

AN
INAUGURAL DISSERTATION

ON

*The Remittent Type
of
Malarial Fever.*

SUBMITTED TO THE

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BY

*H. S. Reade Dr. Watson for
and this*

OF

*Sumner County
Tennessee*

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Fevers, although they are the most common of all diseases, and by whose agency, it is said, that more than one half of the human race usually perish, are also those by which mankind, whether professional, or laical, are the most apt to be misled.

It has been very properly remarked, that, in reality no writer seems to have been fully satisfied with his own definition of their various types, and it is not extraordinary therefore, that he should have seldom given satisfaction to others. This difficulty arises in a great measure from the complexity of the symptoms that enter into the character of a fever; the contrariety of many of them to each other in its different stages; and in the occasional absence of some, that in other instances appear to constitute its leading features. Besides these, there are two other difficulties of no inconsiderable magnitude which the nosologist has to contend with in laying down a clear and perspicuous survey of fevers. Namely, their division or Collocation, and their generic names.

The usual division of fevers is into two classes, namely Intermittent and Continued; this arises on account of their taking up different times in their natural duration some being compounded of a number of paroxysms following each other in regular succession at some little distance of time, as happens in intermittents or agues; in others a fresh paroxysm comes on immediately as a crisis of the former so as hardly to leave the patient wholly free from fever as occurs in remittents of which type I purpose giving a slight outline on the present occasion; and in others there is such a quick succession of the paroxysms that the one comes on before there is any visible abatement of the febrile symptoms of the other.

Remittent fever, which I before stated is the type of Malarial fever to the consideration of which I have addressed myself in the present disquisition, is with the exception of the intermittent the most common form of fever and of which, therefore, it is requisite for the young practitioner to have a thorough knowledge; this type

prevails to a considerable extent and is most common in the middle Southern and Southwestern sections of the United States and is generally denominated from the evidences of more or less derangement of the hepatic functions by which it is attended, the Bilious remittent, or simply, Bilious fever. It constitutes the summer and autumnal endemic of many of our States, and even in those which are exempted from its annual occurrence it occasionally prevails during seasons of unusual heat and dryness. Sporadically, or, as a severe and widely spread epidemic. This fever is not peculiar to the United States but prevails also extensively in the Southern portions of France, and Italy. Spain also and other portions of the South of Europe, in Africa and in the East and West Indies. It is in fact the endemic of the marshy districts of all hot climates; its prevalence, as well as violence is almost invariably in direct proportion to the heat of the season; even in many of the Northern States during a summer of extraordinary heat it will sometimes prevail to a considerable

extent, its operations being limited however, to those situations noted in other seasons for their insalubrity, or in which the cause of disease was ready to be developed upon the occurrence of any unusual degree of Atmospherical heat.

Whether this fever can be produced by exposure alone to a high degree of Atmospheric heat is a question that has been frequently raised, and while many maintain the affirmative, others as positively assume the negative. Nothing however in my opinion is more certain, than that the long continued action of excessive heat upon the body by predisposing it to the action of other miasmatic agents will in this manner often bring on an attack of Bilious fever independantly of Malarious influences; thus, nothing is more common than for the disease to occur to those who after exposure to the midday sun or many hours of severe labour in intensely hot weather allow their bodies to become chilled by sleeping on the ground in the open air after night has set in, by neglecting to change their clothing when they become

cut by a shower of rain or other causes, or while the perspiration is running in streams from every pore of the body, throw off a portion of their clothing and sit or lie in a draught of air particularly after sun down.

Nothing I say is more likely than that this conduct should be a prolific cause of Bilious or Remittent fevers.

