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1853

Remarks
on the
General Doctrines of
Fever,

and on
the different forms of continued fever
peculiar to Great Britain.

*Nemo naturae minister et iulapies, tantum facit et
intelligit quantum de naturae ordine se vel mente
observavit: nec amplius scit aut potest. - Bacon.*

An Inaugural Medical Thesis
by

James W. Frame, L.S.P.S.

March 1853.

Preface.

In this thesis it is not our intention to give a detailed account of the symptoms, causes, and treatment of fever in general, nor to confine our remarks to any of its different varieties; but we propose first to give a sketch of the different opinions which have prevailed respecting the nature and seat of fever; second, to point out what appears to us the most probable theory of the disease illustrating it with a short recapitulation of the general symptoms of fever; & lastly, to conclude with some observations on the origin, forms, and diagnosis of the continued fevers peculiar to Great Britain.

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On the
general doctrines of Fever.

"Pestis et ira deum Stygis"
"esse sculet undis" - Ovid.

Fever is among the first diseases that affected mankind, and they have continued ever since to deal devastation among thousands of our species. Sydenham has observed that they constitute nearly two thirds of all the Diseases incident to the human frame, and with regard to many portions of our own Islands this remark still holds true. It appears remarkable, that with so many opportunities for observation, so little has been accomplished by the Physician in determining the true nature and seat of fever, and that every attempt towards its arrest or prevention has ended

in a total failure. It can only be accounted for by the number & variety of forms and phases, which the febrile disease may assume, according as it occurs at different times and different localities, and under different circumstances. For if we glance at the history of Fever & Scur writers we find that no opportunity for experiment or observation has been neglected, and that the talents and ingenuity of the most learned in our profession have been increased from the days of Hippocrates, in investigating the general & peculiarities of Fever.

There are few indeed among our medical Authors either ancient or Modern who have not contributed their mite to swell the formidable list of opinions on the nature of fever; at once bearing testimony to their own ingenuity, and to the baffling and insurmountable character of this mysterious disease. Although no opinion yet promulgated has

succeeded in obtaining the seat of the
 profession each speculation has proved use-
 ful in some, for in failing to establish
 the truth of their own hypothesis they
 have exposed the errors of others, may
 more than attempt to fix the seat, and
 establish a theory of fever have con-
 tributed much to our knowledge of
 the effects and consequences of the
 disease, which are often as fatal as the
 fever itself.

A brief sketch of these various
 opinions will enable us more fully to
 comprehend the present state of our
 knowledge of the general doctrines of
 fever and will serve as an appropriate
 introduction to our remarks.

I History of the opinions on Fever.

"Opinionum commenta delectat, natura
 judicium confirmat." Cicero.

Hippocrates, in describing
 acute inflammatory diseases
 employs

‡' De epidem. Libr. I.

‡² De epidem. Libr. VI.

employs the word fever, or rather the
 Greek term *pyrexia* to designate the
 morbid heat which accompanies these
 affections. But he also uses the
 term generically to signify those
 diseases where heat he could not
 detect, which were accompanied
 with augmentation of the temperature
 of the body. He has established
 several divisions of fevers on the differ-
 ent period of succession of this febrile
 phenomenon. Among Fevers, says
 Hippocrates, ^{§1} some are continued and
 others are intermittent, & have exacer-
 bations of the fever sometimes in the
 daytime, sometimes at night. There
 are also *putrida*, *tertiana*, *quartana* ^{§2}
 In applying the terms burning, *pyrexia*,
shivering, *rigors*, &c. to fever he only
 means to indicate fevers attended with
 intense heat, shivering, or any other
 serious symptom, which accompanying
 the increase of heat, & which could not
 be referred to a distinct disease.
 Thus he says ^{§2} Among these some are

accompanied with an intense degree of
of heat, (calor mordicans) in others it is
less perceptible; in some it does not
at first sight appear elevated, but
seems to increase as the hand rests
on the surface;— in others it appears
surging from the outset of the disease.
Sometimes it is attended with debility,
great dryness of the skin, or flabellum;
at others the excreta present a fearful
aspect; the skin is black, red, livid
or greenish." The opinions of Hippo-
crates regarding the duration of fevers
are very vague. He considers that
that the great critical period should
take place at the end of the 4th day
both in mild & malignant fevers,
& if the crisis does not then occur, it
is generally put off to the 7th, 11th, 14th,
17th, or at last he counts, it to the 30th
days, when he says we may hope
for a happy resolution. Nay, he
adds further that we may expect

* The Epidemic Relapsing Fever of 1853-7
was described by Hippocrates, very
accurately, as occurring in his time
in the Island of Thasos off the Coast of
Thrace - The Dohinteric variety
of Fever is also ~~as~~ alluded to in
his works.

look for the crisis as late as the 60th day in some Epidemics.

Hippocrates was probably the first who propagated the doctrine that Fever depends on a morbid state of the animal fluids as he ascribes it different forms to a superior humour or a lower, and divides the four Humours: "Blood, Phlegm, Yellow & Black Bile." It is probable that the Father of Medicine confounded several of the Internal inflammations with Fever, but still many of his descriptions are so exact, that they are found to correspond in every particular with the symptoms of several species of Fevers at present prevailed.

According to Celsus the elevation of temperature, & increase of pulsation of the Veins, he thought, were the principal characteristics of fever but that they alone do not constitute it, as its symptoms are developed by other agencies as fear, fatigue, anger, grief &c.

* *Galeni de Febribus. Lib I*

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He divides intermittents into the
Interdium, tertian, & quartan types;
but his remarks upon the continued
fever, although more detailed than
those of Hippocrates, are so obscure
that it is difficult to determine the
method that which he wishes to
represent.

Celsus agrees with Hippo-
crates in his hypothesis that fever vir-
tually consists in the increase of animal
heat but he makes important additions
to the Definition of Fever - He defines
it as "a heat so violent, as to affect the
system, & cause disorder in its functions;"
and being better acquainted with the
phenomena of the Circulatory System
than his Predecessors he says, in
another passage - that Fever cannot be
said to exist unless ~~unless~~ the heart
itself is affected & proved by the
acceleration of its pulsations that it
participates in the general disorder.
He observes in the *Natural Pathology*

rests upon it the special character of his division of fevers. - He divides intermittents into the quotidian which he attributes to the disorder of the Phlegm. the tertian to derangement of the Yellow & Quarta of the black bile. The continued fevers he believes arise from an affection of the yellow bile, he divides them into two classes, the "Continents" & "Continues": The former consist of a single paroxysm the latter compound those which have a tendency to recurrence or relapse. He also makes a distinction between Idiopathic & Symptomatic Fevers; as he tells us it is important to determine, whether fever arise from a local affection, or from alteration of the humors.

The Arabs added little to our knowledge of the nature of fevers. They considered it a universal disease depending on the putrid state of the humors, which they diluted by purging or evacuated by bleeding.

Avicenna attributed the febrile phenomena rather to an excess in quantity of the humors, than any alteration of their constituents.

For some times after the revival of letters, the Doctrines of the Alchemists, were the favourites of the day. They asserted that Fever was the result of a Chemical Change in the blood, which according to some consisted in a predominance of its acid according to others of its Alkaline Constituents.

Until the commencement of the 18th Century the Doctrines of Humoralism were universally prevalent in Europe & the History of Fever is comparatively devoid of interest. By this time several devastating Epidemics of fevers had produced beneficial effects on the minds of the more reflecting Physicians, which led them to the conclusion, that bleeding

and purging are not the only means to be employed in the treatment of fever. The doctrine of Contagion began also at this time to be fully recognized. Although the symptoms of each Epidemic were faithfully recorded by their observers little was added to our knowledge of the nature of Fevers. For on the appearance of each Epidemic it was set down by the each separate observer as a new Species of fever. To such an extent was this principle carried that when Sauvages published his nosology in 1768 it contained descriptions of no less than 155 varieties of fever.

At the beginning of this last century the doctrine of the Quacks held sway. Some ideas of Celsus on the utility of fever in disease, which were generalized by

Hydenham, formed the basis of this theory. His supporters maintained that fever was not a merely a symptom of disease but an effort made by nature to repel disease from the Economy under the control of a governing principle, the Soul.

The idea of the influence of a vital principle in the production of fever originated with Van Stelmout, & was fully developed by Stahl, who derived the word Fever from "februa" to purge, and proclaimed that the Physician was but the handmaid of Nature, and that he must beware of interfering with the means which she has prepared for the salvation of the body.

This Doctrine was succeeded by one of a totally opposite character which attributed the origin of Fever to the influence of a morbid poison not on the fluids, but

*, *Library of Medicine. Art. "Fever"*

*₂ *Cullen. First Lines. S. 46.*

on the solids of the system. Hoffman, who was the founder of this School, considers Fever as a State of Spasm of the venous capillaries arising from an affection of the Nervous System, which causes reactions in the Circulation.

This theory was fully developed, and attained an universal celebrity, under the patronage of the well known Dr Cullen and as Dr Christison^{*} remarks "It continues still to be the prevailing creed of those who adhere to the tenets of Solidism & who believe at the same time in the existence of Primary & essential Fever." The opinions of Dr Cullen will be best understood by a quotation from his works[†]. "Upon the whole" he says, "Our doctrine of fever is explicitly this, The remote causes are certain Sedative powers applied to the nervous system which diminishing the energy of the brain thereby produce a debility in the whole of the functions, and particularly in the action of the extreme

"Nervels. Such, however, is at the same time the nature of the animal economy, that this debility produces an indirect stimulus to the sanguiferous system; whence by the intervention of the cold stage, and spasm connected with it, the action of the heart is increased, and continues so till it has the effect of restoring the energy of the brain, of extending this energy to the uterine blood of restoring therefore their action, and thereby especially removing the spasm affecting them; upon the removal of which, the secretion of sweat and other remarks, of the relaxation of secretories take place." Dr C. thinks that the spasm of the uterine vessels, throws a load of blood on the central parts of the system, which proves a source of irritation to the heart & arteries & excites them to greater action & this excitement of spasm is the result of the "Vit Medicatrix Naturae." But we may remark that the reaction of

The Circulation does not restore the
 energy of the Brain but rather
 exhausts the Nervous energy, & weakens
 the Powers of the Circulation, & it
 is not till the reaction subsides
 that the healthy action is restored.
 Further as has been remarked by J Pan
 the production of debility by Spasms
 is an isolated fact without support,
 and the introduction of the *Vis medica-*
tura naturae is like the introduction
 of a deity in an Epic poem when
 no other resource is at hand. Indeed
 this minute power of the System is
 nothing more than the "Omniscience"
 of Hippocrates, the "Orchus" of Van
 Helmont, & the "wisdom of the Soul"
 of Stahl. It has always been a
 favourite cloak to screen the ignorance
 of the Ancient Theorists, and upon it
 they all placed great dependence
 both for explaining the symptoms,
 and assisting in the cure of Fevers.

However plausible this opinion might
 appear, it did not remain long
 without a rival as shortly after
 Dr Brown, the Country man of Cullin,
 propounded his new doctrine of fever.
 He considered that fevers consist in
 debility, whether occasioned by the
 abstraction of natural & customary
 stimuli, or by their excessive action,
 exhausting or expending excitability.
 In one case, i.e. when caused by
 inordinate excitement, the fever arises
 from direct debility, in the other,
 when caused by deficiency of stimu-
 lus, the fever arises from indirect
 debility, or accumulated excitability.
 These different forms of fever Dr Brown
 supposed required the application
 of stimuli of very different powers
 to restore the healthy deficient excite-
 ment to a healthy grade.
 The Brownian ^{doctrine}, although never very
 popular in this country, ~~originally~~ enjoyed
 a high reputation for some time

* *Medical Inquiries & Observations. Philada 1809.*
4 vols.

in Italy, under the Auspices of
 Razeri; but that Physician after
 some Years practice experienced the
 fatal result of the Stimulant mode
 of treatment in a peacockial epidemic
 at Genoa which caused him to
 change his principles & adopt a
 very different Opinion which he
 appropriated to himself, under the
 denomination of the "New Medical
 Italian Doctrine," or the doctrine of
 Contrastimulus, which taught that
 fever arises from an opposite state
 of the system, to that described by
 Brown - & proposed a modified
 antiphlogistic treatment.

Some what similar to the Doctrine
 of Brown are those of a celebrated
 American Physician Dr. Benj. Rush:
 who holds, that debility whether
 induced by the abstraction of Stimuli,
 or the excess of their action, is the
 only predisposing cause of fever.
 The former he terms the debility
 of abstraction; the latter the debility

of action; and he considers these varieties of debility the same, whether brought on by the former or latter causes. For the effect is, an increase or accumulation of excitability, and disease, or irregular action, is the necessary consequence of the action of Stimuli upon the excitability thus generated & accumulated. Therefore the ratio between the excitement and excitability being destroyed the result is, Fever. - When the excitability is redundant and the natural stimuli continue to act, the disease exhibits symptoms indicating too much strength, which are more marked in those parts of the System where the excitability is most abundant, namely in the Bloodvessels; and when it is deficient, the symptoms indicate too little strength and activity in the System, and particularly in that portion of it in which the excitability is comparatively more defective namely in the nervous System. Further, he

maintains, that all the remote or predisposing causes of fever are debilitating, and all the occasional or exciting causes, are stimulating. He believes Reaction to depend upon a convulsive motion of the bloodvessels caused by resistance to stimuli & rejecting altogether the vis medicatrix nature of Cullen, he attributes it altogether to the elastic nature & muscular texture of the Arterial coats, the action he says being "as simply mechanical as motion from any impressions upon other kinds of matter."

At the commencement of the present Century a new doctrine & one essentially differing from that of previous theorists, was promulgated which still has many admirers among Continental Authors, but never gained ground in Great Britain. This is the theory of the non essentialists or Localists who assert that Fever is not a distinct disease but merely a local irritation or inflammation.

a proposition, which if proved correct threatens to overturn all our preconceived notions of fever. This theory seems to have arisen from the pathological investigations which at this time were coming more into fashion, although traces of its birth may be found among the earlier writers.

Thus Jan Salmont places the seat of fever in the duodenum. Sanctorius says that malignant fevers arise from an abscess of the liver or some other viscus. Fernel attributes continued fevers to an affection of the heart, and intermittents of the duodenum & pancreas. Chiriac who wrote in 1694 first mooted the opinion that fever consisted in cerebral inflammation. Baglivi mentions that malignant fevers are the result of inflammation or erysipelas of the intestines. Sydenham defends the doctrine of Chiriac & calls attention to the state

of the brain found on the inspection of a case of malignant fever. And lastly Borden deserves the credit of having first propounded the opinion, that all Fevers have their origin in irritation of a Viscus.

Such were the most important researches on this point when M. Pinel published his celebrated "Nosographie". Although not an advocate of the local origin of fever he is thought to have opened the door for this theory by his classification of continued Fevers which he divides into the Inflammatory the Bilious, the Mucous, Adynamic & the Malignant or ataxic. But each variety he believes, is associated with, & owes to a certain extent owes its peculiar symptoms to a secondary local disturbance. Thus the Inflammatory type he believes with Frank is connected with disorder of the Circulation. He revives the idea of Tissot that Bilious fever is attended with derangement of the Digestive organs. He gives

the name of mucous, to a variety of Gastric Fever which on the Authority of Roderer & Woller he refers to inflammation of the mucous membrane of the intestines. The Adynamic or Nervous variety he considers with Chiac & Syphie to be associated with an affection of the brain & Nervous System. The Ataxic or Typhoid variety he thinks is connected with general depression of the vital powers.

In 1800 Moncquet of Tubingen received the opinions of Chiac & maintained that all Fevers were in reality but inflammation of the cerebral tissue.

This was followed by the work of M. Poot, entitled, "Medicine éclairée par l'observation et l'ouverture du corps" (1804) which contains the following propositions

1st That Inflammatory fever is caused by inflammation of the cellular tissue, and the organs of Respiration.

