The word fever derived from the Latin term febris, is applied to a class of diseases characterized by a morbid heat of the body, quickness of pulse, dry fevered tongue, disturbance in the various functions of the body. Of all the diseases that have ever occupied the attention of medical men, judging from the frequency which it occurs and the mortality it occasioned, there is none more deserving of notice than what is called in general typhus fever. When we look at the statistics of the various epidemics, we must be startled at the immense number of all ages and sexes, who are carried off by this fatal and much dreaded scourge. It is not to be wondered that it should have occupied the attention of medical writers from the earliest age, and we trace the history of medicine, we shall find that the subject of fever has afforded ample field for discussion from the time of Hippocrates to the present day.

Both the solids and fluids have been investigated, and arguments adduced in support of the opinion that a morbid condition of either one system or the other is the cause of fever. In the present day, owing to the progress of physiological knowledge, the opinion is entertained, it is intermediate between these two doctrines, it having been clearly shown that...
there is an intimate connection of the functions of circulation &
conservation throughout the whole body. Owing to this the exclusive
adoption of either of these doctrines has disappeared from modern
pathology — The two varieties of continued fever, we are about to
consider, have long been confounded under the common name of typhus
fever, 

But at the present time the opinions of medical men are not agreed
in regard to the identity or non-identity of typhus & typhoid fever.
Many consider the two as constituting varieties of the same disease, dif-
fering only in the super-added effect a certain intestinal affection in
typhoid fever — The highest authorities have now adopted the opin-
ion, that they are entirely distinct diseases, though possessing in
many instances many striking points of resemblance — Though
many writers had noticed the difference between typhus & typhoid
fever, yet the profession is indebted to Dr. Jenner, for the complete
investigation & distinction of the two diseases — In the consid-
eration of this subject we shall describe the two diseases, at
the same time marking their points of difference as we proceed,
taking typhus as the type which is undoubtedly the most frequent
of fatal in this country. In an essay like the present, it would be
impossible to examine all that has been written on the subject, we
shall then for take upon only those points that are of practical importance.

I. Redispersing & Exacting causes & Symptoms.
II. Anatomy.
III. Treatment.
Before treating of this subject, I shall consider the circumstances which predispose to these diseases, and then whether these alone are sufficient to create the poison, to which these fevers are owing.

It is evident that the predisposition to fevers may be induced by a great variety of conditions, and on this account no doubt has arisen the opinion, held by some modern authors, among whom may be mentioned the late Dr. Armstrong, that they are not essentially propagated by contagion.

But the doctrine of the non-contagion of fever depending upon the immunity of certain persons, having intercourse with those labouring under the disease, is one that has few advocates at the present day.

Among the many predisposing causes which render the body more liable to the contagion of fever, there is none of greater importance than the want of proper food, and consequently the imperfect nourishment of the various tissues. Destitution is so certain a cause of the propagation of contagious fever, that its existence may be always presumed, when fevers prevail to any extent.

For instance in crowded cities, where much poverty is present among the lower classes, owing to want of employment, they are apt to become depending in mind,
Value regardless of cleanliness in their persons and houses, their want of means also compels many to live together in the same house which, in consequence of being overcrowded, is generally filthy and ill ventilated. In such circumstances, it is not a matter of surprise that the infectious nature of fever should be greatly increased, so that almost every individual who comes within the sphere of its operations, is likely to be attacked by the disease. This has been well exemplified in the epidemics of fever in Ireland, at the beginning of the present Century; in these epidemics, the poorer classes were the chief sufferers; if the fever seemed to prevail among them in proportion to their destitution. In the one epidemic, which raged in that Country in the years 1817-18, the causes were chiefly attributable to unwholesome food, so that too unincertain quantity—the want of employment had been felt also for two years before the fever broke out. In consequence of this, the inhabitants were obliged to eat damaged corn as food, and even of this they could not get sufficient to satisfy their hunger. Dr. Ferran, speaking of the cause of fever in Manchester days, among those causes were the want of clothing, & the failure even of necessary food, in many families occasioned by the want of employment. In many instances, I have found before the commencement
of typhus in a family consisting of several children.
that they had subsisted on little more than cold water.

The influence of imperfect, scanty food on the pro-
duction of fever can be ascertained when the prevalence of
that disease is compared in the larger towns of England
and Scotland, of the comparatively small number of cases
in the former may be reasonably attributed to the better
provision for the maintenance of the poor. Liverpool how-
ever forms an exception to this rule which ordinarily springs
from local causes. In this instance, disparity is very great.

There was admitted into the hospital of that city in 1836-
1700 cases of fever, large as the number is, it does not
amount to more than two thirds of the number in
Glasgow in the same year. That two in proportion to the
number of inhabitants. Considerably less than half the
number in Glasgow in 1837, when great numbers of the
working classes were thrown out of employment, & on
that account deprived of the necessary means of pro-
curing proper food. This sad state of things was
owing to the strikes & combinations among the different
trades, more especially that of the cotton trade. The
severity of such strikes & combinations was such fever
greatly increased, so much so, that the number of cases

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now from 6,180 to 21,000 in the last year mentioned. Dundee may furnish another example of the same kind, in the hospital of that town, prior to the year 1818, there were few cases, since that time however owing to the erection of extensive manufactories & the employment of a much larger number of people who from time to time from the precarious nature of trade are liable to be thrown out of employment the increase of fever has been progressive & great, & of course from the nature of things certain. In this particular let us attend to facts as they are recorded. In 1836 the fever patients in the infirmary were 773 & the death, 297; but in the year 1836-7, 8, 9, the whole number of deaths from fever amounted to 7,160, so that during the prevalence of the epidemic at that time about a third of the population (60,000) died from fever.

Many more examples might be adduced, but these are sufficient to prove that unwholesome food & an insufficient quantity of it are the most evident cause in the generation & diffusion of contagious fever. Food unwholesome in its nature & limited as to quantity by impairing the quality of the blood & depressing the force of the nervous system renders the body more liable to fall under the operation of the poison to which fever over.
owe to origin — there can be little doubt as to the
effect of filth on the diffusion of typhus and typhoid fevers. It is said to be an agent
as defective ventilation. In proof of this statement,
it has been observed, that the attendants in fever hospi-
tals, who are generally very particular as to cleanliness are
almost uniformly attacked during some period of their
attendance if the ward be in a crowded state, on the
other hand if they are not forced to creep near well
ventilated the attendants are more rarely attacked.
This shows that contact with a person labouring
under fever is not as dangerous as the inhaling an at-
mosphere impregnated with the fever poison.
That filth, however, is an active spreading cause
is borne out by statistical evidence. In the Glasgow
fever hospital in 1839, among 641 cases, it was noted
that 341 were filthy in their habit, only 241 clean.
There can be little doubt that if the previous history
of patients admitted into the various hospitals in this
country during an epidemic fever were investigated,”

In reference to this point, a larger proportion of them would
be found; moreover, if filthy in their habits, —
As fevers so frequent a concomitant of fever, it may be assumed that the deposits on the skin and clothes of dirty individuals have a tendency to absorb the fever poison, retain it until the system is affected. It is a well-known fact that certain gases and effluvia are absorbed more readily by combustible than by others; it is therefore probable from analogy that the fever poison is regulated by a similar law—

Defective ventilation evinced as a predisposing cause not only weakens the body, but leads to an increased violence and concentration of the fever poison itself; its efficacy in this respect may be well illustrated by reference to another epidemic disease—cholera. During the last outbreak of cholera, the mortality was very great in such places where ventilation was neglected, and more especially in workhouses and prisons.

