A very creditable story.

Fever: their causes, phenomena and treatment.

John Henry Wood.
Fever. Their causes, phenomena, and treatment.

The present subject is one, the importance and interest of which, cannot be overstated; not only, from the large mortality, attendant upon the various febrile diseases; but also from the enormous number, who are annually incapacitated, and rendered unable to follow their employments; and from the causes, being in so many cases under control, and to a certain extent, preventable, by proper attention to the laws of hygiene.

In the following pages, I shall try to explain the chief causes, their resulting phenomena, and the indications for a rational treatment, which these phenomena seem to point out; and as the truth is in the facts, not in the mind which observes them, I have tried to state the facts as plainly as possible.

The word Fever, is derived from the Latin word, Iam hot; and is applied to a certain class of diseases, characterized by certain more or less regular phenomena;
in which consists the primary and only apparent part of the disease.
It is also applied to the same series of phenomena, which are secondary to, and dependent upon, some local, definite, and recognisable cause; and which, like shadows to substance, are necessary to the very existence of such diseases; but yet are not, per se, any one, of these diseases.

Galen defined the word Fever, as "a preternatural heat" "Calor praeter naturam," to which have been added, from time to time, additional clauses, such as "quick pulse," "turbid urine," and the like.

"Aitken defines it as "essentially consisting in, elevation of temperature, which must arise from an increased tissue change, and have its immediate cause in alterations of the nervous system."

The question now presents itself "What is Fever"?

The Pathology of Fever, has been a disputed point for ages, and the theories have been numerous, the chief of which will be noticed further on.
Fever generally, present two stages; The first stage is essentially one of depression of the Nervous and Vascular System, resulting from the sedative action of the exciting cause, whether it be common, or specific; or whether it results from a poisoned state of the blood, or from a primary sedative impression upon the Nervous System in general, and upon the sympathecic or Vaso-motor System of nerves in particular.

We shall find, that this first stage of Fever, differs only in degree and duration, by whatever name it is called; whether it be the cold stage of an Ague, lasting from one and a half, to two hours, with intense rigors, Chattering Teeth, Coldness, and intense Congestion of the Intestinal Organs; or whether it be the stage of Languor, Chilling, and Emetic pains, in the head and back, which usually, in every continued, and Exaustemmatous Fever, and lasting from a few hours to several days, is the first stage of an Inflammation - Tony or Symptomatic Fever, where the
and shivering, coldness, an unusually very decided, but not of long duration; or lastly, whether it be the severe stage of depression, and collapse, which accompanies the Plague and Cholera; and where from the intense and powerful, sedative depression, upon the Nervous system, reaction may never take place.

The second stage is always essentially one of Reaction, from the foregoing stage of depression; and is consequently an effort of Nature, to eliminate infective matter, and is characterized by excitement of the Nervous and Vascular systems, with a general diminution, or suppression, of the various secretions, at the onset; and a tendency to local complications of internal organs, which are either congenitally weak, or have been weakened by previous disease, or climate, or mode of life, or have a greater amount thrown upon them to assist in eliminating the Materials morbii from the blood.

It will be found that this second stage...
differs also, only in degree and duration, whatever name is applied to it; whether it is called the hot stage of an intermittent, which lasts three or four hours, and then terminates by a general restoration of the secretions, or the sweating stage; which restores the equilibrium of the circulation, and eliminates the matteries morbi from the blood; or whether we name it the inflammatory stage of continued fever, which averages six weeks in duration, and then sooner or later, according to the violence of the reaction and the severity of the local complications, exhausts the brain and nervous system, causing the supersession of low or adynamic symptoms; though this inflammatory stage may be sometimes relieved by critical discharges, as of sweat or blood; or again whether it is the short but fierce excitement stage of Plague, where the powers of the brain and nervous system are rapidly struck down; or lastly if it is called the Reaction stage of Symptomatic or Sympathetic fever, which usually lasts a long time, and during which resuscitation...
and exhaustion, do not proceed rapidly, but which is essentially one of strong reaction and vascular excitement.