2^d That Bilious, Gastric, Nervous & Ataxic or Typhoid Fever depend upon inflammation of the mucous Membrane of the intestines with or without secretion or ulceration.

[The text in this section is extremely faint and illegible, appearing as a dense block of scribbled lines.]

* *An Enquiry into the seat and nature
of fever by Henry Clutterbuck, M.D. Sec. Edit. P. 39
London. 1825.*

3^d That the Symptoms are more or less intense, according to the severity of the lesion found after death.

These two works, although they attracted little attention at the time, served as the groundwork of the two famous "non essential" theories of fever, which were the cause of so much controversy at the beginning of this Century.

The first proposed was that of Dr. Flatterbuch who published a work on Fever in 1807. The following is a summary of his theory.

"1st Sympathic fever as it is termed is essentially a local disease; and not primarily a general disease of the system."

"2^d The proper & exclusive seat of it is the Brain."

"3^d It consists in active inflammation of the cerebral substance." *

This doctrine never gained many advocates in its native Country.

and is now almost obsolete. It has been adopted in France by M. Georget, who considers that the febrile state is sometimes idiopathic, & constitutes a primary disease of the brain; at others it is symptomatic, of other disease. But all the febrile states he thinks are affections of the Cerebrum, differing in degree, except the Intermittent, which he thinks are owing to a derangement of the whole nervous system.

The other theory is that of M. Broussais, which attained a far higher degree of celebrity than it, parted on the this side of the Channel; & has entirely revolutionized the practice of medicine in France & other parts of the Continent. In 1808 this famous physician announced that he believed all fevers ^{to be} dependent upon a local affection, & shortly after published his views of fever of which the following propositions

* Broussais. Examen des doctrines médicales
et de systèmes de nosologie. Paris. 1821.

are a summary: - *

1st Fever is nothing more than a result of the primary or sympathetic irritation of the heart which causes an increased frequency of its pulsations.

2nd All irritation sufficiently severe to produce fever is an inflammation.

3^d All the fevers of authors may be resolved into a Gastroenteritis; simple, or complicated, with or without local pain. Fevers have no other proximate cause -

4th Intermittents & Remittents are periodical "Gastroenteritis". But the brain & other viscera are irritated sympathetically as in Continued Fever. Malignant fevers differ from others only by the severity of the inflammatory congestions.

"These Assertions," says Mr. Boonring "are proved by the following facts. All cases of fever act locally by irritating the Gastric mucous membrane, and it is to this point of the organism that the action of the morbid poison tends."

In almost all the fevers there are
 unaccounted symptoms of local irri-
 tation in the Stomach & small intestines.
 The sympathetic symptoms demon-
 strate the presence of gastric irritation
 in all fevers, although indirectly in
 the absence of direct local symptoms.

The Venous & Palaxic symptoms
 are due to irritation. Lastly, there
 are six Organs affected in Fevers,
 & they are injured in a greater or less
 degree according to the severity of the attack.

These are the facts which Mr. Brown
 has brought forward to support his
 dogmas, we think that Assertions
 would have better designated them,
 as there are few of them capable of
 proof. Indeed the Disciples of Mr.
 Brown have always been famed
 for urging their cause *vi et armis*.
 They seem to have adopted the plan
 of Mahomet - "propagate the doctrine
 of Islamism by persuasion - but if

persuasion fail use the sword". They seem also to have taken a leaf from other Churches than that of the prophet. "The end shall justify the means."

But the Arguments & Eloquence of Broussais, did not gain for his doctrines the high position which he destined them to fill. Yet they have exerted great influence over the theories & practice of Modern Continental Physicians. The abandoning the use of purgatives, the substitution of Mucilaginous drinks or "Sisanes". & some of the heroic plans of antiphlogistic treatment as the "Coup sur Coup" of M. Bouillaud were the results of these doctrines.

In Britain they were never viewed with a favourable eye, & introduced at a time when the Hamiltonian system was predominant, under the ^{false} advocacy of the

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eccentric but talented Abenathy;
it had small chance of surviving
long.

The theories of Boissacou, Brotaureau, Nildenbrand, Bouillaud, Bufalini, & other modern continental writers are derived originally from the opinions of Broussais upon which they have engrafted their own peculiar tenets.

M. Boissacou, having adopted the Classification of Puel, introduces into it the Opinions of Broussais. He does not attribute those fevers to "Gastroenteritis" in which the symptoms do not agree with that supposition; but in those cases, he believes that inflammation of the lungs, the bladder, or the uterus, may cause fever, without the stomach participating in the malady to any extent, may frequently symptoms of inflammation

he says, are found in other organs, while the gastro intestinal mucous membrane is healthy.

On more extended pathological observations being made to demonstrate the truth of the Broussaigne doctrine, it was discovered that the seat of the ^{lesions} was not as generally supposed in the Stomach but in the Sigmoid & Cecum & presented themselves in the form of inflammation & ulceration of the Mucosa or Peyer's patches of Glands. This fact was first observed by Roederer & Wagner in an Epidemic that prevailed at Gottingen in 1762 & afterwards by Pitt and Lewis in 1813 at Paris.

But M. Bretonneau of Tours (1826) was the first to draw public attention to this morbid affection, as the seat of fever, & pointed out the exact anatomical character of the lesion.

* Bretonneau terms this fever Dothieria-
teria, not Dothineuteritis as is generally
written in books.

He considers this morbid appearance as the proximate cause of the "Gastroenterite" of Broussais, the Sastine & Pelious fevers of Pouch, & the Typhus mitior & gravior of British Authors. This fever he terms "Dysenteria", from $\delta\delta\omega\gamma$ a puncture & $\epsilon\upsilon\sigma\epsilon\gamma\omega\varsigma$. It was called "Hæmorrhoiditis" by M. Bally.

These investigations have been amply confirmed by the minute researches Messrs Louis & Chomel, ^{which} have fully proved that this lesion of the small intestines is an almost universal concomitant of the prevailing form of Continued Fever in their Country. M. Louis has in his well known work laboured to prove the identity of all the species of Continued fevers of nosology with the Typhoid fever of which he treat. But D. Chretien, & also D. O'Brien, have erroneously asserted, that M. Louis is of opinion that the Typhoid form at least of fever is always owing to

*¹ Christison. *Loc. cit.*

*² Anatomical, pathological, and therapeutic
researches on Typhoid fever. by J. M. Louis
translated by H. Bowditch. 1836.
A second edition of this celebrated work
was published in France in 1841. In it
M. Louis allows that Typhus & Typhoid fever
are not identical.

inflammation of the Glands of the Lacteal
 intestinal mucous membrane,"
 but far from asserting that Typhoid
 fever is always owing to inflamma-
 tion of the intestinal glands in no
 instance does M. Louis suggest or
 maintain such causation. His
 language is that these lesions are
 "inseparable from the existence of the
 affection under consideration, and
 constitute its anatomical character,"

Besides, Louis is inclined to believe
 that the appearance of Peyer's Glands
 is a specific lesion & can scarcely
 be called inflammation. The state-
 ments of Louis have given rise
 to the important question of the
 identity or non identity of Typhus
 & Typhoid fevers which has caused
 so much discussion both in this
 country & in the Continent.

Another theory has been lately
 propounded by a sect of the Locality,

which differs from the Broussaisian doctrines, & has acquired considerable popularity in Germany & Italy.

It seems to have originated with Frank, who thought that inflammation of the arterial blood vessels was the cause of Inflammatory fever. But it was left for Bonilland fully to expound this theory. He states, that fevers are merely symptomatic of putrid or general inflammation of the circulating system, which in its primary state is represented by the typhoid or inflammatory fever, but is frequently complicated with topical inflammations as of the brain, lungs, & intestinal glands, which give rise to the different forms of fever specified by Nosologists. Introduction of putrid substances into the blood is a frequent cause of Typhoid fever according to this author.

#. A treatise on the nature, cause and
treatment of contagious typhus from the
German of J. Val. Hildebrand. by S. Gross M.D.
New York 1829.

Somewhat analogous to those opinions are those entertained by Giacomini the head of Italian Medicine, he regards most diseases as an increase of vital activity generally manifested under the type of inflammation.

He resolves all fevers into Gastric, & Arteritis, and his panacea for all evils is blood letting.

The following are the opinions of Hildenbrand which are current in Germany. * 1st All Fevers are the result of absolute or relative irritation & consequently are at their commencement irritative. 2nd That the reaction of fever never follows mere debility although attended by it, but this debility is merely secondary and the effect of morbid irritation.

The Doctrines of the Localists never gained ground in British Soil, all the eminent British Authors with the exception of Dr Hutton's, being advocates of the essential nature of

fevers. The nature of the prevalent form of continued fever in this country, has, we think, had much influence over the opinions of our writers.

The extreme debility, frequent absence of local pain, & the general prostration of the system, both mentally, & bodily, which are constant occurrences in the early stages of our Febrile Symples, can scarcely be referred to inflammation, either acute or chronic.

How can we reconcile, the black tongue, the raging delirium, the swollen & congested countenance, & the ferret eyes with the symptoms of a "Castro enteritis." And again when we see a case with jaundiced skin, constant vomiting, pain & tenderness of the abdomen, Tongue like a beef steak, & mental faculties clear.

Can we be expected to recognize a case of inflammation of the brain. It was generally believed since the time of Cullen that the first of four

† Copland on Morbid Sympathies
Edinburghian lectures. 1846.

impression of the morbid process of fever
 was made upon the nervous system;
 but since the recent discoveries in
 the Chemistry & Pathology of the
 Animal fluids, it has been suggested
 that the blood is affected primarily
 in fever - And this opinion has
 acquired great popularity from the
 researches of Magendie, Barry and
 Blake, the doctrines of Humoralism
 are therefore again in the ascendant.
 They are supported by the Author
 of the "Dictionary of Medicine" for in
 speaking of Morbid sympathies
 Dr Copland says; "When the morbid
 affections of the Nervous system were
 so much insisted on by Cullen &
 Hoffman the humoral pathology
 became obscure; but close observation
 and less addiction to theory have
 shown that the circulating fluids are
 readily & early disordered in the course
 of disease and being thus disordered"

*¹ Bartlett's treatise on fevers. Third. Edit. 1852
p. 165.

*² Pathological Observations, part II, on
Continued Fever. Page. 73-4. Dublin 1829.

*³ Treatise on Adynamic Fever.

"They become the source of a more general malady - of disease not limited to particular organs, but extending over the whole economy." They seem also to be the opinions of the well known American author Dr Bartlett.* Dr Stoker & Dr Burne were among the first to revive the ancient opinions.

Dr Stoker* considers, that typhus fever is connected with Morbid changes, that take place primarily in the blood and produce morbid actions and sometimes permanent changes of structure in different parts. He notices the differences observed in inflammatory & febrile blood & refers the one to increased action the other to debility.

Dr Burne* states that Dynamic fever has no local seat that its nature is a morbid condition of the blood produced by the operation of the primary cause and that this morbid blood acts on the brain & Nervous system & gives rise to the numerous symptoms of

#1 Lecture upon Typhus fever. P. 12.

#2 Dr Stevens On the properties of the blood.
1832.

"functional derangement present in continued fever."

Dr Reid Clanny, who wrote at the same time, attributes fever to "an inability of the system to form blood;" & its proximate cause he believes "is a cessation of Chylification, or sanguification, during which time the Symplicates of the whole system act with increased vigour, & in this manner supply for the time, the place of the Chyle in the blood."

Another interest was created on this subject by the investigations of Dr Stevens, who holds that all "essential fevers are produced by a diseased state of the circulating current, and that the tropical fevers are caused by a deficiency of the saline ingredients of the blood." But the present state of our knowledge does not lead us to

* See Dr Wardell on the Epidemic
Relapsing Fever of 1843-4.
Lond. Med Gazette. 1847

place implicit faith on the statements of Dr Stevens, when not supported by actual experiment. The blood in Typhus, according to Dr Christison, does not present at the outset of the disease any marked change and during its progress the saline ingredients are not diminished out of proportion to the other constituents. Dr Hughes Bennett* examined the blood in a hundred cases of typhus in different stages of the disease & under various complications, but he did not find any structural alterations in the globules, & could arrive at no satisfactory conclusions, as to whether the blood was primarily diseased in Fever - Now if fever did affect the vital fluid in its first stage, we would expect to find some decisive alteration in its constitution, to account for the variety & severity of the symptoms which occur at the outset of the disease.

We will now conclude our brief History of fever with a quotation from one of the most recent, and most able writers on Fever, - Dr Christison, which will show the opinions regarding the nature of fever, at present entertained by the Majority of the profession in this country. He says "It seems a reasonable doctrine that the primary disturbance of the nervous system acts first on the Capillaries or extreme vessels of the Surface, as well as throughout the internal organs, and produces not Spasm, as was imagined by Cullen & Hoffman, but rather, according to modern views of the state of capillaries in inflammation, a state of Atony relaxation & distension, & consequently obstruction to the passage of ^{circulation} blood; that the disturbed state of the is an effort excited by the stimulus of this obstruction for accomplishing its own removal; and that the disturbance of the function of circulation is variously"

"modified by constant coexistence & direct influence of the disturbance of the nervous Functions."

II The nature & Definition of Fever.

"Felix qui potuit rerum cognoscere causas."

Having concluded our sketch of the opinions regarding the proximate causes of fever we must now consider what answer we have to give to the question, what is fever? Fever is nothing but debility teaches one school; fever is nothing but inflammation inculcates another; fever is a morbid state of the brain says one theorist; fever is a morbid state of the intestines says another. Some have selected one organ and others another for the throne of this mysterious disease and some have given fever a roving commission or "passe partout" to establish its headquarters wherever it may find the fairest reception among the viscera of the body.

This diversity of opinion can be easily accounted for, when we are

reminded of the immense number of
 varieties of fever, which constantly
 present themselves for their diagnosis;
 and also when we consider, that in
 each succeeding epidemic, these varie-
 ties are liable to assume different
 forms & appearances, and to attack
 different organs of the human
 body. This has been the true cause
 of the cloud of mystery which has
 hung over the subject of fever for
 the last three thousand years;
 of the clashing, discordant, and widely
 theories which have been broached regard-
 ing its nature, and the diametrically
 opposite modes of practice, which
 have been advocated by the most
 renowned Physicians of the ages
 in which they lived. Nay, the
 difficulties, not to say the dangers
 of applying the doctrines which have
 been engendered in the closet, to diseases
 occurring in the Chambers of the sick,

* "Here practical men & symptomatic treaters
err by not anticipating the changes in the
train of events which we know from previous
observation are liable to follow, whilst the
unpracticed theorist is too often disappointed
by his hypothetical notions being refuted
by demonstrative facts."

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along with other circumstances, have led practitioners of the present day to despair of ever arriving at a knowledge of the true nature of fever, and have resulted in each one treating fevers as a group of symptoms, without any just reference to their origin and distinction; using those remedies which from personal experience, or analogy, they have found best fitted for their subjugation. It is true, that we have seen from our sketch that we cannot expect any important and sudden discovery, either in the theory or treatment of that disease, even by the most fitted individual; for every possible source of origin has been examined with care, & every variety of treatment, displayed, without effect. Each variety of fever presents phenomena so opposite, depending on

so many different pathological conditions, that no two diseases in any two parts of the nosological catalogue present a more diversified appearance, or require a more varied treatment, than may be the case in two different types of fever. Yet under every diversity of aspect, this disease presents certain characters, variously arranged & combined, which are invariably present in every type & form, & serve to mark the case as one of fever.

In these common symptoms it will be said, must consist the essence of fever. Yet there is no one symptom or combination of symptoms which invariably occurs in fever. Boerhaave endeavoured to discover the Pathognomonic symptoms of fever. He reduced them to three, viz. shivering, heat & a frequent pulse; but even these are not invariably

On Fever. D 16. 2nd Am. Ed. 1823.

versally present in every case of fever.

