

AN
INAUGURAL DISSERTATION

ON

Typhoid Fever

SUBMITTED TO THE
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BY

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In selecting Typhoid fever as the subject of this medical thesis, we have been controlled by a desire to record the result of our own observations and researches, as far as possible; to shun the time we ~~on~~ theories and obsolete dogmas of authors & to present to the faculty a paper free from extracts and plagiarisms. Our observation of the symptoms, in the various stages of the disease, our researches & examination of its ravages, as presented, both at the bedside & upon autopsic inspection, the adverse views entertained by different physicians, in reference to the etiology, pathology, & treatment, & the great mortality attending it, have forced us to the conclusion that it is a form of fever which is, as yet, not clearly comprehended, nor fully understood by the profession generally. Having resided for the last five years in a section of country, where Typhoid fever was the

principle prevailing disease, among the first observations which we made after we commenced the study of medicine, was the obscurity in which this disease seemed to rest & the unsettled condition of the mind of the medical profession in reference to it. ^{In} conversation with physicians & upon consulting authors, we found that almost every practitioner, who had the independence to think for himself, held his own peculiar views in reference to the disease, & treated it according to those views. Our attention having been thus early called to these facts, we lost no opportunity for studying & investigating this disease either at the bedside or by post-mortem examinations. Before we proceed to give my views in reference to this disease, we will state that we do not consider the obscurity in which it seems to be enveloped as a difficulty inherent in the subject itself, but to a want of research and investigation on the part of the younger & less

prominent members of the profession & a too ready
 yielding of opinion to what they please to term the
authorities. Certainly the practitioner who is so frequ-
 ently called upon to treat this disease & is so constant-
 ly moving in its very midst, with numberless op-
 portunities for observing & investigating it, in all
 its grades phases & stages, should know more about it
 & understand it better than the cloistered author
 or authority who has neither opportunity or inclination
 to give to the subject a thorough investigation &
 therefore draws upon his ingenuity & contents him-
 self with giving to the world vague theory, wholly
 devoid of practical utility, as authority. The Western
 Physician, if qualified to practise his profession at
 all, is as capable of investigating disease, judging of
 its causes & effects, &c. as are the authorities, to whom,
 according to custom, all who have not written &
 published a work on diseases must bow. He has
 access to every channel of information which the

world affords, & should not doubt his own powers & capacities so much as to yield unconditionally to the opinions of others men, thirly failing to investigate nature & disease, which are subjects of the first & highest importance to every physician.

Symptoms

Slight uneasiness & giddiness about the head, loss of appetite, nausea, pale & shrunken state of the skin, uneasy & dejected countenance, dull heavy & somewhat painful eyes, slight muscular tremors, & a general sense of lassitude & debility with a total indisposition to corporeal or mental exertion. After an indefinite period varying from two or three days to a fortnight these symptoms give place to those which mark the stage of invasion - (viz) chilly sensations alternating with flushes of heat, a quick, small & irregular pulse. After a few hours the chilly sensations subside, the heat predominates & the febrile symptoms increase

rapidly - The face becomes flushed, the countenance
 anxious, the pulse increases in strength & fre-
 quency, the skin is dry, & a considerable thirst for
 cold drinks exists, the tongue is broad & flat &
 covered with a white fur, the bowels are gen-
 erally torpid, the head feels uneasy & giddy as if
 stunned by a blow - The mind is confused, the
 eyes are red, watery & more painful, the patient is
 restless & complains of a general sense of weakness
 & fatigue, the secretions generally, are deficient in
 quantity, the urine is high colored & emits an un-
 natural odor. Within forty six hours after the stage
 of invasion, the oppression in the chest is
 much increased & is now accompanied by a
 dry hacking cough & more or less pain. At this
 stage of the disease there is always fullness &
 tenderness in the right hypochondriac region
 & tenderness under pressure, & the patient never
 fails to complain of pain in the head, back

Hairs & extremities & general muscular soreness.

