On Continued Fever

In selecting that most universal disease, Fever, as a subject for an inaugural essay, I do so, not on the grounds that I have any new theory to profess, either as to its nature or cause, or any new rule for its treatment; but because it is a malady from which we are never free, and therefore one which the Physician is constantly called on to treat.

When we purify the causes of disease, so various, so often obscure, and sometimes totally unknown, it requires no slight application or study to attempt their history or elucidation. Its doubtful diseases take their origin from the peculiar constitution of the animal machine, some of which may be classed as diseases in common, and some to those which may be deemed most liable to morbid influences; some may be stated to be hereditary, some accidental to
in which they dwell; the occasional severe destitution from stoppage in trade, and the despondency of mind consequent thereon, leading to intemperance; crowded lodging houses; the insufficiency of ventilation; and the means adopted for the removal of all impurities.

As the predisposing causes of fever are believed to exist in concentrated offensive emanations in correspondent localities, yet such powerful agents in propagating disease, may be naturally restrained by artificial means, namely, by a proper attention to the construction of sewers and other sources of drainage.

Whatever the origin of fever may be, the frequent recurrence of febrile action, for the most part, carries destruction with it in the individual affected, although instances are recorded of persons having had the disease three or even six times. The most valuable constituents of the blood become exhausted by repeated attacks,
and deprived of that stimulus necessary to the maintenance of the nervous power. Under this condition of the body, vitality is diminished, the energies sink, and a deplorable state of the system is the ordinary result. Individuals rendered by a variety of causes, predisposed to the reception of febrile affections, are always difficult and protracted in their recovery. Living in an atmosphere permanently subject to the influence of poisonous exhalations, they become more amenable to the development and symptoms of disease.

There are many causes which contribute to increase the ratio of mortality amongst the lower orders of society, over and above those which affect others in different circumstances of life. In the seasons of epidemics these disadvantages present themselves to a lamentable extent amongst the children of the poor. The want of fidelity in the nurses in attending to medical instructions,
The reluctance to act contrary to the will and dispositions of the sufferers; the permitting also of popular errors to interfere with explicit directions; and the apathy that too frequently governs those who have charge of them, all tend to add, to a fearful extent, to the burden of death that take place of children in the earlier years of infancy. Many are the instances daily witnessed to this imperfect mode of supervision; and it is a subject which cannot too strongly engage the attention of those, who are called upon to advise in their behalf. Instances of this kind are not more frequently to be met with, than during the prevalence of typhoid fevers; and it is inconceivable the difficulties that accompany the medical practitioner, in the course of his direction in such cases. Although fever is a malady that excites considerable alarm in the public mind; generally, the treatment if it is secretly assisted by the ignorant, when it is
opposed to their preconceived erroneous notions. The dread of shaving the head, or any part of it, in delirium, is almost as unconquerable as the desire to prevent the circulation of pure air through the infected apartment. Although the source of febrile disorder, is an infecting power capable of being increased or diminished, according to various contingent circumstances, and although medical history justifies the belief that the infecting principle does at times acquire a virulence that proves fatal to life under almost any circumstances of season or situation; the working propagation of this country from the great mass of individuals, amongst whom infectious disease is constantly occurring. Amongst whom a location of the destructive principle is established, and a rate of mortality incurred exceeding its natural limits. The disease is also promoted by the physical power of the class of individual being left adequate to the resistance necessary
to repel the morbid actions which accompanying its existence. These actions are the result of a specific poison, vitiating the whole system, and before, headache, thirst, heat of skin, and general prostration ensue. The period these symptoms occupy is very variable. Of this there were many striking examples amongst those cases of fever that occurred amongst the travelling Irish in 1847. There were some in which no other than an unfavourable prognosis could be pronounced when first brought under notice, which subsequently rallied and speedily recovered; others embraced a period of three or four weeks, and some had a still further protracted recovery. Although contained fever is a malady in which the whole system is affected, and a disease implicating the whole constitution; it is generally accompanied, under various circumstances, by the development of certain local affections; among the most common of which are, inflammation of the brain.
branches of the brain, and sometimes of its substance; catarrhal symptoms; pneumonia; pleurisy; inflammation in some part of the mucous membrane, and of the glands, of the alimentary canal &c. The skin is also the seat of several secondary affections, such as a merely eruption; petechia; oedema or vesicles containing a clear watery fluid; which last was particularly to be observed among the travelling Irish in 1847.