We must therefore come to the conclusion that fever must be regarded, not as an entity, or distinct disease, whose nature, seat, & symptoms, can be comprehended within the limits of a definition, but rather as a disease which, not only attacks different organs, but also different sets of organs, - or divisions of the Organic System, - at the same time, or in immediate succession. No further, fever affects almost every organ & tissue in the body. It is well described in the words of Fordyce: "Fever is a disease which affects the whole system; it affects the head, trunk, & extremities; it affects the circulation, absorption, and the nervous system; it affects the body, & it affects the mind: it is therefore a disease of the whole system, in the fullest sense of the term. It does not

* A Treatise on fever, by Southwood Smith M.D.
P. 50. London. 1830.

"however affect the various parts of the system uniformly and equally, but on the contrary sometimes one part is more affected than another."

Such is a true portrait of fever, showing that in this malady, all the functions, vital, animal, & natural, are disordered, in every case: however much they may differ from one another in manner, duration, appearance & danger. It is therefore a disease of the whole body & this is the universal character that distinguishes fever from other diseases. These symptoms of disorder of the system occur in succession & variously combined & arranged, according as they constitute this or that different type of fever. According to Dr Southwood Smith, the affections of the different divisions of the system occur in

the following regular succession. The nervous system is first affected, then the vascular & lastly the secretory & excretory systems; and there constitute the febrile circle. But we think that an accurate examination of the symptoms will show that derangement of the secretory & excretory systems is contemporaneous, or nearly so, with the disorder of the nervous system, and that the last set of symptoms is the disorder of the vascular system; not that the circulation is altogether totally unaffected at the commencement of fever, but that there are no visible signs of any proportionate derangement. We agree with Do. Copland, that the ganglionic system of nerves is first affected, & then through sympathy the cerebro spinal

That in different varieties & types of fever, the lesion of either system may differ in degree or in kind, we do not deny; but in every case we do think, the succession of the affecting is unbroken. Thus we see in our system the Cerebrospinal system is early & severely affected, while in the other varieties of continued fever the Organic nerves are more generally & more severely injured in their functions.

Fever then, may be defined, as the action of a morbid poison on the body, which produces great depression of the nervous system; first in the organic and then in the Spinal nerves; the result of which is immediate derangement of the secreting & excreting functions and is followed by more or less violent action of the vascular system, terminating one of three ways. 1st It may subside spontaneously leaving the patient much debilitated. 2nd It may cause death

by asthenia, in consequence of the obstruction of the principal functions viz. Circulation & Respiration. 3^d by stirring up serious disease in some vital organ, either from the severity of the attack, or the exhausted state of the patient, it may prove fatal.

Before proceeding to give an analysis of the general symptoms of fever in detail, it will be necessary, first to point out the distinction between fever & inflammation, as it involves the disputed point of the essentiality of fevers.

We believe that Fever differs from inflammation for the following reasons:-

I. From the differences in the remote Causes & General Characters.

1st Fevers are known to be propagated by the action of a morbid poison, & are generally allowed to be propagated by contagion. While Inflammations are the result of more temporary agency & are never propagated by this means.

2nd The Epidemic constitution is peculiar to idiopathic fevers as they are frequently absent (wholly) for a length of time even from large communities & when present they are so prevalent that their origin cannot be traced to any local cause.

3^d Idiopathic fevers, when left to themselves, have always a tendency to a spontaneous local favourable termination on particular days, which cannot be maintained of inflammation.

4th The periodicity of Marsh fevers cannot be reconciled with the fact of inflammatory origin.

II From the differences of the general symptoms.

1st The symptoms of disorder in the nervous system are not present at the commencement of ordinary inflammation, to any proportionable extent. The appearances of debility & prostration both of body & mind, which manifest themselves at the outset of fever are not met with in inflammation. The delirium is not

of a similar character nor does it last so long in inflammation (even of the brain) as in the typhoid forms of fever.

2nd In inflammation, the circulating system is always affected first, & most severely. In fever it is not. In fever the pulse is ^{not so} strong & is more easily compressible than in inflammation.

3rd The Functions of the Secreting and excreting systems are not deranged so early, nor to the same extent in inflammation, as in fever.

III From the Local Symptoms & Pathological appearances.

1st Frequently, both the symptoms and post-mortem appearances of topical inflammation are absent in cases of fever - And in many instances no apparent lesion can be found to account for death.

2nd When these symptoms do present themselves they are generally of secondary occurrence, & can be

referred to causes independent of the fever.

3^d These symptoms are frequently subdued without any amelioration of the general febrile phenomena; and on the contrary the local inflammation may continue while the fever is abated.

4th Even when the post-mortem appearances of local inflammation are present they are often inadequate to account for the fatal termination.

5th The pathological conditions of the blood in fever do not correspond with its well known inflammatory characters. It is neither cupped nor buffed (Andral); The quantity of fibrin and red particles is diminished, and increased; and it does not coagulate firmly.

6th Lastly. In fever the local inflammation is not confined to any particular organ but is found in almost every tissue of the body according to the variety & type of fever.

It is too hard a tax on our faith, to believe with the non-essentialist, when the appearances of inflammation are present, but not in their favourite organ, - that they are merely symptomatic of the inflammation which although not visible to the eye does still exist in their supposed seat of fever. We can only say "de non existentibus et non apparentibus, eadem est ratio."

We will now give an analysis of the symptoms of fever which will give us an opportunity of discussing the question whether the poison of fever produces its first impression on the nervous system or the blood.

We will divide these symptoms into three stages. First the period of nervous depression; the incipient stage. Second the period of vascular reaction. Thirdly, the period of crisis & decline.

The first stage may be subdivided into two periods, viz the latent stage,

or period of incubation, & the incipient stage or period of invasion.

The stage of Incubation may be described as that variable period of time which exists between the application of the febrile poison and the appearance of the rigor. It differs in intensity & duration according to the condition of the body, & the nature & concentration of the poison. It may last only for a few hours or may be prolonged for several weeks. During this time the body is not in a state of perfect health. In some cases the deviations from the normal condition are scarcely perceptible. In others it is more obvious which in a third set of cases namely in the fevers of tropical climates, the most alarming & formidable symptoms frequently arise. The symptoms usually manifested in this stage are, - Loss of tone & vigor in the whole system, more particularly in the digestion, disturbed sleep, impairment of the digestion,

continued of the bowels, uneasy dreams,
 painful forebodings, depression of
 spirits, and an indescribable feeling
 of lassitude. Frequently even these
 symptoms are latent; & nothing
 can be more obscure than the
 determination of this Stage.

In the period of Invasion
 the symptoms are manifested more
 distinctly. It is characterized by a
 sense of alteration of temperature
 the patient complains of a feeling
 of coldness or chilliness in the back
 & limbs, which is sometimes attended
 with actual reduction of temperature,
 the skin being pale & cold & the features
 having a pinched or shrunken expression.
 At others, the thermometer does not
 detect any reduction of the natural
 heat & the feeling of cold is internal
 it generally terminates in a rigor with
 followed by slight flushing.
 There is a loss of mental & corporeal
 energy, the former is evidenced by
 slight confusion of the Ideas,

deprivation of the special senses, vertigo & headache; the latter by the general languor & lassitude, & the loss of power over the muscles. The debility & prostration of strength is sometimes so great even in this early stage that the patient cannot stand or even sit.

The secretory & excretory systems are much disordered. The perspiration is arrested, the membrane of the mouth is dry & clammy, the tongue turned & dry. The respirations are accelerated, but are short, feeble, and interrupted by sighing. The appetites are entirely gone. The bowels continue constipated. The circulating system begins at the end of this stage to become affected.

At first the pulse is invariably weaker than in its natural condition; sometimes its frequency is not affected, generally it is more languid than in health, but towards the end of this period its activity is increased.

The restlessness, want of sleep, unpleasant dreams, & feeling of malaise continues.

The voice is scanty, pale, & hoarse.

Such then are the symptoms of the incipient stage of fever. Let us enquire upon what these symptoms are dependent. Are they the symptoms of fever inflammation? Or do they indicate a primary affection of the blood? Certainly not. The first dawnings of Idopathic fever as it etals on almost imperceptibly, offers convincing proof that the Brain & nervous system is affected by something that depresses the natural energy & impairs the functions depending upon them. The poison we conceive, paralyzes the nervous system, gives it a shock, in the same manner as the shock arising from a local injury of the body. The shock in some cases is so severe, arising from the intensity of the poison, and the debilitated state of the constitution, that a few hours,

#1 On the origin & Latent period of Fever
Dublin Hospital Reports Vol IV

#2 Some of the recent experiments of Blake
have proved that the circulation is per-
formed in a very short period of time
See Edin. Med & Surg Jour. 1841

elapse, between exposure & dissolution.

Even in this country the symptoms of fever frequently present themselves almost instantaneously after exposure to the malaric influence, especially where the constitution is debilitated.

Dr Marsh, Gerhard, & others have related several cases in which headache, nausea, & other pyrexia-tory febrile symptoms appeared immediately on the individual entering the room or approaching the couch of a fever patient.

This latter fact militates strongly against the opinion that fever arises primarily from a disease of the blood. For although the poison may be absorbed into the blood in a few minutes, Can we suppose, that the whole amount of the vital fluid could become vitiated in such a short time, & to so great an extent, as to produce symptoms similar to those described by Dr Marsh?

Generally however in this country, the shock comes on more gradually, for from better attention being paid to cleanliness & proper ventilation, the poison of fever does not become so concentrated, & consequently does not act so powerfully or so suddenly. This has been regarded by the believers in the humoral pathology as favourable to their own opinions, but we may remark that the poison of the fever when dormant is not in sufficient power to overcome the normal action until aided by a fresh impression, or developed by Cold, Fatigue, or some other accidental exciting cause. The poison of fever is also cumulative, & when it once enters the system, seems to be conveyed to every tissue in the body, & seems to be generated & developed through some unknown agency. Were the blood the first habitation of fever.

we should expect it would be the
 first to exhibit some morbid change;
 but the blood exhibits no physical
 or chemical symptom of disease
 until after the nervous symptoms
 have appeared. It coagulates as
 rapidly & separates as freely into
 serum & crassamentum before
 this period, as during health; it
 appears neither softened or dissolved;
 neither changed in colour, nor altered
 in proportion. All the alterations
 gradually appear as the nervous
 symptoms are developed, increase
 with their confirmation, and vanish
 with their removal. The various
 signs also, which we will find
 hereafter to be auxiliary in the de-
 velopment of fever. Such as cold
 muscular irritation, & intoxicating
 liquors act chiefly on the nervous
 system. The phenomena exhibited

by the periodic fevers, are adverse to the opinions of the Humoralists. We know that morbid impressions, or irritations, or other morbid condition, affecting nervous part usually assume the periodic character.

If it were the blood which is affected in these cases we might infer that that state of the blood which existed during the paroxysm, would most likely continued without intermission until removed: & that instead of an interval where comparatively little disorder is felt, the disease would be continued; for we observe that in proportion as the blood becomes affected in fever, so does the disease assume a more & more continued type.

In the Ephemeral & putrid fevers not only is the nervous system early affected, but the blood itself soon becomes more or less disordered

- becomes physically changed. But we know that the vascular system is copiously supplied with the organic or ganglionic nerves; and hence we may expect a priori, that causes affecting this system will to a considerable extent affect the vascular system, & the fluids in the vessels.

But there is a still stronger reason to believe that the morbid impression extends through the organic nervous system, impairing its influence and depressing its vital energy, which will enable us to account for the changes that take place in the blood.

We have supposed that the poison paralyzes the functions of the organic nerves. It will naturally follow therefore, that the functions of those organs which depend upon the organic ganglionic system for their activity, will be impaired. For the vital instability of the system being lowered the functions of the

different organs are not carried on with the same vigour & tone, which explains the various symptoms of the incipient stage we have described. The functions of nutrition & secretion are the first disordered, as observed in the impairment of digestion & appetite & the constiveness of the bowels. The appearances of cerebral disturbance in the latter periods are dependent upon or sympathetic of the digestive derangement; in the same manner as the slight headache and feverishness which follow a fit of indigestion are attributable to an atonic state of the stomach, & which is removed by a fresh application of the accustomed stimulus to its surface.

As the functions of nutrition are dependent for their ^{supply of} energy almost wholly upon the digestive system it is reasonable to suppose

That that system is the first affected.

These all important Operations are more or less interrupted according to the severity of the case. Were the shock to the supplying nerves so sudden, & so violent, as wholly to arrest these functions the result would be a speedy suspension of the vital powers; in the same manner as a blow on the stomach causes instant death. And it is the severity & suddenness of the shock which in the Tropical fevers proves so fatal in such a short period. In more temperate climates the functions are only impaired to a great or less extent. But the effects will soon be very manifest for from their numerous sympathetic connections. It is obvious that the functions of secretion, secretion, & Respiration will soon become disordered, and the results will be shewed;

There will be first:-

1st Imperfect chymification & digestion owing to the impaired state of the digestive function; the chyle either being imperfectly elaborated, or of so unwholesome a constitution as to affect the organs through which it circulates, & afterwards to contaminate the blood.

2nd The absorption of the morbid secretions or excretions from the digestive canal, or Parenchymatous organs; these matters inflaming the blood vessels & glands, & contaminate the blood.

3^d Suppression, interruption, or diminution of the eliminating or depurating functions, - by which effete materials are removed from the blood, - will alter the state of the blood, changing the healthy relations existing between it and the blood-heart, & vascular system generally, disordering the other excreting organs, and causing general vascular disturbance.

The corporeal strength will

become much debilitated not only from the shock of the nervous system but also from the effect of the impaired nutrition already described.

These symptoms of nervous depression last for a variable length of time; when they are of longer duration, it shows that the poison is full, & takes a longer time to disorganize the functions, & consequently the fever is of a milder character; when the nervous systems are short but severe, it shows that the poison is concentrated, & the system is sooner subjugated, the form of fever being therefore severe. This has been found true by the instances recorded by Dr. Marsh for in all his cases in which the symptoms were developed early, they were proportionably severe. In these cases the symptoms of Electro-Spinal disturbance occur earlier in the disease probably from sympathy with the derangement of the Organic nerves or from the effect of the absent

secretions or uneliminated secretions upon these nerves.

This stage then may last for a few hours only, or for several days according to the time taken by the poison to overcome the organic powers. When that is affected the scene gradually changes, the symptoms are reversed, & the second stage, or

Period of Excitement or Reaction is established. It has also been subdivided into 2 heads, viz that of Incremental, & Stationary reaction.

The stage of incremental reaction is manifested by excitement of the circulation. The pulse becomes full, strong, & accelerated, the sensation of cold & the rigors disappear, the skin becomes heated, and the countenance flushed. The sensations of pain in the head, back, & limbs, become more acute. There is a feeling of weight & fullness of the head. The confusion of the ideas & vertigo are more manifest, & soon terminate in delirium, & total uncon-

sciousness

consciousness. The restlessness & sleepless-
ness still continue. The throat
becomes more inflamed, mouth dry &
 parched & loaded with brownish
foam. The Appetite, are wholly abolished.
The respirations are accelerated, full,
& laborious; the breath is hot, & the
pulmonary circulation is to a certain
extent restored. There is a sense of
oppression, & frequently tenderness
of the epigastric & over the Splenic
& hepatic regions - In some varieties
of fever the skin is tender over
the whole body.

The secretions & excretions continue
suppressed. The Urine is scanty, clear, and
high coloured. The secretions of the
Utric & Ductular canal remain
vitiated as evinced by the Colour and
fætor of the Evacuations, which are
generally procured by medicine altho
in some fevers there is spontaneous
diarrhoea.

