Thesis on Typhoid Fever

By J. W. Anderson
A Thesis: Descriptive of a successful method of arresting the progress of Typhoid Fever, especially in its initial stages. With remarks on the Causation and early Diagnosis of this fever.

By

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I. Introductory.

In the course of a General Practitioner's busy life there is little opportunity, and still less leisure, and it may be confessed, no inclination, for such experimental researches as require much time, and continuous attention. For these, indeed, the aids and apparatus of a laboratory are essential.

If he, therefore, essay an excursion into the sphere of such enquiries, and thus endeavours to compete with highly specialised investigators, he is sure to emerge not "covered with glory," and any hopes he may have entertained of making any discovery of a genuinely original character, are foredoomed to disappointment.

Yet it seems to me preferable that a Degree Thesis should contain something new, some result at least of original observation, even though it be but a trifle, commonplace in kind, and humdrum in interest, rather than the
the most elaborate collaboration of
the observations and discoveries of
others.

To attain this result his efforts must
be confined to the work of his daily life,
and the materials of his craft with
which he is most familiar.

Therefore, in the following pages, I
shall endeavour to add something, he
it great or small, to our knowledge of
the everyday diseases of the human
organism, and the means of coping
with them.

I well know that my observations and
deductions must necessarily be of a
crude and general character, lacking
the time for minute details; and yet
my hope is that, in the time to come,
this apparently trifling discovery of
mine may rank with all those bene-
ificent agencies which have been used
with success in reducing the sum-total
of human suffering, the death roll of
the human species, and more especially
the maleficent activity of those minute,
mysterious, and almost omnipotent, organisms, to whose disintegrating and fatal operations that death-roll chiefly owes its origin.

For I may at once state that my studies have these organisms for their chief objective. And I feel it has been a piece of good fortune that the species of germs that have principally been exposed to my view, and to my destructive countermines, are just those that have hitherto enjoyed an immunity from effective interference in their lethal operations.

Of all potentially curable diseases Typhoid Fever has been the cause of the doctor's most acute despair. Its insidiousness, its obscurity, its treachery, its prolonged duration, and its resistance to treatment, have indeed too frequently had their climax in earthly dissolution; and too often have we had to utter the lament:

Pallidamors pulsat aequo pede
Pauperum tabernas et regumque turres.
Hay! Have not the portals of the latter, in proportion to their number, been far more frequently assailed than the former, by this dread "pestilence, that stalketh in darkness"?

It is the sin of luxuriousness recoiling on the heads of those who practice it; departing from nature's simple laws and ways, in order to escape trouble; and plunging themselves into a greater trouble, that in their blindness they could not see.

For us, whose duty leads us to pry into nature's morbid laboratories, engaged only in "The daily task, the common round," of general practice, may yet be reserved the finding of some natural treasure, which has hitherto unnoticed; yet waiting only for the seeing eye to observe, and for the mind of man, patiently groping in the darkness for light and knowledge, to expound its real meaning, its hidden message, its wonderful virtues, and to become the "real philosopher's stone" of the nineteenth century.
All the greatest discoveries, mightiest applications, most valuable mechanisms, of the century, have their focus, and their centrifugal potential, in one element. Most common, most all-pervading, most-essential, of elements! Therefore, is it wonderful that any discovery rotates in this same mystic sphere, and that the most powerful remedy hitherto discovered against disease, should be this omnipresent element?

Nature is wonderful: awe is the only feeling with which to regard it, for we get lost in the infinitude of space when we feebly try.

Ever since commencing practice, I have always felt a strong impulse to probe to the bottom of things, and not to be content with mere surface appearances. To get to the very lowest stratum of facts, and even at times to grope below these in the region of fancies, if peradventure they might help to
elucidate those facts. In relation to the treatment of disease, never to follow the unscientific method of treating mere symptoms, or using a remedy whose nature, powers, and actions are almost unknown. Further it has been my constant endeavour to render Diagnosis more easy and certainly defining more exactly the signs and symptoms of disease, by setting up unmistakable landmarks to indicate its course, as the guide maps out the safe path across the changing quicksands of the Bay, so that others may have no difficulty in following it, and all with the practical aim of rendering the Treatment of disease more certain and successful.

Amongst the diseases to which my attention was thus specially directed occurred Typhoid Fever. And as this malady is always present in a sporadic form in the district where I practice, I have been able to observe it in its natural habitat, under varied social and
domestic conditions, with various sanitary arrangements existing, and
over a wide area of distribution, presenting different hydrographic characteristics.

It has thus been possible to compare and contrast, until the elements of a
general law began to shape themselves in my mind as to the origin of this
fever; and general rules as to both diagnosis and treatment to present
themselves, simple enough in themselves, and perhaps because of that simplicity,
yet of great importance, primarily to practitioners of medicine, and ulti-
mately to mankind.

This statement looks very like a vain conceit, evolved from an
egotiator's brain; but I hope to convince those who may read what follows that
it is a plain, unvarnished, and unexaggerated epitome of sober facts.
And I put it forward with a full consciousness of my responsibili-
ty in making it.

The fickle goddess, Fortune, has at
times chosen an obscure instrument to convey her boons to mankind. And as an accident suggested to the keenly observant and profoundly thoughtful mind of Newton the mysterious law of gravitation, so may a simple observation on the part of a homely general practitioner contain the germ of an idea that will yet grow to be a great law of Therapeutics; it may lie in the distant future, or perchance in the near, that will confer great blessings on mankind; affording an easily reached rock of refuge and of safety to the countless victims of pyogenic organisms, struggling as it were, with the waves of a poisoned ocean, as indeed the atmosphere of our towns may literally be called.

I present this account of my investigations, in the hope that it may be accepted as a tribute of gratitude and affection by my "Alma Mater, and those who minister
in her chairs of learning.

The world owes its freedom from the awful tortures of past times on the surgical operating table to the genius of one of the whom that Alma Mater nurtured in her bosom; and it is my hope that this small discovery of mine may help to free humanity from another of its sources of suffering and sorrow, in destroying the immunity hitherto enjoyed by the octopus of germ-disease from effective attack by the ministers of Hygeia, and more especially that one of its numerous tentacles named tertiaris, which has, alas, embraced in its fatal clasp so many of the fair and the brave, the great and the good of Earth. Henceforth, as I hope to prove, for its venom there is a known antidote so simple, so certain, and so safe, that not one more victim need be sacrificed.

This result I shall feel sure of attaining if only I can succeed in
impressing on the minds of my professional brethren, and especially those engaged in training new recruits, the same absolute confidence in my method that long experience of its efficacy has given to myself.

I trust that scepticism and prejudice may not interfere to thwart these fair prospects of man's escape from thraldom under this great evil. Amongst the leaders of thought I do not fear this result, but with the rank and file I am not so sure. Coming from me alone they would scarcely give it a moment's attention or credence; but if those leaders, after satisfying themselves, will give it the imprint of their authority, then I have no doubt my hopes will be realised.

One great-and vain-regret troubles me. It is that I could not sooner, with justice to myself, have made it known; and thus perhaps
have saved to their friends and their country those numerous victims of this scourge in the higher ranks of culture and learning, who have had the springs of life sapped, and the vital energies withered, to the deep despair of medical science, in recent years, by this insidious and fell disease.

But a premature divulgence of my method would probably have ensured its failure, and have left it but a target for charitable scoffers to aim their poisoned darts at. And, therefore, I have waited, patiently pursuing my enquiries, and verifying my deductions, until all doubt of its absolute efficacy vanished from my own mind. Two or three others, assistants and relatives, have also tested it successfully. It was owing to the doubt and disbelief exhibited by these latter on first hearing my views, that I felt misgivings as to their re-
ception by total strangers. The su-
percilious smile of mild pity at
my trustfulness in my own infalli-
bility has at times been somewhat
evaporating. "You don't believe my
solemn word?" "Oh, well, you know,
not quite that: it might be worth while
to investigate the matter." "But I tell
you it needs no investigation, it is a
certainty." No answer but a laugh, that
was more aggravating than words. After
watching some cases under my-
treatment, their disbelief vanished.
But if this was the case with my
personal friends, and even my assist-
ants, how difficult will it not be
to persuade others.

I can only hope that my word
may be accepted so far as to give it
a trial; the rest I can safely leave
to experience.
Preliminary Foundations.

Before entering upon the principal theme of my thesis, namely the treatment, it is necessary that I should briefly consider and discuss certain points concerning the cause and diagnosis of this specific fever.