During this reaction stage, we have always the same two circumstances especially to fear: (1) The violence of the excitement, and the consequent corresponding exhaustion; (2) The extent, and severity, of the local complications.

We may now revert to some of the principal theories which have been deduced from the varying phenomena. But I should mention in passing that some flaws having been shown to be caused by local lesions, have been called Symptomaties; whilst others, depending upon constitutional causes, are called Idiopathic or primary.

It was denied by Broussais and Dr. James Blundon, that Idiopathic Fever ever existed. They said that there was always some primary gastro-enteric complication; the reason may I think be explained thus: according to Dr. Mason, of Philadelphia, the brain is irritated by the poisoned blood, the stomach and intestines sympathizing.
very strongly with the Brain, by means of the Sympathetic and Pneumo-pastorick nerves; and depending entirely upon it for power to perform their functions: it is probable also that the blood being in an unhealthly and unnatural state, the stomach cannot secrete healthy pastic juice, for the digestion of what food is taken; in consequence of this, particles of food are passed through the alimentary canal, in an undisgested state; which, acting upon the mucous membrane of the stomach and intestines, sets up irritation and so gives rise to Gastric-enteritis.

Another cause for it is, that the Liver is one of the first organs both involved in the general derangement of the system; the secretion of bile is altered, either being diminished, and so causing Constipation, and thus adding to the irritation; or being in excess, causing Bilious diarrhoea, irritating and inflaming the alimentary mucous membrane; or lastly though not altered in quantity, it is so altered in quality as to be acid; so that when poured into the intestine, it serves as a direct irritant, producing Gastric-enteritis.
Thus we see that there may be several causes for this gastro-enteric complication; one a reflex action by sympathy with the brain, another by the direct irritation of undigested matter, and others by the altered quantity, or quality of the bile.

The rapidity with which this inflammatory action is induced, in some cases, is so great, that it even appears to precede, when it is really a consequence of the general fever; in these cases, when it commences even before the fever is fully established, it becomes so complicated with the first stage of the fever, as to make it a matter of doubt, which is the cause and which is the effect, thus probably giving rise to the idea that idiopathic fever is never seen.

It has been shown by others amongst whom is Dr. I. Smith, that the exciting cause, whether common or specific, depresses the nervous and vascular systems, thus producing the first stage; and that during this first stage the whole system is in a torpid and inaction state; but the brain begins to show irritability which irritability increases till it leads forth
an influence to renew its activity, and thus the second stage is induced; and that during this reaction various internal organs become the seat of local complications.

Liebig's theory is that a septic poison, of animal, or vegetable origin, or both, is taken into the blood; that it propagates itself by a quasi-fermentative process, producing changes in the whole mass of the blood; and then after a somewhat definite period of incubation or latent period of contagion, during which these changes are taking place, fever is caused as an eliminative action, and all the various eruptions and discharges by the skin, bowels, or kidneys, are eliminative of the virus.

Etiology.

The Causes of Fever are very numerous, and may be primarily divided, into Predisposing, and Exciting: the predisposing causes, may, however, act, under certain circumstances, as exciting causes; and on the other hand, the exciting causes, may act on predisposing cause under favorable conditions.

A. Predisposing Causes.

The predisposing cause of any disease,
is that, which gives the exciting cause, undue influence in producing the phenomena; therefore Debility, however produced is the chief predisposing cause of fever; amongst the others may be mentioned, Hereditary predisposition, Indigestion, Heat, Cold, and various imprudences.

Hereditary predisposition, consists in the lowered constitutional vitality, depending upon the various depressing influences which have been in action upon the human race, from the creation; under it, may also be included, all imperfect organization, as well as the inability for the performance of their function, of the various organs of the body; resulting from physical depravity, and the accumulated imprudences of the human race, which one generation has transmitted to another; and which have rendered the present age unsale to withstand not only the Contagious Fevers, but also a vast number of non-contagious febrile affections, and though in many cases, a frequent attack may be avoided by prudence, yet it must be allowed, that there is a predisposition and liability, to be attacked.
Indigestion, may predispose to fever by the cutting off the proper nourishment, and in this way reducing the blood, and through the blood debilitating the Brain and Nervous system.