This stage may last for a
few hours as in the Intermittent, or

for several days as in the continued
 fever. It is followed by the period termed
 The stage of Coection or Stationary reaction,
 consisting of a continuation of the above
 symptoms with marks of their
 debilitating effects on the system.
 The cerebral symptoms if previously
 of an active character, now become
 marked by exhaustion. There is
 total unconsciousness & the delirium
 is of a low muttering character.
 The Muscular system is completely
 exhausted, the patient cannot
 make any exertion, & the sphincters
 are relaxed both stool & urine being
 passed involuntarily. There is
 a nervous twitching of the tendons the
 subsultus tendinum. The skin
 previously hot & burning at the
 end of this stage becomes cold &
 clammy, & is frequently the seat
 of petechia, vesicles, or Ecthyma-
 tous eruptions. The countenance is
 pale, heavy, & collapsed or dull
 livid, & congested, the eyes are suf-
 fused & the conjunctivae are in-

-jected. The respiration is more laboured as if there were some obstacle to overcome. The powers of the Circulation become exhausted, & the blood stagnates in the capillaries from sheer want of power in the heart. Its action previously loud double & strong, now become slow feble, & fluttering, & last of all of the sound becomes distinct. The pulse is also feble & thready:

But these symptoms are variously modified according to the nature of the complication attendant upon each variety & type. Also in the periodic fevers there are exacerbations & remissions of these symptoms while in the continued varieties, these are not so well marked.

These symptoms may terminate in death or in a favourable crisis.

In the former, the case the appearances described become aggravated. the breathing becomes stertorous, the countenance livid, the tongue & teeth covered with black sores,

the eyes staring, the extremities cold,
 the pulse & heart sounds almost
 imperceptible, & the fatal termina-
 tion speedily ensues. Which arises
 from asthenia or general debility, or
 want of strength in all the organs.
 But the immediate cause of death
 in a majority of cases is asphyxia,
 from congestion of the lungs, caused
 by want of power in the heart
 to propel the blood through them.
 Death frequently occurs at an earlier
 or later period of the disease from the
 presence of local inflammations;
 these symptoms being frequently of
 sufficient severity to account for
 the fatal issue. Lastly, the patient
 may die of *Stupor*, from the effects
 of the disorganized blood on the brain
 causing thereby fatal Coma.

When the case terminates favour-
 ably, we have, after the stage of stationary

reaction, the Crisis or Decline. By the term crisis, we mean a spontaneous favourable termination which occurs generally in certain fixed days. It is manifested by abatement in frequency of the pulse, copious diaphoresis, return of intelligence - frequently gradual, though obvious, reappearance of sleep, & restoration of the secretive & excretory functions. The Tongue becomes moist at the edges, & begins to clear, the natural heat is restored, & the appetite is again vigorous. - The symptoms of debility gradually wear away & the patient is soon restored to health unless some unhappy complication retards the recovery.

The cause, of the symptoms of reaction which we have just described has long perplexed the mind, of Writers on Fever. It has been ascribed to the vis medicatrix naturae by the Solidists, & to the vital energy of the blood by the Humoralists;

but we think it can easily and rationally be accounted for, by the deductions we have already made. If, as we have endeavoured to prove, the chyle is malassimilated & the depurating functions are rendered unfit for duty, it is evident, that the blood must become diseased, from the presence of noxious & injurious elements; & the diseased current circulating through the system acts as an irritant upon the heart & great vessels & gives rise to the symptoms we have just described.

The mere atony of the stomach after a state of intoxication is sufficient to occasion slight febrile reaction from the temporary arrest of the digestive functions. Thus also the reaction occurs after a severe burn, a removal of a portion of the body, the long continuance, & sudden omission of drastic purgatives. The shock to the nervous system interfering with & partially

affecting the nutritive functions, & these, by exciting irritation in the sanguiferous system.

Although we have stated that fever is a general disease of the system in which every organ & function is injured to a certain extent, some of them are in most cases more affected than others; or in other words in fever there is a determination to a particular organ, or set of organs which seems to bear the brunt of the attack. This is not to be marvelled at when we consider the severe trial which every organ has to sustain in a case of fever. For we can easily perceive, that if any organ, or set of organs have a predisposition to disease or are weaker than others, from constitution, previous disorder, or accidental circumstances, these are the most severely injured & ^{the} in which the marks of local disorganization are more visible. But in those cases in which the

the organs are all alike healthy, when the balance of the Constitution is equal, & when the Epidemic Character does not interfere, we may expect that a pure fever - a synocha as it has been termed - will be the result. The development of these affections is also aided by various external circumstances, as Cold, mental affections, modes of treatment &c. The seat of these complications is generally in the, brain, Spinal Cord, Lungs, Liver, Stomach, & Bowels.

The central affections are more common among the higher Classes of Society, who are more accustomed to exercise their mental faculties & the delirium is more violent according to the development of the intellectual powers.

Pulmonary symptoms are more prevalent among the poor who are most exposed to Cold & Wet. Also in large towns: they are more common, on account of the humidity of the atmosphere.

Those who have been the subjects of previous pectoral inflammations are very liable to renewal of their attacks. The Gastric and hepatic symptoms are met with among both classes of society, for owing to intemperance, & high living they are common among the wealthy, while from intemperance & starvation they prevail among the poor.

The Intestinal complications are found to the greatest extent among the ill clothed & the ill nourished although both the climate, & the epidemic constitution, & the habits of the individual possess great effect in modifying the intestinal affections. Thus in France, the Continent & United States, these complications ^{are} almost never absent - while in Great Britain, they are of rare occurrence. The kind of food both meat & drink in those countries may serve to produce this

affection. As to the Anatomical Characters of these Complications they vary greatly between Congestion and inflammation; in many cases merely arising from inability of the blood to force its way through the Organs; in others there is actual inflammation & even ulceration as in the dothienteric Fever. Although, this last according to Louis is scarcely a symptom of inflammation, but a specific disease, - whether dependent upon an arrest of their own peculiar functions, or pressure of the unhealthy bile & feces, has not yet been determined.

When the poison of fever is present in the atmosphere we may suppose that it enters the system by inhalation & absorption into the blood. It is possible therefore that the malarial effluvia may cause some alteration in the blood

* This fact was ascertained by the investigations of Dr Perry. see
Dub. Med. Journ. Vol. 5

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although we have seen that the
Symptoms do not arise from that
source. When once introduced into
the System it remains there for
a certain time during which the
poison seems to become multiplied
& to pervade & permeate the whole
body - & to affect the disorganization
of the textures. In Typhus about
the 9th day the Poison begins to
leave the System* & it is then
that Contagion, infection, or
communicability, commences, &
persons may become affected
with the disease, if coming in
contact with patients after that
time, & until Convalescence is
fully established. The poison
seems to be exhaled through the
lungs, the Skin, & the urine &
feces. Persons have been attacked
with fever from the breath, the
preparation infecting the Cloths,

& the fetor arising from the evacuations of the patient.

There are various forms of Fever. They have been generally divided into the Continued, the Periodic, & the Eranthematous varieties.

The Continued fevers comprehend those in which the attack continues without any marked intermission until its termination & is not in general subject to return.

The Periodic fevers consist of those in which there are regular intermissions & remissions of the febrile paroxysm & are generally attributed to the influence of vegetable miasmata.

The last class or Eranthematous fevers are characterized by the existence of a peculiar eruption on the skin, a specific contagious origin, & are not subject to return.

Of continued fevers all the type generally prevalent in Great Britain a consideration of its Varieties, Causes, & Progress

and treatment will form the subject of our concluding remarks.

III. On Continued Fevers.

"Artem experientia facit, exemplo monstranda morum." - *Mauritius.*

The Remote Causes of continued fevers were divided by the ancients into the *Ladentia* & *Juvantia*, the acting & the predisposing. The former include vegetable miasmata, Atmospheric influences and Human or animal contagion. The latter consist in those causes which predispose to or aid in the development of the febrile symptoms. Boerhaave has divided this class into five heads. - 1st Acid ingesta, or matters taken into the stomach which are indigestible & consequently irritant, or possess irritant properties inherent in themselves, as unwholesome or acedent food, drink. See 2nd Partuta, or things retained in the body, which ought to be expelled.

impelled as, food, medicines, poisons, &c.
 The natural excretions or secretions.

3^d The Causes. Inactive or defective activity of the Mental & Cord, Passions, &c. Thus the presence of the Active or the depressing passions, as Fear, Joy, Grief, Anger &c. Or too violent exercise of the bodily powers as Muscular exertions fatigue. 4th 4th Applicata, or things applied to the body externally, as cold, wet, acid, pungent or inflamm. material substances. 5th 5th Things producing alteration in the nutritive & secretory systems, as Famine, Evacuations of any kind, - Except mental, or bodily. All these predisposing causes or exciting causes, are of a debilitating nature & therefore, have a tendency to weaken the powers of digestion & secretion & therefore must assist the febrile person in overcoming the Organic poison. It is probable that the ^{fever} depend varieties of continued are depend to a great extent on the presence or absence of these.

predisposing causes, for their develop-
 ment, & difference of symptoms.
 The fevers developed without their
 agency, are we believe of a typhoid
 or plethoral character, while
 those which depend upon them for
 their ~~own~~ existence, are of a milder
 type shorter, ^{duration} & have greater tendency
 to relapses. -

The latent or active remote
 causes have been variously arranged
 & classified. Some have argued that
 the cause of all the varieties of con-
 tinued fever is identical, & consists of
 a specific poison, and therefore that
 the only real difference in fevers
 of the Continued form is in the
 degree of intensity of their symp-
 toms. But this doctrine appears
 untenable when we reflect that
 many fevers run a mild course through-
 out the period of the Epidemic Predom-
 inance, with scarcely any tendency to
 metastatic inflammatory complications.

while in another visitation the type
 is more malignant & the local affections
 common. If fevers proceeded from
 one poison, the dissimilarity of types,
 the difference in symptoms & patholo-
 gical phenomena, could not be satis-
 factorily accounted for when we
 come to examine the particular
 varieties of continued fever, we will
 find that the causes which produce
 one form never, under any circum-
 stances are known to induce the
 other. This assertion is corroborated
 by the fact well known fact that
 when one epidemic prevails, the other
 forms of fever decline or are absent
 as if it were a law amongst infectious
 diseases that only one should occupy
 the field at the time. Thus when
 small pox, scarletina, or measles prevail
 epidemically, the cases of typhus decline
 and vice versa. So it was remarked
 that when the Epidemic relapsing
 fever prevailed in Scotland in 1843-44
 & 46-8, it was remarked that the

Cases of Typhus, Variola & other epidemic diseases became comparatively rare in the ward of the Glasgow & Edinburgh Hospitals; & when it declined the Cases of Typhus &c again were more numerous.

We are therefore inclined to agree with those who hold that the varieties of continued fever are produced by different specific poisons. Our knowledge upon this point is very obscure; how many varieties there may be of their poisons & in what characters they differ, has never been ascertained, as the utmost indu-
-ous of Analytical Chemistry have failed in discovering their nature or even their existence. They have generally been divided into three heads

- I Animal or contagious poison.
- II Malaria or Marsh Miasmata.
- III Atmospheric influences.

There is an opinion which

is almost universal among practitioners, -
 at least in this part of the country, -
 and which we will take for granted,
 viz, that the British spotted Typhus
 is propagated by contagion, & generally
 from that alone; - and that this con-
 sists in an exhalation from ^{the} human body,
 or in other words an animal poison,
 which may arise spontaneously,
 from the crowding together of human
 beings within a small space, where
 there is no proper ventilation;
 But in almost every case its origin
 & propagation may be traced to con-
 tact with some individual similarly
 affected.

The following seem to be the best
 authenticated characters of this Ani-
 mal poison.

1st When the poison is concentrated,
 that is when the exhalations proceed
 off by the body of a patient are
 confined within small compass,

* This is proved by the Statistics published by Dr Davidson in the Thackeray Prize Essay for 1842. And we have noticed the same fact in the Glasgow Fever Hospital in the years 1851-2.

undiluted with fresh current of air, it is of a very virulent character, and may attack any one exposed to its immediate influence in a few minutes, as pointed out by Marsh, Lehar, & others.

2nd It seems to be rendered innocuous by dilution.

3rd It appears to affect the cerebrospinal system earlier, & more severely, than in other fevers. The symptoms of visceral derangement are not so manifest. But the powers of motion are more debilitated, from the paralysis of the spinal nerves.

4th It does not as easily generally supposed attack the debilitated & Pinfirm rather than those in good health. It is therefore not so much under the control of the predisposing causes.

5th The fevers produced by this poison are not subject to any inter-

insidious in the symptoms. They are
one the most Continued, of the continued
fevers. They belong to the Continued
of Calcutta. These fevers also are
not liable to attack any one twice.

6th That the Locality of the fevers of
this type is very limited. They are
confined chiefly to large towns where
there is a crowded population &
locate themselves among the poorest &
wretches, of the inhabitants, & want of proper
habitations favour the spread of
of the poison without its being
much diluted. It is very probable
that proper attendance to ventilation
& cleanliness would entirely put a
stop to this form of fever.

We believe that the maeulated
or spotted Typhus is the only fever
in this country arising from the
variety of morbid poison we have
described. The Plague, & perhaps
the Yellow fever of warmer latitudes;

are attributable to this mode of origin.

With regard to the sources of the other forms of continued fever, much discrepancy of opinion has always prevailed, We think they can all with safety be referred to the two latter heads, Atmospheric influence & miasma. Whether only one of these agencies is at work, or both, in inducing these varieties or whether one variety is caused by the influence of one Agent & the other by the other, we are unable fully to determine. It is probable that these two causes operate in combination, and according as there is a larger admixture of one or the other of these causes, so the variety of fever will be altered in its symptoms - We know that that fever arising from malarial are subject to intermission of the

of the paroxysms, therefore it seems reasonable that if there is a large dose of the malarious poison, the fever would have a ^{rapid} tendency to elapse, while if the other element prevailed, we would expect the attack to be more of a continued character. They seem to be the connecting link between the periodical fevers & those generated by human contagion. In nature, the combined poison seems less intense than that engendered by animal contagion; and it requires to a greater extent the aid of the predisposing causes, as cold, fatigue, or want in order to its development.

This is proved by the appearance of what we may term, the Atmospheric Fevers, in times, when famine, & similar public distresses, are rife. Although not generally propagated by contagion from exhalation from the body, it may possibly become contagious in cases

where the prison is intense from concentration, & where the body is long exposed to its influence, - as in epidemics of its various forms, when for the above reasons it may be propagated by contagion.

We believe that the Dothinenteria of Bretonneau, The Relapsing fever of 1843 & 1844, The Synocha Hymochia of Cullen, the Bilious, Gastric, and Mucous fevers of Puel, and the Epidemic influenzas, belong to the tribe of Atmospheric Fevers - The following characters point out the difference between the fevers arising from these agencies, & the Muculated Typhus.

1st Fevers supposed to have malarial or Atmospheric influence for their origin are supposed to be milder in character, & the mortality not so high, as the Annual Contagious fevers, which is found to be the case in the fevers above named.

2nd These fevers are generally attended with periodical sweats & remissions, which although sometimes not very distinct, seem to point out their miasmatic origin. - They correspond to the "Continuae" of Cullen. -

3^d The symptoms of depression of the nervous system are less manifest in the Atmospheric fevers, so that the reaction is more violent owing to the greater strength of that system. The symptoms of Ganglionic nervous derangement are more obvious than cerebral, - & affections of viscera of the abdomen are more severe than in the Spotted typhus.

4th Cases of these fevers, when not epidemic, are found to exist most commonly in the Country, among those who are engaged in out of door occupations & are consequently exposed to the influence of these powers.