I feel absolutely convinced that for the success of the treatment, a clear understanding and a complete mastery of the elements of an unerring diagnosis, are essential; and it is desirable also, as an aid to diagnosis, if not for its inherent interest and importance, that the question "What is the cause of typhoid fever?" should be answered clearly and precisely. For if we know the cause, and find that present in any given case, it will help us to a diagnosis. And a correct diagnosis is essential for the success, not only of my method of treatment, but also to establish the solid foundation of this thesis.
The latter, because I depend upon the
immunisability of certain signs at the
very first commencement of the fever to
establish the genuineness of many of
my cases, and because, apart from this
early diagnosis, the results I claim to
produce, as regards time at least, will
not follow in the hands of others.

The former is essential for the following,
among many reasons:

1st. Because the continued existence
of the primary cause of the disease has
an injurious effect on the progress of the
case;

(a) By keeping up the supply of fever
germ to the patient's body.

This may seem doubtful; but some of my
cases seem to show that a recrudescence
of the fever may occur after the fever has
been absent for at least a week, when the
antidote was withdrawn. And I believe
this may have been from fresh germs en-
tering the system. And if so, then in general
the same thing may occur, and be a cause
of the long continuance of this fever.
ordinary methods of treatment. I do not pretend to lay this down as proved: for I have not specially studied the point. Perhaps the fact of the eruption occurring in crops every week or ten days may be held to corroborate this theory; and a further suggestion in the same direction occurs when we find the fever subsiding in a week or ten days. Then I have noticed where the cause of the fever is more virulent than usual (i.e., I mean, the source of it), I have found far greater resistance to treatment, and a consequent prolongation of the case.

3. A second way in which this affects the result is in the lowering of the general tone and standard of vitality from the poverty in oxygen and putridity of the atmosphere, in localities where this fever arises.

Not only the absence of oxygen in normal quantities, but the presence of various morbid germs, such as those of diphtheria, lays the patient open to their attacks, and tends
to delay recovery, even under my special method of treatment.
I had once a child patient who, through successive attacks of Diphtheria, was brought to death's door, and the vitality was so low that the system scarcely responded to treatment; recognising that the source lay in the house I ordered the child away. She was taken in a cab twenty miles in midwinter, with snow lying six inches deep, and temperature below zero, into a country farm-house — the specific treatment being continued as before; the poor little thing was only semi-conscious, emaciated to a skeleton, and with false membrane almost choking her. The day after arriving, instead of being dead, as everybody predicted, felt much better, temperature normal; in two days the membrane began to disappear, and in a week the child was smiling, playing, eating ravenously, and laying on flesh. I mention this case only as illustrating how the air may lie so foul, so saturated with the fever-gems, that treatment which would cure the worst symptoms in two days in a pure air, is baffled.
The source and treatment of these two fevers being practically the same, and what is true of one applies to the other.

And even when the Typhoid fever has abated, these other micrélite agencies may prolong convalescence, by developing attacks of catarrhal, tubercular, choleraic, nervous, or influenzal disease.

Secondly, an early diagnosis is of supreme importance, because by it we are enabled to bring the antidotal remedies into play before the pyrexia has emaciated the patient to a shadow; before the specific microbes have produced deep ulceration of the bowel; before the local hyperemia have ended in various inflammations; and lastly, before the patient's vital energy has been so exhausted that a long and tedious convalescence is bound to follow.

I might add more to prove this point; such as my belief that the sooner the germs are attacked the more easily they are destroyed, as my cases show, but I prefer to leave them to speak for themselves.
III Concerning The Source of Typhoid Fever.

I have used the term "source" here, rather than cause, because it more exactly defines what I desire to remark upon. I do not mean to refer to the direct, or immediate cause, for that is now universally admitted to be a certain species of minute and badly organised animal entities, of the genus "Bacillus," which, when introduced into a suitable medium, such as the human body, reproduce themselves with great rapidity, giving rise to certain well-marked specific symptoms, and producing certain morbid conditions of the tissues which they specially select for their operations, and having, through these operations and their results, direct and indirect, a great tendency to destroy life. But the origin and mode of infection, of these microbes, are points open to, and requiring, fuller discussion and investigation.

3. I may here, also, only briefly allude to the
Causes which predispose the human organism to become the victim of these operations.

These may, in general terms, be defined as certain states of the system, and of special portions of it, rendering them more accessible to the attacks of the microbes, and certain atmospheric conditions favourable to their activity.

(i) Among the constitutional conditions predisposing to the fever are those which predispose to any febrile malady, such as:

(a) Anaemia;
(b) The toxic acid diathesis;
(c) Struma, and tubercular heredity;
(d) Hypochondria, i.e. depressed energy of the nervous system;
(e) Overstrain, mental or physical, occasional or continuous;
(f) Deficient oxygenation, from want of exercise, living or working in highly carbonised atmosphere, and chronic alcoholism.

(2) Non-habituation to living in an atmosphere
injected with the fever germs.

This cause is rather awkwardly pressed, but necessarily so. What I mean to imply is this: people who habitually live in an atmosphere pregnant with the microbes of certain diseases, to wit, diphtheria, malaria, cholera, yellow fever, and typhoid, become to a great extent proof against them, by some process, I presume, of slow or gradual inoculation. In regard to some of these diseases, those not indigenous to our soil, I draw my inference from facts of common knowledge, but with reference to the first and the last I have repeatedly observed this extraordinary phenomenon in my own practice. Of course the absence of this protective habit that I consider and call one of the strongest predisposing causes of these fevers.

To make my meaning clearer let me give a few illustrations.

Take the case of the scavenger. Day after day he is employed down in the sewers,
breathing the germ-laden gases, digging up deposited masses of filth, shovelling them into buckets to be drawn up by others; sometimes taking up drains of houses where the fever exists, and emptying out the accumulated sewage, which has caused the fever, all about him, inhaling, swallowing the germs, in a nascent condition, so to speak, when they are most active and deadly. Yet he passes scathless through the ordeal; just as the wily Hottentot might stand the test of ordeal by poison (Qurara), if he were to gradually accustom himself to it beforehand by taking increasing doses, until he became habituated. Our scavenger after going on thus for months or years, takes a holiday of some duration. The longer the worse for him. He returns in splendid health, and sets to work. In two days he develops Diphtheria, or in two weeks he exhibits Syphoid fever. (The former is very common, the latter less so). I have seen the former occur after every holiday of any duration.
It is strange that this very fact of immunity of scavengers, from habituation, is put forward by some as a proof that Typhoid cannot arise from sewer gas. One of those superficial deductions, of which there are so many floating about, vanishing when more deeply studied, and causing endless mischief.

Well, to return, I have observed precisely the same phenomenon among people generally. That is, they remain inviolable by the Typhoid or Diphtheria germs while they remain always amongst them, but are attacked almost immediately on their return home, after being away for a few weeks, to the pure air of the sea-shore or hills. This predisposing cause, then, seems to me to call for no further proof.

I would briefly denominate it "non-habituation" for want of a better term.

(3) Morbid conditions of certain of the tissues.

These are especially congestion or catarrh, of the gastro-intestinal mucous membrane, whether due to chill or local irritation.
(3) Fermentation and consequent acidity of the stomach and bowels.

(4) The condition of the abdominal viscera in the puerperium. I believe it possible that the Typhoid germs may enter the system through the open seines left by the extraction of the placenta. I am attending a girl now who, having lived for ten months in a house where two cases of Typhoid had occurred, developed this fever a week or so after being confined. The placenta was adherent, and there was hour-glass contraction, so that the hand had to remain some time in the uterus, and during this time, of course, the air entered freely. And strange to say the symptoms at first resembled rather pelvic cellulitis in the right iliac fossa. This is the reason for my suggesting that the uterus may have been the seat of entrance of the germs.

(5) The state of the tissues arising from constant dwelling in an overheated atmosphere, that is, a kind of general
vaso-motor relaxation. In this case the cause may be the congestion of the tissues; or it may be the greater liability to chills of such people, the hotter the room, the keener the draughts, and the greater the reaction of the parts of the body affected when the sheet or ray of cold air strikes upon the moist-warm surface. These chills being most frequent in the abdominal organs, and especially in the stomach and bowels during a meal. The overheated atmosphere also favours the development of microbes generally, and draws more powerfully into the room such germs as may be issuing from drains in a back yard, or from ventilating shafts. In such cases there are draughts, not simple and pure, but laden with specific microbes, and I have satisfied myself that such are far more fatal, producing various minor ailments, such as neuralgia, hemi-erania, quinsy, catarrh, otitis, and at times the more serious fevers. It is a branch of the subject requiring more investigation and experiment.
It is certainly the case that people who nurse themselves up constantly in a room, heat up large fires, keep all doors and windows tightly shut, and the thermometer at or above 70° F, are far more liable to be attacked than others who live in an average temperature of 60° F or 65° F, with doors and in summer at least the windows too, open. The higher temperature seems to cause a kind of vaso-motor paroxysms, and a hyperazemic state of the tissues generally. It is also more favourable to the rapid proliferation of organic life. The result is seen in the invariable valetudinarianism of such people, their constant subjection to various minor ills such as phlegmation and neuralgia; catarrh of every mucous membrane, combined or in succession, and especially of the alimentary tract; and all inflammatory diseases. As a corollary to this law, the prevalent
custom amongst medical men of ordering a high temperature, and especially a moist hot-air, in inflammatory complaints of the respiratory tract is to be deprecated. I invariably found, when this practice was followed, that the catarrh was extremely obstinate and severe. I have already indicated that I consider these conditions are also more favourable to the development of the specific fevers, especially Typhoid,Scarlatina, Measles.