If this is only one of the causes supposed to generate Bilious fevers, what it may be asked is the generally received opinion as to the sources from which its existence is derived? Professor Bowdler in his lectures on Malarial fevers gave in my opinion the only true solution to this question, namely, the action of a high degree of solar heat upon water existing a few inches below the surface of the Earth as in the plains of Estremadura in Spain, also upon the beds of rivers which are apparently dried up, but underneath the surface of which at a few inches from the surface, water is found, as in the case of the river Guadiana, along the course of which, the British Army retreated after the battle of Talavera, and the bed of the river being (with

the exception of pools of stagnant water met with here and there, apparently dried up, Malarial fever was engendered of such a malignant form, that the army was almost completely exterminated. This being the true source of Malaria is very clearly defined by a comparison of the salubrity of the lands lying on each bank of the river Tagus. This river is at Lisbon about two miles wide and separates a healthy from a very unhealthy region; on one side is a bare, hilly, country, the foundation of the soil and the beds of the streams being rock, with free, open, water courses, among the hills, This is the healthy region. But the Alentejo land, on the other side, though dry superficially, being perfectly flat and sandy, yet, a few inches below the surface, water is found, and this region is proved to be most pestiferous.

At one time (and probably at the present time it is accepted by many physicians) the theory propounded as the cause of Malaria, was, the putrefaction of vegetable matter, but the above mentioned facts seem to prove that the Malaria and the product of vegetable decomposition are two distinct things,

Whoever in a Malarious Country, says Dr. Ferguson waits for the evidence of putrefaction, will wait too long. For producing Malaria it appears to be requisite that there should be a surface capable of absorbing moisture, and that this surface should be flooded and soaked with water, and then dried; and the higher the temperature, and the quicker the drying process, the more plentiful, and the more virulent is the poison that is evolved.

Having thus glanced superficially at the exciting causes of Malarial diseases. I shall now proceed to examine into the connexion of Remittents with Intermittents, after which, I propose to endeavour to give a correct diagnosis of the former, in its mild, Inflammatory, and Congestive stages.

We find that Remittent fever is closely allied in its nature, the localities in which it chiefly prevails, and in many of its phenomena to Intermittent, of which by many physicians it is considered a mere modification. It is presumed, and I think with much plausibility, that a more

intense operation of the same Miasmatic cause required for the production of Intermittent fever, engenders Remittent, and that the more violent the latter, the more remote is its character from intermittents, or, in other words, the less perceptible are the remissions. This is supposed to be indicated by the circumstance, that, when periodic fevers are prevailing in certain countries, the permanent residents are observed to have the disease in the form of Ague only; and the mortality among them is small, but strangers, unhabituated to the climate, and its diseases, suffer from Remittents, with a proportionable greater loss of life. In more sickly seasons Remittents will be the prevailing type among both classes of persons, but strangers are more violently affected and the mortality among them is greater. Its affinity to intermittents is shown too, by the tendency which it has to that form, after the more violent exacerbations are passed, and, inversely, by the propensity of Ague to assume the Remittent type.

Notwithstanding Bilious Remittent fever can scarcely ever be mistaken by the least experienced practitioner, it exhibits, however, considerable diversity in many of its phenomena in different

situations and often in different individuals. For, while in some cases the remissions are well marked, approaching in some to a complete intermission, in others, they are so slight that the fever has almost a continued form. There are always however certain prominent symptoms invariably present an attention to which will lead at once to an accurate diagnosis. - These are Gastric irritability, a sense of oppression and distress at the Epigastrium, pain of the head back and limbs, and the great prostration of strength early exhibited by the patient

The milder and more simple form of Remittent fever is generally preceded for some days by languor, Nausea, a bitter taste in the mouth, a fullness about the epigastrium, sometimes Costiveness and very generally more or less pain and heaviness over the eyes.

The attack is usually ushered in by a slight cold, or merely by a sense of coldness, particularly about the back, which in an hour or two, and often sooner, is followed by increased heat of the whole surface of the body, the skin becoming at the same time dry and constricted, the face flushed, the eyes suffused, the respiration hurried and uneven, the pulse quick and frequent, rarely tense,

and by considerable prostration of strength, with restlessness and watchfulness. The patient complains of a sense of fullness and tension of the head, pain of the back and extremities, particularly of the calves of the legs, and often of pain at the epigastrium, which part generally exhibits more or less tenderness upon pressure, even if no pain is complained of before. The Stomach is more or less irritable, some cases being attended with more or less nausea, whilst in others, every thing swallowed, is instantly rejected. Spontaneous vomiting is not an unfrequent symptom, it is often present from the commencement of the attack, but more frequently, does not commence until the second, or third day, sometimes later, the matter vomited, is of a bitter taste, and of a yellow, greenish, or bright green color. The Tongue is usually moist, red at the sides and edges, and coated on its upper surface with a whitish, light brown, or yellowish fur, which often acquires considerable thickness. Thirst, is usually considerable. Bowels, costive, and the Urine is marked by an increase of color. After the disease has continued for some days, the skin acquires a yellow tinge, which is sometimes very decided, and extends to the Adnata of the eyes.

