if allowed to vesicate ; 'tis well, however, observing this precaution, to continue their use even here. We should suppose, as a general rule, that epispastics, in the advanced stages, may be used as excitants during the paroxysm, and as revulsives during the remission. A not unfrequent effect of their continued use, is obstinate and painful strangury—both ischury and dysury. Acton, in his treatise on this subject, has recommended an injection of nitrate of silver: nitrate of silver,  $\zeta$ iv, distilled water,  $\bar{\zeta}$ iv. This, he says, is uniformly successful in overcoming the temporary stricture, or rather, strangury. The chief benefit, however, of a blister here, is in controlling dangerous determinations, and preventing nervous prostration. After constant nausea, generally headache, watchfulness, and suffering, the patient passes through another paroxysm, and remission coming on, falls into a gentle sleep, with, perhaps, free perspiration. If this be the case, it is quite favorable. At other times, the remission may bring but comparative easiness and rest, while the cutaneous secretion continues obstinately suspended. This symptom, in common with the suspension of all important secretions, is, of course, dangerous proportionately with its duration. Modern authorities tell us to give here quinine as freely as it can be borne. It not unfrequently happens, however, that in every remission—in fact until there is apyrexia, that this treatment cannot be borne, on account of the perpetual nausea and cephalalgia, etc. Under these circumstances the ferro cyannuret of iron would be beneficial. The patient, with these untoward symptoms, will now evince increased tenderness to pressure on the abdomen, and will confine himself to the dorsal decubitus, so characteristic in this condition of the case ; when, with this, “ there is a slipping down to the foot of the bed,” so much dwelt upon, and so dangerous, as betokening muscular debility and prostration, our prognosis will be gloomy. Often, however, blisters, with topical bleeding, counter irritation, etc., will favorably and rapidly change the patient's condition, removing, at the same time, from the mind of his physician, ominous forebodings of impending and anticipated evils. If not done before, the administration of calomel, for its *specific* effect, should now be promptly and energetically resorted to. Though we may, by the revulsive, depura-

tive, and depletive effects of cathartics, with other valuable auxiliaries, have considerably controlled the disease ; still, if up to the present time, the patient's condition be not *materially* changed for the better, *nothing* but the speedy, though judicious induction of ptyalism will warrant us in anticipating other than a fatal issue. With children, experience has taught us, that extreme caution should, in this practice, be used. It is difficult to produce a mercurial action in their systems ; and though we may occasionally induce a beneficial salivation, still these cases are the exceptions, and not the rule. Most generally when this course is pursued with pertinacity, we have not produced the beneficial and *ectrotic* action of the drug, but have only succeeded in "mercurializing" the little patient ; and this is always attended with the most distressing effects : ulceration and sloughing of the gums and cheeks, with sometimes caries, or necrosis in the alveolar processes of the maxillary bones. Unless in the most urgent cases, mercury in any form had best not be prescribed in our practice with children. Happily they, from not being subjected to exposure, are seldom called upon to undergo the chances and trials of this disease. In these advanced and advancing stages of Bilious Remittent Fever, our chances of failure, or success are intimately dependent upon the induction of a judicious ptyalism. This treatment, so violently opposed, is, nevertheless, by those acquainted with the, at times, terrible fatality of this Fever, admitted as our mainstay in the times of danger. Many have found it inefficient, from having deferred its adoption until the virulence of the disease has rendered the constitution no longer amenable to the influences of mercury, or until the system has been too much prostrated to rally. Salivation, *per se*, is of course not in the least beneficial, but should be regarded favorably *as the index of the general restoration of suspended secretions*. Calomel should be given, not in accordance with any *rule*, but until a gentle ptyalism is induced. In some constitutions this is extremely difficult. When such a difficulty is presented, however, we may generally succeed in removing it, by giving either large doses of calomel, closely restricted by opium, or grain doses every one or two hours. When there is extreme irritation of the stomach, this drug will be readily absorbed by being held continuously

on the tongue. Mercurial fumigation, as a last resort, may be instituted. The nitro-muriatic bath of Scott, has been said to be successful, either alone, or as an adjunct in inducing ptyalism. We would suggest the cautious administration of digitalis, or Dr. Norwood's preparation of the veratrum viride, for the production of this effect; the diminution of volume, and excitement in the circulation, we know, increases the action of absorption; and as the action of our depletives has *already* accomplished the first indication, we see not why, by using these medicines, for the accomplishment of the last, our principal object may not be successfully effected. It is, of course, our duty to see that the effect of these drugs is not contra-indicated; and also that the patient does not suffer from the insidious and "cumulative" properties of these agents. This practice would require, imperatively, the extreme of caution; yet the object, in our estimation, fully warrants this mode of its accomplishment. Although it has been said, "that our efforts will be more successful, by the use of such means as are better calculated to restore the secretions, than simply reducing arterial action;" yet it must be borne in mind that the readiest, and *here* the most appropriate means of "restoring secretion," is by "*reducing* arterial action." Colchicum, either alone, or combined with the iodide of potassium, enjoys now the highest reputation as a cholagogue; and Dr. Sturgeon, in his twelve very valuable lectures on galvanism, states that a current of electricity, passed through the right hypocondriac region, will succeed in restoring the biliary secretion, when all other remedies have failed. These agents may, most undoubtedly, produce this specific effect; still, it must be borne in mind, that the suspension of the hepatic secretion, in common with that of all others, is but the *effect* of this disease, and not the cause; that, though this suspension may so modify its characteristics, as to give, in part, a name to the Fever, this condition of the organ which supplies the hepatic secretion, *often exists without* inducing, in *any* degree, the peculiar symptoms *now* manifested. Evidently, then, our only way of *successfully* restoring this secretion, is by removing the cause which thus manifests its effects—an illustration of the oft inculcation: "*Causa sublata tollitur effectus.*" The ectrotic action of mercury, then—the substitution of an-