In the workhouse at Dartmouth (an old building badly constructed) 22 per cent. of the entire number of inmates was carried off, while the remainder suffered from diarrhoea. It was also noticed that among those who occupied a portion of the house separate from the sick, the mortality was not so great; an explanation of this is to be found in the fact that
in their (the boys') portion of the building the windows were broken consequently a supply of fresh air was obtained — Another case that may be cited is Millbank prison, there the truth of what we have been stating in regard to ventilation was apparent — From being overcrowded the numbers were greatly reduced as regard the male prisoners (from 1039 to 402) while on the other hand the female prisoners underwent as regard numbers no diminution how the result of this was as follows while of the males only 23 out of a thousand died of the females fifty three out of a thousand died — Thus showing most clearly that the mortality among the males who enjoyed plenty of space & good air was comparatively trifling, that among the females who were overcrowded & consequently obliged to inhale an exhausted & polluted atmosphere was very great being more than double of the former — Although the evidence of Cholera have been here referred to as affording the most marked example of impurity of atmosphere as predisposing individuals living under its influence to the invasion of that disease yet it is not less strong in regard to fevers in the same localities; for the places in which
cholera was found most severe had invariably suffered at other times from the ravages of fever; for instance at the potteries at Kensington, a locality remarkable for being at all times filthy and overcrowded, the cholera appeared in the same houses even in the same rooms where fever had previously been more. At this time, several individuals who had been under the influence of fever in these selfsame houses that were not long before. By way of contrast to this, it may be stated, that in a model lodging house constructed particularly with a view to ventilation, the mortality during three years was 80 in 1000, during that time there was not a single attack of cholera or typhus.

It is to be feared that the influence of deficient ventilation in producing epidemic fevers has been much overlooked, owing to this, that people by continually breathing an impure atmosphere from the power of the body to conform to habit, do so for a considerable time with impunity. When they are carried off by an epidemic, their death is referred to the latter alone, the previous preparation of their bodies for the reception of the contagious poison being entirely overlooked. But anyone who reads carefully the history of epidemics

must
must be convinced that during their prevalence, the mortality is much greater among those who suffer in impure atmosphere; hence it is of the utmost importance in all cases of fever that every means should be adopted to obtain a free ventilation of the separate rooms of the individuals labouring under the disease, to convenient distance from one another.

The influence of sex as a cause of predisposition, though not of great importance (owing to the difference not being great between the two sexes) may be here referred to. Females seem to be more liable to attacks of fever than males. This was observed more especially in the Irish epidemics. It appears from the table published by D. M'Kee, that during the epidemic in 1835, in the Belfast fever hospital out of 9588 cases 5130 were females, 4458 males. In France a similar though smaller excess of females over males has been observed; the number of admissions into the hospital there, in 1836, were 1141 females, 1116 males. It has also been observed, that in cases of typhoid fever occurring in France, the number of females always exceeded the number of males. The same fact holds good in regard to the United States, as far as statistical evidence goes. These facts
may perhaps be accounted for, by the more constant exposure to the contagion which females are subjected to, as attendant nurses — Dr. Warty in connection with this subject, in his reference to the Irish epidemic of 1819, remarks: "Though it is well ascertained that the epidemic spared neither age nor sex, that all were indiscriminately exposed to its attacks, it is yet certain, that there were particular periods of the epidemic season, during some of which children, during others adult females, during others adult males predominated in number."

Age, as a predisposing cause, is extremely well marked, and is of great value as a diagnostic, in the consideration of typhus and typhoid fevers. Typhus may occur at any period of life, but typhoid fever rarely attack individuals beyond fifty. There is no evidence that typhus is confined to any period of life; though it will be found that a large proportion of cases occur between the ages of fifteen and thirty, still it would be wrong to infer from this fact anything positive, as to the liability of different ages to the disease until we have first ascertained the whole number of persons of different ages in a given locality, exposed to the causes of fever. It seems most probable however that typhus and typhoid fevers
fevers occur more frequently in the young, than in adults of an age advanced in life. It may be reasonably supposed that both typhus and typhoid fever, by the peculiar action of their poisons on the human frame afford an immunity (by perfect or imperfect, but not by distinct) as in the analogous poisons of small pox and measles. Probably their apparent failure in this respect, may have been owing to the want of a proper discrimination, between the two diseases, for until recently typhoid fever was confounded with typhus, at least was considered a variety of it; it is likely therefore that an individual having suffered from both, at different periods of life, would be entered in the medical statistics of that time as having had two separate attacks of typhus. Hence the report on this subject cannot be relied on; the subject must be investigated anew, before definite results can be arrived at.

A typhoid is a fever peculiarly French in its origin, we shall illustrate the above statements in regard to it, occurring twice in the same individual, by example, taken from that country. M. Sentenin gives some remarkable instances which bear on the point—A village containing only fifteen persons was visited by typhoid fever in 1826; twelve of the inhabitants suf-

pered
suffered from the fever, only one of the three who escaped, two
had it previously. In March 1829 the fever reappeared
in the village apparently introduced by contagion and
was confined to a single family, who had taken up their
residence there subsequent to the year 1826; five members
of this family had the fever although they were constant
ly visited and nursed by their neighbours. The subject of the
fever in 1826, the fever did not extend beyond the family
Chomel says that of 130 patients no one as far as
this point could be ascertained had previously had the disease.
In America also Dr. Smith remarks, that out of
many hundreds of patients, he had never known
or heard of its recurrence in the same person.

As to typhus Dr. Trotter states: "During our long
and extensive experience of the origin, progress, and extension
of typhus in ships, everywhere else, I have entertained
a strong suspicion that typhus seldom affects a person
more than once in a lifetime." Dr Perry of Glasgow
in the Dublin Journal mentions the following: "I have
for some years entertained the opinion founded upon
an extensive series of observations that contagious typhus
is an exanthematous disease, is subject to all the
diseases of the other exanthemata & that as a general rule it
is only taken once in a lifetime; that a second attack of typhus does not occur more frequently than a second attack of smallpox. Judging from extensive experience, by frequently, than a second attack of measles, would prove. On the whole, then, the most rational conclusion seems to be, that the discrepancy of medical opinion on this subject has arisen from their having so long mistaken the two diseases, or rather confounded them, under the common name of typhus; if a proper distinction had been made the general law of immunity from future attacks, would have been found as applicable to them as to the other exanthemata.

The geographical extent over which typhus prevails is very great; in regard to locality, however, it evidently predominates in the British Isles, particularly Ireland, where the mean历史性 illness usually occurred among the poor as its proper habitation. These cabins, from their structure, the materials of which they are made, afford but imperfect shelter from the wind, rain, in them are crowded together, large number of men, women and children, it is not to be wondered at then that when contagion makes its appearance amongst them, the mortality should be as
excessive as the records of the various epidemics have clearly shown. Seldom is it absent from the larger cities or towns, both of England and Scotland; in them it prevails as may be expected in the older portions, when the streets are close, are crowded with people ill ventilated.

Of late years typhus has been stated to be almost unknown in France, which was not the case in former years. The inhabitants of Paris, and the large cities in France suffered severely from an epidemic, which appeared in 1813-14, which was first noticed among the troops who had returned from the campaign in Germany; this (epidemic) was regarded by some of the physicians of Paris as a specimen of true typhus, but others held it as being of the typhoid form.

From the American writers it appears that typhus is of very rare occurrence in the United States. In that country the most common form is the typhoid, for when typhus appears it seems to be chiefly introduced by the different emigrant ships coming from the seaport towns of this country, more especially from Ireland. But it is evident that at various times epidemics presenting all the characteristics of true typhus have broken
broken out there; an instance of this occurred at Phila-
delphia in 1812-13; it spread rapidly by contagion and
so in proportion to the amount of destitution amongst the
various classes to which it attacked.

Typhus fever appears to be a disease peculiar to
Cold or temperate climates, but does not seem capable of
propagation in warm or tropical regions; and such the
contagion principle to which it owes its origin is dissipated
or destroyed by the powerful heat of the sun. Dr. Bancroft
states that in voyage to the East Indies ships remaining
long in the tropics that from this cause when typhus breaks
out on board, it is speedily destroyed. Maymoni asserts
that he was never informed of a case having happened
on either side of the Indian Peninsula. It appears
therefore that typhus is incompatible with a high tem-
perature, in which respect it differs from yellow fever.
On the other hand in temperate regions the heat being
unable to check it, it occurs there both in summer
and winter; so it has usually been observed, that the seasons
during its prevalence have been attended with an unusual
amount of moisture. This is proved by tables given by
Dr. Barker and Cheyne in their account of the epidemic
in Ireland in 1819. The conclusion to be drawn from these
Tables, that during the months in which smallpox
the cases of fever were more numerous than in those months
in which it was below average. Dr. Cowan has found the
same result in his statistics of the fever in Glasgow in 1836.

Typhoid appears to be the most common and
generally diffused fever of the temperate latitude in
Continental Europe. In Germany, France it prevails
to a great extent and in consequence has met with the
most careful study, especially in the latter country
when it has been most fully investigated and described.