Continued fever may be divided into four varieties, namely, 

1. Febris Ephemera. This is the simplest form of fever; its symptoms are those of continued fever in a very minor degree, of short duration, often continuing not longer than twenty-four hours. Medical men, and those exposed to much fatigue, are often subject to it;
It often occurs in consequence of over-indulgence in the pleasures of the table. Its symptoms are, loss of appetite; furred tongue; frequent pulse; headache; and a sense of lassitude and weakness. These symptoms are of a mild kind, but they are often not to be distinguished from the commencement of the more serious varieties of continued fever, and therefore a hasty prognosis ought not to be given. It soon gives way under rest; light purgatives; and a non-stimulating diet.

II. Syphcea or inflammatory fever.
This variety of fever is seldom met with now a day; it was much more common five and twenty, or thirty years ago. It generally commences suddenly, with restlessness or counting; weakness, and a quick and feeble pulse; soon succeeded by rigors; headache; pain in the back; increased heat of the skin; thirst; a frequent inflammatory pulse; tongue
furred and, grave, sallow, and high-colored. Delirium often supervenes in five or six days. It tends either to terminate in sweating, or, if it last long enough, it runs into the typhoid type.

III. Synoechoa. This is a mixture of Synoechoa and Typhus; commencing as the former, terminating as the latter. The change from Synoechoa to Typhus generally takes place, during the second week of the attack.

IV. Typhus. This is the most common of the continued fevers. Often in this form of fever, the patient feels indisposed for some days before the attack commences; there is a feeling of languor and weakness, and sometimes nausea and loss of appetite. More early the patient is at once seized with typhoid prostration. The most common symptom that first attracts notice, is a shivering fit; the patient feels cold and chilly, and do what he will, he cannot get warm; he has the "Enter Aussera." Soon there is
severe headache; pain in the back; great
delusion of the intellectual faculties; fre-
quency and feeble pulse; the tongue is
at first moist and whitish, but soon
becomes dry and brown; sometimes there
is diarrhoea at the commencement; the
eye-paint of the countenance is dull and
heavy; the appetite is lost, and there is
great thirst; the heat of the skin is
increased. As the disease advances, low-
muttering delirium sets in, but the
patient answers questions when spoken
sharply to; diarrhoea may set in; and
although there is not often much com-
plaint of pain in the abdomen, yet by
making pressure about the situation of
the caecum, we may often observe that
pain is produced. Haemorrhage from
the bowels is also apt to occur at this
stage of the disease. The air passages
are often clogged with mucus, which
causes the patient much distress, on
account of his being too weak to make
the necessary efforts to dislodge it; the
tongue becomes more dry, brown, and hard; the teeth are covered with sordes; the
heat of skin does not increase much; the pulse is more frequent, weaker and
compressible; the headache generally goes away; the voluntary movement become
weakened and irregular; the prostration excessive; the patient lies on his back
and sticks down in the bed. Where the event is about to terminate unfavourably,
the pulse increases in frequency; the urine becomes scanty and high coloured; sometimes there is retention of urine; the
faces are discharged moisten tarily; total
loss of power; subsultus tendineum; and
deep coma. Where it has a favourable
termination, the tongue becomes moist at
the edges, and afterwards on the surface;
perpiration, or glutte diarrhoea; the pulse
becomes fuller and less frequent; cessation of delirium, and the patient being
more easily aroused; if the patient is
found on his side, it is a favourable
sign, as showing that he has sufficient
infancy, while others equally occur at all ages. The climate under which we live will also produce disease, independent of a variety of circumstances of a physical nature that have a bearing on our very existence.