It may also introduce an impure Chyle into the blood, which not only does not nourish properly, but may also act as a direct irritant to the Cerebro Spinal System; or by the passage of undigested particles of food irritating the alimentary mucous membrane and so increasing the tendency to Sympathetic Fever.

But however it acts the Constitutional debility which it induces, is the main predisposition to Fever which attends it.

Heat, probably acts as a predisposing cause by its prostrating the powers of the system; and undue heat, may cause the Liver to secrete an excess of bile, which may act as an irritant to the intestines and predispose to Fever.

In fact any deviation from the laws of Hygiene, may predispose to Fever; both by the debility the infraction causes, and also by irritating, and deranging, the different
functions; amongst the most prominent, is undoubtedly, the abuse of alcohol.

Dr. Carpenter shows that the Conditions, which tend to bring about the specific miasmatic diseases, are referable to three categories:

(1) Conditions which may introduce into the system, decomposing matter which have been generated in some external source.

(2) Conditions which occasion an increased production of decomposing matter in the system itself.

(3) Conditions which obstruct the elimination of the decomposing matter normally generated within the system, and abnormally introduced into it from without. (Aitken.)

B. Exciting Causes.

The exciting causes may be divided into Common and Specific.

I. The common exciting causes are, vicissitudes of temperature, anxiety of mind, intercurrent long watching. 

Under this, first of these may be mentioned, Heat, which may become an exciting cause, as after previous exposure to intense cold, the
reaction being in such cases very great or by directly irritating the brain and nervous system, indirectly producing cardiac and arterial excitement.

Cold, is a frequent cause of fever by checking perspiration, and various secretions, causing the retention in the blood, of irritant matters as bile, urine; or by producing a chill with Cerebro-spinal congestion.

Electricity, being a powerful excitant of the Nervous system, may produce irritation leading on to febrile excitement.

The common exciting causes above mentioned produce fevers of a very irregular character, lasting from a few hours to even weeks, and either ending speedily in resolution or setting up local complications.

II. The specific exciting causes of fever are probably of three kinds. (1) Malaria or Paludal poison. (2) Animal effluvia. (3) Specific disease poisons or Contagious.

(1) Malaria or Moro. Miasma or Paludal poison (from Helminth common musca domestica pollution.) Whether it consists of animalcules or microscopical fungi, or some chemical compound of which we
Know very little; but which probably is some compound of Carbon, which exists largely in vegetable matter, with Hydrogen, and Oxygen; all of which compounds are highly reddening and deleterious to animal life.

This agent of whatever it consists, is a powerful cause of a certain class of Fever and is freely generated where decomposing vegetation is exposed to water and a temperature of from 60° to 80° F. especially when marshes have been overflowed, and the heat is drying them up.

This agent probably passes into the air, in connection with moisture, for which it has a great affinity, and being considerably heavier than the atmosphere, it is moved by the different currents of air, close to the ground, clinging to verdure and being intercepted by trees, buildings of any kind, or even
high fences, and in this way by continued interruptions, and admixture with pure air, it is gradually rendered harmless.

It is said that the malaria has the power of supporting vegetation, probably from the large amount of carbon contained in it, which is abstracted and the pernicious component broken up; hence it is no doubt in part, why miasmatic diseases are less ripe in early summer, when vegetation is vigorous, than in Autumn. When it is less so, in addition to the fact that the nights are colder, and the days hotter.

This malaria traverses water with great difficulty, especially when in motion, being so readily absorbed, that ships lying at anchor at Sierra Leone are considered safe, half a mile from shore, even with a land wind. Now of whatever Malaria, Horses miasmatata or Paludal poison consists, it probably enters the blood through the lungs and stomachs, and perhaps by the cutaneous absorption. When it probably passes with the blood, as a foreign body, without any chemical union or decomposition of the blood, acting directly upon
The brain and whole nervous system, diminishing, directly, nervous action and depressing vitality.