other morbid condition for the one existing—is our only means of fulfilling the indication now presented, *if a repeated and judicious quininism fail*. Ptyalism is, of course, a serious evil; “but when two evils are forced upon us, is it not natural to choose the least?” This peculiar effect of mercury, leads many to proscribe it. Yet blisters are, by these, freely used; not seemingly aware that the sphacelation induced by this last agent, is far more annoying, (*dangerous?*) and tedious of cure, than that produced by the first. We should be on our guard, and quickly desist in the administration of mercury, when its peculiar effects are observed. The prompt amelioration in the symptoms and condition of the patient will be manifested to the most superficial examiner: The moist tongue; freedom from thirst; soft skin; diminished sensibility of the eyes to light; free perspiration; and lastly, “tired Nature’s sweet restorer, balmy sleep.” The marked tendency to relapse, lastly, is notoriously diminished by ptyalism. M. Melsens, in a recent and interesting paper, has suggested the administration of the iodide of potassium, in dangerous salivation. He states that the metallic poison is “in actual union with the affected parts, and retained there in an *insoluble* form. \* \* \* That the iodide of potassium, after its absorption into the blood, combines with the metallic poison, and forms with it a *soluble* salt. \* \* \* That the new compound, set at liberty in the form of the double iodide of mercury and potassium, is eliminated by the kidneys. \* \* \*” There are many common and domestic palliatives—watery solution of opium, the chlorides, borax, charcoal, *etc.* Throughout this disease—even in the protracted forms—we should always see that the patient receives a sufficient amount of nourishment. This comparatively minor piece of treatment, with the constant inspection of the alvine evacuations, is strictly our duty. It is not unfrequently the case, that after a patient has been confined for a few days, with an attack of this Fever, in the country, that he is brought to the city; and this piece of imprudence is often fatal. The known tendency of city atmospheres to increase the virulence of a pestilential Fever, should prevent such a course. The mild epidemic, which, in the country, causes no alarm, and yields readily to treatment, when *developed* in a city

not uncommonly becomes "the pestilence which walketh in darkness and destroyeth at noon-day." This effect of a city atmosphere has been denied, on the ground that Fevers of this kind are not so fatal as those out of it. This may be, and *is* true, *but* from the *obvious* reason, that the materies morbi is not so prevalent, or concentrated in a city; and this is proved by the very small quantity of our anti-periodic agent which is required for the removal of such Fevers there. *A cold atmosphere cannot produce an eruptive Fever; but when such exists, it is alone sufficient to make it fatal.* In the last stages of this disease—when our treatment has so far been *unsuccessful*, the safety of the patient depends upon an active and rigid adherence to the mercurial treatment—we should now accelerate the production of ptyalism by all the means known to the profession. As a *dernier resort*, all blistered surfaces should be sprinkled with calomel; and frictions with mercurial ointment promptly instituted. The endermic method will often promote our object here; but should be adopted only in desperate conditions, and then with the utmost caution and care, as its unfortunate and disastrous consequences are not unfrequently manifested. At the same time that this practice is instituted, the strength and vitality of the patient should be supported by constant stimulation, with regularly administered nourishment. Where stimulus is *immediately* demanded, the alcoholic, as being most prompt, should be selected in preference to the vinous liquors; but when there is time afforded us, the last should be given, as the duration of their effect is more gradual and permanent. The dyspnœa, which most probably now increases, may be relieved, it is suggested, by diminishing the demand for air; and, for the fulfilment of this indication, chloroform would, of course, head the list. The bowels may now become loose; and if this be the case, a fatal, rapid, and colliquative diarrhœa may be anticipated. This can seldom be relieved, dependent as it often is, upon the ominous relaxation of the sphincter. The discharges often now exhibit a pinkish hue, which speaks of inward mortification, and are of the most offensive character. This condition lasts but a short time; prostration rapidly ensues; the patient quickly sinks; and the final scene takes place. This is usually the course of an *uncompli-*

*cated* and *fatal* case of Bilious Remittent Fever. *Most generally*, however, successful quininism or ptyalism can be in time induced, and the patient advances through a slow and tedious convalescence to eventual health.