5. Draughts, as a predisposing cause I have incidentally alluded to. But I desire to emphasize the fact that it is only when the cold current strikes directly upon the patient's body, e.g., when he lies opposite to a door, or a window, shut or closed; or when the draught is deflected by a blind, screen, or curtain, when he is in the line of the deflected current.
If typhoid germs are present in the intestine, as they probably are whenever they exist in the atmosphere of the house, then they lie harmless until, under the action of the draught, a vasomotor paroxysm occurs with reaction from the cold, they find a weak spot in the mucous membrane, a patch of catarrh, and then they are able to penetrate and begin their destructive career.

Errors of diet causing direct irritation, or leading to gouty or rheumatic acidity, and secondary irritation of the bowel, have also been referred to. The immediate cause of typhoid fever being admitted to be a specific micro-organism, let us now consider the highly important, and much debated, subject of the origin of this microbe, and the mode of its conveyance into the patient's body. To take the latter, and least important point first:—
Then there are certain atmospheric conditions that predispose to an outbreak of Typhoid fever.

(1) Of these, the most important is Drought.

This, I believe, is directly responsible for a great many cases. The mode in which it operates may be open to discussion, but, if my theory is correct, it acts through the drains, drying them up, causing less water to be used for flushing them, and consequent accumulation of solid sewage in the house drains. Thus, the dried up pipes become filled with gases containing various microbes. Then comes a heavy flood, the sewers get filled with water, and the gases are forced out, through manholes, through traps, etc., into the houses and the surrounding air.

(2) Frost, by causing the water pipes supplying the water closet to burst, stops the supply of the flushing agent. The soil pipes get choked, the traps...
dry up, and gas from the sewer has a free entrance. I have seen this result over and over again in mid-winter, wherever this accident had occurred, and not been attended to.

(3) Spring tides. These act in the same way as a flood, but only affect those low-lying parts of a town like Barrow, where a high tide can enter the sewers up to a certain point, driving the gases before it, and forcing them through traps and crevices. I have seen this frequently in Barrow. The same danger exists at the seaside anywhere, where the tide at every rise enters the drain. It also tends to drive back the sewage, and to cause it to accumulate.

All these facts tend to prove my theory as to the original source of typhoid fever, in the great majority, may, I believe, in all cases, directly from the drains, a point to be discussed hereafter.
1. Mode of Conveyance.

The old distinction between contagion and infection may still be useful in relation to those diseases in which the agent of disease exists in a free condition on the surface, or in the passages open to the air, and capable of contact with others, such as smallpox, scarlatina, diphtheria, parasitic diseases, and those that we name "specific". But typhoid fever cannot be called contagious in this sense. It may therefore be called infectious, in the old restricted sense of being conveyed through the air. And probably all would be prepared to admit that it is in some cases conveyed from its source to the patient directly through the air. I am not sure that there are not some who would deny this, however, and swear it is always conveyed in some solid or fluid medium, and I believe the great majority are firmly convinced that this is the usual mode of conveyance.
Amongst these assumed media, milk is supposed to hold the chief place. So strong a hold has this idea got of not only the public but also the professional mind that whenever an outbreak occurs they at once set to work to examine the milk supply and all the dairies and farms in the district are examined to see if a case of typhoid has occurred among them; and if none is found, then the next thing is to see if there is a well about the farm yard. This, of course, is nearly sure to be discovered. Necessarily also, there is a manure heap in the yard; and if the subsoil is not a porous gravel, it is a clay or limestone formation, and in any case the fluids from the manure heap have got into the well, and the water from this has been used to wash out the milk pails, etc. — and "There you are, gentlemen," the triumphant investigator exclaims. If a case of typhoid fever exists in any of them, the case
is still clearer. Or if there has been any illness recently of a febrile character, then "depend upon it, though said by the attendant to be "congestion of the lungs", that it was really Typhoid, or at least "Low Fever", which is the same thing" J. E. D.

This sort of logic, not to call it science, is our monthly experience, at Local Boards, &c.

How I am not prepared to go the length of asserting that the Typhoid microbes are never conveyed in milk, but I am prepared to say that I have never personally seen such a case; and of the published reports of epizootics, said to be due to this cause, the evidence adduced is proof; plausible if your mind is filled with a belief in such a cause, would not bear the strain of a careful analysis, and is in general of the slightest description, and full of fallacious deductions, and false premisses.
A medical officer of health has certified to him a number of sporadic cases of typhoid fever, scattered over a wide district. He at once begins his inquiries about their milk supply, and elicits, of course, that a good many of them have obtained their milk from a certain dairy, but not all of them. He then explores the dairy, and finds there has been a case of typhoid fever in the family, and at once publishes his conclusion that he has found the cause of the outbreak. This is suppressing the most favourable facts for his theory. Very often he finds no case of fever, but he discovers as well, with the water from which the milk utensils have been washed, and of course there is a manure heap not far away. This is equally as clearly the cause as in the former case. The force of the argument is destroyed by certain facts which he truculently keeps in the background; namely, that some of the cases got their milk from various other dairies where no fever had existed, that large numbers of people who did get milk from the infected
dairy had no fever in their houses, that the infected dairy itself was located within the area where the cases occurred and therefore might have been subjected to the same infecting agency as had caused all the others. If this milk from the infected dairy had really been the cause, we should have expected a much greater proportion of its consumers to become affected, and those who got their supply from other, non-infected dairies, should have entirely escaped.

In short, the theory is a lead one, because it does not account for all the facts. And, as I shall point out later, there is another explanation possible, which will account for all the facts, and all the cases.

The water supply has also frequently had to bear the blame for causing outbreaks of this fever. And in some cases with greater plausibility. For example, a whole family is stricken with typhoid fever; they get their water from a well in the yard, near to which
there is a cesspool, receiving sewage from the house. The well water is found to contain a large percentage of ammonia and nitrates, etc. There is another house near at hand, the people from which get their water from the same well as in the first-named family. They also employ a cesspool to receive their sewage, but have no well of their own. Several people in this second house are stricken with typhoid fever, it may be about the same time, or some time after. It is extremely probable that the well is the cause of both outbreaks. I admit it. But it is not certain by any means. Well the sanitary authority for the district condemns the well, and it ceases to be used. But a year later, one or more people, who escaped the first outbreak, or are new people in the house, are stricken down with the same fever. During the first outbreak a great many other families
who had used the water from this well entirely escaped the epidemic. These were people residing in small cottages, who did not have any sanitary con-
veniences in their houses, and there-
fore had no cesspools, but were content with the old-fashioned privy closets, far removed from the houses. Had the well water been the cause of the attacks, many of these cottagers would have been laid low. But I maintain that the fever germs came direct from the cesspools in the two houses, and not indirectly from them through the percolation of their fluids into the well, and hence in the other houses, where no cesspools polluted the air, they were unaffected.

We find, therefore, cases of typhoid fever occurring under the most diversified circumstances, in the squalid overcrowded slums of our chief cities, and in the rural hamlet, swept by moorland breezes,
in the labourer's cottage and the prince's palace, in houses where the sanitary arrangements are old and obsolete, and in newly erected mansions where they are of the newest and most perfect and costly character.

But it is certainly true that, in proportion to their relative number, the homes of the great and wealthy are more often the seat of an outbreak of typhoid fever than poor and small cottages.

And in these country mansions is it not certain that the greatest care will be taken to prevent any possible contamination of the water and the milk supplies?

The argument against this theory of milk and water conveyance might be built up with additional facts and critical exposition of cases in point, but my object here is simply to put forward a suggestion, and to leave the future to afford additional proof. Just one more case I will mention. At the present time the water supplied to the towns of Silverston and Barrow is in
the most disgusting condition. It is supposed to be filtered, but an aqua filled the night before is found in the morning to have a sediment of flocculent black mud half an inch thick. Examined with the naked eye it is seen to be full of minute aquatic organisms, endowed with most active movements. Kept for a few days it develops a strong odour of putrefaction. Now if putrid water, full of organic matter, could cause typhoid fever, we should expect to find an epidemic raging in these towns at the present time. Whereas, there are fewer cases than for a long time back, scarcely any in fact. Could there be a stronger proof against this theory of milk and water causation? 3. Then there is another possible method of conveyance, namely, direct infection through the air from one patient to another.