5th When appearing epidemically in towns, their origin can be explained by the presence of fumes or other

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* During the Epidemic of 1843-4 Dr Anderson states that four cases of typhus were seized with the Epidemic in convalescence -

predisposing causes, to a greater extent than usual. Their spread in those epidemics was in some cases traced to contagion, probably from the concentration of the poison inhaled from the bodies of the sufferers in localities where cleanliness & proper ventilation are not studied - These circumstances combined with the want of food & clothing are sufficient to render the disease contagious -

6th Cases of these fevers in Hospital are frequently after convalescence seized with the Spotted typhus - even when that fever is not prevailing epidemically - We never saw any case of typhus which after recovery was attacked with the atusspheric fevers. * This demonstrates that these two types of fever differ in their remote causes -

7th In cases where these fevers are followed by local complications

They are of a more decided character, & not so complicated as in typhus. Thus in the latter disease, we may have almost any ^{or every} organ in the body, showing more or less severe symptoms of inflammation, while in the Atmospheric fevers there is fever of only one organ or set of organs affected & the other symptoms are attributable to the effects of this lesion. The character of the complication constitutes in most cases the distinguishing feature of the Epidemic.

Forms of Continued Fever. The different varieties of Continued fever have been the subject of many classifications from Galen downward. The arrangement which in this country has gained most credit is that of De Haen which has been followed in the systematic works of Southwood Smith, Jussieu, Cullen, & others. He divides Continued fevers into Synocha, or inflammatory fever, Typhus,

a wonderful variety, purporting to be Synocha ending in typhus, and thirdly Typhus, adynamic, or nervous fever. The Classification generally followed in the Continent by the Essentialists, is that of M. Pinel, who we have seen divides fevers into the inflammatory, Bilious, nervous, adynamic & atanic. The one which we intend to follow is founded upon the subdivision we have already made of the remote cause, of fever, into the Contagious & the Atmospheric. It corresponds with the division of the continued fevers by Galen into the continued, & the contained. These two heads comprehend all the varieties common to Great Britain. The first comprehends the Maculated Typhus alone, while under the second are arranged the varieties of Atmospheric fevers according to the kind

of complication attending them, thus:-

Division I. Arising from Animal Contagion.

Typhus maculata.

Sym: Jail fever. Camp fever, Nervous fever, Putrid & malignant fevers of authors. *Typhus varioloso* Cullen and others. - *Fièvre Adynamique* Pinel. *Febris contagiosa exanthematica* - Hildenbrand.

Division II. From Atmospheric & Telluric influences.

1st Simple uncomplicated Atmospheric fever.

Sym: *Synocha simplex* Cullen & *Fièvre inflammatoire angiotémique* Pinel. Causes of Hippocrates.

2nd Complicated with Cerebral disturbance.

Sym - *Cephalic fever* of Coudie. *Fièvre aërienne gastrique* of Pinel, *Synochus* Brown with Cereb. affect. Smith.

3rd Complicated with Pulmonary Symptoms

Sym: - *Thoracic fever*, *Influenza*, *febris pituitosa*.

4th With Gastric & Hepatic Affections.

Sym: *Gastro-Hepatic fever* of Writers. *Gastro-duodenitis* of French Authors. *Fièvre bilieuse* Pinel. The famine fever of Ireland - *Relapsing fever* of Scotland - *Synocha* or *Synochus* of Christison, *Typhus* nation of Stokes, & other Writers.

5th With intestinal Complications.

Sym: *Gastro-enteritis* of Brown & *Fièvre magueuse* of Pinel. *Duodenitis Bretonneuse* - *Fièvre typhoïde* of Louis. *Typhoid fever* of American Authors - *Febris mesenterica*. *Synocha*, *Synochus*, *Typhus* of Cullen & others.

We believe that the adoption of the

of the arrangement proposed by Cullen, has produced incalculable difficulties in the diagnosis of Fevers. The principle upon which it has been formed is bad. The terms Synocha and Synochus, are not only indefinite, but convey an erroneous notion that these fevers, are inflammations, or inflammatory in their Character. We have seen that in every fever there is nervous depression & Vascular Activity, Strength and debility, and these qualities are met in various proportions according to the rules we have laid down. Now ~~Dr Cullen~~ when the symptoms of vascular excitement are violent Dr Cullen describes the fever as a Synocha, but if this reaction is shortly followed by symptoms of exhaustion of the nervous energy, it is turned into a Synochus. While when the nervous symptoms are well marked from the commencement, we have a fever

Typhus. Whenever the typhoid symptoms make their appearance, however late in the disease, the fever was set down as a variety of Typhus commencing as it was thought in Synocha.

But it is well known that these typhoid symptoms may occur in any inflammation of the organs, complicated with Concussion of the brain; and that they are often present in fatal cases of Variola, Scarlatina, Measles, & other pyrexial diseases independent of Typhus fever. Further they are known to occur in cases of interruption of the secretion of urine when the urea is absorbed into the blood as in the last stage of Chronic Albuminuria. Now it has been proved that urea does exist not only in the blood but also in the solid tissues, in some varieties of these atmospheric fevers, in a sufficient quantity to cause these

Symptoms. It is therefore not ^{illogical} to
 set down these cases as mere varieties
 of Typhus, which are not typhoid
 in their character at initio; when
 these symptoms appear so frequently
 & can be accounted for in a rational
 manner. Nay more than this,
 we can refer few of the distinct
 fevers to any one of these classes.
 Let us take for example the Typhoid
 fever of Louis & Romel; which has been
 so minutely described by these authors,
 & also by the American Physicians,
 & Dr Jenner of London; & consequently
 of whose existence as a distinct
 variety of continued fever, we think
 there cannot be the shadow of a reason
 to doubt; where does it rank in the
 Division of Dr Sullen & Christison?
 It is characterized by the usual prome-
 nitory pyrexial symptoms - viz Chills, rigor,
 headache, & acceleration of the pulse.
 The diagnostic symptoms are, a typh-

parietic state of the abdomen, pain, & crepitation over the Ileo-caecal region with purging of Ache coloured stools. This is followed by stupor somnolence & delirium. Great emaciation of strength. Loss of power over the Sphincter. - Unconsciousness & Coma. P's frequent, & feeble. T. red, dry, & fissured. Abdomen thorax & inner parts of arms & legs are sprinkled over with a very papular eruption.

Now in some cases the Typhoid symptoms occur at the commencement of the disease. It would in such cases be set down by Allen as a case of Typhus - If as in many cases they do not present themselves till the latter part of the attack, it would be then described as a case of Synochus. - But in several mild cases the symptoms of Cerebral depression

are entirely absent, or at least not very distinct, which would again mark out the fever as a Typhoid.

This will be found true of most of the fevers, the differences laid down as distinguishing Synocha, Synochus & Typhus, even the more of *Digaa* than of *epidid* & mild cases of one variety of fever have been referred to one head, while severe cases of the same form, are put under another head.

The typhoid symptoms therefore are not sufficiently pathognomonic to characterize different species of fever. Are there any other symptoms of sufficient importance to enable us to diagnose between the varieties of Continues of fever? We think there are. The most pathognomonic of these is the absence or presence of a rash, or eruption, on the cutaneous surface.

In typhus maculata, there is a peculiar eruption which appears upon the skin between the 3rd & 4th days. It consists of an exanthematous rash of red maculae appearing over the whole body, at first sparse, but soon becoming very abundant, disappearing upon pressure not elevated, at first of a faint red, but gradually deepening into a dark, dusky tinge, & resembling in many points the eruption of measles. This eruption is so constant & characteristic, that we firmly believe that there is no such disease, as "Typhus without an eruption". All such diseases being nothing more or less than varieties of Atmospheric Fever which from their duration, & the appearance of typhoid symptoms, have simulated the true Typhus. It will be proper to examine the authorities on this subject with regard to the constancy of this eruption.

In the Irish Typhus Epidemics of

of 1815-16. & 17 as Reported by Dr
 Barker. Hence the Eruption was
 found almost always present. In
 the few cases in which it was absent
 the fever was of a milder type.

In 1822 & 1832 according to the au-
 thority of Dr Graves not one case out
 of twenty was the Eruption absent,
 at a time when the prevailing epi-
 -demic was very fatal. Dr Christison
 compares this rash with a petechial
 eruption frequently present in the
 Atmospheric fever. Dr Henderson
 remarked its presence in 100 out of 104
 cases. Dr Cowan in his Statistics of
 the Fever in Glasgow during the Years
 1825-6 says that in 2000 Cases of
 fever the Maculated rash occurred
 in 73.73 Percent. Dr Pells corroborates
 the statement of Dr Cowan as to
 the universality of this eruption
 during that epidemic. Dr Perry
 considers the rash characteristic of

#¹ Dr Watson's Lectures on the Practice
of Physic.

#² Graves Clinical Medicine. edited
by Dr Gerhard. 1848.

#³ On the Identity or non-identity
of Typhus & Typhoid fevers, in the
Edin. Month. Jour. of Med. Sciences. 1849-50

of Typhus, & he came to this conclusion
 after the examination of 4000 Cases.
 Dr Davidson found that during the
 Epidemic of 1838 all the cases in which
 the officials in the Glasgow Hospital
 were attacked the maculated rash
 was apparent - Dr Watson speaks
 of the Epidemic of 1838 says
 scarcely a case occurs without the
 spot. We speak of it as the spotted
 fever, or from the resemblance of the
 rash bears to that of fever measles
 the "Rubecoloid fever" #1. Dr Gerhard
 found it present in 32 out of 36 cases
 occurring in the Philadelphia
 Hospital and in those cases in which
 it did not appear one died on the
 4th the other on the 7th day while
 the other two were cases of Typhoid
 only #2. Lastly Dr Jenner of London
 in his late researches #3 found the rash
 always present in Typhus. While
 acting as resident Clerk in the G. N.
 Infirmary, during the Years 1852 & 3

that the opportunity of examining
 200 cases of Typhoid fever in all
 of which the Mucosa of the small
 intestine & seemed as a pathognomonic
 evidence of the disease
 all the other cases which came under
 our notice could be referred without
 difficulty to one of the varieties of
 Abdominal fever. We are confirmed
 in this opinion by Dr Davidson, ~~and~~
 you will find the official attached with
 your own papers with the typhoid
 fever. We believe then that in those
 epidemics in which ~~a~~ few of the cases
 did not present the petechial rash
 these cases belonged to the Abdominal
 fever, which are known to have
 accompanied many of the earlier Spi-
 rous diseases as testified by Dr Christian
 Smith, Dr H. F. Johnson & several named
 Synocha, Typhoid milder &c.
 There was an eruption accompanying
 a variety of Abdominal fever
 viz the dolermentous, which may be

Said to be almost as characteristic as that of typhus. It consists of an eruption of small, circular, rose tinted papulae, elevated above the surface of the skin, disappearing upon pressure & are sparsely distributed over the chest, abdomen, & inner aspect of the thighs & arms. They appear about the seventh day of the fever, and after a few days they die away & are succeeded shortly afterwards by a new crop. This eruption according to Dr Bartlett and Dr Jenner - is an almost invariably concomitant of Typhoid fever. Louis mentions its absence in 5 out of 54 Cases - It is not so prominent nor so universally diffused as the Miliary typhus rash, but as M. Louis mentions it is rarely found absent when carefully sought for. Dr Jenner remarks that "for two species, long distinguished the two diseases by"

"by the eruption alone, not a single error of diagnosis was made."

We think that the absence of either of these two rashes, is sufficient with a few other characters, to mark the distinction between the other forms of continued fever. Thus the form of Atmospheric fever which has prevailed epidemically for the last few years, viz the Relapsing variety, is readily distinguished by its short duration, distinct relapses, & the presence of Gastric & Hepatic Symptoms.

We have come to the conclusion then that there are two distinct Species of Continued fever. The one comprehends the British maculated Typhus, the other the different varieties of Atmospheric fevers. - That these two species differ in all their characters, that they are never inextricably blended,

that they never can or do produce each the other, & that the Cause, & Epidemic Constitution favourable for the Origin & spread of one species, cannot by any possibility give rise to the other.

We will now give a short description of the symptoms, pathological lesions, & individual causes peculiar to each of the Varieties commonly observed in this Country.

We will first Describe the most common form of fever, viz the Typhus Maculata.

Typhus fever. is of slow accession, the symptoms commencing gradually. In a few days previous to the rigor there is a feeling of languor of body & mind, slight vertigo, or even headache. The patient is restless & the appetite is impaired. The Rigor is generally slight, but sufficiently marked to direct the attention of the patient to his case; it is followed by increase of headache, confusion of the ideas, & acceleration

of the pulse, which however seldom
 rises much above 100. The heat of
 skin is augmented & becomes so intense
 as to communicate a tingling sensa-
 tion to the hand when laid on the
 surface, - hence it has been termed the
 "Calor mordicans." The perspiration is
 arrested & on the 4th day the peculiar
 eruption makes its appearance & the
 general integumentary surface becomes
 red, & as it were inflamed, being tender
 on pressure. - The eruption appears
 first on the Chest & abdomen at
 first diffused, but soon it becomes
 universal over the whole body. It is
 at first of a light red, & disappears
 upon pressure, but after the 7th day
 (by which time the eruption has all
 appeared) it becomes of a darker tinge
 & gradually assumes a purple tint
 & does not entirely disappear upon
 pressure. - The Depression of the Cord.

- Inance

is dull and confused, & as the Eruption appears, the features become swollen & congested, the Eyes are heavy & suffused, & the Conjunctivae injected. The Appetite is abolished, the Tongue is covered with a yellowish white fur and the bowels become constipated.

The muscular debility is well marked from the 3^d day of the fever, and by the time the Eruption appears the strength is completely prostrated. At first the mental faculties are blunted, & there is a dullness & stupor of depression, but after the 6th day there is generally total unconsciousness. When roused the patient can be made to answer questions altho' not very distinctly, for a few days after this. Many patients of whom inquiries were made stated that they lost all recollection from the 11th day of the fever. - This state of unconsciousness is soon attended with

delirium, generally of a low muttering incoherent character; but sometimes when a strong sanguine temperament is combined with great mental activity the delirium is of an active character. The delirium continues unabated until the crisis, if active however, it generally degenerates into the low muttering kind from the nervous exhaustion in the latter stages of the fever.

From the 7th or 8th day the symptoms of exhaustion of the nervous energy become more apparent. The pulse although continuing accelerated, becomes feeble & easily compressible. The sounds of the heart begin to waver & in a short time the second sound is lost & the pulsation becomes swift. The muscular debility is extreme, & (we have seen two cases of in which at the 8th & 10th days of the fever, death was induced by incautiously raising the patients into a sitting posture,

The skin becomes diminished in temperature, the Eruption assumes more of a petechial character, & does not disappear on pressure. The Countenance becomes smuddy, & more congested as if from obstruction in the respiration. The Eyes are covered with brown or blackish fur, & the teeth & lips are coated with sordes. The breathing becomes quick & laboured, & the respiratory murmur is usually accompanied with a Röchelitic rale. The lungs become congested posteriorly as indicated by dullness in that situation. The delirium is attended with that peculiar nervous tremor, the *tremor tendinum*. There is general congestion of the capillary circulation, & the extremities are cold & livid. The urine is suppressed, more commonly than discharged involuntarily. The Forces

are passed in bed. - When the case ends fatally, death, - when the result of the fever, & not of a secondary complication, - occurs generally between the 9th & 12th days. - Most commonly it is occasioned by asphyxia, from the inability of the blood to circulate through the lungs arising from want of muscular power in the heart to propel it. The symptoms described are more aggravated. - The breathing becomes stertorous, the patient cannot inflate the lungs, & he gasps for breath; the heart, sound, if not obscured by the bronchial rales, are found weak, full, & intermittent; the pulse almost imperceptible. The skin is of a ^{dusky} leaden hue, the complexion of a deep purple & persistent; the surface & often bathed in a clammy sweat.

The temperature is much lowered.

When the case terminates favourably, the Crisis occurs, between the thirteenth & sixteenth days. It is marked by a abatement in frequency of the pulse, gradual restoration of the intellect, the natural heat, & expression of the countenance returns. The breathing becomes free. The confusion & dark hue of the skin disappear. & the patient is visited with refreshing sleep which frequently continues uninterrupted for some days, & the patient as it were sleeps out of the fever. The Crisis is not marked by any violent change as diaphoresis, discharge of blood, diarrhoea. Although the Crisis of the fever, occurs almost invariably within the time specified the disease is in many cases kept up for some days longer.

but the severity of the complications. We have seen the fever kept up by the cerebral affection, pericarditis, & febrile pneumonia. These facts are easily ascertained by the individual symptoms, & by the duration of the disease. For always at the critical period the symptoms are decided, ameliorated the depression becomes more intelligent & the pulse abates sometimes only a few beats.