The "Congestive" and "Typhoid" forms of this Fever not unfrequently present themselves; but it is not necessary to go in detail, through the treatment recommended for each of these. By the symptoms given, they are readily recognized; and we have only to treat these cases on general principles. The "Congestive" requires heroic stimulation and prompt ptyalism. With the Malignant, another form yet, we have to observe still greater caution and care, recollecting that, as its name imports, it is the most dangerous manifestation of this Fever with which we have to deal; while, lastly, in the "Typhoid" variety we have to institute very nearly the identical course of treatment, advised in the fever which is designated by this name. When a favourable change occurs, we adopt the same practice advised in the apyrexia of an Intermittent. If, on the contrary, we are to anticipate a fatal issue, it is our duty to remain with our patient to the end; "never disheartened by the apparent inefficacy or slowness of impression; to persevere, not only while there is a reasonable hope, but even after all hope seems extinguished. Thus, though disappointment be frequent, we may "be repaid by the gratification, which will not be denied us, of saving more than one fellow-creature from the destruction which seems so inevitably to await him."

We cannot leave this part of our subject, without alluding to the endosmotic and exosmotic action of medicines which now deservedly attracts so much attention. Many have attempted to prove that the effect of all cathartics may, in this way, be explained. Full experiments have been instituted, however, both in Europe and the United States; and though the action of these laws is frequently manifested, still it has been fully proved that their effect is not uncommonly "overridden" by that peculiar and prophylactic agent which we recognize, as the vital principle. Dr. Cogswell, in an interesting paper read before the London Medical Society, after impartially criticising the experiments and deductions of Dutrochet, Poisenille, Bachetti, and others, observes, "that the division of substances into those

favourable to endosmose and those not, \* \* \* requires confirmation ; that the power of endosmose, of different solutions, is *not regulated entirely by their density*, as observed by Dutrochet." Lankester, Bird, Snow and Chippendale have, in effect, endorsed these opinions, and state the *results of experiments* in support of their opinions. This wide field is therefore comparatively unexplored, and the so-styled facts should be received with caution and allowance.

DIAGNOSIS.—The diagnosis of an Intermittent is at all times, and to every one, easy. A single paroxysm will declare the nature of the disease. In Bilious Remittent, though not so simple, we could scarcely make a mistake. In the country we can scarcely confound this disease with any other. Season and locality would seem to distinguish it from Typhus, or Typhoid, (for there is no real difference between them, though authors make a distinction, and it is still thought to be a question of *degree, simply*,) for which it has been mistaken. In the city, however, Remittent Fever is frequently confounded with Yellow Fever. Accurate examination and observation, we should suppose, would correct such a mistake. In Remittent Fever, we have an indefinite number of paroxysms, each paroxysm of *two* stages, the pyretic and the semi-pyretic, generally continuing through several of these paroxysms : great want of uniformity in its course ; sometimes continuing a pure synocha, sometimes becoming typhus, sometimes, again, congestive, and where this congestion does take place, resembling that of Yellow Fever no more than congestion in any other kind of Fever. The effect of this Fever is the production of an increased liability to future attacks, though, happily, their virulence is thus mitigated. It is not in the least contagious: attacks, invariably, in the day, and chiefly the most exposed adults. In Yellow Fever, we have only *one* paroxysm, and this rule is *invariable*. Each paroxysm is divided into three stadia: the pyretic, the complete intermission, the congestive, or state of collapse ; which last uniformly succeeds the second stadium. When the paroxysm is completed, unless there be *relapse*, we have no return of it. The disease consists, essentially, of *one* paroxysm, and its effect produces a notorious exemption from future attacks, unless the patient be exposed to the causes of it, in a latitude

South of that in which the original attack was induced. Lastly, Yellow Fever attacks, invariably, at night, chiefly the younger portion of native residents, and is one of the very types of contagion. With these contrasted symptoms, one should not experience much difficulty in making a clear and correct diagnosis. As coming under the head of Diagnosis, it has recently been suggested that the comparative degree of acidity or alkalinity existing in the gastro-intestinal canal, may be indicated by means of test paper applied to the tongue. This seems but reasonable, and would, beyond doubt, subserve a valuable purpose in the treatment of disease. If the facts relative to this object were carefully collated, we should often be enabled to solve another wise, intricate, and complex problem—Prognosis. Hippocrates tells us, “that the best physician seems to be, he who knows how to know in advance;” and the testimony of ages has since proved as well the verity as the sagacity of this remark. The advice of the father of medicine on this important subject, will never lose its value: “Examine,” says he, the countenance of the patient, to see if the physiognomy is like that of a person in health, and especially if it preserve its natural expression. This is its most favourable state, and the more it departs from it, the greater is the danger.” In Intermittents, our prognosis, is very favorable: in vernal most, in autumnal least so. In Remittent as in Intermittent Fever, severity of attack is no indication of the severity of the disease. The cold stage of an Intermittent is dangerous in proportion to its duration; the hot stage to its intensity. In the cold stage we may have positive, or negative death: in the first, from the carbonized state of the blood, and in the last, from the non-fulfilment of function by the cutaneous apparatus. In the Remittent Fever, individual prognosis depends upon the previous history of the patient: his habits, degree of exposure, yielding, or resiliency of constitution, force of mind and character (for the contrary produces an unfavorable impression, dejection, and, in time, prostration,) constitution of air, amenability of system to the action of our medicines, irritation and tolerance of stomach, extreme frequency of pulse, (more than 140 beats in the minute being extremely unfavourable,) dryness and blackness of tongue, etc. All obstinate determinations are