At one time people dreaded typhoid fever on account of this danger. While the belief now generally held is that
The direct infectiousness of this fever is slight. My own impression is even more decided than this: for I am coming to the opinion that direct infection from the patient never occurs. I would not affirm that infection from the intestinal evacuations does not take place, for this is a priori a very likely source. Yet how seldom does the nurse or attendant who deals with the evacuta fall a victim to the fever? While if infection were possible from the motions we would expect this to occur frequently. So that I am almost inclined to assert that infection does not arise either from the patient's body or his breath, or from the evacuta. I am aware, of course, that the microbes of the fever are found in the liquid defecata, but it does not follow that they are capable of reproducing the disease in that condition. It may be that something more is required to make them virulent and infective, and that something I believe to be concentration.
The Primary Source of Typhoid Fever.

But in each and every case I am certain there will be found an accumulation of concentrated and confined filth.

Typhoid does not, in my experience, arise in small squalid cottages, in cramped courts and alleys, where the sanitary arrangements consist of open privies, but them be as reeking and foul as they may, provided the fresh air can get freely to them at all times.

Or when it does occur, there will also be found, co-existing with the privies, underground drains or cesspools. It occurs in country farm-houses or mansions, where there are open privies, and dung-heap, and byres, and fuggeries, and where also are to be found perhaps a drain from a pig-stye or a stable, or a byre, or from a water-closet in the house for the use of the family, and in each case ending in a cesspool in the grounds, usually not far from the dwelling. Or again at sea-side houses or mansions, there also we
may find an open reeking spring, but also we shall discover an iron pipe, running down to the beach, and coming from a W.C., for night use in the house, and possibly seldom used. How easy is the inference in all these and similar cases, that it is the foul, looing, vile-smelling, open filth-collectors, that are the source of the evil, and how difficult to imagine that the near- trim, almost odourless pipe or cesspool is the cause. And yet that is precisely what herein I feel constrained to advance. That here we must look, if we desire to discover the true cause of the typhoid, and other germs. And this theory has the advantage over "the mild" and "water" theories, that it meets all the conditions, and applies, in my belief, to every case; a sure criterion of the truth of any theory, and does not need any bolstering up with the device of exceptions. Those who have gone thoroughly into this study in our large cities have come to the conclusion
that "not ten per cent of the houses are free
from defects of drainage". And I fear they
would not have said had they affirmed that
not one per cent are so; that, in short, with the
present system of sanitation, defects are
avoidable, and the filling of the air with
noxious gases a certainty. I have never yet
cause a drain to be opened without disceiving
more or less occlusion with deposited sewage.
Under such conditions, the pressure of the
gas becomes so great as to force the traps
which then become, in a very real sense, -
deadly traps, endangering both the inhabitants
and the sanitary officials, who trust to
them. Again large numbers of water-
closets are so only in name; the water
either never having been laid on, or the
pipes having burst with the frost, or broken
down, and then the Tenants are trusted to
carry the water for themselves; sometimes
they do this to the extent of a mingled
once a day, but more often they see no
necessity for the water, and so leave it
alone. In brand new houses, quite
recently, when the frost at Christmas
under the tribes, I have found in some typhoid; in others erysipelas, diphteria, scarlatina, and other diseases - this in three months, in drains never used before the end of last year, and of the latest construction, and materials of the present day. Having invariably discovered such defects in all such cases under my care, I have come to believe that such conditions are always the cause of such outbreaks; and that when an epidemic occurs it is due to the typhoid germ filling the main sewers, and being driven into great numbers of houses either through crevices, or through traps, or even out of the ventilating shafts. This idea of ventilating the sewers and soil-pipes seems to me the point where the system dies most fatally, and will continue to be the most fruitful source of germ diseases, as long as it survives, which I hope and believe, will not be long, once the cause of the germ theory is mastered by the popular intelligence. But just as his institution began with the leaders in sanitary science, so there will be no hope for us until they see fit to condemn it, and order its discontinuance. Why do I say this? why give utterance to such a sanitary heresy?
The answer is simple. The principle of ventilating is based upon a total misapprehension of the cause of sewer gas diseases. A misapprehension once quite excusable, because the existence of microbes in it was not known, and not even suspected, except by the few far-seeing leaders of the profession. The effects were obvious; the explanation, in the presence of this intellectual darkness, was a mystery. But the general conclusion was, that sewer gas produced its deadly effects as a gas; as coal gas causes asphyxiation, or as carbonic acid gives rise to suffocation. That, in a word, sewer gas was a poison. One consideration might, however, have been expected to give pause to this assertion: namely, the diversified diseases arising from this supposed gaseous poison. Thus differing essentially from any and every other poison element. Well, we know better now. We know that it is not the gas, but the various organisms that are generated by the putrefying contents of the drains, and live in the gas. Under the former belief, the natural cure for the evils existing was dilution in the fresh air, and thus to render it innocuous; as coal-gas would
be it freely admitted. Our dilution does not do away with the organisms: they are liberated into the air, and there they remain, finding their way into houses with the in-draught. True, there are not so many in a quiet build of atmosphere, after emerging from the pipe, but it is probable that this does not afford much safety from their attacks, although, it is no doubt true that the thicker they are, i.e. the nearer to the orifice of emergence, the more likely to affect those who inhale them. Hence, in the great majority of houses, where the ventilating shaft opens a few inches, or feet, away from a bedroom window, there is the greatest danger.

But how foolish it seems, to take all this trouble with traps, to prevent the escape of drain germs at one point, if we make a free opening for them to get out at another, or great distance away. Well, the conclusion I come to is that as long as these ventilators exist, even if the drains are otherwise perfect, sewer microbes will continue to ravage mankind. Another point we desire to emphasise is the rapid increase in the number of cases of sewer gas disease.
in recent years.

especially Diphtheria. And though this may be partly due to better diagnosis, it can only be so to a slight extent. This increase has been progressive every year, and it has been synchronous with supposed improvements in sanitary engineering. The inference seems to me to be that, every year, the drainage of our towns is becoming more foul, in spite of improvements here and there; and the atmosphere is becoming more saturated with sewer germs. This I fear, is a necessary and inevitable result of the whole system. It is a system that cannot be carried out perfectly, because it depends for perfection upon so many agents who are all more or less not to be depended upon—architects, contractors, the builders, the makers of sewer materials, the workmen who lay them; the elements—wind and rain, tide, snow, etc.; the earth, which is given to subsidence, and sometimes to convulsions; the people who use the drains, and still by acts of omission and commission; and lastly, Time—the great destroyer.
eroding, obstructing, and breaking, the
drains. And even if all were perfect,
the development of these germs would still
go on, and they must exist somewhere.
And unless it can be rendered, and
maintained, in a state of perfection,
... is the worst of all systems.

The Diagnosis.
I do not propose to refer, at any length,
to the symptoms of typhoid fever—as
ordinarily described, because they are
well known to every medical man—
(blepharoza; fugitive rose papules, coming
out as crops; the dry, brown, casted tongue;
the low delirium; the hemorrhages; the
peculiar temperature curve; and the
duration of the periods of incubation,
advances, remission, and decline)—
because, under the treatment I am
about to describe, most of these
symptoms will never be observed.
Whata desire to do is, to try and
formulate the signs and symptoms
that can be depended on, at an
Early stage, to enable us to say with certainty, that the case is one of enteric fever; and, secondly, to point out the differential characters of typhoid, and those diseases that it may be mistaken for.

For the success, the absolutely certain success, of this mode of treatment, an early diagnosis is essential.

I.

The first element in building up the mental fabric of the diagnosis is:—

The existence of a continued fever. This fever, while well-marked, preceded by a decided rigor, and accompanied by malaise, anorexia, dry skin, thirst, and loss of power, does not shoot up suddenly, like a rocket into a clear sky, to a great height, as in smallpox, typhus, and relapsing fever, but creeps up insidiously from day to day, causing little or no alarm to the patient, or doctor, but sufficient the latter.
very much in almost every case, so
that the ordinary general practitioners
never diagnose this fever till it is far
advanced.

But this fever has two
well-marked peculiarities - a positive,
and a negative, one #1. The positive
mark is the character of the
temperature curve, being higher every
night than it was in the morning,
and each succeeding night, and
morning, showing a higher point
reached than the preceding night
and morning respectively. During
the first week or so, at the end
of that period being at a considerable
Elevation, from 100°F to 106°F, or
104°F even, it continues to keep at
this elevation for two, three, or four
weeks longer; but then, each day, the
morning fall and evening rise
are exhibited, as during the first
week. Though the highest point may
vary, from the occurrence of
complications, such as a high...
rise from pneumonia or meningitis, and a considerable drop from hemorrhage.

But it is only the first week that interests us, and that we have to consider, because I don't profess that it is possible in all cases to be sure of the diagnosis before the seventh day.