The functions of the brain now become more & more disturbed, the mind is wandering. The thoughts of the patient are almost always of an unpleasant, disagreeable & desponding character - He frequently starts up as if frightened & stares vacantly about the room & speaks incoherently - His sleep ^{is} short, interrupted & unrefreshing; his dreams are unpleasant, fitful & indistinct, as is manifested by the continuance of the subjects about which he mutters during his slumbers - Delirium rapidly increases & the patient if left to himself talks incoherently, starts up in bed as if alarmed, speaks to those who are absent or dead, calls for his clothes & says he is going home, or complains of harsh & unkind treatment from friends, until his attention is arrested by some one speaking to him & interrupting his train of thoughts. When he becomes conscious of his hallucination, makes some short reference to it & at once relapses into

the same moody state. The patient now manifests a total
 aversion to either bodily or mental exertion, he moves
 slowly & apparently with great reluctance & if addressed,
 his answers are slow, hesitating & peevish & almost al-
 ways given in monosyllables. The duration of this
 stage of excitement is very variable & uncertain, ^{stage} ~~the~~ of
 sinking sometimes supervening as early as the third or
 fourth day & again not until the tenth or even the
 twelfth day. The supervention of this stage is announc-
 ed by the recurrence of great prostration - small, full
 & very frequent pulse, a collection of black sordes ab-
 out the teeth, a dark dry crackled appearance of the
 tongue, whilst the edges & tip are of a fiery red & disposed
 to bleed - There is now more or less constant delirium ⁱⁿ ~~the~~
 of a low muttering character, difficulty of hearing, twitch-
 ing of the muscles of the face subultas tendinum, con-
 stant numbness in the back, hiccough, a tympani-
 tic and very tender state of the abdomen unaccom-
 -panied, a decided tendency to diarrhoea, the discharges

always being watery, acrid & very offensive. This stage usually continues from three to ten days terminating either in death or very slow convalescence. The occurrence of convalescence is announced by a reduction in the frequency of the pulse, a moist tongue, abatement of ~~fever~~ delirium, intervals of sound & quiet repose & a uniform moisture of the skin.

We have thus concisely stated the symptoms which ordinarily characterize this form of fever, independent of those which are superseded by the occurrence of visceral inflammations, which always supervene about the second or third day of the stage of excitement if the disease is not arrested, or its natural course interfered with by remedial agents. The organs most liable to become the seats of inflammation in this disease are the Brain, the mucous membrane of the intestinal canal, the Lungs & the Liver & their liability to become involved occurs in the order we have mentioned them. Inflammation of

The brain is indicated by throbbing of the carotids, deep seated & pulsating pain in the head, redness & morbid sensibility of the eyes, flushed countenance, irregular respirations, continued watchfulness, constant & almost unremitting delirium

The eyes soon become gray & blood shot, the pupils contracted, there is intolerance of light, a glossy & agitated countenance, expressive of great suffering, continued moaning & finally Coma

If the mucous lining of the stomach & bowels become inflamed the symptoms of Gastro enteritis are superadded to those which ordinarily characterise Typhoid fever (Viz) Tenderness & tension of the abdomen, quick, frequent, & very small pulse, constant & urgent desire for cool drinks, numbness on the back with the legs flexed on the body; anxious & restless expression of the countenance; burning sensation in the stomach; frequent vomiting & generally

early & very great prostration of strength. When
 the lungs are involved the ordinary symptoms
 of pneumonia are present - as great oppression
 of breathing; obtuse pain in the chest, cough;
 bloody expectorations; laboured & not unfrequently
 obstructed & irregular pulse & in violent cases tending
 to effusion & disorganization of the lungs, the veins
 of the neck become turgid & the countenance ac-
 quires a livid hue. The occurrence of inflamma-
 -tion of the Liver is announced by pain in the
 right hypochondriac region, tightness & uneasiness in the
 epigastric & left hypochondriac regions; pain in the
 shoulder & clavicle of the right side; pain in the ch-
 -est; a dry & troublesome cough; difficulty in breathing,
 nausea & bilious vomiting frequently occur & in general
 the more severe these symptoms are, the less the patient
 will be troubled by cough & difficulty in respiration.
 The urine is always highly imbued with bile & the
 white of the eyes & the skin upon the face, neck, & breast, presents a
 jaundiced hue.

Exciting Causes.