In this country, too, having been so long known and
drug to please its prevalence cannot be easily or accurately
determined, however from the accounts of various authors
it appears that it must have occurred to a considerable
extent during the different epidemics of the present century.

From these facts it will also be found to have been
of more frequent occurrence in some parts of the country
than in others. For example in Ayr and other
it would seem as in France to constitute the common
form of fever. Dr. Reid in a paper in the Edinburgh
Medical Journal for 1839 has shown that the appear-
ance on dissection were those which constitute typhoid
fever, especially the elevation and perforation of Reiger's
flaps.
Dr. Stewart in the same journal for 1840 states that during the summer and autumn of 1836 the cases of typhoid fever received into the hospital were very few. Meanings that during the winter they gradually decreased, so that at the time his connection with the hospital ceased (June 1838) there were not more than twelve cases. There had been admitted at long intervals. This form of fever is widely diffused through the United States of America, and there is a common opinion in that country, that it has a tendency to supplant or take the place of intermittent and intermittent, as these diseases from the effects of cultivation and other causes, diminish and disappear. The latter fact has been observed in this country, from the localities in which typhoid fever abounds, are remarkable for the infrequency of the intermittent and their mildness when they do occur. Another fact in connection with this fever has been adduced, viz. that strangers are more liable to be attacked by it than natives. Of 120 cases collected by Louis all but 27 had resided in Paris only 20 months or less, only four from infancy. Results similar in their nature have also been obtained by Choumel—New resident in any locality are more liable to attacks of typhus also.
According to Dr. Davidson out of 568 patients admitted into the Glasgow fever hospital, not more than a half of the whole number had lived in the city five years or upwards. It is also mentioned in the works of Dr. Trotter that when fever appears in a ship, the new sailors are always the lowest attacked by it, and it is the same with recruits in the land service.

We come now to the exciting cause of typhus, typhoid fevers, concerning which there is a considerable difference of opinion among British writers, but the majority have adopted the view that they are propagated by contagion; the grounds on which this opinion rests are connected with the progress of the disease. We shall therefore bring forward evidence to prove that it owes its extension solely to contagion. It is quite unnecessary to enter into the consideration of the primordial sources of this contagion, as these are involved along with the other exanthematous in its purity. Some authors to get rid of this difficulty of the origin of typhus, where no contagion could be traced, have contended that it may arise from the emanation proceeding from putrid animal or vegetable matters in a state of decomposition afterwards may extend by contagion.
by contagion, but all the man thermata are liable to
the same objection, especially small pox. Yet no one doubts
but that they are propagated solely by contagion.
No one would believe that small pox could be created
by any accidental collection of either organic or inorganic
matter, not impregnated by the specific contagion
of that disease, yet it is remarkable that in many instances
of it occur which cannot be traced to contagion.
D'Arcy Jones mentions, in his lectures on the eruptive
diseases, that of numerous cases received into the small
pox hospital, not one in twenty was capable of being referred
to any known source of infection; the disease being ascribed
by the patient to cold, change of air and other comparatively
innocent circumstances. The history of small pox leads
to the belief that it never occurs except from contagion.
It appears to have been unknown to the Greek and Roman
authors, while on the other hand Mr. Moore has shown
in his history of that disease that it existed in Chios
Thiridistan for at least 1070 B.C.—That it did not
extend westward through Persia into Greece may be
attributed to the precautions which were taken to check
its progress; as for example, by prohibiting all communi-
cation with the sick, also partly to the limited intercourse
which
which existed between the nations, but chiefly to the peculiarity of the regions through which the poison was diffused, then being separated from the rest of the world by the ocean. It was supposed to have been first introduced into Europe by the Moors in the 8th century, after its introduction it is known to have spread rapidly throughout that quarter of the globe. Thus it appears that large portions of the world have remained long exempt from small pox, while on the other hand, wherever it was imported it rapidly established itself and was extended through neighboring parts. A remarkable instance may be adduced to establish this point. Small pox was introduced into Iceland in 1707, when 16,000 persons were carried off by its attack; from thence it transported itself to Greenland, where it disseminated itself so quickly and fatally as in a short time almost to depopulate the island. These, then, should serve as examples against inferring of analogous diseases as fevers, that they are not necessarily contagious because we fail to discover the origin of the contagion. If small pox is propagated by contagion alone as its history clearly shows, yet at the same time the manner in which the contagion matter has been communicated sometimes eludes our observation.
Observation, we may safely conclude that it may also happen in other contagious diseases. If it be true that smallpox is propagated by contagion alone, however much its contagious qualities and mortality may be increased by other causes, it may be proved by analogy that the plague and typhoid fever, as contagious diseases propagated by contagion exclusively,

we shall therefore in prospect to endeavours to establish this point by bringing forward a few facts from the histories of British and Irish hospitals, for if it can be shown that the disease was contagious in these, it follows that it must have been more or less so in every other place. Dr. Mead in his Clinicals, Illustrations of Fever, speaking of the London fever hospital says: "I can state from the most authentic source, that every physician who has been connected with it with one exception (the late Dr. Bate) has been attacked with fever during his attendance at that. I out of 8 physicians have died." He adds, "The resident medical officers, matrons, porters, and domestic servants, not connected with the wards, every female who has ever performed the office of nurse have one or all invariably been subject to fever, that the laundresses whose duty it is to wash the patient's clothes are invari
invariably & frequently attacked with fever that few
women will undertake this loathsome & frequently dis-

gusting office" — the same author speaking of the fever
in Edinburgh in 1817 says "All who resided in the hospital
(Quenby House) including the resident house surgeon,
Chemist, clerks, & nurses, were successively attacked

in the Glasgow fever hospital in 1836 (which is capable
of containing 220 patients) during the epidemic almost
every nurse, clerk, & nurse caught fever while acting on the
ward, unless they had previously labour'd under the
disease — Dr. Barker Cheyne observes that clergymen
who visited fever patients during the epidemic in Ireland
suffered in a very remarkable degree, so much so, that
out of 64 deaths in a stated period 19 were clerks or medical men. Wilson speaking of
the epidemic in Edinburgh in 1828, after mentioning the
number of nurses & clerks attacked with the disease
goes on to say "Of the inhabitants of the ground floor
of the house (Royal Infirmary) including patients, in
the lock ward now but those already mentioned as
having washed the linen from the fever wards, the bar-
der who shaves the heads of the patients have taken
the disease — yet in the case of malaria it is the

ground floor"
ground floor of the house that is generally found the
most dangerous. Not one of the nurses whose duty has con-
fined them to the medical or surgical wards, where
in fever patients were admitted have taken fever." "I
still further remark, "that of the numerous patients
in their ordinary wards, the only one who took the fever
was a patient who lay near the door of the fever ward.
It would be easy to multiply facts of this kind but
we think there are sufficient to show that fever was at
least contagious in this hospital. It is quite evident
when a larger proportion of individuals are attacked with
a disease in a particular place, than occurs among
the general community, there must be some local reason
for this. Now this has been the result in the hospital just
mentioned for a great number of the attendants. In some
of them the whole were affected with fever. No one will
deny that even among the lower classes, who suffer the
most for every such a proportion has ever existed, even
in the most severe epidemics of typhus and typhoid fever;
for the testimony of the various hospital physicians in
Great Britain & Ireland clearly proves that every
club of a fever hospital has at some period of his
attendance labour under fever. So this it may
be opposed.
he opposed that the atmosphere of the wards was con-
taminated by the exhalations arising from the number of
patients from the want of proper ventilation, but
ought to have taken place in the other wards, if
they were filled to the same extent which was generally
the case in fever wards, springing up there & only in
cases. But the opponent of contagion endeavours to
explain why fever is so prevalent among hospital
attendants, by the hypothesis that there is a malarial
generated in most buildings, but if this were true the
other part of the building would be affected in a
similar manner to what starts & suffers to a correspond-
ing extent. This however has never occurred in any
hospital while the fever patients were confined to one
ward. Again it has been supposed that the Malaria
May be Carried in the Clothes of the patients & the
attendant. May be affected by coming in contact with
them, but again the analogy of malarious diseases
fails. Then shall we conclude, for a fever labouring
under a very acute and another individual who has
not been in the malarious district does not does a patient
suffering from yellow fever when removed from the
locality where he was seized with it affect others in his
neighbourhood?
So that the opinion that typhus typhoid fevers take their origin from their extension to malarious persons, depending on analogy from the true malarious diseases, is totally unsupported by fact.