unfavourable : restlessness, pervigilium, jactitation, the proportionate suspension of function in any important organ, complaints of heat when the surface is cold, dorsal decubitus, or, perhaps, orthopnœa, (this is most observed in those forms of this Fever marked by thoracic congestion,) change in expression of countenance, with bronzed surface, syncope, insensibility to light, noise, surrounding friends, or objects, etc. This long catalogue contains the unfavourable symptoms manifested in any, or all of these forms of Fever. Of course, the contrary, or absence of these symptoms, is in favour of the patient.

We see, thus, that there are many circumstances which must affect our individual prognosis. General prognosis is, on the whole, favorable; one in forty being put down as the proportionate mortality of this Fever. This mortality is, of course, among the labouring class, and from obvious reasons.

We proceed, next, to consider the causes of these two diseases; and as those offered, with the relative arguments, are in themselves sufficient material for a lengthened discourse, we will confine ourselves to a but comparative enumeration, and pass by this branch of the subject as briefly as possible. The predisposing causes are many: race, rapid alternations of temperature, labour and rest, degree of acclimation, and the vitiation of this by incautious and constant change of residence during our summer months; a winter spent North of resident latitude, dissipation, fatigue, anxiety, poverty of diet, hygrometric state of the atmosphere rapidly changing, "the existence of susceptibility to zymotic diseases," etc. This last instance of predisposing cause is now attracting much and interesting attention. Dr. Carpenter's views are sufficiently forcible and plausible. The great and chief cause, however, of these Fevers is that agent of which, after so many discussions, theories and speculations, we know but little. The subtle poison of malaria we can, as yet, recognize only by its effects; its cause, nature and essence, being yet wrapt in the mists of a vague hypothesis; the toxic apocrypha, the mysterious hieroglyphic which, transcribed by nature's hand, owns not yet its Champollion.

After all the theories (since controverted) offered by McCullough, Ferguson, Dwight, Mitchell, and a host of others, we can find no better description of this agent, than that incidentally

given by "a bright particular star" in the literary firmament of England: "Malaria settles not over thin and barren soils, nor over wastes that have been from all times desolate, but over the places in which Southern suns had once ripened delightful gardens, or the sites of cities in which the pomp of palaces has passed away." The absence of diffusibility (spontaneous) proves this agent to be non-gaseous in nature; and the futile analysis of most of the gases manufactured in Nature's laboratory, would tend to corroborate this view. From the past and present inability to detect the element which is recognized by this name, and also the failure to demonstrate any poisonous principle in the atmosphere peculiar to its habitations, we would hazard the suggestion, that the effect produced by this supposed agent may be but the *catalytic* action of an *innocuous* component of our atmosphere, finding entrance into the system by cutaneous endosmosis. This may explain how the *comparative* obstruction of this action in the skin of the negro race produces exemption from this form of disease.

We have not space left wherein to state any reasons in support of this assumption of catalytic action; but Chemistry and Nature both afford us instances of the surprising results of catalytic force. We come now to the most interesting part of our subject: to that agent which we sincerely believe is yet to occupy one of the brightest pages in medical history.

### OZONE.

We will first state the most important *facts* which, in regard to this agent we have been able to collect and collate from the most authentic sources, and then offer a few of the most reasonable suggestions that seem to flow therefrom. M. Schönbein, of Baslè, who first chiefly called public attention to the subject of Ozone, regards it as "an independent body and constituent of the atmosphere" uniformly present, though in varying quantities. Faraday who has thoroughly and closely investigated this subject, and whose cautiously given opinions are entitled to the highest respect and deference, differs in a few unimportant particulars from Schönbein, but nevertheless supports him entirely in all of those views which are of the most