The exacerbation lasts from eight to twelve hours, when a gradual abatement of all the prominent symptoms takes place, and after a slight moisture breaks out upon the surface and the patient falls into a refreshing sleep. more generally, however, the skin continues dry after the heat has declined, and the patient during the remission continues restless, uneasy, and disinclined to sleep.

The duration of the remission varies with the violence of the attack, gradually however, the heat of the surface increases, and an exacerbation of the fever follows, marked by the same degree of intensity as the former, or even by increased violence.

All the preceding symptoms in an aggravated degree, with long continued exacerbations, and less distinct remissions, mark what has been called the highly inflammatory stage of this disease, during the paroxysms, the skin is intensely hot, the eyes suffused, of a muddy yellowish hue, and often dull and languid; intense pain and an insupportable sense of weight and tension of the head, great thirst, and sometimes, an insupportable feeling of oppression at the chest, the respiration being quick, and laborous. the pains in the back and extremities,

often of extreme severity, the pulse quick, and more or less tense. The nausea and vomiting, are generally peculiarly distressing, the matter discharged being a thick ropy fluid, of a yellow, dark brown, or green color. The bowels are costive, or, if open, discharge with tensimus and gripping a thin watery fluid, when evacuations are procured by appropriate means, they are large in quantity, dark slimy, tenacious, and offensive. There is always an intolerable sense of oppression, or constriction at the epigastrium, and a degree of tenderness which renders the slightest amount of pressure intolerable. In the course of the disease, the skin acquires most generally a brownish, bronzed, or more frequently a deep yellow tinge, particularly upon the face, and breast.

The succeeding evolutions are marked by an increased evidence of all the predominant symptoms of the disease, and unless the intensity of the fever is abated by an appropriate course of treatment, the powers of life gradually succumb to its influence, the surface generally becomes moist, or covered with a cold, clammy sweat, the pulse, small, and weak, the tongue, covered with a dark thick coating, (occasionally it is chapped), the respiration

short, quick, and difficult, the abdomen sometimes swollen and tympanitic; Stupor, or coma often ensues, and at length, in-
voluntary discharges from the bowels takes place, the matter
being dark in color and very offensive, and finally death ensues.

There is another form of Remittent fever yet to be described,
this is the Congestive. The propriety of denominating cases
of congestive disease, Remittents, when they frequently run their
course without exhibiting the slightest indication of febrile re-
action, has been doubted by some, they are, however, produced by
the same causes as bilious fever, and when the congestion is early
removed, the case often assumes all the characteristics, and runs
the same course, as in the ordinary forms of Remittents; shewing, that
the phenomena of the latter were only masked, or suspended, by
the congested state of the principle organs.

The Congestive form of bilious fever may attack suddenly,
when it is apt to assume a peculiarly malignant form, and to
terminate rapidly in death, in many cases however, it is preceded
by the same symptoms as the milder, and more open forms of the
disease. In the more violent attacks of congestive fever, the

system seems to sink at once prostrate before the invasion, or exacerbation, which can scarcely at times be called febrile.

Reaction does not take place, or very feebly, if at all. The skin is cold, and covered with a clammy sweat, as in the collapse of Cholera; the pulse, weak and fluttering; the stomach is very irritable, with frequent, but ineffectual efforts to vomit; The countenance, shrunken, or pale and livid, there is often muttering delirium, with shivering and fainting. In some cases, the patient seems to be in a lethargic state, and makes no complaint of pain; in others, the most extreme anguish is endured by the miserable sufferer. The vital powers are speedily and irrecoverably exhausted by the recurrence of a few such exacerbations, although the remissions in this class of cases is usually well defined; and the third, fourth, or fifth return of the train of symptoms delineated, for the most part puts an end to the distressing scene.