And how the question arises Can these fevers thus proved to be contagious in their nature be generated from the effluvia caused by the decomposition of organicised matter, from fistulous ulcers, from or from defective ventilation? These causes, we hold, can never account for the origin of typhus typhoid fevers; other causes give rise to these causes, but not them. If it were true that they could be generated from such causes, they ought to be present in all instances in which such causes can be proved to exist, but such is not the case for all these alleged causes may prevail among the people in any locality without there being a single case of typhus typhoid or typhus fever any more than of smallpox or measles. So there all may act as we have previously shown as powerful predisposing causes, when contagious to be introduced into a locality when such causes be in existence it would be diffused with the utmost violence. But having no intercourse with affected districts, people exposed to these influences may be
may be entirely free from fevers of this kind, until it is accidentally introduced among them. If it were true that animal or vegetable matter, while decomposing, could generate Contagion de novo, the varieties of it (Contagion) ought to become as numerous as hair, as the matter, so decomposing. Every collection of such matters, ought to be capable of generating a new disease, capable of producing itself or other persons. It is unjustifiable to hold with any degree of propriety, that the virus of smallpox could be generated in such a manner. On the contrary, there is every reason to suppose, that it can never be attended by natural mean. That it is the same now, as when its moribund action was first perceived upon mankind. Nay more, it must have been transmitted incessantly, through the bodies of several hundreds of thousands of persons, many of them, probably contaminated at the same time by various diseases. In these ought of anything could to produce some degree of deterioration or alteration in the species of Contagion. Yet this is not the case, for its specific property is the same. The different effects which it produces depend upon causes connected with individual whom it attacks. For example, the disease proving no worse when transmitted to another
before dying of it in the most malignant form, than it would have been if communicated by one recovering from it. Slight attack of it shows this most clearly, for there is every reason to believe that such is the case in every disease arising from specific contagion.

If then the human body, the organs by which these poison are renewed & perpetuated, cannot alter their quantity, or effects, is it possible that putrefaction which is, is not natural separation of organized matter, should be capable of generating a new Contagion.

Indeed there is every reason to suppose that typhus, typhoid fever, depend upon a specific Contagion as separate & unchangeable as that of small pox or measles, each distinct & capable only of reproducing itself but not the other. It is therefore absurd to infer that these poisons can be generated by these alleged causes, as small pox or measles in similar circumstances. It is easy to imagine that if a person be ill of an infectious disease, confined in an ill ventilated apartment, the infectious matter will be accumulated there, its virulence consequently increased, for in a well aired room the contagion is innocuous at the distance of a few feet from the bed side.
luded, being dissipated or destroyed by the influence of such air. But it is incredible that the evacuations from a person who is not ill of an infectious disease should acquire the power of producing a contagious one in a room not sufficiently ventilated. That such is not the case may be easily proved by the fact that people may live in dirty ill-ventilated houses when fever is known, and yet not among the nations of the Baltic nations, who in order to shelter themselves against the extreme cold of winter live for the greater part of the year in houses under the ground from which the fresh air is judiciously excluded; the atmosphere of which is so foul that it can scarcely be borne by a stranger. Among them, continued fever is altogether unknown. A similar exemption from fever is observed in the African slave ships, where the slaves are crowded together below decks, in such a manner that many of them die from suffocation. Yet even in regard to this particular case of sickness who has once been seen in one of these ships, it was in regard to the slaves on board ship that contagious fevers are not their diseases. Now if living in ill-ventilated and filthy dwellings or ships, Lord of Generation
continued fever we should have in the first case. I in the second striking examples of the truth of it, the reverse however being the fact. They go to prove just the contrary — for the inhabitants of the State of New York, as has already been shown, have no exemption from contagion diseases; the farther we are away the law applies to the African slaves, they being like their brethren of a colder region liable to attacks from the smallpox. In regard to the former, nearly one half of the inhabitants of Iceland were carried off in 1707 yet there is no record of smallpox having occurred prior to that date. It is reasonable to infer therefore that if contagion had not been introduced they would have continued free from it until this day. The same law may hold good of continued fever.

There is another view held in regard to the origin of continued fever, viz. that the effluvia which arise from putrefying human bodies is capable of generating it, as well as the plague; this however is opposed to fact, which prove it has no such source. For instance at Paris there were 600,000 bodies buried in St. Innocent Churchyard in the course
of six Centuries. They were spread underground over two acres. The evil of this vast deposit was raised above the earth. There was an offensive smell but no fever arose from it. Nay more than this. The remains of these decayed human bodies were partially removed during the heat of summer till the ground was nearly level which caused so offensive a smell that the workmen frequently fell down from the effects. Never the less none of them were attacked with fever though no precautionary measures were employed.

It is said that in Seoulville there is a fetid odour from the ground where 10,000 bodies were buried in an epidemic but no bad consequences so far as fever was concerned happened. Howard (the philanthropist) states that at Leynouyma there was a most dreadful stench from the burial ground after plague caused by the exposure of the uncovered dead but no injury accrued to the governor's family whose house was situated in the immediate vicinity.

If the emanations from bodies in a state of decomposition could produce a fever we ought to have it constantly present in dissection rooms but such is not the case. Fever will not originate in such
Worm, unless individuals be exposed to contagion. Varies diseases however which have been considered by the few have been produced, but then circumstance of instant having occurred. We therefore think that simple confinement mere emanations from persons crowded together and the greatest felth will not by themselves produce fever. Nay more it is certain that animal matter in the greatest state of decomposition does not itself afford anything which could produce a contagious poison. It may happen that the persons exposed are in good health a good spirit. I have all the necessaries of life in a abundance at command. To all of putrid matter as is to be found in dissecting rooms, in bone manufactories could be the origin of fever poison we should have it every day in places where it is now unknown.

In fact all the circumstances we have been considering act as predisposing causes, they render the body more liable to the true exciting cause, which is a specific animal poison all tend to make it weaker when several of them exist together, have a great influence in making it more susceptible of contagion. For the same reason depression of
Medically speaking, death has a strong tendency to affect as strong perhaps any other. This may also explain why new comers to any city, especially the poorer classes, are more readily attacked by fever, a fact noticed by all hospital physicians in this country, by many eminent doctors in France. The effluvia which proceeds from bodies of the sick ill with contagious fever enter the blood of those who take the disease breathing into the lungs or breathing. The poison too may perhaps be capable of being absorbed through the skin and also may gain direct entrance into the blood as in the inoculation of small pox.

The latent period of the contagious principle has not been accurately ascertained, it may probably vary in different cases. Dr. Barker states that in many instances, it may extend over two or three weeks.

Dr. Perry of Glasgow says that typhus fever rarely makes its attack in less than eight days. Many striking instances are recorded in which the disease directly manifested itself on being received. Dr. Macart in the Report of the Dublin Hospital Reports enumerates 20 cases of this sort, 11 of which the persons were nurses who, while in the act of attending the sick, were seized.
worked up with headache. Aches, shivering. All the
other symptoms of typhoid fever. Mr. Geddis ob-
erves that the period of incubation rarely exceeds eight
or ten days occasionally is as short as twenty-four hours.
He is also of opinion that the power of communication
does not exist in the earlier period of the disease that
it is only active before the 16th day. So that it continues
until convalescence.

Another important quality of the contagious
property seems to be well estimated by that as a general
rule it must be concentrated abundant in order to
transmit the disease. A few cases in a cleanly well ven-
tilated ward do not often communicate the disease
to the other occupants, or to the medical attendant, or
nurse. If proper precautions be taken in regard to
Challoner's ventilation the infectious atmosphere
may be rendered almost inept.

Symptoms

In the consideration of this part of our subject, we
shall describe the symptoms of typhus fever as it has
been most frequently described by modern authors &
then notice the principal diagnostic points in its
relation to typhoid fever.
And here we remark that typhus fever seldom comes on all at once; there are generally certain premonitory symptoms which indicate its approach. These are however extremely variable in their duration; they may be present for some days or only for a few hours before it. They may be altogether absent; when present these symptoms are not usually protracted in those fevers which run a long course, but short in those which are of brief duration.