practical importance. Schönbein regards Ozone as a binoxide of hydrogen,  $H. O^2$ ; but as this equivalent is not always uniform, he prefers to style it a peroxyde of hydrogen. Ozone is generated by the passage of electric currents through the atmosphere, or rather by the discharge occasioned by the meeting of currents charged, as in the form of clouds, with different electricities; "by electric combustion, and when the electric spark is discharged from the points of a conductor; by the oxidation of phosphorus, partly in water, partly out of water, placed in large bottles with close stopples. Vapour is thus soon formed; and by washing the gas, which is insoluble, we remove phosphorus acid with the vapour of phosphorus, these last being soluble, and Ozone remains behind; by passing a current of electricity across the surface of water in a vessel, etc. Plants, not excited by light, act upon the atmosphere and produce this body. This gas, when concentrated, manifests an odour similar to that of chlorine; but when mixed with atmospheric air, the odour is "similar to that emitted from an electric machine when in motion." It is, in its effects, extremely injurious to the organs of respiration. Mice perished in an atmosphere only 1-6000th part of Ozone. This agent is insoluble in water; destroys organic colouring matters, as well as those having albumen, or lignin for their base. It has the greatest affinity for oxygen of any substance known; quantity prevailing in the atmosphere greatest in winter, least in summer; purifies noxious exhalations, though exhibited in the minutest quantity; destroys both idio and koino miasmata, and is able to purify 540 times its volume of inquinated air; hydrogen with selenium, sulphur and phosphorus, all in the minutest quantity in the atmosphere, yet render it unfit for respiration; and Ozone, from *analogy*, supposed to belong to the same class. It is the most rapid oxidizer known; rapidly destroys hydrogenous compounds, a constant source of miasm liberated in gaseous forms, by the decomposition of vegetable matter, etc. The true nature of these gaseous compounds is not known; but here it is sufficient to know, that if these gases were allowed to remain long in the atmosphere, this would be rendered unfit for respiration. Malaria may be either a mechanical, or chemical compound of two, or more of these gases; yet forming by this combination *not* a gas, or a compound

gaseous in nature; we have *water* formed by oxygen and hydrogen.

Faraday regards Ozone as an allotropic condition of oxygen, but admits it to be present when oxygen is present, or where and when water exists in a vaporiform condition.

The purifying properties of Ozone are proved by the fact that no deleterious substance has ever been separated from an atmosphere containing it in excess. Ozone rapidly diffuses itself in the air; is decomposed by heat; is manifested in increased quantity in the morning; forms an oxyde with, or is capable of oxidizing nitrogen; gives to the atmosphere peculiar chemical properties; bleaching effect of the sun's light attributed to it; produced by the chemical agencies of electricity and magnetism. Schönbein mentions, that in testing the atmosphere contained in a bottle half filled with turpentine (oil) which had been exposed to sunlight and air, Ozone was manifested.

The decay, diseases and deaths of animals and plants destroy Ozone; the ammoniacal and sulphur gases of the atmosphere are oxidized by it, forming, thus, acids and salts: when in excess in the atmosphere, pulmonary diseases are rife. The method of forming the test paper for detecting its presence is thus given: "Iodide of potassium gr. i, starch grs. x, distilled water grs. cc; immerse a piece of bilulous paper in this solution, and then dry it for use: when taken out, there will be no change until dampened with water. Iodine must be in its *free* state, to give the blue test with a cold solution of starch. This is *usually* accomplished by a few drops of an acid, or a little chlorine water. In the *test* paper experiment, Ozone *plays the part of this acid*, or chlorine water; it disengages the iodine from the potassium, and uniting with the potassium, forms potassa, while the iodine unites with the starch, and forms the blue iodide of fecula. The depth of this blue will depend, of course, upon the quantity of iodine set at liberty, or in other words *upon the quantity of Ozone present*. The air coming from the sea gives a deep blue color; that passing over a city, scarcely any. The current of air from a partly closed door, or window, will give a marked hue to the test paper.

We have given, thus, *without preparation, or classification*, the result of our examinations into the best authorities on this

subject: these authorities we have found surprisingly few, and we believe that we have consulted most of those at present accessible. We proceed now to consider the *relations* of Ozone to disease.

The prevalence of this principle in the atmosphere, and the prevalence of certain diseases, have been lately said to be relative; that the greater the quantity of one, the greater the malignity of the other, and conversely: thus the prevalence of pulmonary diseases and Ozone are in a direct ratio, whilst the prevalence of Ozone and the malignity of malarious fevers are in an indirect ratio. This view has been assailed, on the ground that the generation of Ozone is not sufficient for it to become one of the controllers of disease; that on however large a scale it may be formed during the electrical commotions of the atmosphere, these do not occur sufficiently often to furnish this principle in quantities at all proportionate to the fulfilment of the object claimed. Again it is objected, that Ozone is most abundant in winter; at a time when electrical disturbances are notoriously infrequent. Its being generated by the action of "plants not excited by light," is claimed to be not well established, and even if so, that this supply would be but a small fraction of the amount necessary; its preparation by the oxidation of phosphorus under peculiar circumstances (from this being an artificial and complex process) is not at all regarded in the discussion. *So far*, we must confess that the objections to the views proposed are plausible and just; but we cannot lose sight of one of the facts stated, in our desultory enumeration of the experiments, viz: that the passage of electricity across the surface of water in a vessel, was found to generate this agent with great facility. This, to us, seems one of the most important facts ever disclosed to the profession. What gives polarity to the electric needle, but those vast belts of electricity constantly moving and encircling our globe; and though the magnetic equator is constantly *changing*, its existence is as clearly demonstrable as the most elementary of philosophy's laws. To falsify this, would be to pluck the well merited chaplet from the brows of some of the most noble of those who have achieved distinction in the fields of Science. Barlow, Brewster, Becquerel, and others, toiling here, have rendered their names immortal.