Such controversy has taken place and is taking place even at the present day, with regard to the origin of fever. The ancients attributed fevers, disorders, to a fermentation of the animal fluids. According to Hippocrates, the cause of fever was some morbid matter in the blood, which matter, by a process of concoction, in a certain time, was made ready for expulsion from the body, which took place in various ways, as by hemorrhage, sweat, expectoration, these constituting the crisis of each fever. Leibig describes the phenomena which take place, on the introduction of certain animal poisons into the blood, to a process resembling fermentation. There can be no doubt whatever, from
Strength to turn himself in bed; the evacuation that has taken place becomes more conspicuous, perhaps on account of the patient assuming a more natural expression of countenance; sometimes drink and food are asked for. Sometimes the crisis is preceded by an aggravation of the symptoms; sometimes the amendment is so slow as hardly to be perceptible. The recovery is always gradual and slow.

Relapses are not very frequent in continued fever; they are more common in the inflammatory type, than in the typhoid variety. They are generally a consequence of some indiscretion on the part of the patient; want of care, such as premature exposure to cold, and error in diet. The symptoms are, for the most part, not so severe as in the primary attack, though occasionally they are more so, and may even prove fatal.

Edema, especially about the ankles, is a common consequence, and
results from debility. It disappears as the strength returns.

Rheumatism, neuralgia, phthisis; and certain local inflammations have been remarked, as among the sequelae of fever; but, on the whole, it is generally noticed that they are rare, and more especially in young subjects, some of whom become more robust than they were before the attack.

In estimating the importance of symptoms, whether favourable or not, with regard to the prognosis of the disease, the character and tendency of the existing epidemics, and of other diseases existing at the same time, must be borne in mind. The prognosis is favourable when the patient is youthful; the fever is not complicated with local disease; or when the local disease is slight; the debility is not extreme; the aspiration not very frequent; absence of delirium and stupor; steady pulse. The prognosis is unfavourable when the
patient is advanced in years; the existence of severe local disease; the debility is extreme; the tongue is dry, brown, and hard; the eyes are suffused; the patient lies on his back, and falls towards the foot of the bed; there is low muttering delirium; subcutaneous tenderness; involuntary evacuation etc.

The appearances found on the inspection of those, who have died of fever, are sometimes very inconclusive, and have led to many errors on the part of those who have arrived at too hasty a conclusion as to the real nature of fever. The most common mode of death in continued fever, is certainly that by coma, which leads us, in the first place, to ascertain what information is to be derived from examining the brain. Some pathologists maintain that the essence of continued fever is inflammation of the brain. Now, in many instances no trace whatever of inflammation can be found on inspecting the dead brain.
After however we do find traces of inflammation; bloody effusion beneath the arachnoid, and in the cerebral ventricles, sometimes threads of coagulated lymph; the sinuses of the dura mater are more or less filled with blood, as also the blood-vessels of the membranes. The whole amount of bloody effusion is often very small, seldom exceeding an ounce; and it occurs much more frequently in old than in young persons; and how far it can be considered as an effect of fever it is difficult to say, since it is to be found in inflammatory diseases in which abundant cause of death appears in other parts of the body; and it is also found after many cases of chronic disease, of different parts of the body.

The following are the morbid appearances usually found in the air passages and lungs, after fatal fever: thickening and redness of the tracheal or bronchial mucous membrane, to a greater or less extent; and effusion of blood or frothy matter.
which may account for the troublesome dyspnea, so common in fever. In the pulmonary substance there is engorgement, which is most probably, in a great measure, mechanical; and takes place during the last few days of the patient's life. The fluids, and the blood especially, accumulate in the most depending part of all the visceræ, and the lower and posterior portion of the lungs, in particular, become loaded. That this is really the case, is strongly testified by a case related by Laennec. There, in consequence of tocs in the back, the patient was constrained to lie on his face, for some time before his death, the anterior (but still the depending) portion of the lungs were found pressed. Large portions of the lungs are often found in a state of hydatization, and even infiltrated with pus. Gangrene of the lungs, as a consequence of inflammation, sometimes takes place during fever, which is known before death, by a peculiar fato
of the breath, and after death by the coldness and putrid smell of the lungs.