The negative character referred to, is the absence of any local disease, sufficient to account for the degree of fever.

This is considered of the highest importance, owing to the peculiar temperature curve, and I expect all the care and skill I possess in examining the patient thoroughly to make sure of the absence of any local inflammation or congestion—sufficient to cause the fever. This point, therefore, depends on individual judgment.

I do not assert there is no local congestion or inflammation; quite the contrary. But it is not severe enough in itself to cause the amount of fever.
So that the impression left on the mind by the case is a vague sense of doubt and difficulty, it may come to nothing, passing away shortly, (Phthisis), or it may turn out to be something serious, probably Typhoid.

This is the mental conclusion formed.

But there are other points that help us, even in the first day or two. One of these constitutes the second element in the diagnosis, and it is:

2. The existence of severe local congestion.

These are: (a) In the head, causing frontal headache; a symptom always present, more or less. This headache is persistent for one or more days, generally several days, and is intense. It is shown to be due to congestion by the high tension in the temporal arteries, and being relieved by compressing these arteries.

(b.) Congestion of one or both lungs. Generally only one, most often the right; and, almost always, chiefly
at the base. I do not lay much stress on this for positive diagnosis, and only refer to it in its relation to differential diagnosis, wherein it becomes important. It is shown by faint dulness, increased resonance and friction, slightly increased hardness of inspiratory murmurs, and faint minute crepitations, slight cough, slight increase of respiratory rate, and slight mucous expectoration. In short, it is invariably found that the indications of pulmonary congestion are unequivocal and undoubted. (C) Congestion or slight distention of the stomach, with more or less tenderness and sickness. The presence of these various congestions more severe in the brain and its membranes, by their very slightness taken along with the continued fever of considerable degree help one very much to a right conclusion.

3. The next element in the diagnosis, and the most important of all, in my opinion, is the
presence of fullness, increased tension, tenderness on pressure, and minute crepitations in the pelvic region — or over the caecum coli, and the lower part of the ascending colon. The great importance of this diagnosis lies in its constancy. It has never been absent in my experience. But it requires very careful manipulation to detect it at the very beginning of the fever. I do not refer to the well-marked, extensive, persistent and large crepitations of the later stages, when frequent and continuous diarrhoea is present, and the bowel is filled with fermenting fluid contents because it is then easily discovered. Then the whole abdomen may be tender, swollen greatly and as tense as a drum, but in these faint and early overlooked indications in the first stage to elicit this early faint minute crepitation — the fingers must be laid very lightly on the part of the abdomen and gentle pressure exercised from point to point.
For the faint crackling sensation may only be detected at one place, and over a very small area, perhaps no larger than a florin, or there may be two or more such spots, and the precipitation disappears after pressing gently a few times. The thimble helps us by corroborating what the sense of touch has discovered, for if the bell be placed over the region of the Caecum coli, a peculiar sound can be heard, something like the distant sound of the sea, or to be more precise the kind of sound that would be perceived if fermentation were going on in a thick fluid enclosed in a bladder—a sort of churning, faint blowing—minute bubbling sound with evolution of gases, and a vermicular action of the viscera—i.e., the parts of the gastro-intestinal tube—when the tract is affected with Carcin—"The vermiculture vermicular action and mucus secretion, result in
vomiting, diarrhea, or both, as an ordinary symptom of stomach or bowel, cholera, choleraic diarrhea, dysentery, and enteric ulceration. In some of these complaints it is loud, and in one case I not only heard it, but could actually feel and see all this going on, through the very thin wall of a large socalled hernia in an old emaciated man, suffering from British cholera. It was in this case that the nature of this disease first flashed upon me, and its application to the elucidation of enteric fever was long subsequent to its discovery. This sound heard only over the caudal colon only in parts even of this, indicates that already in the first day of the fever the mucosa is slightly inflamed, that there is excessive mucous secretion, that the contents are thin fluid or semi-fluid, and that fermentation and liberation of gas is going on. The faint disappearing, minute crepitations, may be due to the mixture of gas and fluid, but I rather incline to the belief.
that it is due to the peritoneum over the part of the colon, being slightly inflamed or at least congested, with very slight fibrinous exudation. This I have observed in cases of peri toneal ptyaline peritonitis; and it corresponds with the tenderness felt on pressure over a joint where there is slight synovitis and fibrinous effusion, only in the case of the peritoneum there seems to be a slight collection of minute gas bubbles, as well as fibrine over the small patches of inflamed membrane. Well in typhoid fever this symptom or series of symptoms or signs can be detected at once, and become more marked from day to day as the fever increases, and the local lesion becomes more severe. More or less increased fulness and tenderness on pressure and higher tension of the abdomen at this place are important localizing signs. These are the three chief elements I depend upon to settle the diagnosis during the first few days. Afterwards, when diarrhoea
points I depend chiefly upon for an Early diagnosis are:

(a.) The character of the fever;
(b.) The absence of other causes;
(c.) The local signs in the pleuric region.

And for confirmation of the diagnosis under the subsequent treatment, upon:

(a.) The Eruption;
(b.) The Course of the fever, under which is included the effect of the treatment.

And for collateral evidence, in many cases, upon the occurrence of other cases, in the same house at the same time, previously or subsequently. Especially when these other cases have been attended by other doctors and the usual aggravated symptoms, prolonged duration, and perhaps fatal termination, have rendered assurance doubly sure.

I pass on now to the chief object of this Thesis, which is to describe the new treatment which I have introduced.
The Treatment.

In commencing practice the general practitioner is constantly having to acknowledge that, with all the recognised remedies, his efforts are futile to cope with many diseases, even such as are simple and of every day occurrence. Mortal nature smokes at, and decides his most earnest endeavours to set free her victims from their irksome bondage. He may try those recommended by the higher authorities, and steadily trust them, or he may rig the changes upon a multitude of counsels; or he may concoct some wonderful and mysterious 'misteria omnium', trusting to his 'luck' and skill to help him to a triumph. But, alas! how often do all his efforts end in 'vanity and vexation of spirit', in addition to the loss of his patient. He has many dark hours during which his courage is apt to sink, and he begins to think drugs are one of the gigantic failures of the age, while his patients die, or lapse into that 'submerged tenth' of incurables, who are the bane and the despair of our lives, and who often, if they knew it, would...
overwhelm him with the speech of Prince Henry of Luscinia:

"Pray, with your nostrums and drugs surgical,

The spots and gargoyles of your Tower, mix me;

My faith is utterly gone in every Power—

But the Tower— infernal."

And of no disease more often than of Enteric Fever, has this sad Confession to

be made. But from henceforth this Fever—

shall cease to be the despair of Medical Science,

and the fruitful theme of some of the saddest

tragical scenes of modern life: for I shall hereinafter

describe a specific treatment—a

treatment so simple, so certain, so omnipotent,

that the hosts of Enteric germs, be

they never so virulent, and the object of

their attack never so feeble and frail,

shall retreat in confusion and dismay, and

be annihilated, for they can work their

usual deadly havoc. Their reign is

hereby ended, their cruel and relentless

tyanny foreclosed, and their triumphs

over the fair and the brave, the noble and

the good of Earth, shall hereafter lie but

a vague of sad memories, in the big
Book of Fate.

For eight long years has the investigation lasted, during the greater part of which I have seen many good and noble lives sacrificed to our impotence and the feverish power, the young and beautiful and gentle, the old and venerable and wise have gone down in their weakness under the broad wheel of the Car of Juggernaut, and their bones have made a whitened pavement to the Temple of this evil Power. Many a time and oft during those years, before the sound of the fatal drum, has my heart been wrung with anguish to see beloved ones carried off in a long and sad procession to their final resting-place.

And when at last light dawned upon one, and I saw blue sky glinting through the little rift of the leaden hall, my joy was little apace that of the pure

Princess, who, despairing Lucifer’s elixir,

Yet tasted it, and then felt:

"The brand of steel"
"That so long and heavily had pressed
Upon thy breast,"

"Uplifted, And the malady
Of thy affliction
Is taken from thee,
And thy weary breast
At length finds rest."

The way in which this discovery was made, was
however, by no means a sudden inspiration or
guess, but was based upon a sound process
of induction. Arguing from the effect
of the remedy upon known diseases to its
probable effect upon others of a like nature,
and due to a similar cause. This
remedy I may say at once is the:

Liquor Feni (Nichebridge's Tonic).

A simple drug! An old remedy!!

An every-day treatment!!