One of the first symptoms is a sensation of languor or weariness attended with yawning & general prostration in the body & limbs. Afterward the patient complains of diminished appetite, of nausea, his tongue is covered with a white fur, and inclined to tremble. His bowels are irregular & generally constipated; he is often disturbed in his sleep, is affected with giddiness sometimes with pain in the head, his labors under great depression of spirit, he has wandering pains in various parts of his body, feels dizzy during the day, it is interrupted by sleep at night; the expression of his countenance is altered, his features are pale & sunken. He is reluctant to make any exertion of body or mind.

Very often these premonitory symptoms are wanting & the disease sets in suddenly. The attack is very
frequently marked by a shivering fit which is accompanied by a violent headache, the seat of which is directly across the forehead, near on the temple, never at the back of the head; or they may be rather a sensation of heaviness or giddiness than headache, which may come on during the night or early in the morning. The febrile condition is evidenced by the usual symptoms, a hot dry skin, quick hurried breathing, feverish tongue, thirst, nausea and headache. The pulse at this time is often full and possesses a certain degree of strength, but it is wanting in firmness and is easily compressible; its acceleration is greatest in those persons whose constitutions are the most irritable.

In females and young individuals of a delicate habit, it will rise in the course of the fever to 120 or even 130, while in males of a stronger constitution it may not reach 90 during the whole course of the disease. The prognosis is unfavourable in cases when the pulse rises to 140 or upwards, for in the majority of such cases the patient dies. The more frequency of the pulse is not so unfavourable a symptom as it first appears; for if it should shift from one number to another, that affords a worse prognostic even than its being very frequent.
The colour of the tongue is white or yellowish white, & there may be nausea or vomiting, but there are not usual symptoms & may be altogether absent. The appearance of the face is peculiar, being of a dark or dusky hue; there is great depression of spirit & confusion of thought & there is pain across the forehead which is often intense. During this period there may be slight tenderness & distension over the abdomen. The bowels are irregular, though in the most part constipated. Delirium comes on before the end of the first week; the patient lies on his back & in a state of torpor & sleeps little, is disturbed by uneasy dreams.

These symptoms continue for several days until the disease attains its height - The surface of the body becomes very hot & the heat is of a peculiar kind, as much as it produces a sensation of fulness, as well as of burning to the hand. The pulse is frequent & feeble, often beating from 120 to 130 & the respiration hurried & on examination is found feeble at the back & lower part of the chest. There is also dulness on percussion. A tendency to exacerbation is often observed at night & in the morning. An erythema which is characteristic of the disease now makes its appearance, which
which has been the cause of originating the terms
epidemic petchial fever. This eruption consists at first
of slightly elevated spots of a dusky pink colour. These
are insensibly into the hue of the surrounding skin
and disappear completely under the pressure of the finger.
In a day or two, these spots undergo a change; their
elevation diminishes, they become darker in colour and fade
only when pressure is applied. From this condition the
spots, in most instances, grow paler and gradually disa-
pear—sometimes the centre of the spot takes a dark
purple colour; or the entire spot changes into true
petchial that is into spots of a dusky or copper
colour flattened and with a well defined margin.

These petchial spots result from a minute extravasa-
tion of blood beneath the epidermis; they are very few
in number and sometimes over the whole plane of each spot
leaves until the whole rash has disappeared.

Occasionally this rash remains visible on the dead
body when death has occurred before the natural
time of their disappearance. In regard to the time
of its appearance it may be alleged that through
some instances, it may vary; yet generally speaking
this rash is visible between the fourth and eighth day
of the
of the fever, sometimes fades for a time, only to reappear in the progress of the disease.

In this stage of the fever the tongue is covered with a brown fur & is dry, especially in the middle; a dark border begins to collect on the teeth, gums & lips; the appetite fails; there is a disgust at all kinds of food; the discharge from the bowels, are dark colored & offensive; the urine is scanty & hash coloured; the face is unequal, dark & hazy; though sometimes it is purplish & livid; the eyes are suffused & congested; a peculiar odour is exhaled from the body (which is more readily perceived in those rooms, where little attention is paid to cleanliness & ventilation); the stupor in which characteristic of this disease has come on, but seldom passes into coma, inasmuch as in general the patient can be made to answer questions, with little difficulty, though his expression of countenance is almost the same; he pays little attention to objects around—delirium frequently is mingled with his state of confusion; instances of a violent but generally of a low murmuring kind. In addition to these symptoms the speech of the patient is withstanding his dreams is disturbed; his motes & tremors, as if annoyed by unpleasant dreams; there is muscular twitching.
in various parts of the body. Great symptoms of debility are always mingled with those of preserved function. There is great irritation of the whole system. A disposition to faint upon the slightest occasion is not an uncommon fatal symptom, often occurs, or the patient attempting to get up. Among the attendant, or the extreme debility, is a difficulty of breathing, almost amounting to suffocation. The patient feeling as if were a want of air; should not a favorable change take place, the disease now passes into the last stage viz. that of irritation. In lies upon his back in bed, slightly drawn toward the foot of it, from inability to maintain his position; his eyes are half closed; his mouth is open. He is insensible to impressions from without. Along with stupor there is often a clenching at the lids clothes, imaginary object. Sometimes there is spasmodic muscular movements, almost amounting to convulsions—The pupil of the eye is either contracted or dilated; the tongue is dry, the mouth covered with black, there is an offensive odour exhaled with the breath. Involuntary discharges take place from the bladder, rectum. Sometimes the urine is suppressed; the features are shrunk...
Of a palpable nature; the extremities are cold. - The pulse is small, fluctuating, feeble, & comes to be almost imperceptible at the wrist. - The approach to death is gradual, without violence. - The respirations become slower & slower, the pulse weaker & weaker, until at length the patient ceases to breathe & his heart to beat. - When death takes place at an earlier part of the disease, it may be violent but that is rare.

The disease when it takes a favourable turn before collapse is generally indicated by a diminished frequency of pulse, a return of the moisture to the tongue, with a gradual clearing of the face; as also by the disappearance of the eruption, by subsidence of the severe symptoms & a return to consciousness. - Again when the state of collapse is recovered from it is in a gradual manner, & under the continued use of some of other stimulants.

We shall now proceed to the consideration of the symptoms which distinguish typhus from typhoid fever. - In the first place, the mode of attack is more gradual, more generally preceded by premonitory symptoms in Typhoid than in Typhus fever; the aspect also differs, there is lip dusky &
The chief difference in regard to the strictly febrile symptoms which characterize the two diseases consists in the more burning and searing heat of the typhoid fever. The odours from the body seem to differ also in the two fevers. In typhoid fever it can readily be felt, but in typhus it is quite common of a pungent & ammoniacal smell. The symptoms too arising from disturbance of the nervous system are much more prominent & severe in typhus than in typhoid fever. In typhus, the pain in the head is more intense of distressing, the stupor is greater, there is more marked sensibility of the surface of the body. The nervous symptoms also come out more clearly in typhoid fever. This is more marked as regards stupor which is never present to so great a degree as in typhus fever.

The most striking symptom of typhoid is diarrhea. It frequently appears early in the disease, sometimes not till the beginning of the second week, but may however arise spontaneously with the disease & is frequently accompanied with pain in the abdomen. The stools are of a dark colour & fetid, or of a yellowish
yellowish, not unlike that of jaundice. The abdomen is found on pressure to be unnaturally hard, tympanitic, and much distended. The diarrhoea increases as the fever goes on from four to ten stools occurring daily. The stools, when they are passed involuntarily in bed, occasion irritation, color, and apt to seep from their contact with the skin.

Diarrhoea, when it occurs day after day, it may be safely inferred that there is ulceration of the bowel, although there be no pain complained of on pressure of the abdomen. Necromancy from the bowels is another striking symptom of typhoid fever: it is a matter of certain den of ulceration going on in the bowels, than diarrhoea. It may come on suddenly, if the quantity is at all considerable, quickly exhaust the patient; however, it may occur at intervals, in a lip amount, exhausting his strength in a gradual manner. The bleeding cannot. Necromancy is owing to the opening of the mesenteric veins by the process of ulceration which is taking place in the intestines. Necromancy from the rectum is also common in typhoid but occurs but seldom in typhus fever. It happens most frequently during the early period of the
of the disease, but it is not unusual during the latter stages. The discharge may be small amounting quite frequently to only a few drops at one time and at another it may be so profuse as to require the use of means to arrest it.