The duration of Remittent fever varies with its degree of violence, it may terminate in a few days or, run on for several weeks, but its usual duration is from nine to fifteen days.

Dr. Dickson of South Carolina remarks; that it is not

uncommon especially among the most perfectly acclimated adult natives resident in malarial districts, to find bilious remittents of very protracted duration, the patient sinking after the tenth or twelfth day into a low form resembling the less severe grades of typhus, and hence obtaining the name of, the typhoid stage of bilious fever. Dr. Dickson says, that he has seen cases of this kind protracted, in three instances, to thirty, thirty five and fifty days, though the average he observes, would scarcely reach beyond fifteen or twenty days.

A careful analysis of the phenomena of bilious or Remittent fever shows, very conclusively that the organs chiefly affected, are, the liver, and stomach, and the results of post-mortem examinations, confirm the accuracy of this deduction. In many cases, it is true, the symptoms during life, and the lesions detected after death, indicate more or less affection of the lungs, or brain; this latter, however, seems to be an accidental complication, and not essential to the disease.

In the Treatment of bilious remittent fever, the first and most important question that presents itself, is, the

propriety of direct depletion by the lancet. If the exacerbation is well marked and prolonged, attended by a hot skin, flushed face, severe pains of the head and back, oppression about the precordia, a firm and corded pulse; and when the intermissions are short, and imperfect; more particularly in cases occurring in young, robust, and plethoric habits, and who have but lately arrived from a colder climate; there can be no doubt of the importance of bloodletting. In such cases, a vein of the arm should be opened at an early period of the attack, and a sufficient amount of blood drawn off at once to reduce the violence of the exacerbation; one sufficient bleeding at the onset is far more efficacious, and better adapted to prevent local determination, than the repeated detraction of small quantities of blood during its course. If the use of the lancet has been neglected in the early stage of the disease, it is seldom admissible afterwards, but should symptoms seem to demand its use, it should be employed with the utmost caution, and only to a moderate extent. Local bloodletting, is a remedy more generally demanded in this fever, than bleeding from the arm; the application of leeches, or

cups, in the neighbourhood of the local suffering, in numbers proportionate to the intensity, and to the age and condition of the patient, will invariably be followed by decidedly, and not infrequently, by permanent relief. As regards the use of cathartics, there is a much greater unanimity of opinion, than in relation to bloodletting. There are few, if any cases, in which their operation will not be found beneficial, by removing the vitiated secretions with which the intestines are often filled, and producing healthy stools, and by assisting to reduce the congestion of the portal system, and thus restoring the healthy functions of the liver and digestive organs generally. Cathomel, is probably one of the best cathartics in this disease, given either alone, in a full dose, and followed by occasional doses of castor oil &c, or, what is frequently a more effectual plan, a full dose of Cathomel given first, and followed every three or four hours, according to the effect produced, by moderate doses of the blue mass, and Rhubarb, with the addition of a small portion of ipeacacuanah. By this means, the bowels are generally freed of the dark viscid matter with which they are often loaded, and more regular and healthy stools

procured, after this, an occasional dose of the milder laxatives is alone required.

Cold Water applications according to the testimony of Dr. Dickson, and other physicians of eminent abilities, rank among the most efficacious of our febrifuge measures. The local determination which it controls most promptly, he remarks, is the brain; shewn by headache, flushed face, red eyes, delirium &c., with a full, hard, bounding pulse. In such cases, the patient should be seated in a convenient receptacle, and a large stream of cold water poured over his head and body, from some little elevation, and continued until he becomes pale, or his pulse loses its fullness, or his skin becomes corrugated, and he begins to shiver; he should then be dried, and placed in bed, with just as much cover as he feels to be comfortable; the room at the same time, being fully, and freely ventilated; or, without removing the patient from the bed, he may be supported over the side, and the cold water poured from a piches over the vertex. This testimony of Dr. Dickson, is fully borne out by the experience of physicians in Europe, who have also extensively used it as a curative for the

disease under consideration. Equally important is its use internally, and the patient should be allowed to drink freely of cold, or even iced water, or lemonade, which is not only highly grateful to him, but also tends to diminish the morbid excitement, relax the skin, and promote a free and uniform diaphoresis. When the skin is cool, or covered with moisture, the use of cold water is of course inadmissible, it is only when the skin is dry and when there is a considerable, and increased heat over the whole surface that it should be used. On the propriety of using blisters, there is no little diversity of opinion; some ranking them among the most valuable remedies, whilst others, condemn them in toto, they, however, ought never to be used, until the exacerbations have been considerably reduced, and then their application to the parts affected, will in most cases give considerable and prompt relief.