I true, but the application of the drug
to Syphilitic Fever is the discovery I claim
to have made, and not only that. The
whole profession might try the drug,
if I were to say no more than this,
and they would fail to get the results that have made me marvel and rejoice. It is not externally the remedy, not merely its administration in typhoid fever, but above all and chiefly the method of administration. I did not find these points out all at once, but point by point, step by step, I advanced higher and higher, until I reached a grand elevated plateau of system where my foothold was secure and my power over this dread disease absolute. I had long observed its effects in diphtheria, and I studied the treatment in this disease, and modified it in various ways until I mastered the true secret of its full power. From this point I cogitated on the nature of the typhoid germs. I observed their great similarity in structure and life-history and effects to others, and then asked myself, if they are so much alike, why should they not be similarly affected by various agents. I further considered that these various germs all are developed and grow and flourish from the same source.
and under the same conditions. Then why should they not die under the same conditions.

From these mental data, I hastened to put them to practical proof. The warfare I waged against Diptheria, Bryptelas, Lobararima, &c. was long and wearying with varying success. But the struggle with Typhoid was far more arduous. Even when I found in my earlier attempts a certain measure of success, still, deaths occurred, and the problem to discover why, and where the treatment failed required close and keen observation and study. And even after I found assurance that I was possessed of the secret, I found, my greatest difficulty in carrying out the treatment. I have found it almost impossible to get nurses and attendants and even patients themselves to obey my orders. I have constantly been exposed to the risk of false deductions by both patients and nurses, telling false words to escape censure. I mention these points because everyone who tries to carry out my treatment will...
have to contend against the same difficulties. 

Our to understand what these are I must no longer delay to state what this treatment really is. 

The Treatment consists, then, in administering the fullest dose of this - 

Liquor Ferris Perchloridi Voltin-

every hour.

Every hour, may in some cases - desperate cases, where the malady is far gone before we are called in to treat him, every half-hour. Night and day, day after day, week after week, if need arise until the disease is utterly gone. Very full doses, I mean for an adult of five minims of this Liq. Ferris Per chlor.

Impossible some one will say. And I answer, well, yet it is impossible except in one certain way.

What is that way? It is done by diluting the remedy with a sufficient of water to render it a mild acid dilute, incapable of irritating or contracting the stomach and bowel.
The amount of water required for each five minims is from two to three ounces, or roughly and practically one half an ordinary wine glassful, three quarters to a full three cupful, or about two average wine glasses full.

For many patients cannot manage to take it continuously for a long time in this way swallowing the dose off at once. In such cases I allow them to take it by little sips at a time spread over the hour. It does not alter the result as long as they do get the full dose in every hour. It is best however for the patient to take the whole dose in one drink. The reason being that the patient has to be fed also every hour, and the food must be given at the half-hour or at any rate midway between the doses of medicine. But very few delicate patients could take the sips rapidly in this way. To render it as palatable as possible and more agreeable to the throat, gullet and stomach I add simple syrup or syrup of lemon or orange. To half a drachm for each dose. The effect is further aided
by the addition of quarter drachm doses of 

Glycerine. The Glycerine also helps to relieve 

congestion and to aid digestion.

And lastly partly as an adjuvant, partly 

as a camouflage, for in these cases there 

is always a large volume of gas in the 

stomach. I add

Twist Spirit or a weakness allowing 

two and a half to five minims per dose. 

The effect of the Glycerine and Glycerine and 

Spirit being added is to render it a most 

pleasant draught in fact more like a beverage 

than a medicine. All this is necessary 

because of the enormous doses that are to be 
given for so long a time, and another 

valuable effect is that the iron is - 

effectually concealed. The mixture has 

none of the appearance of iron in fact. 

I have found this concealment very careful.

Sometimes to still further aid the purpose 

I sprinkle into the bottle when full 

the smallest quantity of Soda Salicylate - 

shaking the bottle while doing so, and 

this gives it the appearance of a 

rather dark brandy, so that
my stock prescription becomes:

D. F. Ferri Cerebrocidi $f. 3 \frac{1}{4}$.
Syrupi Simplicis $f. 3 \frac{1}{4}$.
Styracis $f. 3 \frac{1}{4}$.
Quint Lini ac.$f. 3 \frac{1}{4}$.

Degrup ad

Sig. 3 $\frac{1}{4}$ in half a tumblerful of fowled
water every hour.

Sometimes even thus modified the medicine made the patient vomit after a few
hours. I generally find this is due
to disobeying orders in regard to the
amount of water. I insist upon
the full quantity being added.
If still rejected I order Bismuth
Subnitrate, giving it in bulk, say
two drachms in a line, and
directing the nurse to take up a very
small pinch of the powder with the
finger and thumb, or on the point of
a fowknife, the amount lying two
or three grains, to drop it on the patient's tongue, and wash it down with a little water, ten minutes before each dose of medicine. Or if preferred, I prescribe the powder already made up, or instead a pill, containing

Pr. nitrate sublimatum gr. ⅓
Cer. Oxalis gr. ⅓ med gr. ⅓

before each dose of medicine, until the nausea is no longer felt. Then it may be left off, to be given again if required. Modifications for special symptoms:

rarely required:
1. When Diarrhoea is present:
   I add, Ext. Ε. Hammamelis Virg.
   Half a drachm to one drachmn per dose.

-Liq. Tere trier. for. 3⅓
  Alumina 3½
  Strypii simplicis 3⅓
  Hydreæae 3⅓
  I met. Lingii. fort. 3⅓
  Aquam ad 3⅓
Sig. 3ff. every hour etc. as before.

This to be continued till the bowels become normal again, and then the digitalis is dropped again.

In this treatment, we have to select our remedies from those that can be combined with the iron, and of such to suit this valuable drug the best.

If convulsions occur, the same prescription is used.

If dyspepsia is present, as shown by pain in the lower part of the chest after food, or in the stomach, I add Peptic tonic thus:

Dig. Urgi Perchlor. Fort. 3 iii
Urgi Pept. Cordii 3 iii
Glycerinum 3 iii
Syr. Simplicis 3 iii
Dict. Ligust. Fort. 3 li
Aquam ad 3 vi

Sig. 3 ff. every hour etc.

In the presence of insomnia
Restlessness, Delirium or Depression of spirits.

(due to hydrothorax, and accompanied by great distension and immobility of the stomach, with a smooth tongue, "smi"i to the touch), I add Bromide of Potassium, and don't find that it depresses the heart or impairs the action of the bowels.


The Potas. Brom. being added after the bottle has been filled with water to within two or four drachms.

Sig. 3tti every hour etc.

If pneumonia is present, I add Vinum Antimonialis or Speciae...
of the former, and on 5 of the latter with each dose.

Buy these can be dispensed with.
The enemona will yield to the Perchonide
without any assistance.

If constipation supervenes, as it nearly always does, after a few days it
must be relieved every day.

For this purpose I prefer the Simple
Bile Colchicya or Glyce.
One or half one Every night.

Co. Liquorice Foided or Tails, may
be given for an enema every morning.
But the bowels must be relieved
every day somehow.

The most marvellous results
accrue from this treatment.

Instead of diarrhoea we have, soon
after the treatment begins, Confinement
of the bowels; instead of a dry, thick,
brown tongue, the organ becomes
and remains moist and scarcely
even furred: the lips and teeth keep
clean and moist; instead of delirium
we have the patient lying Calm.
and easy and peaceful, gaining weight, and eating, while the fever is rapidly declining, the patient shows no signs of weakness, and the abdomen is becoming smaller, and tender, it becomes smaller and softer. Every day and free from pain, instead of the fever rising higher or keeping steadily high, it is once begun, to come down, day by day, and hour by hour, instead of the patient lingering on for four, five, six, or more weeks, the fever, he emerges from it spontaneously, on the tenth day.

Instead of fever coming and going, relapsing even after the apparent ending of the fever, and everything being uncertain, and perhaps months before the patient is quite well again, he now has a relapse after the temperature goes down to normal, his recovery is rapid, in a few days he rises from his bed, and in a week can go down stairs, and in two can go about again. At the end of three weeks he is going
about almost well again, at the time when the ordinary patient has scarcely reached the height of the fever, and when he is beginning to recover on the margin of the grave. Instead of the patient being kept on the slightest diet he can take almost anything he likes. Though as a matter of policy we don't allow it as a rule. Certainly as soon as the temperature becomes normal, and instead of having no desire for food for long weeks or months, the patient craves for flesh from about the twelfth day or even before that, and his appetite becomes elephantine, our patient has other advantages; he is known for a certainty he will get better in or about the tenth day, that there is no doubt about it. And did we not tell him so? And if in Typhoid fever he would hardly think he ailed anything after two or three days of the treatment, and he escapes all those dangerous sequels that other have had to face in the past. But to attain these results
certain precautions have to be taken; certain risks of failure borne in mind and directed.

The first of these is that:

The patient may not get the medicine regularly.