Pathological Lesions. In some cases of Euphorus, on examination there is no appearance found, of sufficient importance to account for death.

In the words of Swift:-

"For when we open'd him we found
That all his vital parts are sound."

This fact seems to favour our opinion that the disease is primarily of nervous origin. For we notice that in those cases in which the nervous system is severely affected as in Hydrophobia,

& tetanus, the appearances after death are always trifling & not commensurate with the severity of the symptoms. We will now give an account of the pathological appearances generally found in examining a case of Spotted Typhus.

The Brain & Membranes, are affected in the great majority of cases, there is injection of the Arachnoid & subarachnoid cellular tissue & effusion of serum to a slight extent into the latter. The large & small veins are filled with dark venous blood. The substance is increased in vascularity & occasionally softened. The ventricles contain variable quantities of clotted serum from $\mathfrak{z}i$ to $\mathfrak{z}j$. Frequently $\mathfrak{z}j$ of serum was found within the Arachnoid at the base of the brain, & effusion of lymph was not uncommon in that situation. In all the cases coming under

our own inspection, - about 30, - the
 brain was congested internally & there
 was a rachnoid injection.

The Lungs are very commonly affected,
 Bronchitis is a very frequent compli-
 cation of fever in large towns, & its
 signs, - an inflammatory & congested
 state of the bronchi, - are generally
 present in cases of typhus.

But there is another lesion more common-
 ly found in the Lungs, described by
 M. Laennec as "un léger degré de péripneumonie"
 which consists of congestion of the posterior
 & most dependant parts of the lungs;
 it is not attended with pain, & is indica-
 ted by a crepitating rhonchus.
 It is not granular in texture, although
 otherwise resembling lungs hepatized
 in pneumonia, it is of a dark choco-
 late colour, & sinks in Water.

There are very few cases in which
 this lesion is not found to a greater
 or less extent it arises from the

inability of the blood to force its passage through the lungs. - Adhesions of the pleurae are not unusual, but these are generally of old standing, & frequently by obstructing respiration act very materially in giving rise to a fatal termination

Heart. This organ was rarely affected. Hypertrophy of the Heart enables the Constitution to stand fewer lectures, as the muscular fibres are stronger & resist the debilitating influences to a greater extent. The Ventricles are filled with dark black semi-fluid blood occasionally mixed with a few fibrinous coagula. The large vessels are also filled with thick coagulated dark coloured blood. Their inner coat is often of a deep velvet red.

The Stomach was not affected to any extent in the cases examined by ourselves - There was occasional congestion & slight ecchymosis with softening

of the mucous membrane. The
 intestines are commonly found healthy.
 The only departure from the healthy
 condition was congestion of the mucous
 coat which occurred more frequently
 in those cases complicated with bilious
 diarrhoea. The diarrhoea is a rare
 symptom in Typhus when it
 does occur the feces are of a dark
 bilious colour, & are found in large
 quantities in the small intestines.
 In one case we observed the patches of
 the Peyerian Glands were enlarged
 elevated & of a dark purplish colour
 with their surface dotted with nume-
 -ous small black points. The sur-
 -rounding mucous membrane was not congested.
 The Mesenteric Glands are not found
 diseased. The Liver was in almost
 every case examined, very much con-
 -gested. The upper surface was of
 a normal colour, but the lower was

of a dark greenish colour, when cut into, the blood exuded from the vessels of the cut surface which was frequently of an orange tinge, from the non-elimination of the bile. The gall bladder was commonly filled with bile of a dark green colour.

The Kidneys were in almost every case much congested although occasionally they presented an anemic appearance. When there was suppression of urine the former condition was very uniform, & the Malpighian plexuses were gorged with blood. The mucous membrane of the bladder was frequently found elevated, softened, & echymosed, the surface being covered with coagulated blood & of a deep red colour, we never observed the membrane ulcerated. The Spleen was in most cases found normal, sometimes it was hypertrophied.

* Lectures on the Physiology & Pathology
of the blood. *Lancet*. 1840 p. 348.

The blood has been frequently examined in Typhus fever, & very discrepant results have been obtained according to the variety, probably - in which it was examined. The most trustworthy results, are those attained by Dejean, as reported by Mr. Russell. According to him "the blood in the first stage of Typhus fever (depression) is generally thick and dark; it coagulates rapidly, and forms a soft large dark coloured clot. In the second stage (excitement) it flows readily, is of a scarlet colour, does not coagulate so quickly, as, and forms a more solid clot than the former; it is occasionally covered with a slight buffy coat. In the third stage (collapse) it flows very readily in thin waters, & of a dark colour; the clot is loose & flocculent & occasionally appears more as a sediment of colouring matter than as a clot". Dr. Armstrong found in fully developed

* *Annual Chemistry, translated by Day -*
Syd. Soc. 1844-5.

lyphus, the blood of the temporal artery as dark as that of the vein. Dr R. Clanny mentions that the watery portion of the blood increases with the intensity of the disease & that not only the solid constituents, but also the carbonic acid and salts are diminished in proportion. Dr Stevens states that the chloride of Sodium is particularly diminished in typhoid blood. According to Simon,* one of our most recent & accurate analytical chemists, the blood, in typhus, *typhus putridus* (about the identity of which with Typh. Maculata there can be no mistake) "is watery, very poor in fibrin & of a dark colour. If any clot be formed it is soft & difficult, the serum is frequently of a deep yellow or brown red colour, partly from the colouring matter of the bile & partly from dissolved hemoglobin. It"

‡ Lectures on Typhus Fever. in the
Dub. Hospital Gazette, Vol. II. p. 228-260.

It possesses a very peculiar smell which probably differs in each disease."

Dr. Jenner remarks that the blood is more disorganized, more deviated from its normal condition in typhus than in typhoid, or other forms of fever.

The state of the urine in typhus has never been properly ascertained. Some have made it out alkaline & others acid. It seems to be acid at the commencement of the disease & becomes alkaline as the disease advances. It deposits a brick red precipitate of Urates, on standing & crystals of Urates are seen through the microscope. Phosphates are also very common in the later stages. Dr. Corrigan speaks of albumen as frequent in ^{urine in} fever we have never seen it even in the worst cases & he thinks Dr. C.

must have made some mistake. The remote causes which have generally been

considered as originating by phos fern
are Contagion, assisted by overcrowding,
improper ~~attention~~ ventilation, & in-
attention to cleanliness. It has been
so often traced to these causes, that
little requires to be said on the
subject. The cases which are
brought into our hospitals are al-
ways derived from the filthiest
& most degraded localities in the
city, and the patients are generally
of the lowest class. When occurring
among the wealthier inhabitants,
it is never known to spread to any
extent. It is peculiarly the disease
of the Physician, & there are few
who escape it. It is remarked
that it is always more fatal
among medical men, & the numer-
ous deaths which have occurred in
the profession in Ireland during

* See an interesting paper on the mor-
tality of medical practitioners in Ireland
from Fever, by Dr Casack & topics, in the
Dub. Quart. Jour. of Med. Science Vol IV p. 154.
They inform us that between 1818 & 1843
that out of 1220 practitioners who were
in the charge of Medical institutions, 568
have suffered from Typhus fever, & out
of these 132 died. The causes of the viru-
lence of the disease among Medical Men
in Ireland, has been referred to the following
causes by their writers. "First. The constant
existence of fever in the country, Second. The
frequent epidemics of the disease. Third. Its
highly contagious nature. Fourth. The want
of ventilation & cleanliness in the houses of the
poor. Fifth. The constant fatigue consequent
on visiting a number of houses scattered over
wide districts, & lastly, the Moral & Physical
depression which the repetition of their in-
fluences is sure to produce on the practitioners.

*² Clinical lectures on Typhus & Typhoid
fevers; appended to Groves Clinical Medicine.
Amer. Edit. 1848. Pp 86.

The prevalence of the Epidemic of 1847-50 fully confirm this statement.* The Locality of Typhus is confined chiefly to large towns, where it is seldom entirely absent although subject to periodical exacerbations.

It is not found to prevail epidemically in rural districts. It is doubtful whether it ever occurs epidemically in France or the Continent. Hildenbrand describes a putrid ^{febrile} ^{visiting} which seems to be identical with typhus & was very fatal in some of the large towns in Germany at the Commencement of this Century. It has been frequently introduced into the states of America by Emigration. According to Dr Lehard it occurred Epidemically at Philadelphia in 1836-7. He says* that in all large seaport towns many thousand cases have occurred & even in cities remote from the seaboard

The disease has extended itself, although it was mainly limited to the recently arrived immigrants and to a few others who were brought into contact with them." He remarks in another place that "The Disease is an indigenous one in the United States" - Therefore we may come to the conclusion with Dr Bartlett that "the fixed & constant residence of typhus fever is to be found in the British Islands. The mud cabins of Ireland, & the damp dark cellars, - & we may add Cloes" - "of the cities of Great Britain are its true habitat."

The prevalence of Typhus is not affected much by season, although it has been found to be more prevalent during cold & wet seasons than when they are dry & warm.

We have already stated that the crisis of Typhus occurs between the 13th & 16th days - and we believe

that in duration the disease never exceeds the last mentioned period. Except when the presence of some grave complication keeps up the fever. Even then, if we carefully examine we will always find either in the specified periods, a certain amelioration of the symptoms. When once the Crisis is perfectly formed we have never known or heard of any relapse of the symptoms, and this is a very marked characteristic of the Spotted Typhus.

We have never known of any case in which typhus maculata attacked an individual more than once during a lifetime. This agrees with the statements of the Writers on the different Irish Epidemics who never observed any case in which the fever occurred twice & in

each attack attended with the macular rash. Drs O'Brien, Christison, & S. Smith, have stated that the fever frequently occurs more than once in a lifetime, but as none of them observed recognized the rash as pathognomonic of typhus, it is most probable that they confounded with it some of the varieties of Atmospheric Fever. - We are inclined to agree with the opinions of Dr Parry on this subject which were founded on very extensive investigations viz "that contagious Typhus is an exanthematic disease, & is subject to all the laws of the other exanthemata; that as a general rule it is only taken once in a lifetime and that a second attack of typhus does not occur more frequently than that of typhoid, a second attack of small pox, and judging from my own experience"

less frequently than a second attack of
of measles or scarletina.*'

We have in our classification
set down five different varieties of
Atmopneic fever. But at present
there are not all met with in the
British Islands. The first form
the simple uncomplicated fever
is not at present epidemic. Dr Chris-
-tison says that it was very well
marked in the years 1814-20 & in
the subsequent epidemics of 1826-9.
but since then he says it has gradually
disappeared & is now scarcely ever
met with.† He terms it a pure
inflammatory fever, not necessarily
attended with any complication,
of about 7 days duration. It is not
a very fatal disease, & occurs generally
among the better ranks of society
who are not exposed to the causes of
local inflammation. Dr Christian
compares that it was more generally

attended in one part or another of its course, with symptoms of local inflammations.

The second form of fever the Cephalic or cerebral fever is also a rare variety we observed only three cases, while attending the Glasgow hospital all of which were fatal. - It was characterized at the outset by intense headache & vertigo, the senses are obtunded & the features have a dull expression but not the muddy look of typhus. these symptoms are soon followed by active delirium the patient cannot, or will not remain in bed, & is possessed of considerable muscular activity; to these symptoms are added muscular tremors, sudden screaming, rolling of the head, Jactitatio, involuntary discharges, &c. the pulse becomes slow, & intermittent, & the $\frac{1}{2}$ brown & green. The duration of the fever is not above ten days

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* Located on Ferns. p. 123.

but in all the cases observed the fatal termination occurred earlier. Inflammation of Arachnoid, & Pia mater, with effusion of Coagulable ^{lymph}, within this layer was the principal pathological lesion. It was distinguished from Syphilis by absence of the eruption & the muscular debility, also by the acuteness & length of duration of the delirium & of extreme fatality. These symptoms & the absence of vomiting, diarrhoea & abdominal or thoracic symptoms easily marked it out as a distinct variety of Atmospheric fever.

The third variety the Thoracic fever is now seldom found as a distinct variety in an epidemic form. It seemed to prevail very common in ^{the epidemic of} 1817-20 as described by Dr. Copland & Dr. Christison. The peculiar symptoms attributed to this form are thus described by Dr. S. Smith - * Pain in the Chest sometimes, severe sometimes, only slight

sense of stricture or dyspnoea; inability
 to expand the chest by a full inspira-
 tion without pain or uneasiness; cough
 frequently aggravating the pain; some-
 times dry, sometimes accompanied
 with foetid expectoration. Respira-
 tion sometimes slow & heavy, at
 other times on the contrary short
 and quick; never natural;— the
 altered respiration is very frequently
 accompanied with that peculiar
 noise in breathing termed the mucous
 rattle." It is he says often accompanied
 with delirium which consists of
 low smuttering talkativeness or incoherent
 wandering. Dr Smith considers that
 the pathological lesion peculiar
 to this variety is an inflamed and
 altered structure in the Bronchial
 mucous membrane— it is uniformly
 of a dark red or even black colour

and the tubes are filled with frothy mucous mixed with pus.

The last two varieties of Atmospheric fever are the ones which have of late years prevailed Epidemically in this Country & it will be necessary for us to give a detailed account of each variety, in order properly to understand the difference between them & Typhus.

The first we shall notice is the variety termed Gastrohepatic, or relapsing Fever.

The Gastrohepatic form of fever was first recognized as a distinct variety in 1843 when a severe epidemic occurred which although not very fatal, was very universal, & presented many marked differences from the ordinary Epidemic form of Typhus.

When first observed it was set forth

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* Achronological History of the Weather and Seasons, and of the prevailing diseases of Dublin &c. by John Ruttie M.D. Lond. 1770.

as a new form of fever, but on further examination it was found to agree in its important characters with the Epidemics of earlier periods & it is very similar to an Epidemic described by Hippocrates. In 1739-45 an Epidemic prevailed in Ireland as described by Dr Perty, which bore a great resemblance to the relapsing fever. He mentions the duration of the fever, its symptoms, & the predisposition to relapse even to the third time. Dr Perty further informs us that there was a great famine at this time in Ireland "the potatoes having failed whilst other provisions bore double or treble their usual price". This was probably the only appearance of this fever in a distinct epidemic form until the year 1845. But it is quite

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* *Dict. of Pract. Medicine*

*² *London Medical Gazette. Nov. 1843.*

certain that this variety of fever accompanied some of the Epidemics which prevailed in 1800, 1816-19 & 1826-9. Dr Storer describes this form of fever under the name of Typhus Mitis, as accompanying the Typhus epidemic in 1816-17. & Dr Christian mentions the complication of Synocha, the Gastro Hepatic - as occurring in the fever at Edinburgh both in 1814 & in 1826-27. Dr Copland* also describes the Epidemic of 1814 as a variety of synocha with jaundice, relapse, & other bilious & gastric complications. Dr Mc Kenzie has proved the identity of the relapsing fever of 1843 with the Irish Epidemic of 1826 by the similarity of the ocular affection. He says that "Dr O'Brien's report might be applied to the disease, now (1843) prevailing in this city, with scarcely any modifi-

-cation." The epidemic of 1843 reappeared in 1847-9, & was at that time very universal in Glasgow & Edinburgh. In 1852 it also prevailed but more as a concomitant of typhus than a distinct epidemic.