The cause is probably the same for every variety of Paludal Fever, whether Intermittent, Recurrent, or Bilious diarrhea; varying with the state of concentration of the malarious poison, owing to the obstructions met with in its course, and varying greatly with the amount of predisposition shown by the individuals themselves, as is proved by the fact, of a number of sailors, or others, exposed to the same poison, some remaining perfectly well, others struck down with sickness of every shade of intensity, from a bilious headache with slight diarrhea, to a rapidly fatal attack, when they appear struck down at once by the intensely violent action of the poison, upon the nervous system.

(2) The second specific exciting cause, is Idio-miasmata, or the Animal effluvia, resulting from animal secretions and exhalation, which are allowed to accumulate in crowded and filthy rooms, and are especially liable to occur in winter when the rooms are kept closed. It is probably taken into the circulation
By means of the stomach, lungs, and absorptions, in the same way as Nocis-micasmata, but differs from it inasmuch, as it is decomposed and unites chemically with the blood, producing fever of a low Typhus type.

Its effect is greatly increased by its decomposing the blood, and rendering it a depressing agent, so depressing vitality, that no intermissions or recurrences occur, but the fever continued as we see in Typhus.

When local inflammations occur, as in Diphtheria, the evolutions are of a dark purrid character, evidently composed of decomposed albuminous-fibrinous matters.

The manner in which Nocis-micasmata is disseminated, is probably, not by the atmosphere, but by means of clothes it being carried even to considerable distances, retaining its active power.

The most malignant forms are perhaps caused by a combination of the two kinds, Nocis-micasmata and Nocis-micasmata.

(3) By the third cause, Specific disease poison or Contagion, is meant the peculiar product of each disease, whether solid, fluid,
or aërifon, by means of which the disease propagates itself, as cause and effect, through any number of unprotected individuals.

Now the Contagions produced by some diseases require contact, usually with the skin to reproduce themselves; whilst others are carried by the surrounding atmosphere, to distance varying in the different forms, others being disseminated in both ways.

They are received into the system through the lungs, or by becoming entangled in the saliva and penetrating to the stomach, or perhaps through the absorbents of the skin.

After entering the blood they remain as it were dormant for a time, whilst the blood is undergoing changes, but in all cases depressing vitality; thus the incubation period varies from two or three days to several weeks.

When the fever is established the Contagions secretion or exhalation begins to be formed, in some sooner than in others, and the power of communicating the disease either by the body or clothes is retained by some, even during the whole period of convalescence.

Each Contagious Fever has its own specific
poison, which reproduces the same phenomena; varying it may be in intensity but essentially the same, and always passing through one case to another; and though there are well authenticated cases where patients suffering from Paludal Fever, have appeared to generate Syphus poison, causing malignant Syphilis; and other cases appear to support the doctrine of the origin of these poisons "de novo", still the evidence in favour is merely negative: namely the fact, that cases do spring up, in which it is quite impossible to trace the disease back to a personal source of specific propagation, and dissemination; but we know that the active principle of the poison is invisible, although the matter that is known to contain it, may be capable of isolation and inoculation, as in the virus of Small Pox: again, we know that ample provision is made, and ways are open for the spread of the active agent of propagation, in a thousand unseen modes; so that it is obvious that the precise source of infection, and its track, must often baffle the wisdom of man to discover and track out. (Aithen)
The Proximate Cause of Fever.

Pathologists differ as to the meaning of the term "Proximate Cause"; John Hunter defined it to be "the morbid action, that was going on in the system, to produce the pathological phenomena or symptoms," and according to this view, the proximate cause of fever is; a poisoned state of the blood, and a depressed state of the nervous system.

Having attempted to describe the Causes of Fever, I must mention certain influences which they obey and which cause them:

1. To spring up suddenly in a locality, under unfavourable sanitary Conditions: These Eupenic influences according to Dr. Better may be traced to the constitution of the soil, air and water, the vicinity of the sea, rivers, stagnant water, woods &c. and to the moral, physical, religious, and political conditions.