This fact is beyond dispute, and who shall undertake to assert that one of the objects of this subtle fluid, *in its circle*, is *not* by its action on the *vast expanse of water which it spans*, to elaborate an agent, bringing purity to an atmosphere which, otherwise, would soon contain within itself the seeds of a general and inevitable death. We cannot but think this entirely true; and examine as we may, *there are facts* which seem sufficient to support the suggestion in its *minutest* particular. Let us compare the general existence of Ozone with some of these facts given. We find it to be the most rapid oxidizer known; that it is capable of exerting this action on all of those noisome gases and vapours which poison our atmosphere; that it is decomposed by heat; and that its excess is in winter. Is not the deduction plain? Ozone, it is reasonable to suppose, is formed nearly equally at all seasons of the year: when and where pestilential vapors, or gases, are greatest, is it not most largely consumed? These exhalations are, of course, greatest in summer; and at this time we have high solar heat, the one consuming by oxidation, the other by decomposition, is it not a necessary consequence that Ozone should be found "least" at this season of the year, and most in winter, when the causes of its consumption are in abeyance? Is there no reason why alluvial soils should be most unhealthy, as, from the gases and vapours which they evolve, consuming (with heat) the agent, given for the purification of the atmosphere around them? Can we not thus understand why epidemics have prevailed in regions before unvisited by them? Thus, "Chemical agencies produce Ozone; decay, disease and death of animals and plants consume it." Imagine this balance still preserved, but with increased solar heat, and is not disease developed? Again, have solar heat no higher than usual, but the balance between the production and consumption of Ozone destroyed, will there not be disease? Lastly, as in the tropics, have intense solar heat, with the extreme of vegetable and animal decomposition producing mephidic exhalations, and *must* there not be those malignant forms of disease developed which so characterize those regions of the globe? Fortunately in that meridian, from the *coincidence of the electric circle*, there is reason to believe that this agent is most abundantly formed; but again, the *least* disturbance in the

balance, from the *causes there at work*, must give rise to the fatal forms of Fever peculiar to such latitudes. These remarkable properties of this agent explain to us the cause of the marked mitigation of symptoms, so manifested in our Fevers on the supervention of a summer's storm, and its highly oxidizing properties may serve to make intelligible the existence of malarious Fevers in ferruginous localities, as in India, etc. In the one, the mephitic vapours and gases of the atmosphere are neutralized by the increased accession of Ozone; and in the other, this agent is consumed by its extreme affinity for all oxidizable bodies. Ozone, from the absence of heat and decreased exhalation which, as we have said, respectively decompose and consume it, is most abundant in the morning; *it forms an oxide with nitrogen*, most probably the *protoxide*, and hence the exhilarating effect of the air at this period of the day? By the test paper, we find the air from the sea containing an excess of Ozone. The reason of this is obvious and twofold, as here the agent is *most largely formed* and *least consumed*. The cheering and life-giving effect of sea air was known and advised by the earliest writers of the profession, who, ignorant of the cause, yet profited by the effect. Is not the cause such as we have suggested, the absence of the materies morbi with the exhilarating combination of oxygen with nitrogen? Chemically explained, the combination of one atom of Ozone with two of nitrogen, hydrogen being given off, would give us the protoxide of nitrogen. This can not be *too hypothetical*; for Faraday, the highest authority, tells us that Ozone is capable, in the atmosphere, of existing in an *allotropic* state.

"Ozone in excess is prone to the production of pulmonic disorders." It is a recognized fact, that Eastern winds in America, and Westerly winds in Europe, as coming immediately over the sea, have been usually attended and marked by this peculiar effect. Travellers in Africa tell us, that pleurisies, pneumonias, etc., mark the coincident occurrence of certain winds, and that the natives suffer almost *exclusively*. This naturally leads us to the *deduction of falsity* in that theory which advocates the pulmonary inception of malaria. Negroes, we know, suffer soonest and most (the remark above would substantiate this) from pulmonary affections, shewing thus their increased sus-

\* Lieut Maury of the U.S. Observatory ~~of~~ has recently claimed originality in the advocacy of this theory -

ceptibility to the action of those agents which interfere with the healthy condition of these organs. If the doctrine of the pulmonary inception of malaria be true, then this race should be the *most* susceptible; but facts notoriously prove the contrary. We are forced to make a reasonable deduction from the fact of Ozone being found, by test, in the atmosphere contained in "a bottle partly filled with turpentine, and exposed to the action of light and air."