Perhaps a greater variety of opinions have never been expressed by medical men in reference to the cause of any disease, than the form of fever now under consideration. Whilst some maintain that this disease is essentially nervous, & is produced independent of miasmatic agents, others assert with equal confidence that it is always dependent upon a peculiar power or morbid agent which they do not attempt to explain farther than to say that it is suu genisii. It is insisted by some that it is produced by Malaria miasmata, thus giving it a common origin with intermittents, remittents & the other forms of fever which ordinarily prevail in malarious districts, while others again, insist that idio-miasmata is the only agent known which is capable of producing this form of fever & that whenever & wherever this poison is brought to operate upon the human system in a form

sufficiently concentrated to produce disease at all, Typhoid
 or Typhus fever will be the result, it being incapable
 of producing any other form of disease. The opinion
 has been expressed, & concurred in by quite a number
 of physicians in the west & south that this disease
 is produced, mainly by filth, insufficient, unwholesome
 & unnutritious diet & confinement in crowded
 & ill ventilated houses; which opinion, perhaps,
 had its origin, in the fact, that the disease when it
 first made its appearance in the south & west,
 was principally confined to the negroes & the poor
 or claps of the white population. But since this
 disease has ceased to be confined to any particular
 class of our citizens, & now with equal impunity,
 enters the palace of the rich & the house of the poor,
 the mansion of the lord & the cabin of the slave,
 this once favourite doctrine of western & southern
 practitioners must be abandoned & the causes pro-
 ducing Typhoid fever sought for elsewhere.

It might go on & fill up the space usually assigned for
 a paper like this, in giving the vague notions, un-
 meaning theories, & exploded doctrines of authors
 & practitioners, in reference to the causes which
 ordinarily produce Typhoid fever, & the whole
 map, when thus embodied, instead of throw-
 ing ~~additional~~ light upon the subject & setting
 the mind of the student, in regard to the true
 causes of this disease, would only serve to convince
 the reflecting & unbiassed mind, that the whole
 matter as yet, was enveloped in uncertainty & obscuri-
 ty, & that the profession had arrived at nothing
 certain, or definite, in relation to the causes
 which generate that form of fever which is
 now contributing more largely to the graveyards
 of the south-western states, than any other sin-
 gle form of disease. From ~~our~~ observations & research-
 es upon this subject, we ~~are~~ ^{are} satisfied that the causes
 of this disease are to be found, alone, in the malarial

which ordinarily produce Remittent, Intermittent & the other forms of fever common to this climate. At an earlier period in the history of this country, when a vast amount of green timber was being felled, & deadened, in the settling of new ~~of~~ ~~new~~ farmers, & large portions of the earth's surface, which had hitherto been sheltered by the dense foliage of the virgin forests & protected from the action of the sun's rays, upon the accumulation of vegetable matter, which had been deposited from year to year thus exposed, the speedy decay of the green timber, the sudden exposure to the action of the sun. Such an amount of vegetable matter, in a state of decomposition & the uprising by the plough, of the substrata of the earth, which were made up of the annual vegetable deposits, & the consequent escape of the long pent up noxious vapors & poisonous gases, all contributed to surcharge the atmosphere, with impurities, so dense

& concentrated, as at once to impress & overpower the
 systems of almost all who came within their range,
 & generate the highest grades of bilious fever, which
 then constituted the chief scourge & produced
 nine-tenths of the mortality in this country.
 These forms of fever increased pari passu
 with the clearing & settling of the country, & have
 declined in the same ratio, until now it is a
 rare chance to meet with a well marked case
 of bilious fever. The same causes which then
 produced bilious fevers now give rise to typhoid
 fever. The causes do not now exist, in a form,
 sufficiently concentrated, to produce the former
 grades of fever, by suddenly impressing & overpower-
 ing the system, but yet they exist in a form,
 sufficient, if kept up for a length of time, & el-
 lause slowly to find their way into the system,
 through the medium of the lungs & stomach
 to produce the forms of fever now under

consideration. Our observations have induced me to believe, that these causes, marsh miasmata, malaria, or whatever you may please to term them, for want of stickler for named find their way into the system through the lungs & stomach & make their primary impressi^on upon the nerves of these organs, which be coming thus poisoned & enfebled, first to supply the digestive, assimilating & appropriating apparatus with the necessary nervous energy or influence, & consequently these systems of organs, necessarily fail to perform their functions in a vig^orous & healthy manner, & thus a train of morbid or diseas'd action is established in these organs, the effect of which will be seen first, in the character of the chyle & blood which they produce, as necessarily as would the corruption of a fountain be manifested by the character of the stream which it sends forth.