The appearance and consistence of the brain is generally normal, although in some instances, it is found enlarged and flabby.

The spleen is very often found much softened and enlarged, and of a dark, blackish-brown colour.

Podrid appearances are more constant, and more frequently found in the alimentary canal, than either the brain or lungs. The pharynx and esophagus are more frequently found superficially ulcerated, after death from fever, than other diseases. The stomach is sometimes enlarged. But the most frequent morbid condition of the alimentary canal, is inflammation, and its consequences, as ulceration, or, if the oblong and conglomerate glands, which are scattered over the course of the small intestines, and especially near the ileo-cecal valve. Going along with the ulceration of the
Glands of the intestines, there is frequently found inflammation of the mesenteric glands; the latter perhaps being a consequence of the former. An ulcer may perforate all the coats of the intestines, causing escape of their contents, and consequent rapid and fatal inflammation of the peritoneum. The alteration thus taking place in the alimentary canal, afford an explanation of many of the symptoms of continued fever. They account for the pain which is experienced when the abdomen is pressed, and more especially in the situation of the cæcum, as it is near the ileo-caecal valve that the glands are most numerous. They account for the diarrhoea. They also account for the sudden attacks of haemorrhage, which take place, when the ulceration has extended to vessels of moderate size. Many pathologists say that fever is essentially inflammation of these glands. Now if such were the case, it is clear that the severity of the
Case, and the intensity of the symptoms, should be in proportion, to the number, depth, and extent of the ulcerations. But this is not so, for in cases in which the symptoms have been of the worst-kind, the ulcerations have been few and small; and also in cases where the fever has run a moderate course, but at length terminated in death, absorption in the intestines has been found to a very great degree; and also cases of death from fever, not infrequently occur, in which the glands of the intestines have been found healthy.

The treatment of continued fever can only be carried out on general principles, applied to individual cases, bearing in mind the character of the existing epidemic, whether it has a tendency to assume the inflammatory, or typhoid type. Fevers of the present-day have a tendency to assume the typhoid, rather than the inflammatory form; so that bloodletting, which was often rendered necessary formerly,
is seldom had recourse to now. Many persons have thought that continued fever is capable of being cut short by the administration of emetics, but the balance of authority is against their producing any such effect; although if given early in the fever, when the stomach is affected, they are sometimes followed by a marked abatement of many marked evidences. It is probable that the fallacy may have arisen from the cases in which they have been deemed to act, being mere cases of delirium: for experience has proved that fever will run a certain course, and endure for a certain length of time, in spite of remedies. At the outset of the fever, emetics and purgatives may be given to clear out the stomach and bowels. During the stage of reaction, which rarely extends beyond the first week, the indication to be borne in mind is simply to reduce action, by the smallest possible expenditure of strength; for it should always be remembered that a period of debility is at hand.
For this purpose, the remedies most proper are general and local bloodletting; cold; diaphoretics; antimony; and low diet. General bloodletting should be had recourse to with great caution; it should be employed only where reaction runs very high, as ascertained by the pulse &c., and our object should be, to produce the greatest possible effect, with the smallest loss of blood. Local bloodletting has not such great objections to its use; it may be very useful in checking local inflammation, and mitigating reaction. Cold is a very useful means, and is generally very grateful to the feelings of the patient; the best way of applying it, is to sponge the body with cold or tepid water, which however should never be done against the feelings or wishes of the patient, so long as he is sensible; cold cloths to the head, frequently repeated, as it is inconceivable how quickly they become hot and dry. Cold drinks are very useful in allaying thirst; a solution of the bicarbonate of potash,
The microscope, instances on record, that fever is infectious, in the proper sense of the term; what is not yet (though almost) settled, is, whether fever ever originates in any other way than by infection, and if so, whether it is then capable of propagating itself by infection. This is a subject surrounded with difficulty, for cases are ever and anon occurring, which, even after the most rigid investigation, cannot be traced to contagion. Persons living in isolated country districts, and not having had any communication, directly or indirectly, with individuals suffering under the disease, are sometimes attacked with fever, or with a complaint so closely resembling it, as to be entirely indistinguishable from true infectious fever. Persons in the highest ranks of society, residing in healthy situation, and in well-ventilated houses, and who, from their very way of living, could not be supposed to have caught
with or without sugar; soda water; tea; or water may be given with this view. The patient will often be able to eat all medicated drinks, and ask for plain water. Low diet ought always to be insisted on; it is very seldom that this injunction is disobeyed, as the appetite is in general gone; the patient's attendants, however, must be cautioned not to press him to take more food than he wishes for, and that should be of the simplest palatable kind.