2. To rapidly spread at irregular intervals, so as to incapacitate, and destroy large numbers of individuals; Dr. Wood says of this Epidemic influence, "that there must be some disunited condition of the circumstances around us - some secret power that is operating injuriously..."
upon our system - and which is believed to predispose towards the receptivity of specific disease poisons; Mr. Dixon attaches it from the prevalence in certain localities, of external conditions, which tend to determine a specific decomposition of organism.

It has been also ascribed to a peculiar atmospheric condition due to the presence of a principle called azone or comagone.

3) Dr. Lawson attempted to establish the occurrence of a series of oscillations of febrile diseases, following each other over the world with amazing regularity. The mode of occurrence of such febrile diseases he attributes to a cause or influence, which from its extent and progress character, he names "a pandemic wave" to distinguish it from the epidemic influence.

The phenomena of Fevers.

To enquire into the phenomena of every kind, and variety of fever, would be an endless task; I shall confine myself, therefore, to the general phenomena of which mark Pyrexia in any form; any object being, not to diagnose between the different forms, but only to describe that pathological condition called Fever.
Now as we have been told the natural and acquired predisposition, the predisposing, and the exciting causes of fevers, are so different in different cases; so should we expect, that no two cases would present exactly the same phenomena; and so we find it: for in two cases develop precisely the same symptoms, even though they occur in the same individual at different times; or in different people under the same conditions; yet usually in addition to the febrile phenomena, symptoms sufficiently characteristic, become developed and superadded, to enable the physician to define the specific nature of the disease, or fever, as a whole; and to say of this case, or of that, "It is a Typhoid fever," or an Ague, or "it is a Rheumatic fever," or "a Pneumonia," or "Dysentery," or any other form of illness where Pyrexia is present, that we are able clinically to recognize. (Aithen)

To rightly understand the phenomena of fevers, we must regard them as symptoms of so many etiologies, and we must also take into consideration the different type of febrile diseases, and whether the exciting
causes, is a wound, or injury, or a local inflammation producing symptoms of fever; or the reception of a malarial poison causing an agrue; or the reception of a specific disease poison producing Enteric Fever, or Typhus; or simply cold giving rise to common catarrh, with febrile symptoms; or the absorption of, probably decomposing pus; in the one case from a stump, in the other from the uterus; into an already irritable, and exhausted Constitution, which is predisposed to any disease, causing Pyaemia, or Puerperal Fever; or Septic, produced by any unnatural drain upon the Constitution.

In any of these states, however diversified the causes, we shall find that the preliminary phenomena are the same, but differing in duration and intensity; in some the Maladies being the most marked, others commencing with severe rigor.

These preliminary symptoms are usually, loss of appetite, and a bitter taste in the mouth, from alteration in the digestive function; drawn speeches, headache, lassitude, and general malaise, wandering pains in the limbs, pain in the back, disturbed sleep, thirst, dry skin, sluggish
j嘘le, or irritable pulse, loss of energy, and general debility, with rigor of more or less intensity: from slight shiver and chills, to the intense rigor of Ague.

These are as before stated, symptoms of depression, which may be explained thus: that the poison going into the blood, operates first, upon the brain and nervous system, deranging their function, and then acts secondarily, upon every organ and function of the body.

If the cause is an external injury, chills, often amounting to actual shivering, marks the date of the febrile disturbance: and one or more distinct ripples usually precede an idiopathic inflammation, if of any extent: after a variable amount of the symptoms of depression of the nervous system.

And as shall find, that in inflammatory fever, the coldness and shivering are usually very decided but not of long duration, and that the primary symptoms, are all referable to depression of the digestive and irritation of the nervous system: if the cause has been sufficiently intense to produce suppuration a very distinct rigor usually precedes it.
Now we have seen that this stage is characterized by debility, which debility and prostration may, and generally do, continue for several days. Till the system, though irritable, sinks down; the brain and nervous system are unable by their influence, to carry on the functions of the body; the heart and arteries feel the depressing influence, the blood recedes from the surface of the body and the extreme vessels, and the brain, spinal cord, and internal organs become congested: and as the nervous system is thus injured, and the circulation becomes sluggish, the animal heat is not kept up, and the rigor is produced.