The question here naturally arises, in what does this altered condition of the blood consist, & what are its deviations from health? We regret that we have never had an opportunity to witness the analysis of the blood of a typhoid patient, but if we look to the symptoms which characterize the disease, they will point with an unerring index if not to its specific or chemical alterations, to its general morbid condition & an ocular inspection of the blood when drawn, never fails to verify what the symptoms suggest. *Viz*; a morbid disproportion between its solid & fluid portions, the former predominating. Among the first symptoms which are manifested in this disease, as has already been stated, is a stunned heavy & disagreeable sensation about the head, slight difficulty in breathing & oppression about the chest, accompanied by a general feeling of lassitude & indisposition to both mental & corporeal exertion; the patient

complaints of more or less pain in the eyes & the conjunctiva is generally injected with the red globules of the blood. How can we account for the occurrence of these symptoms, upon rational principles, otherwise, than by attributing them to state of the blood, which ~~we~~ have mentioned.

By this morbid disproportion between the solid & fluid portions of the blood, it is rendered unfit for the nourishment of the various organs & systems of organs, which make up the animal economy & cannot circulate with its accustomed freedom through the most delicate structures, as the brain & its membranes, the coatings of the eye, the lungs &c; & hence we are, at an early stage of the disease presented with the above symptoms, which we regard as so many evidences of the existence of a state of capillary engorgement of these organs.

These symptoms of depression & capillary congestion are always present in the early

stage of the disease, & after an indefinite period of
 time, varying from twentyfour hours to sev-
 eral days, according to circumstances, give place
 to symptoms of inflammation, the legitimate
 result of continued capillary engorgement which
 is manifested by the predominance of febrile ex-
 citement, a hot dry skin, flushed cheeks, a quick
 frequent & corded pulse, pain in the head &c &c, accom-
 panied by such other symptoms, as ordinarily
 indicate an inflammatory attack, of the par-
 ticular organ or system of organs upon which
 the onus of the disease happens to fall. We do not
 now remember to have seen a single case of
 Typhoid, fever, or to have been conversant with the
 history of a case, which was allowed to run its course,
 up to the sixth day, without the development of
 symptoms, clearly indicating the existence of infla-
 matory action, either in the Brain & its membra-
 nes, the Lungs or the mucous lining of the

alimentary canal, with the exception of some cases which occurred in a particular locality, in Wilson County, in the fall of the year 1852, in which the symptoms of congestion & oppression continued to increase, until the solid portions of the blood seemed to become disorganised; & these cases immediately terminated fatally soon after the discharge of large quantities of dark, foetid & liquid blood either from the bowels, vagina, Stomach or lungs; & several of the cases, in which the hemorrhage was from the vagina, the patients were young females upon whom the function of menstruation had not been established. In these cases I think it reasonable to conclude, that the blood is so thick & viscid, & the vital energies so much impaired, that the action of the heart, even under the extraordinary efforts which nature usually makes to overcome undue obstructions, fails to maintain a regular & healthful circulation,

The congestion increases, the blood becomes stationary in the vascular structures, & instead of inflammation which would be the result where the contest between nature & disease was more equal, nature succumbs & decomposition of the accumulated mass of blood & the contents of the vessels which contain it, is the result - when the vessels give way & the hemorrhagic fluxes occur, (which are of a passive character & never coagulated) & usually continue several hours after death.

Treatment.

From what has already been said in relation to the etiology & pathology of this form of fever, it would appear that the morbid condition of the blood itself, the nervous depression & the capillary engorgement of the Brain, Lungs, Liver &c, constitute the immediate cause of the various symptoms which characterize this disease in its early stages - Our principle

& primary object, therefore, should be, to correct
 this condition of the blood, arouse the ner-
 vous energy, remove sanguineous engorge-
 ment & restore the functions of the liver, skin,
 & kidneys - To answer these purposes, it occurs to
 me that the treatment should be commenced
 by venesection, practised in a bold & decisive
 manner. By the abstraction of blood, a portion
 of the thickened morbid, circulatory mass, will
 be withdrawn from the vessels, which empty
 into the heart, & that organ will thus be relieved
 of a portion of the blood which is pressing upon it,
 & enabled by a diminished amount of blood to
 maintain the circulation. If we mistake not,
 authors argue, that there is a law in the animal
 economy, requiring a certain degree of distention
 of the blood vessels to be kept up, and that if a por-
 tion of their contents be withdrawn, the ab-
 sorbent vessels immediately seize upon the fluids

which are presented & convey them into the
 blood vessels to supply the deficiency, & this idea is str-
 engthened, if not proven to be correct, by the thirst
 & strong desire for drink in every case of ex-
 haustion from loss of blood. If these views be
 correct, by venesection we not only relieve the
 heart by diminishing the amount of blood but
 we invite into the vessels fluid sufficient to
 restore the balance between its solid & fluid
 portions, thus facilitating its circulation & fit-
 ting & qualifying it for the nourishment of the
 body. We may be incorrect in our views of the man-
 ner in which the abstraction of blood operates
 in cases of this character, but we know that we
 have seen typhoid patients bled, who, at the
 commencement of the bleeding, had a small
 hard, quick & frequent pulse & at its close,
 or very soon thereafter, the pulse had twice its
 former volume, was soft & reduced twenty str-