It has long been supposed that the pines of our Southern country "exerted a chemical effect" upon the poison of malaria. This, for a long time vague, conjecture now finds, thus, an interesting corroboration. What more probable, than that Nature should, in the magnitude and magnificence of her laboratory, produce the same principle that we, in our miniature efforts, have boasted to originate; or what better calculated to impress us with the happiest conceptions of Omniscience, than that these stupendous agents, which produce it, should be placed just where this purifying element is most needed and consumed! On reference to Chemistry, we find the turpentine to be  $C^5, H^4$ , and with this, the *now* interesting remark, "Bottles in which rectified turpentine, not purposely rendered anhydrous, has been preserved, are often studded in the interior with groups of beautiful, colourless, prismatic crystals, which form *spontaneously*; these crystals contain  $C^{20}, H^{16}, O^6$ ," or four parts of turpentine, with the incidental  $H^6, O^6$  added. It needs but a glance to see that we have here the *elements* of Ozone, though not in correct proportions; but we must again recollect Faraday's remark, that Ozone is only an allotropic condition of oxygen; "no change of matter, but change of *state*." He instances this by phosphorus: heated up to  $464^{\circ}$  Fah., its *composition* remains the same, but its properties are *entirely changed*; it now requires a high temperature for combustion, but submitted again to a low red heat, it returns to its original state. Thus, then, any cause (further exposure or chemical reaction) may change the *relative* proportion, or *state* of this new compound, thus forming Ozone, whilst *its actual composition, in elements, remains the same*.

Be this explanation correct, or not, the *fact* of Ozone being thus formed is undoubted. The balmy influences of our so-



called terebinthinate atmospheres here find a reasonable and plausible explanation.

Lastly, we see that the dangerous accumulation of miasm is prevented by Ozone, whilst, conversely, the pernicious concentration of Ozone is corrected and controlled by miasm; that miasm is chiefly the cause of malarious fevers, and hence that any agent, capable of destroying it, bears by its proportionate presence and action, the closest "relation" to the existence and malignity of such fevers; that where it is in excess, fevers of this type are comparatively unknown, and where we have entirely the reverse, these fevers are malignant and often fatal.

Much more might be said on this interesting subject, but we have already far transgressed our limits, though we hope there has been shewn an intimate relation between the relative existence of this agent and that of those fevers which form a part of our dissertation. We can not but think that the variations of the magnetic meridian, as *shewn by the relative dip of the needle*, would, if compared with the existence of malarious fevers in various localities, and at various seasons, lead to the most interesting and important results; or, again, if the relative hue of the test paper be compared with the prevalence of various diseases, that a flood of light would be shed on the obscurity of this highly interesting and important agent.

The comparative presence or *absence* of Ozone having been thus considered, with the "causes" of malarious fevers, we now leave it in connection with this part of our subject, and proceed to bring this essay rapidly to a close.

The effects of these fevers are extremely various and complicated—Anasarca, icterus, chronic hepatitis, chlorosis, etc.—but the most uniform is the enlargement of the spleen. Dr. Ramsay, of this State, has given an account of an autopsy, in which is mentioned the most extreme enlargement, we believe, on record: the spleen in this case weighed 30 pounds. An instance in which the spleen is said to have weighed 32 pounds has been recently mentioned; but we can not say if this case is as authentic as the one just given. We have now and then a *harmless hæmatemesis* occurring, the stomach reciprocating, as it were, the vicarious action of the spleen. The anæmic condition, in which the patient is left, furnishes abundant room for specula-

tion and investigation. The fact, that the red corpuscles are always *least in the splenic vein*, is here not without interest; passing as they have just done, through a ductless gland, and manifesting a *notable deficiency*, it is not improbable that while in this organ, such changes may have been impressed upon them, as to develop by an altered constituency an elective affinity for other glands, by which, after having subserved their destiny, or object, in the economy, they are eliminated from the circulation, and, suspended in some secretion, finally cast off. If this can be the function of the spleen, in its normal state, or when a certain quantity of blood is received into it, why not suppose that when the organ becomes enlarged, and the quantity contained greater, that the elimination should be abnormally increased. Certain it is that an enlarged spleen and a marked deficiency of the red corpuscles are *coincident*. Physiology teaches us, that the quantity (proportionate) of red corpuscles in the blood, and the position of the animal in the scale are relative. By the views most recently advocated, these corpuscles are considered as oxygen carriers; and as we descend in the scale we find, *coincident* with their deficiency, a great impairment in the function of calorification; in the *cold-blooded* animals they are almost entirely wanting. By relative analysis of fibrine, red corpuscles, and muscles we find from the similarity of composition manifested in the *second* and *last*, that the old theory which advocated the genesis of the last, by the first, false, and that the last must be produced by the second. In addition to this similarity in the composition of the red corpuscles and the muscles, we find that *the activity of muscular fibre is dependent upon the relative proportion of the corpuscles*. Low in the animal scale, we find torpidity and the entire absence of these corpuscles coincident. Knowing, thus, that these corpuscles are least in the splenic vein, (shewing their alteration in structure, or their diminished quantity being caused by their circulation through this organ,) and again the marked peculiarities which characterize their deficiency, (atonic condition of muscle and decreased calorification,) it seems but reasonable to infer, that not only is the function of the spleen that of altering or eliminating these corpuscles, but that when this organ becomes enlarged, this func-

tion is abnormally increased. We speak of this elimination as before, being only to impress such elective affinities upon a corpuscle, either in alteration of chemical composition, or material form, as to fit for elimination by secretion. These corpuscles, we are led to suppose, are *intended* for the constant *genesis* of muscular fibre, and as vehicles of caloric; but when *diminished exercise* and temperature *diminish the necessity for this their consumption*, it can not be unreasonable to suppose that their normal proportion may be *regulated* by the spleen; and that this, when diseased or enlarged, may exaggerate the natural function, and originate an abnormal constitutional condition—debility and diminution in the process of calorification. It *can* all, however, in our ignorance as to the physiology of this organ, be but an empty speculation, based upon a false hypothesis.