Another distinctive mark between the two diseases, except in the character of the eruption - In typhoid fever it is papular, the spots are circular of a bright rose colour and do not mimic in the hue of the surrounding skin; they are surrounded by a slightly elevated and never vesicular or pustular. During the whole period of the disease they disappear completely under pressure but return when the pressure is removed; they make their appearance usually during the second week of the disease and continue to do so daily until the third week when they cease but they may recur in cases of relapse, along with the other symptoms. Each papular looks about three days, if they do not remain on the dead body.

The appearance of the tongue is different in typhoid. If typhus fever, it is much more frequently moist in the former than in the latter during the disease - dried, glazed, fissured in the former but this
occurs but rarely in the latter. A dry tongue with
red lips edgewise and yellowish brown fur may be
considered as a diagnostic sign of typhoid fever.

The differ also in their duration. The duration
of typhus is considerably less than that of typhoid.
Death from the former disease occurs more frequently
during the early stages. The most common form of
death in typhus is from coma. In typhoid on the other
hand, it happens chiefly through syncope, but death
by asphyxia is by no means uncommon in both.

The symptoms of both these fevers may vary
according to the season of the year, the situation of the
patient, whether he is in a clean and well ventilated
apartment or surrounded by a stagnant foul
atmosphere. Inflammatory complications, espe-
cially of the bronchial organs, occur very frequently
during the colder months of winter and spring, while in the
warmer of summer, autumn, diarrhoea or dysenteric
complaints may become more readily met with. In a
situation where the air is foul and impure, the fever
will have a greater tendency to assume a low or
febrile type of the deaths are more numerous than
where it is pure.
Morbid Anatomy

Many of the lesions met with after death in typhus typhoid fever are accidental, that is, they are not necessarily a constituent part of the pathological anatomy of the disease. Many of them such as the alteration of the mucous membrane of the stomach, esophagus, & the change of the spleen in both it & typhus, we have every reason to suppose play an important part in the pathology of the two diseases. Other lesions are essential to the disease, for they always enter into its composition, as the change in the glands in the small intestine & the lymphatic glands of the mesentery in typhoid fever. It must however be borne in mind that there is an occasional absence of any appearance that can strictly be called morbid after death in typhoid fever; this however is a rare case, though it is the opinion of the most eminent morbid anatomists, based on the result of numerous enquiries into the subject. In regard to the nature of the morbid appearances which are found after death by continued fever, it is to be observed that they are almost always the result of inflammation. This inflammation as has been noticed is dealt in certain textures only. It appears
its effect are more limited than in other cases, rarely extending to the effusion of lymph, or the formation of pus. From the severity of the nervous symptoms resulting from deranged action of the brain, it might have been expected that this organ (the brain) would have exhibited corresponding alterations in structure. This is not the case, for the lesions of the brain are far from being universally present; when they are so, they bear not constant relation to the disturbed functions during life.

The most common changes consist in by far the greatest number of cases in increased density of matter on the different surfaces, chiefly between the pia mater and arachnoid, and in the ventricles. It is important to observe however that this increased density seldom amounts to more than half an ounce, and that it is most generally noticed in the bodies of persons advanced in life, being seldom present in those of young persons.

A congested state of the blood vessels, especially of the pia mater and substance of the brain, is very frequently observed after death, and this probably depends on the same conditions of the blood from which the effusion results. In a few instances extravasation of blood has occurred within the cranium and also in some cases, effusion of lymph and even of
Purulent matter have been found on the membranes of the brain—these pathological conditions of the brain encountered after death, have no ascertain'd relation to the symptoms during life; instances of delirium, convulsions, have occurred as frequently in delirious as in the patient whose brain presented none of these morbid changes after death, as in those of an opposite character. Of 53 cases examined by Dr. Reed there was an increased effusion of liquor in 25; nearly all of these patients exhibited more or less central symptoms, such as delirium, coma, &c., but on the other hand these symptoms were as often present as strongly marked in the cases of cases where no such effusion was found. It is obvious that these lesions are in no way peculiar to continued fever: as they are found as frequently in persons who have died from other acute diseases, including the brain & its membranes.

The morbid appearances met with in the chest after death in continued fever generally consist of a more or less congested state of the bronchial tubes, which are of a dark, red colour, often presenting a violet tinge—the mucous membrane of the trachea is altered in the same manner, the epiglottis is often very seriously diseased. In some cases of typhoid fever the epiglottis has been found

the least
the seat of ulceration, extending not only through its in-
viting membrane but into the fibers, cartilage itself —
These ulcerations are not uncommon when the disease has
proved rapidly fatal, but they are more frequently present
production of some difficulty of swallowing during
the disease — In a considerable number of cases there is
found a large amount of clear, effusion into the pul-
monary cellular tissue, which runs out on cutting or
pressing that substance — The lungs have in many
instances been found condensed so much so, that they do
not expelate when cut with a knife & sink when placed
in water — But this condensation is very different from
that which results from inflammation, being of a darker
& more uniform color, & shewing the characteristic ap-
ppearance of granular destroized lymph — Probably
the most striking change that takes place in the tho-
can is the altered condition of the blood, this alteration
consists in the diminution of the natural proportion of
fibrie — It has been ascertained also that the cavities
of the heart, especially the right ventricle, contain con-
cretion of fibrie, a whitish or yellowish colored, but
more commonly the blood is in the form of dark coagula-
etely fluid —
Out of 50 cases Chomel found small & beauty fibrinous concretions in 6. Dark Coagula in 9. Dark fluid blood in 15. Blood drawn from a semi during life, seldom presents the buffy coat, when present is generally lost, gelatinous, & of a greyish or greenish colour.

The character of the blood has been carefully investigated by Louis More, especially in typhoid fever. He found that the fibrin was never increased, but very often diminished, & that the diminution was proportioned to the severity of the disease. Dr. Jenner has discovered in many dissections a flabby & degenerated muscular condition of the heart in typhus. I also make the observation that the blood deviates far more from its healthy standard in typhus than in typhoid fever.

The alterations in the stomach differ in typhus & typhoid fever. In the cases of typhus fever reported by Dr. Gerhard, the mucous membrane of the stomach was always more or less altered; the most frequent change consisted of softening of the membrane, more especially at the great Cul de Sac, which softening was sometimes confined to small portions of the membrane. Sometimes it was extensive, in some instances it extended to the other coats of the stomach; in some cases the large veins were engorged.
Engorged, in other the mucous membrane was of a dark slate color—Dr. Dewey found the mucous membrane healthy in 23 out of 37 cases; it was of a dusky gray hue in 24 in one case there had been ulceration; he also found great softening of the great Cul de sac in four cases so much so that it was ruptured in the removal of the organ—In typhoid fever the mucous membrane is changed in its color and consistence and is very frequently the seat of ulceration; these alterations may happen separately, or they may be conjoined. The most frequent change of color is an increased degree of a dusky blue or violet in amount and occupies different portions of the membrane but most commonly the larger extremity. It may be the result of inflammatory action but in many instances, there is sufficient evidence that such is not the case—Softening of the mucous membrane may exist alone but is more frequently accompanied with a diminution of its natural thickness. This alteration is met with in all parts of the membrane but it is often confined to the cardiac extremity—Of 14 cases reported by Vohmele it was confined to this region in 10—Sometimes it is continuous all over the stomach, or it may exist in separate bands—Louis found ulcerations present
present in 4 out of 46 cases. Of 42 cases quoted by
Thomé however this lesion was not present. In general
these lesions are small and do not seem to be very numerous.
Little elevation of the men brane circular or oval in
their form are sometimes present in considerable num-
ber scattered on the stomach. They are generally associ-
ated with other alterations especially softening and
increased vascularity. These elevations occur rarely
in typhus fever, are often found in cases which
terminate early than in those which are prolonged—
They only occur at those which happen in the liver to any
extent is that of softening. Louis found it present
in one half of his cases of typhus, that it prevailed
to a greater extent during summer and autumn than
winter spring. Andral on the other hand in
cases of fever discovered the liver to be invariably
healthy. The spleen is always more or less changed;
it is generally enlarged and found in a large proportion
of both diseases but this happens to a greater extent
in typhoid than in typhus fever. In many cases
it is three or four times as large again as natural
size of the parenchyma of the organ is almost reduced
to a jellyy mass. These changes of colour, consistence,