It generally happens that after the morbid excitement or whatever cerebral excitement that may have existed has been removed, there remains great restlessness, and wakefulness, occasioned from mere nervous debility, to allay this, an

opiate of the following compounds is found beneficial. viz

Tinct Opii ʒ^{ss}

Acid Citric gr v to viij

Aq purae ʒij m; of which a tablespoonful, or half an ounce is a dose, and should be repeated if necessary after a short interval.

In the congestive form of the fever, the practitioner should endeavour to rouse the nervous energies of the system, and to relieve as quickly as possible, the central organs from their state of hyperamia, and to restore to the capillaries, of the surface, their healthy action. This may be done by applying heat to the surface of the body, in the form of hot, or vapour baths, or, in a dry form, by bags of heated bran, salt or sand, bottles of hot water &c the warm bath should be preferred, and the patient while in it well rubbed with a flannel or soft brush over the whole surface particularly over the epigastric and abdominal regions. On coming out of the bath the patient should be rubbed dry with heated flannels, put into a well aired bed between flannels, and supplied with some mild diaphoretic drink; as the infusion

of Serpentaria of tepid warmth; a combination of Cumfer
Opium and epicac, one grain each, with ten grains of Nitre,
given at this period, is found highly beneficial. External
stimulants rank next in efficacy to the warm bath, so that
in the early stage, Sanguisuga should be applied to the extremities
and over the epigastrium, and liniments with friction along
the spine. Internal Stimulants are recommended by
some practitioners, but as a general rule, their free use is
calculated to produce injury rather than good. Cathartics
of an active nature, as the combination of Calomel, or Blue
mass, with Aloes and extract of Colocynth, followed in a few
hours by the compound infusion of Senna, will often produce
a marked improvement in the general symptoms of the disease.

Venesection is highly recommended by some practitioners
and the evidence in its favor is certainly strong, it is however only
in the early stages of the highly Congestive form of the fever that
it is admissible, and even then, the flow of blood should be in-
stantly arrested if the pulse is found to sink, or even to remain
oppressed, or undeveloped, after a small quantity has been lost.

Should there be found, however, prominent symptoms of hyperaemia of the brain, lungs, or other important viscera, the application of cups to the head, or other parts affected, will often be found decidedly advantageous. As soon as reaction takes place, the use of quinine should be commenced with in large doses. Many physicians place their chief reliance upon this remedy, in Congestive Remittent fever, and administer it in doses of twenty, thirty, and even fifty grains, until a solution of the disease is obtained. In the simple, and inflammatory forms of the disease, its use should be commenced with, so soon as a complete intermission has been obtained, and may be given in solution, with the addition of a few drops of the elixir of vitriol, and from the extent of three, to five grains, repeated at short intervals as the circumstances of the case demands. The more violent the form of the disease has been, the more important is the administration of quinine (so soon as a complete remission has been obtained) and the larger should be the dose of the remedy.

I have now presented to your notice a general outline of the diagnosis, and treatment of Remittent fever, in its various forms; it is hardly necessary for me to say, that, the

extent to which each remedy is to be carried, and the propriety of its repetition and continuance, as well as the period and particular circumstances of the disease to which it is adopted, must be determined by the application of the great principles of Pathology and therapeutics to each case the practitioner is called upon to treat, and, although this will demand a degree of judgment which can only be acquired by habits of close attention, and nice discrimination, combined with a somewhat extended field of operation, it is the only source from which success can be anticipated in the treatment of a disease which like the one I have had under consideration, varies so much in its character in different seasons, and localities, and even in different individuals, attacked at the same place, and during the same period.