This congestion sets up irritation, in the brain, which by means of the sympathetic and cerebral spinal nerves, influences the heart and vascular system, and causes vascular excitement; the heart contracts violently, the circulation becomes as active as it was before sluggish, animal heat is restored, and then generated in excess, and all the characteristic symptoms of the reaction stage are presented, namely; great heat of skin, excessive retention of water in the system,面上高 color to the head, so called
febrile urine, dry furrowed tongue, nausea and vomiting, with more or less emaciation.

After the heat of skin, the excessive retention of water in the system is the most constant and important symptom, and with the water, is retained many of the salts, which are normally excreted by the skin and kidneys, giving an important indication for the treatment, as will be seen hereafter.

The alteration in the blood is chiefly, in the diminution of the alkaline salts, albumen and corpuscles, with the presence of a special poison in some cases, as urea acid in Rheumatism (Garrard).

That the nervous system is the chief agent in the production of these phenomena, is probable, for the following reasons:

1) It is generally received physiological law, that the nervous system, regulates the metamorphosis of tissue, and the production of heat, both of which are altered in fever.

2) The experiments upon the vapors, which bring about febrile phenomena, such as, increased cardiac action, pulmonary congestion, anorexia, nausea &c.

3) In various symptoms, which announce
accompany and terminate fever; all point to the nervous system.

(4) Cases where the patient is suddenly stricken down, point to severe nervous lesion.

(5) The effect of quinine upon periodic fever phenomena. (Ritten.)

The chief phenomena and their causes may be summed up, thus:

That a poison is taken into, and alters the blood to a certain extent; it then acts, with the altered blood, as an irritant to the brain and nervous system, causing the symptoms of depression; and through the nervous system, upon all the organs, altering secretion in various ways; reaction being often caused by irritation of the brain.

The vascular excitement combined with altered nervous force, causes increased waste of tissue, which with the almost total want of fresh material and loss of assimilative power, causes the destruction, prostration, and great muscular debility. This increased waste also renders the blood still more impure, and keeps up the irritation, and alteration in the nervous function.

From the alteration in the functions of the various organs, elimination is at a standstill; thus again.
increasing the impurity of the blood, and the tendency to local complications: the brain suffering, not only, from the primary effect of the fever poison; but also from the retained products of metamorphosed tissue.

These symptoms of reaction may pass on into another type of fever, namely, the Adynamia or Asteenio; when the patient gradually feels weaker and weaker, the heart action becomes impaired, the pulse sinks, and there is great tendency to collapse; the tongue becomes dry, black, and tremulous, cords cross the neck and lips; low muttering delirium, stupor and coma prevail; the skin becomes cold and clammy and the features become shrivelled, pinched, damp, and ghastly; tremors affect the voluntary muscles, and the urine and faces an acrid, involuntary. This nervous form generally accompanies mortification, and other unhealthy tendencies of the inflammatory process.

Treatment.

To arrest the tendency to death in the febrile state, it is necessary to observe how terms naturally terminate favourably; four
modes are enumerated by Dr. Parkes, namely:
(1) By Crisis, in which the temperature falls suddenly in a few hours, and usually with some abundant excretory discharge, in which, possibly, much of the water which has been retained in the system, is poured out.
(2) By Lysis, in which the fall of temperature is gradual from day to day, till the normal standard is attained.
(3) By a combination of these two modes, the temperature, suddenly falling to a certain point, and then gradually decreasing to the normal heat.
(4) By a somewhat irregular alternation of febrile and non-febrile periods.

When fever terminates by any of these modes, convalescence begins, normal nutrition is renewed, and the body begins to gain in weight. The blood is poor in Albumen and red corpuscles, and there is now danger that the rapidity of metamorphosis of tissue will exceed the healthy standard; and great care, attendance, and watchfulness are required when the patient begins to convalesce.