Log James
...of volume extend uniformly through the whole mass of the organ, but most strongly marked in those cases which terminate early —

In all cases of typhoid fever there is found a peculiar lesion of the small intestine, this is the most important pathological element of the disease. This nodular condition which varies in different cases, consists in atrophy of the elliptical plates or Peyer's glands — these change are of the following kind —

In the first place these glands become enlarged and more perceptible to the sight than in the natural state; after that they present a grayish transparent surface dotted over with black points, which are the natural orifices of the glands. As the process goes on, the patches become reddish, the follicles burst or ulcerate, not as a mass but gradually, so that an irregular ulcer is produced with thickened edges — the follicle, however may disappear without there being any ulcer or softening, the mucous membrane lying beneath — even the remaining part of the patch of follicles being pale level — the form appears one of the ulcerated surface may vary as well as its colour, sometimes it is pale grey, often red, occasionally...
occasionally yellow. The cutaneous glands also partici-
pate in the change; they become larger, hard, and from a whit-
ish projection from the surface (in appearance not unlike the
that of a fungus); gradually, however, a loss of sub-
stance takes place in them, which beginning at the base
of each, is the end forms a deep cavity well marked
when. In regard to all these changes, it has been ob-
served that they are more common and more extensive in
proportion as we approach the ileal caecal valve.
Accompanying this ulceration in the glands of the
Intestine, those of the mesentery are always
found more or less changed. This change varies ac-
Cording to the period of the disease—When death takes
place before the end of the third week, they are found
of diminished consistence, of a red colour. If
the disease has existed for a longer period this
ulceration is not so well marked, the red colour
gives place to gray or violet. Small yellow
points of a purulent description are found in some of
them. The cutaneous glands are found to correspond
very nearly with the changed elliptical plate, the
alterations are also discovered to be more numerous
in the vicinity of the ileal caecal valve.
There is another peculiar condition of the elliptical plate which Louis found in a large proportion of cases, the secretion in a morbid transformation of the submucous cellular tissue. A substance of a yellowish color was found deposited in the tissue presenting a glossy surface when cut, being as hard as flinty and flaking off to form little tubercles. In this morbid product the term typhoid matter has been given. These alterations afford a reasonable explanation of many of the symptoms of typhoid fever. In this manner hemorrhages from the bowels may be accounted for, as also the incongruous which is felt when the abdomen is pressed, which is peculiar in the neighborhood of the cæcum. Among the numerous points of difference between typhus and typhoid there is none of greater importance than the above—i.e., the intestinal canal is generally found to be en-tire throughout its whole extent in typhus fever.

In the cases reported by Dr. Gerhard no visible lesion is mentioned, excepting occasional spots of ecchymosis; there was not a case in which there was the slightest deviation from the natural appearance of the flanks of Peyre—Of 29 cases examined by Dr. Stewart, in Glasgow.
in Glasgow Infirmary, where the pellets were slightly elevated but there was not a single case of ulceration. Many other pathologists have observed the same effect; among whom may be mentioned Dr. Reid whose cases are reported in the Edinburgh Medical and Surgical Journal for Oct. 1839.

**Treatment**

There are few subjects regarding which medical writers have differed more than those of continued fever. Methods, believed to have the most opposite effects, have been confidently recommended & strongly proscribed at different periods. Of the Medical authors who have adopted these methods, some have each reported their own success to be greater & most uniform. In fact, the treatment of this disease has changed continually according to the changes in medical theory & the most fashionable doctrines of the day. The difficulties attendant upon the treatment of this class of fevers depend chiefly upon the varying state of vital action in their course & the modifications & complications which they present in different epidemics. There is also great difficulty in distinguishing between the changes induced by remedies & those taking place spontaneously. Continued fever of whatever
of whatever species. Like other diseases which have a definite course, there is a strong natural tendency to terminate in health. This is shown when the disease is left entirely to itself and it is equally apparent when some drugs are employed to regulate its course or to abbreviate its duration. This tendency therefore must be a constant source of fallacy in all observations upon the effects of different remedies during the progress of the disease. It is the means, often of ascertaining to the physician, what is really the workings of nature.

There is another source of difficulty connected with the subject, that is, that not only do different epidemics vary, but they may really consist of distinct diseases, so that a method of treatment useful in one epidemic may be most hurtful if indiscriminately employed in another.

This shows how different plans of treatment have been confidently recommended in the different epidemics of continued fever; as also, that what is proper treatment at one period may not be so at another. That a successful method of cure can never be established by theory, but must be the result of practical experience. — During any epidemic of fever it is of the utmost importance to observe the tendency to death of the symptoms preceding it, for the principal
Method of treatment must be to obviate that tendency. That is to oppose those complications & morbid changes occurring during the progress of the disease which often lead to a fatal result. The immediate cause of death are various, even in fevers arising from the same contagion; the sooner they are perceived & checked, the more likely is the disease to have a favourable termination.

A patient labouring under fever should be placed in circumstances favorable to the ultimate decline of the disease; for example, by withdrawing him from those rooms which are known to aggravate the febrile state. He should be removed to an open & dry and atmosphere as possible. His apartment should be large & well ventilated by an equal & moderate temperature. In the warm seasons of the year the windows should be kept open day & night; unless the weather be very hot, there should be a fire in the room to act as a ventilator. The room should also be kept as clean & quiet as possible & no person leaving the house should be allowed to remain in it. The patient too should be kept very clean by frequently changing his clothes with soap and warm water. By changing his linen often, the earlier in the disease this is carried into effect.
the better for the more complete the functions of respira-
tion are performed the life risk then will be of vital
Exhaustion & the functions of secretion & secretion of being
Contaminated — It was formerly the custom to at-
tempt to check the progress of the disease by what was
termed Clothing short the fever (this was done by making
use of emetics & the cold effusion) — This practice is
now entirely abandoned; & for this reason, that experience
clearly proved that it was founded upon error —
Indeed it is hardly probable for any one to suppose
that a person having gained entrance into the blood,
its operation could be checked by an act of vomiting
or by the effusion of Cold water on the skin.
We have every reason for thinking that the cases of
fever cannot be cut short in this manner, were either
not cases of fever at all or that kind, which are called
epidemic or which pass off in the course of two or
three days without any interference.

The cold effusion was first introduced into prac-
tice by the late Dr. Barrie of Liverpool; one of whose
obligations in reference to it is that it should never
be employed when the patient had any sense of chill-
lines upon him. The remedy consisted in placing
the patient
The patient in some convenient is pouring cold water upon him, after which he was dried and put to bed.

In various countries the cold effusion has been tried, but has failed to realize the expectations which it first excited, in fact it has been found to be no more efficacious than blood letting, emetics, & other remedies which have been often recommended, but as often ended in failure. The cold effusion has been entirely superseded by the sponging of the body with vinegar and cold water, which is now practised in all cases of high fever, of great benefit. It always produces heat and restlessness, frequently induces a gentle moisture on the surface of the body. In regard to its application that may be regulated by the feeling of the patient. Though emetics have not the power of cutting short the disease yet, they are often of great service, especially if given at the commencement.

If the gastric symptoms are prominent the relief which emetics give is very evident. An emetic clears the stomach of erupting matter, which may either consist of undigested food or of acid secretions. Vomiting produces a determination of blood to the surface, relieves the congestion of internal organs. As a general rule however it should only
it should only be given when there is reason to believe that the stomach is loaded with impure irritative matter. A couple of speculums may be given, if a grain of tartar emetic be added, it will have a purgative effect. Its evacuation too will be aided by immersing the feet in warm water or by the administration of dilute drinks either warm or cold.

Little need be said about blood letting, a remedy brought into notice by practice, mainly by the writings of the late Dr. Armstrong. Now a days its application to continued fever, is almost obsolete, formerly it was the chief means of cure upon which reliance was placed.

It may be remarked however in reference to this, that when this remedy was in vogue, fevers were differently constituted from those now met with. The types of fever having changed repeatedly during the epidemics of the present century. At one time it presented the Athenie at another the aethemie character.