The necrotomy of these diseases affords nothing either satisfactory or definite; the brain rarely, if ever, presents any lesion, though the meninges are not unfrequently injected; the spleen is either hypertrophied, or indurated, or again soft and disintegrated, being a mere mass of grumous blood; the stomach is injected; and where the disease had passed into the typhoid form, there is necræmia with the ulceration of the glands of Peyer; the liver presents a peculiar appearance, indurated, and in color a mixture of "grey and olive." On the whole, this part of our practice has not yet aided us in the treatment of these diseases. It has been the boast of the Scalpel that it can, unaided, illumine the obscurity which enshrouds the mystery of an unintelligible death; but unless the previous history of the case be known, with the symptoms throughout its course, "*studium cum calamo*" instituted, and this carefully compared with the manifestations after death, we can expect here but little from this branch of our science. He who, with the knife alone, would assert the ability to designate the past disease, makes but an empty boast; 'tis the absurd boast of him who alone gazing at the blasted and riven trunk, would declare to us the *events* of the storm which had destroyed the tree.

In convalescence from these fevers there is a marked tendency to relapse, and the patient progresses slowly and tediously to a perfect restoration of health. Our attention and medicines at

this time will materially benefit him, and accelerate recovery. The investigations of Becquerel, Rodier, and others, on Hæmatology, shew that in those who have been the subjects of "marsh cachexy" or malarious fevers, constantly repeated, "the water of the blood is proportionately increased, and the red globules absolutely diminished," and here our remedies should fulfil this indication—quinine, or what is still better, cinchona, combined with the different oxides and salts of iron, manganese and iron, etc.; for the liberal supply of oxygen, manganese and iron, manganate and chlorate of potash, etc. At the same time, from its peculiar and specific action on the muscular fibre, we had best administer some of the salts of strychnia; the acetate given in the  $\frac{1}{100}$ <sup>th</sup> of a grain three or four times a day, is a favorite prescription. The patient's diet should be mild and nutritious; exercise gradual and increasing; ale, from its gently stimulating, anodyne, and nutritious properties, should be freely given; change of air, pleasant company, sea-bathing, etc.: with these adjuncts, we may predict a permanent and speedy recovery.

These repeated succussions tend to gradually undermine the constitution, and the mortality of our alluvial districts is known to all. Visit the populous graveyards of our lower country, and observe how seldom has he whose melancholy office it is "to memorialize our dust" been called upon to declare to posterity that the representative of that future mystery which now tenants the spot ever lived to find his years but "labor and toil." If this be the euthanasia so much coveted by Cæsar, then should the residents of these localities be unhappy indeed; but when called upon to drop the tear of sympathy and compassion upon the tottering gait of the decrepid septegenarian, should they, living thus in the garden spot of their country, not find comfort in the reflection, that though unpermitted to be actors in "the last scene of all which closes this eventful history," they may yet bear their part in those which make not the past oblivion, the present inanity, and the future an unconsciously still nearer mystery?

Their investigations of the nervous system, and others on the  
 matter, show that in those who have been the subjects of "manic  
 insanity" or "melancholic insanity," constantly repeated, "the water  
 of the blood is proportionately increased, and the red globules  
 absolutely diminished," and have our researches should follow this  
 indication—pointing, or what is still better, evidence, confirmed  
 with the elements water and salts of iron, manganese and iron,  
 stop for the liberal supply of oxygen, manganese and iron,  
 manganese and salts of potash, etc. At the same time, from  
 all peculiar and specific action on the mind, we had  
 been administer some of the salts of strychnia; the results given  
 in the "Journal of a Gentleman" for four times a day, in a quantity  
 of 1/20 of a grain three or four times a day, in a quantity  
 of 1/20 of a grain. The patient's diet should be mild and nourishing;  
 exercise (rational) and increasing; also, from the gentle stimulus  
 of the sun, and various hygienic things, should be daily given;  
 change of air, pleasant company, sea bathing, etc. with these  
 subjects, we may predict a permanent and speedy recovery.

These repeated assurances tend to gradually undermine the  
 foundation and the certainty of our physical diseases is known  
 to all. That the popular groans of our lower country, and  
 elsewhere, and in the whole of the island, and in the  
 mountains, our "dust" been called upon to declare to posterity  
 that the representative of that future history, which now con-  
 sists the spot over lived to his grave, for "I have said all."  
 If the the evidence so much as to be by the way, then should  
 the evidence of these histories be not only useful; but when  
 called upon to help the rest of your story, and especially those  
 the following part of the story, and especially, should they  
 living close to the ground, and the country, and the continent  
 in the wilderness that those who are to be called in "the  
 last scene of all which shall this eventful history," they may  
 not bear their part in those which shall be the part of history,  
 the part of history, and the future, an indelibly will  
 water history.