This has been my greatest difficulty. It is almost impossible sometimes to get the relatives and nurses to carry out your orders absolutely. They cannot appreciate the importance of doing so, especially when they see the patient doing so well, and they omit some doses; and will allow the patient often to sleep all night long without it. There repeat that if a single dose is omitted the fever will be prolonged past the tenth day, and if he misses it regularly a number of times every day, the temperature may keep up for two or even three weeks. And the nurse will often swear she has given the medicine regularly on those occasions. To obviate this risk it is essential to have two attendants, one for night
and one for day duty, and to warn them both solemnly that the patient's life depends upon their fidelity to instructions. The patient must be watched to sleep, to get it—this is no loss—so he always drops off again as soon as he has taken the medicine.

By giving a little containing twenty-four doses, a better chance is given of nothing if it has been used in the twenty-four hours. Sometimes the nurse will try to make up for omissions by doubling the dose; this must not be permitted as the patient cannot stand it and is sure to be sick.

The course of the fever is a sure indication of whether the medicine has been given regularly. If it is high the fever will be much less the day before I am sure it has not been given regularly; during the first few days the temperature generally goes down rapidly if it stands at 105° or 106° F. to about 102° F. and it keeps about this level for some days, about the eighth (8th) day it will go down to about 101° F. on the 9th to 99° F. or 100° F.
and on the tenth day (10th) becomes normal. In the 10½ day from the beginning of the treatment — not of the fever. If the case comes under treatment at the beginning it will often be removed in less than ten (10) days. Sometimes in two or three days, and if the treatment has been delayed for some time, it may take a little longer than the ten days. But in every case unless from accident, or from the patient being near death when seen, the patient will recover. There is no possible doubt about this. And it is the great and all-important point about this method. But the treatment must be persevered in after the end of the fever in every case for at least one and sometimes two weeks, while every hour during the first week, then every two hours in the day and four during the night in the second week; and thereafter every four hours in the day until the patient is quite strong. No Consideration must cause any change in
the treatment; not even if the patient seems to be no better, or even if he seem worse, it
must be steadily gone on with; the only
addition really required is the Dressings
in case of bleaching.

I now proceed to detail a few of
my cases, to show how they progress, and
when they vary, to indicate the cause of
the variation. These cases are taken hap-
 hazardous out of those I have treated during
the last few years; they are not selected
to show the best results, but on the
Contrary, rather to show that the results,
although all right as regards recovery,
are not quite satisfactory in duration,
because in some of them I have found
it impossible to get the medicine
worked properly, and in others I have
improperly varied it, giving the medicine
less frequently, or giving another remedy
to bring out more clearly the absolute
Control that the remedy has, but
that this depends upon how it is
given. Case I. Henry Campbell -
Case 6

Henry Campbell: aged 21 years: Minster

1st Week
2nd Week
3rd Week

4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th

Time of Day
Temperature

1st Half 2nd Half 1st Half 2nd Half 1st Half 2nd Half

107 106 105 104 103 102 101 100 99 98 97 96

This case was seen on the 4th day of the fever.
Case 1. Charles Campbell.

Symptoms: Been ill for several days -
\[\text{fever, rigor, severe headache, diarrhea,}\]
\[\text{urine - clear, stool - grey, tongue - dry in centre and}\]
\[\text{furred, tenderness, fulness, and effusion in pleuric region.}\]

A few rose haphazard appeared in three days, after on back. After being first on 5th, then every hour: Diarrhoea stopped on 4th day; Headache ceased then also - Oct. 9th.

Fever disappeared altogether on 10th day. But this case shows more than this.

For first two days he was put on 5 grs. of Soda Salicylate every hour. Profuse sweating that night, yet temperature was as high next day almost; and the headache continued. Now in all cases of fever with headache due to cold, rheumatism, gout, etc., cessation of discharges, this salicylate treatment stops the symptoms in about eight hours. Then on the night of Oct. 5th the treatment was changed to on 5 grs. of 25.6 every hour, day, and night. Note how the temperature rapidly went down to 99.6 on the 6th Oct. On the 7th Oct. the fever.
was left off entirely. The next day the temperature was still normal; but on second day after stopping it, the fever returned and rose rapidly, and delirium returned. The night full dose of FeCl₂ renewed, and again a rapid subsidence, becoming normal on 10th day of treatment and remained. Note - a brother had died of typhoid fever about a year before in same house. This case exhibits clearly that others also show: (A) the uselessness of soda bicarbonate and other antipyretics. (B.) the need for continuing the treatment.

Cases 2, 3, 4, 5, and 6, in one family, the mother and four children, all occurred about same time. Some were more severe than others. And I purposely gave the FeCl₂ to the eldest daughter every 12 hours, to see how much longer it would last.

Mrs. Child. Here the patient was seen when fever began. Symptoms: rigor, loose enteric stools, spots appeared at end
Temperature

1st Half 2nd Half 1st Half 2nd Half 1st Half 2nd Half

107.5
106.0
104.5
102.0
101.0
100.0
99.5
99.0
97.5
96.0

Quality of Pulse

140
130
120
110

10th Nov
1st Week
2nd Week
3rd Week

1 2 3 4 5 6 7 8 9 10 11
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### Fever Chart

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- **Fever**
  - 1st Week: 12345678910
  - 2nd Week:  
  - 3rd Week:  

- **Temperature**
  - 1st Half:  
  - 2nd Half:  

**Quality of Pulse**

- 110 120 130 140

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Temperature

- 107
- 106
- 105
- 104
- 103
- 102
- 101
- 100
- 99
- 98
- 97
- 96

Quality of Pulse

- 140
- 130
- 120
- 110
of week, but many 3 or 4 in number;
their fulness, tenderness, and eruption.
The fever went down steadily and rapidly.
She got the medicine regularly. Headache
and diarrhoea were stopped & checked in
a day or two.
The older daughter was the worst, and
the diarrhoea and rose-papules continued
all near the end; and severe headache.
After the 10th day the FeCl₂ was given
every hour, and after that it only needed
a few days to become normal.
The younger children getting the FeCl₂ in
2 m doses every hour, were more quietly
out of the world.
The baby aged about 12 months, had
its temperature taken daily. One day it
became cross and its bowels relaxed,
and the temperature rose to 102°. It
got FeCl₂ on every hour from
the first, and was quite well in
two days.

Here some of the cases seem
slight. I think the value of these cases
is in their occurrence together, and
being as well marked and severe in the elder daughter, in whom the treatment was only given at intervals of two hours. If the fever can be caught at its very commencement—say in the case of the baby, the germs of the disease can be destroyed in two or three days. I have had a great many cases proving this, but I do not give the charts, because it would be difficult to get others to believe they were true cases if I publish, although satisfied in my own mind from the presence of the diagnostic elements referred to before. Let those to whom this treatise is referred try the treatment in such cases, when they get them at intervals, and they will soon satisfy themselves.

Case 4. Miss Boyd.

In this case there was severe diarrhoea with scanty bloody stools, and a good deal of peritonitis. Crepitations large and well marked and also more spots. She had been ill for a week or
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Sed. Sal. 2g T every hour.
Fells on T every hour.
Peritonitis present in this case, with the diarrhoea.
more before I saw her; having left her place in Manchester, where some time before the girl who took her place fell ill with typhoid fever in the house, this girl came home on feeling so ill, and was extremely emaciated and wretched when I saw her. The typhoid fever was undoubted, but travelling in that condition she got a chill setting up peritonitis as well. The complication rendered the case a hopeless one to look at. The pain was extreme. She got soda salicylate for a few days in the hope of getting down the peritonitis. Nev'r thought the temperature lowered off her-sic stream constantly—sickly we, search any lowering of temperature, until it was changed to 39.8° every hour. The temperature now varied a little, though the average became lowered at once. I found the mother was not giving her the full number of doses at night, and to make up for that—\( \text{I ordered it half-hourly by day.} \) The result was the fever was eradicated in a day or two afterwards.
In this case there was much nausea, and
Joseph was quiet, and soon stopped it.

Case 5. Mr. Thornley aged about 30 years;
I had been going on for a week; high
delirium when I saw him had been taking
alcohol too freely before being ill. Living
in house where other cases of typhoid
have occurred – one of them since Thornley's,
two months later. The abdomen was tense,
full, tender, viscus require; bowels
relaxed; stool, exactly like pea-soup;
habit distinct. Crepitations present in
viscus require. No local inflammation
anywhere. In fact this case was as clear
and certain a case as I ever knew.
And having two nurses, one by night, and
another by day, I got the medicine
given with absolute certainty, and
I positively promised them the fever should
cease on the tenth day. On the
nineteenth day it was silly about 100° F.,
the morning of the tenth it was
over 99° F. and they began to doubt;
ten before night it became normal
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**Mr. Thornley Case**

- **3rd Week:**
  - 10

**Temperature**

- **1st Half**
  - 107
  - 106
  - 105
  - 104
  - 103
  - 102
  - 101
  - 100
  - 99
  - 98
  - 97
  - 96

- **2nd Half**
  - 107
  - 106
  - 105
  - 104
  - 103
  - 102
  - 101
  - 100
  - 99
  - 98
  - 97
  - 96

**Note:**
- Temperature up in bed
- For another month
- Under other treatment
- Went home 30 miles
and so it remained. In a few days he was down stairs, in a week he went home to meet his train, and after that not getting the medicine the fever returned, and other treatment being given he was advised for a month more. If this was the only case I had to show in proof of my theory, I shall be quite prepared to state my life, and my home and all I have in this World on its certainty, and its sufficiency. But it is only one out of scores of cases I have had, all demonstrating the truth of my assertion.