The symptoms of this Gastrohepatic fever are sudden in their accession. They consist of violent rigors attended generally, though not regularly, with intense frontal headache, pain in back, nausea & vomiting. There were some symptoms of muscular debility, but not so severe as in typhus. In a few hours this is followed by reaction. The skin becomes burning, dry, and harsh - but sometimes it is bathed in perspiration. The pulse is greatly accelerated sometimes it is as high as 150 or 160 & is seldom below 100. It is hard & not easily

* It is worthy of remark that the frequency of the pulse is not at all in proportion to the severity of the symptoms, & does not indicate the approach of the fatal termination in the same manner as in many cases of Typhus & Typhoid fevers, for in these fevers a pulse of 120 or 140 per minute would be regarded as the precursor of severe or fatal symptoms.

compressed. There are severe muscular
 pains in every part of the body.
 There is also tenderness over the
 Epigastrium, & right Hypochondri-
 um. The Tongue after at first is
 moist, and loaded with white fur,
 after the second day it becomes dry
 & yellowish, & covered with a crusty
 like fur. The Bowels are generally con-
 stipated, & the Stools of a dark bilious
 colour. The Urine is high coloured & thin.
 The perspiration has a disagreeable
 smell & is acid to litmus. There is
 great restlessness, and want of
 sleep, which is not so much under
 the control of Opium. There is not
 much confusion of the ideas at
 the first stage of the disease, and the
 patient is quite sensible & intelligent
 in many cases, during the whole
 course of the fever. The most

characteristic symptom of the disease,
 viz the jaundiced colour of the skin,
 does not generally appear until
 the third day, & frequently later.
 The colour of the skin becomes of an
 intense yellow, more vivid in the
 neck & chest, but visible in the
 legs & arms. This symptom was
 very regular during the prevalence
 of the epidemic but its uniformity
 disappeared when the epidemic
 became extinct. At the fifth
 day, in favourable cases a crisis
 takes place which is ushered in
 by a profuse diaphoresis, an attack
 of diarrhoea, or Epistaxis. The skin
 pulse become natural, and the
 yellow colour of the skin disappears.
 When the case is a severe one the symp-
 toms become more grave & do not

generally quiet until the seventh day.
 When the case ends in death, the
 fatal termination is ushered in at
 this period by the following symptoms:
 Prostration of the strength becomes more
 manifest. P_o is still high but
 is more feeble. The colour of the
 skin is altered to a deep greenish
 yellow and in cases of great debility
 is the seat of a crop of purple
 petechiae; its temperature is lessened,
 & the extremities become cold & covered
 with a clammy sweat. The Abd.
 men becomes tympanitic & excessively
 painful on pressure; this, ^{is attended} with purging
 of bilious, & frequently bloody, fœces.
 There is suppression of the urine
 which, when drawn off presents in
 many cases a dark portew colour, &
 has a very fetid odour. Delirium
 appears & is attended with total loss

of consciousness. It is sometimes of a very active character & the patients cannot be kept in bed, but when it comes on late in the disease it is commonly of a low muttering kind & not accompanied with any particular activity; the comatose symptoms continue until death.

The period of crisis is more distinctly marked in this, than in any other variety of fever under our consideration; and to it we could appropriately apply the Scripture phrase "at such an hour the fever left him". The features from being expressive of restlessness & painful anxiety become composed & natural. The bronzing of the countenance disappears. The pulse falls, sometimes below its wonted activity; the skin is sensible of a gentle moist heat; the Tongue clears; all the sensations of pain & uneasiness have fled; and the patient expresses himself as

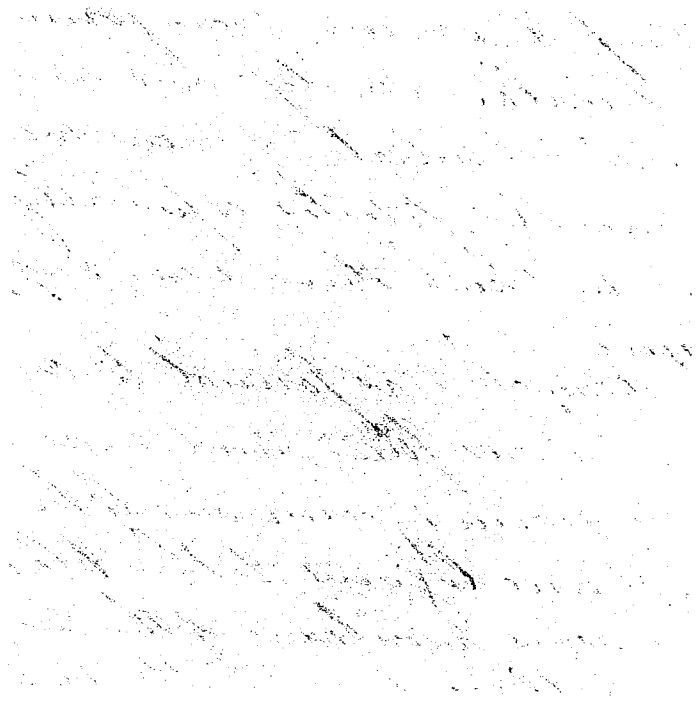
if in a new world." The patient continues in a state of convalescence for about a week when the relapse occurs generally between the 13th & 16th days - This second attack generally lasts for two or three ^{days}. The symptoms are perfectly similar to those of the first attack - The muscular & arthritic pains are commonly more severe - and occasionally the jaundiced colour of the skin does not appear until now. - After the crisis from the second attack there is generally complete convalescence although in some cases the fever has been known to relapse for the third or even the fourth time. In the Epidemic of 1843 the occurrence of the relapse was almost invariable but in some of the later visitations of this fever this characteristic has not been so uniform, but in these cases,

The fever was prolonged to the 7th or 10th day.

Pathological Lesions. The Brain and membranes were found healthy in the greater number of cases. In some cases 39 to 39 of limpid serum were found within the Ventricular cavity, and in this liquid crystals of uric acid were not infrequently detected, especially in those cases in which there was suppression of urine.

The Stomach was found to contain a dark bilious fluid, and more rarely a coffee ground grumous like matter, somewhat analogous to the Black vomit. The mucous membrane of the cavity was frequently occupied with ecchymosed patches, & adherent to the rugae was seen a gelatinous looking mass (adherent to the rugae), which appeared as consisting of exuded blood. Ulceration was of very rare occurrence.

The Intestines were found sometimes, very minutely congested, in particular parts, or on the whole of their course.



* Dr. Cormack has stated on the authority of Dr. Allen Thomson, that fine globules were detected in the blood, & that the globules are serrated & notched. But this seems to have been a mistake on the part of Dr. Cormack.

serum of the brain.

Causes. Locality &c. If we examine into the predisposing causes of the epidemics of 1730-65, 1815-19, & 1826-9 we will find that these ^{fevers} were attendant upon times of great famine & Commercial destitution. And on that account they were by some termed the "Famine fevers." Dr Alison one of the most accurate statistical observers of the present day has come to the conclusion that the principal cause of the Epidemic of 1843 was destitution, in other words insufficiency in regard to food, clothing, and lodging. He says, "I have on different occasions produced evidence to prove not that destitution is an adequate cause for the generation of fever, nor that it is the sole cause of its extension, but that it is one cause of the diffusion of fever." He found that the unemployed & destitute poor constituted a very large majority of the cases encountered in Glasgow, Edinburgh & other large towns in Scotland.

* Natural history, Pathology, and
treatment of the Epidemic Fever at
present prevailing in Edinburgh & other
towns, by J. A. Cornack M.D. 1843.

usually from threefourths to two thirds of all the cases. These facts are fully corroborated by the researches of other writers on this subject. That it was, during the Epidemic, propagated by contagion in many cases, we do not deny but that it was a highly contagious disease & only propagated by that mode, we cannot believe. Dr Comack* found that long continued exposure to the poison, especially in persons who had to undergo great fatigue was generally followed by an attack. In the Glasgow Hospital the officials, - who are generally attacked during an Epidemic of Typhus, - in most cases escaped the relapsing fever. & the same was found to be the case in other large hospitals in Scotland. The rapidity with which this fever spread over the Country, seems incompatible with its dependence on contagion alone for within the period of one year upwards

of 20,000 cases occurred in Glasgow alone; a fact which seems to prove that some atmospheric or telluric influence cooperated in the production of this fever. Further the fever was found to reach its acme in Autumn or the beginning of Winter, when the towns were crowded with destitute agricultural labourers returning from the harvest; and we cannot wonder, therefore that the change from the pure air & comparative dry & clean abode in the country, to the damp, filthy, & ill ventilated habitations in the town, combined with scarcity of provisions, both meat & drink, & improper clothing, should predispose to the attack of fever; independent of their coming in contact with any one previously affected with the disease although it is probable, if not certain that contact with an infected person will materially predispose to the

* *Fevers, their Symptoms pathology
and Treatment, by Woodruff Lyman M.D.
Philadelphia 1846.*

susceptibility of the disease.

The locality of the fever of 1843 seems to have been confined principally to Scotland & to have been very prevalent not only in the towns but in many of the rural districts. It also occurred, but not to the same extent in Ireland where it seems scarcely to have been distinguished from the common typhus. Dr. Glyme* states that it was introduced into Philadelphia in 1844 by some emigrants, & several cases were admitted into the Hospital, but that it did not spread into the town and none of the cases were fatal.

We have no accounts of the disease having extended into other countries.

In 1846-8 the Fever in its epidemic form again made its appearance in Glasgow, characterized by the same symptoms we have already described. We may remark that

its appearance was contemporaneous with the failure of the potato crop, & probably was the result of the fearful destitution arising from that source. Towards the end of this visitation some of the characteristic marks of the fever became less uniform. From a five day fever with relapse it was prolonged to one of seven, or ten days, without any second attack. The yellow colour of the skin became less uniform, & symptoms of inflammation of the pulmonary organs were more prevalent. In 1851-2 we had an opportunity of seeing about 100 cases of this form of fever. In several the relapse occurred on about the 14th day but it was not by any means uniform. In a majority of these cases the yellow colour of the skin was absent, and the average duration of the fever was 9 days.

The Mortality in this form of continued fever was very low, not above 3 per cent. and was almost altogether confined to children under two years of age or persons who were otherwise constitutionally un sound. Of the 100 cases coming under my own notice there occurred only one death, in a child of 4 years in which there was a Pneumonic Complication. In none of the cases which we examined, could the origin of the disease be traced to contagion and all the patients resided in rural districts or had been but for a short time staying in the town.

The last form of continued fever which we have to describe is the Typhoid or Dohineuteric, a variety which probably enjoys the most extensive boundaries of all the forms of continued fever, & which has given rise to much discussion among fever writers.

* *Leçons de clinique Médicale* par A. F. Chomel.
Paris, 1834. (Reviewed in *Brit & For Med Rev.* Vol II)

This Fever cannot be said to have been recognized as a distinct variety of fever until after the publication of the researches of Louis in 1829 (France in 1824,* wherein this fever is described as the prevailing form in France & other parts of the Continent. As early as 1822 Dr. Nathaniel Smith described under the title of "Typhoid fever" described the Dohiereux variety as the prevailing form of Continued fever in New England. Its Identity with the Typhoid fever of Louis & Chomel was fully indicated by Dr. Hal. of Boston in 1833, & by Dr. Gerhard & Bartlett in 1835; and the difference between it and the Spotted British Typhus was afterwards fully pointed out by the two latter writers. It is probable that the Dohiereux fever has prevailed for a considerable time in Great Britain but never to any extent nor in an Epidemic form;

* Pathological Statistics of the G.P.
Infirmans. 1847-8.

so that it has always been mixed up with typhus, & its characteristic lesion regarded as an incidental complication of that fever. It is the "Constitution *Alimentaria*" of Dr. Christison, the "Anæsthesia præcox" with abdominal affection of Dr. Smith, & the "æsthetic fever" of Dr. Heyne. Of late years it has become more prevalent in this country or at least it has been more universally recognized. Dr. Steeles, ^{remarks that} it first appeared in the G. R. Infirmary in 1840, † and has since been not uncommon in the fever wards. While acting there as clerk we had the opportunity of observing 50 well marked cases of this disease.

The symptoms generally commence insidiously, with slight chill, head ache, prostration of strength & confusion of the ideas. This is followed by burning heat of the skin, stoppage of the secretions and acceleration of the pulse & the contractions of the heart.

The cheeks are flushed bright red, (some-
 times of a dark smilberry,) sometimes
 the flush is confined only to one cheek
 at other the whole features are in-
 volved. - The pulse varies from 80 to 140
 but is seldom below 96 at first it is
 strong & firm. The tongue is sometimes
 furrowed but generally red & congested.
 Eructation is frequent within the first
 few days. At first the expression is intelli-
 -gent though anxious & there is no symptoms
 of Mental Confusion. The muscular debili-
 ty soon becomes very marked, but
 is not of so sudden accession as in
 typhus. The muscular strength is
 exhausted according to the duration of the
 fever & is never so much prostrated
 at any stage as is the case in
 the case in typhus. From the fifth
 to the seventh day the peculiar Dothi-
 enteric symptoms make their appearance.
 They consist first of a tender & tym-
 panitic state of the abdomen

the pain being most manifest over
 the right iliac region, where crepita-
 -tion or purging may be detected in the
 greater number of cases; Secondly the
 appearance of a erythematous papular rash
 which appears and disappears in
 crops according to the exacerbations & re-
 missions of the Disease; Thirdly the
 presence of Diarrhoea, - which is an
 almost invariable symptoms occurring
 at one or other period of the disease.
 The stools are thin & are characterized
 by their light ochre yellow colour -
 And last the appearance of the Tongue
 which is very remarkable it is dry of a
 bright red colour with elevated papil-
 -læ at the tip. It is sometimes covered,
 with a brownish fur frequently clean,
 and is fissured transversely in several
 places. - The Appearance of these
 symptoms is followed by emaciation
 & confusion of the Mind which is
 manifested in one of two ways

by an attack of active delirium which is soon subdued, or by a state of somnolence or stupor in which the patient continues until the crisis. This last phenomenon is the most common, the somnolent state commencing about the 11th day. It is characterized by loss of consciousness, dullness of hearing, loss of power over the sphincters, dorsal decubitus, emaciation & a rough harsh state of the skin. The countenance is oppressed & heavy but when roused the expression is intelligent. The teeth and lips are covered withordes. When the case terminates fatally the stupor commences early in the disease is very intense, or is complicated during the later stages with low muttering delirium, subcutaneous tenderness, & friction of the bed clothes. The pulse in these cases continues quick from 110 to 120 per minute. The abdomen is much distended, the diar-

which is urgent, and continued, and it is
 accompanied with discharge of clotted
 blood from the intestines. The heart
 sounds become single & the emacia-
 tion & prostration is extreme. Death
 may arise from debility caused by the
 long continued discharges of blood & abrine
 matters, from Coma, from the effects of
 the disease on the brain or lastly, from
 peritonitis arising from perforation of
 the intestine. This last mode of termina-
 tion is very common in mild cases
 in which exposure to cold & other exciting
 causes of the fever has brought on a
 second attack. It is marked by the
 sudden accession of violent pain in
 the abdomen with excessive tenderness,
 the pulse becomes quick, hurried &
 compressed, the expression of the coun-
 tenance is low & anxious, & there is
 vomiting of dark green matter.

The crisis generally takes place
 between the eighteenth & thirty second
 days of the fever it is marked by

general amendment of the symptoms which takes place very gradually. The pulse frequently continues very rapid for some days after convalescence may be said to have commenced, & it yet cannot be relied upon as a sure sign of the crisis. It is more surely indicated by the return of the natural temperature to the countenance, the recognition by the patient of his friends & attendants, the clearing & moistening of the tongue & mucous membrane of the mouth; and the absence of diarrhoea & other symptoms peculiar to the disease.

There is no distinct periodical relapse in this fever; but at any time within three weeks after the crisis, the disease may, & frequently does return, in consequence of exposure to cold, errors in diet or excess of any kind, and in these cases it is liable to terminate in perforation.

The following pathological characters are most commonly observed in the disease.