In the intermediate stage, or that which intervenes between the stage of reaction and prostration, which generally extends from the end of the first week to the eleventh or twelfth day, if reaction ensues early, antiphlogistics will be necessary; if there be much debility, stimulants such as wine and beef tea should be given; if there be much or urgent diarrhoea, forced powder or the mixture creton with morphine are excellent remedies.

In the last stage, or that which precedes death or recovery, we must continue the
Thermometer, the urinary bladder should be attended to, as retention of urine is very liable to occur; and the state of the integuments about the shoulders, spine, and sacrum should be looked to, as these parts are liable to thorough from the continued pressure. With regard to the administration of the most important remedy in this disease, namely, wine, few patients require it before the end of five or six days. Much also depends on the kind of fever. It is contraindicated in the inflammatory form. It is required the more the fever assumes the adenemic form. We should avoid giving wine as long as possible during the first week, and it is a bad sign if it is required sooner. The indications for its use are a pulse soft and compressible; the countenance pale, and expression of much languor; much dyspnoea; cold skin, &c. It should not be given if the pulse are frequent and jarring, and the skin hot and dry. It agrees with the patient, when the pulse becomes more full,
but not more frequent; the tongue becomes clean on the edges; the delirium abates; sleep comes on; and the appetite returns. It should not be persisted in, when the face becomes flushed; the pulse becomes more frequent and jarring; the dryness of the tongue is increased; the respiration becomes laboured. When it is proper that wine should be given, care must be taken that it is continued during the night; for, from inattention to this, patients are apt to death, carelessly, from want of their accustomed stimulus.

The management of the patient during convalescence, is of the utmost importance, hardly secondary to that of the fever itself. Where there is great weakness, wine should be continued, until the appetite has somewhat returned, since frequent fainting, seem to complete syncope is apt to come on. As convalescence advances it should be gradually withdrawn, or it will do more harm than good. The patient should not be allowed to get out of bed too soon;
his diet should consist of jelly, farina, congealed food, broth &c. until his tongue is clean and moist, and the skin cool; then he may begin with white fish, going gradually to chicken, and the flesh of full-grown animals.

Throughout the whole treatment of fever, we should always bear in mind the importance of studying the tendency to the particular mode of dying in each case. Cullen indicates the necessity of "obviating the tendency to death." To do so, we must ascertain the direction of that tendency; and in whatever direction it does tend, we must endeavour, to the best of our abilities, to obviate it.

In conclusion, I have to apologize for this very curtory and imperfect sketch of so great and important a subject, as continued fever; and I humbly trust that it will meet with that indulgence, it so much requires.

Charles Harwood.