-kes to the minute. After the abstraction of blood, if there exists no visceral inflammation, or other symptoms contra-indicating its use, an emetic of *Spicaeantha*, will prove serviceable by removing local congestions, equalizing the circulation, & arousing the nervous energies of the whole system. As the thirst is usually urgent after the abstraction of blood & the exhibition of an emetic, the patient should be allowed to partake freely of some bland mucilaginous drink, as Gum Arabic water, gruel & such other fluids as will be readily taken up by the absorbents & carried into the circulation to restore the deficiency caused by the loss of blood.

To restore the action of the Liver, small portions of Calomel, in combination with *Spicaeantha* & Opium, has answered good purposes in the treatment of this disease. From one to two grs. of Calomel, 3 or 4 grs of *Spicaeantha*, $\frac{1}{4}$ or $\frac{1}{2}$ gr of Opium

may be given every three hours & continued until
 the evacuations become mixed with bilious
 matters. If the bowels are torpid & there is no evac-
 nation from them in 36 or 48 hours after the use
 of the calomel, it should be withheld & a full dose
 of Castor oil given - If the cerebral disturbance
 is considerable, the Opium should be omitted
 altogether. After the functions of the Liver are
 restored, if the case is not complicated with
 some visceral inflammation, a mild course
 of Tonics & diaphoretics will usually complete the
 cure. If visceral inflammation ensues in
 the course of the disease, it must be counteracted
 by active antiphlogistic treatment, & the use of
 external nuxvomine & counterirritant applica-
 tions as blisters, rubefacients, warm stimula-
 ting poultices & fumigations. Topical bleeding
 by leeches & cups is a most powerful means for
 subduing local inflammatory action & should

never be neglected, or lost-sight of in the treat-
 -ment of this disease. When the stage of sinking
 or collapse ~~supervenes~~ the principle care of the
 physician should be, to sustain all the powers
 of the system, which is best accomplished by a
 general course of Tonics & Stimulants. Among
 this class of remedies, those which are most gen-
 -erally used in the treatment of this disease,
 are quinine, Turpentine, musk port wine and
 -mania &c. In some extreme cases where the
 bowels were much involved, the discharges frequ-
 -ent, very offensive, & mixed with dark fluid blood,
~~we~~ ^{we} have known the happiest results to follow
 the administration of the nit of Silver, in doses
 of from $\frac{1}{4}$ to $\frac{1}{2}$ gr every five or six hours & some
 salts in doses from 5 to 10 grs. combined with 5 grs
 of nutmeg every 3 hours. In protracted cases of
 this disease, occasional ablution of the whole
 surface of the body, with soap and warm water.

will prove a valuable auxiliary. It removes from the surface the dead & dry cuticle, the offensive secretions of the skin & induces general perspiration. It is of the utmost importance that particular attention be paid to the regulation of the diet, throughout the whole course of the disease. The simplest articles alone should be allowed as liquid preparations of arrow-root, rice, boiled-milk, gruel, beef-tea, weak chicken broth &c.

It is sometimes the case that after a total want of appetite for a considerable length of time, the patient suddenly begins to crave for certain strong & stimulating articles of food, such as salt-meat, soups, vegetables, fruits, &c, while he loathes every article of food usually prescribed by the physicians.

When under these circumstances, the patient manifests a strong desire to indulge in these coarse articles of food, it would be proper cautiously to gratify the newly aroused appet-

tile, however much it may conflict with the dietetic rules usually adopted in the management of this disease.

Notes.

22 Page. read, if the patient be of full habits the treatment should be commenced by venesection

24 page. With the Colic, Ipecac. & Opium, Turpentine would be beneficial as an alterative, but, when the mucous membrane of the bowels are in a state of ulceration, Turpentine, does good by actual contact, as well as, by its stimulant & alterative effects;