The state of the blood in *Dolimentaritis* has been examined by Simon, Andral & Gavaret, Louis & Chomel. Louis found that the state of the blood in the heart, varied with the condition of that organ, when it was softened in texture the blood presents a soft coagulatum, but when the structure was normal, firm fibrinous concretions were in the ventricles. The blood was fluid in some cases when there was much softening of the muscular substance.

"The blood in typhoid fever," Simon remarks, "exhibits the characters of hyperinosis perhaps more distinctly than any other affection, although the statements regarding its qualitative & quantitative analysis differ, probably from its varying in the different stages; thus in the period of excitement it may incline toward a state of hyperinosis; in the stage of depression the fibrin gradually

* The Maximum, minima, and average results of 111 Analyses by these Authors are given in the following table:-

	Water.	Solid residue.	Fibrin.	Blood corpuscles.	Solid residue of serum
Maximum	- 862.3	.. 243.7	.. 4.2	.. 149.6	.. 98.0.
Minimum	- 756.3	- 137.7	.. 0.9	.. 66.7	.. 66.8.
Average	- 796.0	- 204.0	.. 2.6	.. 176.0	.. 77.9.
Healthy blood	- 790.0	- 210.0	.. 3.0	.. 127.0	.. 80.0.

decreases; and lastly, in the stage of collapse the quantity of the blood corpuscles, and of solid constituents, decreases so remarkably that the blood assumes the state of "fibrinæmia". The presence of any inflammatory symptoms will also modify its constitution. "The blood in typhoid fever is found to be the very deficient in fibrin & frequently also in albumen; it coagulates imperfectly and often remains in a semifluid state: the clot is soft, friable, of a very dark, almost black red colour, & is very rarely covered with a buffy coat: It becomes putrid sooner than healthy blood."

Andral & Carnot have observed that the diminution of the fibrin was very uniformly proportioned to the severity of the disease; also that the decrease of the fibrin is almost always connected with increase of the blood corpuscles, so that the proportion between the two differs more & more from the normal mixture.

The state of the urine has not been properly ascertained. Dr. N. Smith says it is copious & not high coloured, at the

at the commencement of the disease. It is acid according to Simon during the course of the disease, & is alkaline at the crisis & during Convalescence. The deposition of Urates of Ammonia & the appearance of the earthy phosphates, which according to Schaelein may be regarded as the process of a favourable change.

The Brain & membranes are rarely diseased. There is occasionally slight subarachnoid effusion. The lungs are generally normal. There are occasionally slight bronchitic appearances. In some cases congestion of the more dependent portions of the posterior lobes.

The muscular texture of the heart is frequently softened & easily broken down; but there is no other marked alteration. The inner coat of the Aorta is of a velvet red, colour whether this is the result of inflammation, or merely a morbid appearance is doubtful.

The Gastric mucous membrane is softened & red in colour. The substance is thinned & frequently elevated in patches. The stomach contains a dark greenish fluid matter sometimes of a grass green colour.

The Duodenum & Jejunum are often congested of a bright red colour.

The mucous membrane occasionally softened. They are generally distended with flatulencies and contain feculent matter of a bright orange yellow colour.

The Stomach is the principal seat of the anatomical lesion. It is to be found in the patches of agminated glands peculiar to this part of the intestine. These patches of Peyer's glands are hypertrophied, inflamed, & ulcerated. The alteration varies in appearance according to the extent to which the disease has progressed. In the earlier stages the elliptical patches are enlarged & present a reticulated or honeycomb appearance being somewhat prominent, distinct, & of a pale yellow or greenish colour. As the disease advances the patches become more elevated and injected at the base & the mucous membrane is as it were torn off or peeled off - Its substance becoming disorganized & an ulcer is thus formed.

These ulcers vary in size of and appearance from a pea to a shilling in shape. They are oval or elliptical. They consist of a dark red elevated border, surrounding a ~~depressed~~ ^{depressed} base, of a slate grey colour, & consisting of the muscular & serous coats, or the diaphanous peritonium. When the ulcer inclines to heal the surface is covered with a yellowish crude matter like the tubercle which protects them from the action of the irritating bile & feces. The process of recovery & reparation is very slow and is the cause of the protracted convalescence which is common in this variety of fever. The ulcers are found most frequent in the last two feet of the Stomach and at the Siles caecal valve when these glands are most numerous. The surrounding portions of the mucous membrane are red & inflamed. The solitary glands of the colon are

in many cases found inflamed & ulcerated, but this is not a universal occurrence.

The Mesenteric & Bronchial glands are found enlarged & in many cases, disorganized. The Liver is commonly healthy. Sometimes its texture is softened. The Gall bladder, is commonly distended with light yellow bile of an acrid nature.

The Spleen is almost always affected. The change consists of hypertrophy, softening of the parenchyma and change of colour to a dark blue black. - The urinary organs were normal in almost every case examined by Louis & Chomel.

Causes. Locality. &c. This disease does not generally originate in contagion, and at first it was doubted whether it was ever propagated by this means. But the recent researches of M. Gendron tend to prove that the typhoid fever may arise from contagion, and in the

second edition of his work has espoused this opinion. That it is not always, or even generally propagated in this manner is proved by the attendant on the patients seldom or never being attacked with the fever & by its own prevalence in those localities, where contagion is liable to be the generated. Almost every case coming under our own notice was derived from a rural district & had been resident in the city for only a short time. The fever occurred most frequently among farm & other outdoor servants and the patients were generally of a better class than those affected with typhus. The causes invariably assigned for its origin were cold & fatigue, wet, change of residence &c. In only one case could the origin be ascribed to contagion. We may remark that patients were never attacked with typhoid fever in the ward.

although exposed to the contagion of
 the fever. The prevalence of this form
 as the common variety of Continued fever
 in the United States where it appears
 in the rural states as well as in the
 large towns, militates against the idea
 that it originates in a contagious
 process similar to that of Typhus,
 which we have seen is fostered, by Famine,
 filth, want of clothing, & want of proper
 ventilation. While Dr. Beckett tells us:
 that the Typhoid fever does prevail
 often & extensively "during the beautiful
 and breezy Indian Summer, amongst
 the most cleanly, the most temperate,
 the best clad, the best fed, and the best
 sheltered people the world has ever seen."
 the rural population of the Eastern States.
 The typhoid fever seems to occur most
 frequently in autumn when agri-
 -cultural pursuits are most common
 and when the consumption of
 accecent fruits & vegetables is most

abundant.

The Geographical limits of this fever have not been properly ascertained it seems however to have been the most common form of continued fever prevalent in the Continent of Europe & the united States of America for the last half century. We have no notice of its ever having assumed a universal, or fatal epidemic form - but seems more of a sporadic nature prevailing without any reference to season or climate. When occurring epidemically it becomes migratory in character wandering about the country attacking one neighbourhood one year another the next, and so on. The duration of this fever is very uncertain. It has been regarded by most observers as extending over a period of three or four weeks but we cannot calculate its duration very minutely, as it is frequently

Op. Citat. p. 248. Note.

Two cases particularly came under our notice in which the patients were cured of Dothine enteric fever & dismissed from the wards and shortly after they returned with typhus with the rash & other peculiar symptoms, but they were complicated with diarrhoea, toxic stool pain of abdomen & other dothine enteric symptoms. We also remember of another singular case in which Dothine enteric fever ran its course with scarletina both diseases showing very decided symptoms.

a difficult matter to say when the fever has come to a crisis.

We have thus given a short and comprehensive description of the symptoms, causes & pathological characters incident to the three forms of fever most common in this country. The reasons why these forms have not been universally recognized in this country seem to be the following:

First the non recognition of the pathognomonic characters of the intermitting eruptions we have noticed.

Second. The Atmospheric varieties of fever being often followed by the spotted typhus, while the drops of the former attacks are still resident in the constitution. The symptoms & pathological lesions partook of both forms of the disease. We have frequently seen this the case.

Third the confinement of typhus fever to localities which are not

generally visited by physicians in ordinary practice. therefore an opportunity of seeing these varieties of fever & diagnosing between them is chiefly confined to those at the head of hospitals or similar public institutions.

Fourth. The adaptive of the arrangement of Dr Fuller which is not at present adapted to the epidemic forms of fever prevailing in the country as we have already endeavored to show.

In order to point out more distinctly the differences between the three prevailing forms of continued fever, we shall give a summary of the points in which the characters peculiar to each form, most essentially differ.

Duration. In Typhus the fever ^{is} never extended beyond the 16th day, except when complicated, - & the crisis or

variable occurred between the 13th & 16th
 day. - Death generally taking place
 between the 10th & 14th days. - In Gastro-
 hepatic fever the duration never extends
 beyond ten days. & the first crisis
 takes place on the 5th, 7th or 10th day.
 In Typhoid fever again the duration
 is very uncertain, varying from the
 20th to the 60th days - while the crisis
 is as uncertain, & very gradual, which
 is not the case in the gastrohepatic
 and typhus fevers. - The Locality
 of the fevers is also different,
 the Typhus being entirely confined
 to large towns, the Gastrohepatic
 appearing both in large communities
 and in rural districts, although when
 not epidemic generally in the latter,
 while the Dotted-entrance form is
 almost exclusively confined to rural
 districts.

Relapse In typhus there is never any

tendency to a recurrence of the disease
 In Gastrohepatic relapse is a regular occurrence & generally takes place between the 12th & 15th days of the fever
 In Typhoid fever relapses are of frequent occurrence but not at any stated periodical periods and they seem more under the control of the exciting causes as cold fatigue &c
Symptoms. Skin. In typhus the skin is universally maculated with an exanthematous eruption. In Gastrohepatic there is no eruption but the skin presents a yellow jaundiced tinge. In typhoid fever there is a scanty eruption of very papulae on the chest & abdomen. The expression of the countenance in typhus is dull, oppressed, & stupid. In Gastrohepatic it is anxious but intelligent. In typhoid in most cases it is oppressed, & anxious, but clear &

expressive; but in very severe cases
 where there is profound stupor it
 is dull & heavy but it has not the
 cloudy appearance observed in typhus.
 Muscular debility, &c. In typhus
 the prostration of the bodily powers
 takes place early in the fever & is com-
 plete. It is accompanied with the
 Subultus cordium & other symptoms
 of nervous exhaustion. In gastric hepa-
 tic fever the muscular debility is
 less marked & it is accompanied with
 an acute sensation of pain in the muscles
 and the joints. In typhoid fever
 the muscular debility becomes extreme
 but its accession is gradual & it
 does not come on so early as in typhus.
 It is accompanied with emaciation
 which is very marked -
 The Cerebral symptoms in Typhus
 commence very early, sometimes as
 soon as the fourth day. They con-

-sist of total loss of consciousness & delirium, rarely of an active character, - and both symptoms continue more or less marked until the continuation of the disease. In Gastro-hepatic fever there is seldom total unconsciousness during the whole course of the disease. but there are fits of delirium generally active with unconsciousness at the later stages which are frequently subdued without further abatement of the febrile paroxysm. In typhoid fever the cerebral symptoms consist of stupor, somnolence, delirium & loss of consciousness. These do not generally make their appearance until the beginning of the second week of the fever. The delirium does not continue long but is soon subdued. The stupor & loss of consciousness are sometimes complete but more frequently they are not of a very grave nature & are quite different from the

state observed in typhus.

The pulse in typhus fever is never much above 100. & is frequently beneath that. The sounds of the heart become feeble & single about the eighth day and continue single until the crisis. In Gastro-hepatic fever the pulse is generally very rapid sometimes as high as 180 per minute. Its rapidity is not in proportion to the gravity of the symptoms. It subsides very regularly & falls to the normal ratio on the day of crisis. We never saw the heart's sounds affected in this fever - In the Typhoid fever the pulse is generally more rapid than in typhus & varies from 100 to 120 per minute. Its rapidity is in proportion to the severity of the symptoms. We have seen in many cases the pulse continuing high for some time after the crisis without any appreciable cause.

In a few cases where there was extreme debility we have noticed an enfeebled or single state of the heart's sounds, but it was not a regular occurrence, as in typhus. The Tongue in Typhus is at first covered with moist fur soon becomes dry & is at last loaded with brownish sodas. In Gastro hepatic fever it is generally loaded with a yellowish dirty white past fur during the whole duration of the disease. In typhoid fever it is generally clean, red, & dry with elevated papillae & transverse fissures.

The Abdomen is not distended in typhus & is not in the majority of cases tender on pressure. In the Gastro hepatic fever it is slightly tumid & is commonly painful on pressure being made over the regions of the stomach and liver. In typhoid

fever the abdomen is full, resonant
 and tympanitic. Pain is experienced
 on pressure over the ileocecal region
 and is accompanied with a jingling
 noise from the displacement of flatus.
 Evacuations. Diarrhoea in typhus is
 very rare. It seems merely an accident-
 al circumstance. The stools are generally
 of a dark bilious colour and are only
 procured by the use of purgatives.
 In Gastrohepatic the bowels
 are also slow & the evacuations of a green-
 ish bilious matter. In typhoid the
 diarrhoea is almost never absent at
 some period or other of the disease, generally
 it is constant. The evacuations are
 invariably of a light yellow colour.
 Nausea & vomiting of green bilious matter
 is a very common occurrence in the
 course of the Gastrohepatic fever, but
 they are almost never observed in Typhus
 or typhoid. Discharges of blood from

from the nostrils, bowels, uterus &c. do not take place in Typhus. In Gastrohepatic there is frequently a critical discharge of blood at the fifth day from the nostrils, or uterus. In Typhoid Epistaxis occurs early in the disease, without reference to the critical period, and discharges of large quantities of clotted blood are a common and always a dangerous symptom in the later stages of the disease.

In typhus and Gastrohepatic fever the urine & feces are seldom discharged involuntarily, but the former is generally suppressed & the latter retained. In almost every grave case of typhoid both urine & feces are regularly passed in bed.

Pathology - In typhus the brain, lungs, liver and bladder seem to bear the brunt of the attack. In Gastrohepatic the Liver, kidneys, & spleen were the organs principally affected - Still in typhoid

* *London Medical Gazette. Novr. 1843*

The intestinal glands, the mesenteric glands, and the spleen, were the parts which suffered most severely.

The differences in the sequelae arising from these fevers are very remarkable. Typhus is rarely followed by any serious sequel. An attack of facial erysipelas, slight bronchitis, or neuralgic pains are occasionally present. The sequelae in Gastrohepatic are very remarkable & of very frequent occurrence. They are, First. A peculiar variety of ophthalmia described by Dr McKeuzie* as the postfebrile Ophthalmitis; It is characterized by amaurosis, or imperfect vision affecting one or both eyes, and attended with inflammation of the retina & tunics of the eyeball. Second. The abortion of pregnant women, which is very uniform and occurs very regularly whether the fever is epidemic or not. Third. Inflammation and swelling

of the glands especially of the parotid.
Fourth. The occurrence of muscular pains
in different parts of the body during
convalescence.

Fifth. The appearance of boils and
abscesses in different parts of the body.

In typhoid fever the most serious
sequel is tubercular consumption, which
comes on in many cases after convalescence.

A painful debilitated state of the lower
extremities has been noticed, as also an
oedematous condition of one leg.

We had intended to conclude
our description with an exposition of
the modes of treatment suited to each of
the three forms of continued fever, but
we were deterred from doing so for two
reasons. First because our thesis has
grown so voluminous already that we
are afraid if we had further increased
its bulk, the reader who purchases
might have waded through a few of the pages.

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at the commencement, would soon have given up his task in despair, finding the "sat bene" not in due ratio with the "Sat cito."

The second reason is that the practice of our profession can only be learned by practice, and therefore if we, who have as yet had few opportunities of observing the treatment of disease, had attempted to dictate to those who have enjoyed the experience of a lifetime, we should have laid ourselves open to the censure conveyed in the opposite Lines of Butler.

"Mens actibus grow more bold & confident
The further they're beyond their just extent;
As matters prove more arrogant & stout,
The less they truly understand an art."