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it, and to whom the infection could not be traced, have nevertheless been brought under its influence. There are circum-
stances calculated to perplex and deceive. Many persons have even gone to bed or to die, and some do so still, that continued fever is ever propagated by contagion. They say that fever cannot be contagious, because many persons who have intercourse with the sick, do not contract the disease; forgetting that everybody at the time of the exposure is not predisposed to take on the disease, and even where people are predisposed, still that the poison requires to be much more concentrated, to affect some people than others. Habit also seems to fortify the system of those much exposed to the effluvia arising from fever patients. These now-contagionists say also, that fever may be produced by the effluvia arising from the bodies of healthy persons crowded together in small ill-ventilated
places. Now, if that were the case, fever would be much more common and universal even, than it is, especially in those small, dirty, ill-ventilated places, the habitation of the poor in most of our large towns. In support of the contagious nature of fever, may be brought forward the fact, that in fever hospitals, very few of the nurses or those employed in the immediate vicinity of the sick, escape for any length of time; and to a great extent fever propagated in those establishments, that it has now become the custom, instead of congregating fever patients together in fever hospitals, to put them, few in number, in the general wards of hospitals appropriated to various diseases, and in this way the spread of the fever is very much diminished, owing to the greater dilution of the poison. Instances too numerous and obvious to mention might be added of the communicability of fever. The poison
may lurk in the clothes of an individual, or in the furniture of a room, and when fever does occur, it is sometimes with the utmost difficulty, that we can determine whether it has arisen from contagion or not. But thus much may be said; that fever, in the great majority of cases, owes its origin to contagion; but that, a disease not to be distinguished from true infectious fever, may sometimes, but very rarely, arise without infection.

The distance at which the poison will operate, is different in different fevers; that of the eruptive fevers takes effect at the greatest distance; that of continued fever at a less distance, and that of the plague at a still less. Indeed, some people assert that the last is only communicable by contact, which is most probably not the case.

Many and great disputes have taken place with regard to the pathology of fever. The ancient physicians
thought that fever depended on a morbisc state of the animal fluids. Others thought that it originated in a plethion, or fulness of the head, and that it consisted of an effort of nature to get rid of these morbisc states. These constituted the doctrines of Asemolism. Afterwards came the opinions of the Spleists, who maintained that fever originated in some morbisc affection of the nervous system, which produced a spasm or contraction of the Capillaries. Then came the opinion, that has held sway in the minds of many to the present day, that fever was a secondary defense, depending on some local disorder and principally in the alimentary canal. Although inflammation of the solitary and aggregate glands of the intestinal canal is a frequent accompaniment of fever, yet numerous cases have occurred, in which this inflammatory condition of the glands was entirely absent. It is much more frequent
in some epidemics than others. In the Irish epidemic of 1847 many cases occurred in which the nervous system was overwhelmed at once, in the very outset; the patient becoming dull and stupid; the surface cold and pupillate; the pulse feeble; the coma rapidly increasing, and death ensuing within twenty-four hours. This would be said by many to originate in the nervous system. But on the other hand, where the course of the fever is slow, the symptoms commence with the pulse which is more frequent than usual; headache, increased heat of the skin; thirst; flushed countenance &c. This again, would be said by many, to originate in the circulatory system.

Although fever is not so rapidly fatal as many other maladies, it is a disease that, generally speaking, from which we are never free, and from which the highest rate of mortality arises, when taken from the average of a series of years.
The mortality of fever is greater in males than in females, which has been accounted for, by the greater prevalence of intemperance among men than women. The mortality is also proportional to the age, for the younger the patient, the greater chance has he of recovery. The greatest number of persons attacked with fever are between the ages of fifteen and twenty years; and females are more liable to be attacked than males, on account of their being more engaged about the deck. The difference in the manner of living, the amount of nourishment, the labour and exercise attending it, are not sufficient of themselves to account for the variation in the rate of mortality in the population of the agricultural and manufacturing districts. The source of the higher rate of mortality in crowded towns must depend upon the general insalubrity of the atmosphere, the density of the population, the state and condition of the district.