The fever which prevailed from 1817 to 1820 was purely of the Athenie character, its invasion was rapid, the patient was often laid prostrate within an hour, the heat of the skin was burning, the headache was intense, all the symptoms were essentially inflam-
Fever of this kind was successfully treated by blood-letting to the extent of 18 ounces often repeated more than once - even when patients into the typhoid stage blood-letting from a semi was well borne; but it is worthy of remark that semi was not administered with such benefit as might have been expected from the protrusion actually present - Now although blood-letting may have been carried to a greater extent than was absolutely necessary, yet there can be no doubt that in the epidemic alluded to it was of the greatest benefit - this is apparent from the following statement on the mortality was not greater than 1 in 30 but it was generally admitted that bleeding depended the tendency of the fever to pass into the typhoid stage the epidemic in 1825 presented the same character as the previous one but in 1834 a change took place in the symptoms of the fever the typhemic character disappeared festhemia occupied its place when the ineffectuality of blood-letting was become apparent - the patients were intolerant of enemation so much so that the loss of a few ounces of blood brought on faintness the constitution refused totally afterwards. Since then blood-letting has been very little practiced in the treatment of continued fever whether should inflammatory symptoms burn high at the
at the commencement of the disease, then the abstraction of blood may become necessary, if possible local bleeding should be employed, either by cupping, or by the application of leeches; but of general bleeding, be thought essential in that case. The patient should be held in an upright position. The character of the prevailing fever as well as the stage of symptoms must determine the propriety of blood letting, either general or local. In every patient who is seized with fever to be bled indiscriminately, many lives would be sacrificed to a remedy which then employed with judgment is of the greatest service -

Purgatives are very useful in fever, not only at its commencement but also during its progress. There is reason to believe that in no case of fever is the mucous membrane of the alimentary canal in a healthy state. Purgatives, therefore, are given to restore it to a sound condition by unloading it of accumulations of putrefaction, by purifying the primal bile. Purgatives also favour secretion from the abdominal viscera, from the intestinal surfaces. In the advanced stage of fever the utmost care is necessary in the selection of purgatives, also in their administration.
for at this period they are apt to prove injurious by draining too much from the system through the bowel, & it is sufficient that the contents of the alimentary canal should be regularly emptied — for this reason mild aperients containing some mercurial preparation are very beneficial in this stage.

In the beginning of fever however, more especially when there is considerable vascular excitement, the more active purgatives such as calomel concomitant with the rhubarb or jalap may be given; this should be followed by a saline draught.

In all cases the choice of purgatives is of much less moment than their due regulation —

The patient hair should also always be cut off, as the mere removal of it is often attended with benefit, inasmuch as headache & confusion of thought consequent upon it are generally lessened or entirely removed by such a step. The head & shoulders should be kept raised & strips of linen wet with some cold lotion should be constantly applied to the forehead & scalp — Should the heat of the head however be hot great or the cold application make the patient shivery or uneasy, then it ought to be discontinued
When the patient is affected with restlessness, delirium, opium & disturbance of the nervous system opium may be administered, but much discrimination must be employed in its administration, inasmuch as by its careless use the tendency to coma may be increased & the patient called into a fatal stupor. As a general rule opium ought only to be used when the febrile symptoms are not very great & when there are no indications of irritation or congestion of the brain; however it may be advantageously employed in that form of continued fever which in this country is called low fever, the most menacing symptoms of which are delirium & want of sleep. When the want of sleep is incessant the patient is exhausted by restlessness & nervous agitation a small dose of morphia will generally calm him down & afford him sleep. This drug should not be used in large doses as patients in continued fever are very readily & strongly affected by its astringent properties. When the symptoms are well marked it is best to administer it in the evening to the extent of a grain the good effects of which on the following morning are often so apparent as to render a repetition of the dose unnecessary. In case too of this kind camphor.
Camphor has been strongly recommended, on the ground that it allays the restlessness in some cases, diminishes the delirium's impulsive sleep when interrupted by the disturbance of the nervous system.

Whenever there are signs of mental exhaustion, then stimulants become necessary; of these many have been recommended, but the one which has found most favour is wine. The benefits imparted by wine in undiluted, not only acts as a local stimulant to the stomach, but being absorbed by the brain, is carried to the heart and from the pulmonary to the general circulation; it also distends the vessels in the brain to fortify it. In this manner it is that wine is instrumental in removing delirium and procuring natural sleep, as also in diminishing the frequency of the pulse by restoring the secretions generally. In each individual, wine may be given to the extent of from two to six ounces in the course of 24 hours; beyond this amount, it is not beneficial, but may prove positively injurious. When administered in the amount of two ounces, in the evening...
in the course, it is beneficial by acting as a hypnotic
of procuring sleep, should it however induce pain in
the head & increase the hardness or frequency of the pulse
then its administration must be carefully watched.

As regards the wine itself, the kind usually given
is port, which if it should prove too stimulant in
the pure form ought to be mixed with an equal portion
of water - Sherry may be employed in the same manner
as for the same object. Sometimes a tincture if it do not
grate or irritate the bowels. - It may be here remarked
in regard to this subject that wine & all other stimulant
are highly injurious in the early stages of fever & should
never be used before the second week. - Often it requires
great judgment to determine when the administration
of wine has become absolutely necessary.

Other stimulant, such as bark, Camphor & ether
have been used on the Continent, but they are not gen-

erally employed in this country. In all cases of fever
more especially of the typhoid, great attention should
be paid to the state of the abdomen. When much tui-

ariness is felt over the coccal region, leeches may become
necessary. When used their bites should be covered
with a light poultice. Should diarrhoea become

Iago.
Profuse, a few grains of Calomel with a dose of Dover's
powder may be advantageously given, or it may be check-
ed by an enema of opium—Great comfort may also be
obtained for the patient when the abdomen is uneasy
by the application of a linseed poultice—The state
of the urinary bladder should also be watched care-
fully, day by day, measured as when the patient is
in a state of stupor, the bladder may become distended
to such an extent that if it does not rupture, it at least
may lay the foundation of future disease—The state
of the body too should be attended to so that its clean-
liness may be ensured—Bed-linen should be guarded
against by relieving the projecting parts of the body
from pressure by means of pillows. When the skin is
bitten it should be covered with soap-plaster.

In regard to diet during fever little or no difference
exists among medical writers, and all being almost
agreed upon the point, that food should be withheld
from persons labouring under fever in its earliest period,
except in the mildest state digestible form—

Probably animal food would be injurious at the
Commencement of fever even if it could be digested,
but it cannot be so perfectly digested at

itself
its use should be forbidden. When convalescence is
established it is certain that over-indulgence in the use
of food is injurious inasmuch as it greatly favours the
occurrence of relapses, though at the same time during
this period some extra nourishment in the shape of food
is necessary for the recovery of strength, but it must be
given in the most guarded manner. This caution is
the more necessary in proportion as Appétite returns
to the patient. The appétite is usually a sufficient
guide to the quality, but not as to quantity of food.
Hence it is usual to begin with small quantities, & to
increase gradually. It is also requisite to make
the interval long between the portions of solid food
given in the early stage of convalescence. The quan-
tity should at first be increased & the effect on the
system duly watched. It is not that the system will
be too rapidly nourished, but that the organs of digestion
may be unable to digest the food, that constitutes the
danger to be avoided. Therefore all the symptoms
which refer to these organs must be closely looked after.
For example should headache arise, it is the functions
of the organs he disturbed. That the signs of indigestion
are shown clearer here than in the stomach, is therefore

The food
The food should be stopped till it appear whether it is the case — it should also be remembered that emaciation of the bowels will be followed by indigestion so that that too must be guarded against in order that no bad consequences may ensue.

From all that has been said, it is evident that we have no means of directly curing fever; we may indeed mitigate some of its symptoms, prevent some of its contingent evils, but the disease still continues to be terminated only when the powers of the brain and nervous system are restored to a healthy degree of vigour. At present, we are not acquainted with any means by which this can at once be effected, and we are therefore obliged to wait until it be accomplished by the natural powers of the system which is sure ultimately to happen if we can only in the meantime keep the several vital organs from sustaining severe injury, and also prevent a total suspension of any of the functions. The fever poison must work its way through the system, and it should therefore be the great object of practice to keep the patient alive until its influence on the body shall have ceased.

While placing the patient therefore in circumstances,...
most favorable for the elimination of that poison from the system, we should ever be on the watch against the complications which may arise during the progress of the disease if possible to hinder their coming into existence. In the words of Bullen we should constant ly endeavour to "obliterate the tendency to death."