According to Dr. Christie, the indications for the treatment of febrile diseases, are:
(1) To reduce excess heat. (2) To induce proper elimination of the excretions.
(3) To act on the exhausted and semi-paralyzed nervous tissues. (4) To neutralize any specific poison which may have given rise to the fever, and (5) to improve the state of the blood.
(6) To relieve distressing symptoms, and to abate and counteract all local complications.

The special treatment of the febrile state depends on the diseases of which it forms a part, and by which it is more or less modified.

Looking at the febrile state as the effect, and the poisoned state of the blood as the cause, I think the indications for treatment would be somewhat different; namely, that at the onset, during the stage of nervous depression, the indication is, to try to evacuate and eliminate the poison, and to restore the equilibrium of the circulation. This may be done by giving an emetic, which evacuates irrisitant matter, and by the Concession of Vomiting Tends to equalize the circulation; at the same time vapour baths are strongly
indicated: their action being to withdraw the blood from the internal organs to the surface, at the same time rigorously eliminating the matter morti, by the skin.

The rationale of this will be seen, if we take into consideration the fact, that the increased heat of skin, is nature's effort to eliminate the poison from the blood; the skin and kidneys, from altered nervous force being in action, as has been seen; it seems a more rational plan, to assist in the elimination of the poison, through the channel, to which nature seems to point, than to counteract it, by checking the more heat of skin, and giving agents to neutralize the poison.

When a poison is taken into the stomach, nature by vomiting Looks to get rid of it; and the physician, aids and encourages this effort; afterwards forcing to neutralize any that may remain; he does not check the vomiting, trusting entirely to rendering the poison inert by his remedies.

And such ought to be our aim in the treatment of fevers, by inducing skin action.
by the vapour bath, and thus following our
natural method of relieving herself of the poison,
at the same time keeping the excretion of the
kidneys and bowels, as near the standards of
health as possible.

But we must also try to neutralize the poison
when known; as by hydrochloric acid in Typhus
and Enteric Fever; by the alkaline carbonates
in Rheumatic Fever; or in Erysipelas;
in this way aiding nature, and diminishing
the risk of local complications from the fact that
the congestion of the earlier stages is removed
and the circulation equalized.

Common gelatin cataract from checked skin
action may be taken as a good example, of the
beneficial effect of the vapour bath, which
removes all fever, by means of a copious perspi-
ration:

Iron has been given in Intermittents, in
America with good effect; and on the west
coast of Africa, the Intermittent and Remittent
Fever are treated by Quinine and Ginger in
hot wine, sugar and water; and warm baths;
with the effect of cutting short the attack
in three or four days.
With regard to the question of iron in specific disease poisons, it is possible that it acts by its antiseptic power, killing the poison and already in the blood, and altering the blood so as to enable it to resist the quasi-fermentation process by which it reproduces itself; in that case it would be well worth a further trial, especially in those epidemic diseases, attended with diarrhoea & where its astringent properties would perhaps be useful as well; trusting to the skin for the elimination of the poison.

The danger of checking skin action during the use of the vapour bath; by exposure to cold; is very slight; and with ordinary care, no bad effects need be anticipated; Sweating should be encouraged, and the surface occasionally sponged with a little tepid vinegar and water; just before or during the bath, a glass of hot wine and water or its equivalent, should be given, to prevent the faintness which sometimes is produced.

A very convenient way of using the vapour bath, is by an apparatus contrived by Dr. Bowie; who has never lost a case of typhus in
which he has used it.

It consists in a tin case, 10 inches high, by 6 inches wide and 4 inches deep—on one side is an opening into which is fitted a small tray: it is perforated for the admission of air: on the tray a small open vessel is placed for the spirit. Into the top of the case, a vessel is fitted for the water, and into the lid of this the elastic tube is fitted. It may be used either under a chair, or to a patient in the sitting, bent position; or for inhalation.