Case C. Mr. Naslan, aged 45.

A man died 12 months before of which I testified in this house, and a daughter some years ago, the son I treated with other remedies, not even knowing the Nobel's flower, and he died of hemorrhage in the course of the fever.

The progress of Mr. A. was steady, the temperature went rapidly down when the patient began to feel better, but she did not get full doses at night, hence, though I promised her recovery in 10 days, it was two or three longer.
Case A: Mrs. Haslam. Feels every hour: most of time.

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\[\text{Quality of Pulse}\]
Case 10th. Mr. Black woods Daughter; aged 10 years. Fell on
2nd week
3rd week.

Day of Month
1st Week 2nd Week 3rd Week
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Day of Fever
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Time of Day
1st Half 2nd Half 1st Half 2nd Half 1st Half 2nd Half

Temperature
107 106 105 104 103 102 101 100 99 98 97 96

Great anaemia: Stupor: Dilated pupils; deafness:
Pulse almost imperceptible all through: diarrhoea.

Remission of Treat
Case II: Mr. Blackwood. Fell every night.

1st Week: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

2nd Week: 1st Half 2nd Half 1st Half 2nd Half 1st Half 2nd Half

3rd Week: 1st Half 2nd Half

Temperature:

Table:

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<td>1st Half 2nd Half 1st Half 2nd Half 1st Half 2nd Half</td>
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Temperature Graph:

4th Week: 22 23 24 25 26 27 28 29 30 31 32 33 34 35

5th Week: 4th Week: 22 23 24 25 26 27 28 29 30 31 32 33 34 35

Returned to bed 4 to 7 pm.
But the diarrhoea was stopped in a few days, and the rose-pox ceased. There was no local inflammation or congestion anywhere.

Case 10 and 11. Mr. Blackwood's Daughter and himself. Three other children previously had typhoid fever under another doctor; one of whom died. The daughter had scarlatina six months before and had remained from that time. This, anaemia, and subject to cough.

When called in I found her at once on the 2nd day every hour, but the mother had no one to help her, and though trying her best, she found it impossible always to give the doses at night. Nevertheless the temperature became normal about the 14th day. About the 21st day she developed an attack of pneumonia, when the medicine was given half-hourly, and from thence there was steady decline in the fever to the 15th day. Then thoroughly worn out the mother relapsed, the treatment again and the temperature rose again. Half-hourly
This child was the worst subject, and the mother, judging from the one that died, said she could not possibly recover. She was a mere little skeleton; the had considerable diarrhoea; a kind of stenosis with purpura. Endymen, dilated, and only answered when shocked at, and then only a word slowly articulated; abdomen tense and tender; tongue furred, but never got dry. Took no food, not even milk, she fared left, and then began to bar like a horse. The father's case nearly as bad. All the other children's fever had lasted five, or six, or seven weeks, and in the end the father did not get permanently clear for five weeks, but this was due to himself. The fever first went down in 14 days (not having got the medicine regularly). Then he got up feeling no well, went downstairs, and moved about for a week, without any medicine, then fever began to rise again. He took to bed again.
and to the medicine, and it took two weeks to get it quite away the second time. He was then extremely weak, delirious, and stupid. In both the rose-papules were present.

Cases 12 and 13. Mr. John and daughter, typical cases, with severe grippe, diaphoresis, rose papules, abdominal distension, tenderness, and respiration. The medicine ordered every hour, and given pretty regularly to the mother in whom the fever lasted 14 days; but in the daughter's case, the old nurse neglected the medicine in the night. About 10 days I got the father to see to it himself on the 15th day from which time there was rapid decline in the temperature and recovery on 18th day.

Case 14. Miss Fitcham.

Seen by two other doctors before, supposed to be enteritis, quinsy, Ledge, Salpingitis and Pneumonia; first every four hours for 2 days; then every 2 hours for 2 days; then every hour the 10th day of fever, when I saw her, discovered rose papules, fugitive
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| Temperature | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 |

| Quality of Pulse | 140 | 130 | 120 | 110 | 100 | 90 | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 | 310 | 320 | 330 | 340 | 350 | 360 | 370 | 380 | 390 | 400 | 410 | 420 | 430 | 440 | 450 | 460 | 470 | 480 | 490 | 500 | 510 | 520 | 530 | 540 | 550 | 560 | 570 | 580 | 590 | 600 | 610 | 620 | 630 | 640 | 650 | 660 | 670 | 680 | 690 | 700 | 710 | 720 | 730 | 740 | 750 | 760 | 770 | 780 | 790 | 800 | 810 | 820 | 830 | 840 | 850 | 860 | 870 | 880 | 890 | 900 | 910 | 920 | 930 | 940 | 950 | 960 | 970 | 980 | 990 | 1000 |

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**Sodium Saline**
- Every 4 hours

**Febrifuge**
- Every hour

Supposed to be localised peritonitis at first. I did not see it till the 10th day. Then put on the febrifuge, and rapid decline in T followed.
coming in eructs, diarrhoea, excitations etc. I had
put her on calomel every hour, and in a week
she was out of the fever, or 18 days in all.

Case 15. Mr. Ingleby, seen by my late assistant
during first ten days, during which he got various
remedies, soda, saline, tar, Pimpinella, and
Quicksand. He got steadily worse; on the
10th day we saw the case. I
advised that I should give
but I
found it was only given every four hours,
and not at night at all.

I saw him on the 12th day. He was
then moribund. Covered with scrofulous
Sores over the back and abdomen. Frequent
Evacuations being passed in bed, with
his urine. Unconscious, he could not
be raised to speak coherently. Pupils
widely dilated, tongue dry, pharynx, carinated
cheeks and lips covered with sores;
Enraged to a skeleton, unable to take
any food. His landlady wished to let him
alone as he was dying; my colleague,
armed that it was an utterly hopeless
case, admitting now it was typhoid.
Case 15th. Robert Hughes

Day of Month

1st Week

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

2nd Week

3rd Week

Day of Fever

Time of Day

Temperature

1st Half

2nd Half

1st Half

2nd Half

1st Half

2nd Half

107

106

105

104

103

102

101

100

99

98

97

96

Quality of Pulse

140

130

120

110

Sod. Sal. Opium.
Antipyrine.

Continuous.

Same continu.

Fell every 4 hours.

Fell every hour.

Fell in every 2 hours.

Monitored and plotted.

Pain occasionally.

Pain.

Nausea.

Small.
Now I insisted upon the FeC being given every hour by night and half hour by day. It was done, although it was a great difficulty to get the medicine down his throat the first few days, but in four days he could speak rationally, was taking milk in plenty, the diarrhoea had stopped, and he felt stronger with every dose he got. In ten (10) days he was able to sit up in his bed, and in three weeks was out of doors and rapidly recovered.

I give this case to show that even when the fever has been allowed to go on, and the condition is desperate, by heroic treatment with the FeCl₂ he may, and will, recover, provided he lives over 3 or 4 days to give the FeCl₂ time to get into the system.

We might add other cases ad libitum, to show that they would only be evidence of the same kind.

In conclusion, let me say, during the last four years, I have had a large number of cases amounting to hundreds; there are always a good
many cases in this town, and during the last six months it has amounted to a mild epidemic. And during these years I have only lost two patients from lymphatic fever. One of these was an old man of 80 years who was in extremis when I saw him, the fever having gone on for about three weeks. His temperature was 106°F. He had profuse diarrhoea, with low delirium, and trembling.

She died on the third day without giving the remedy time to act. In fact he could only swallow it the first two days, and then they neglected to give it regularly.

The other case was a man who was doing nicely, but being a chronic lymphatic was delirious at night. And in one fit took a flying leap out of the three storey window, and died from the shock.

I advance the claims of this treatment with absolute confidence, feeling sure it carried with as
I have described, and being made known to the profession throughout the World, we shall never have to sign any more death certificates from Enteric Fever.

And if I have thus been the humble and obscure medium through which this light has come from an All-wise Providence, I am proud to think that I owe it all to the preparation I received from my Alma Mater and her devoted band of teachers. And as her thrice I lay this Thesis as a tribute of my love and reverence, that she may have the credit of this discovery, as she has of so many former boons by which the suffering and death of mankind have been averted.