A Thesis.
on Enteric Fever.
by
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for M.D. Edinburgh 1885.
An account of Enteric Fever; its etiology, pathology, symptoms, & treatment.

Definition.

A continued specific fever, having an incubation period of about two weeks, characterized by an inflammatory affection of the aggregated follicular glands of the intestines, febrile intestinal disturbances, & a peculiar rash.

History.

It has been variously described as Syphus Pretonis, Renous fever, Abdominal Syphus, Common Continued fever, Entero-Pretonis fever, Follicular Enteritis, Peliosis & Sicuretis fever.

The continued fevers of which Enteric was one form, were at one time described under the single name of Common Continued fever, of which it was believed there were several varieties; but since the year 1840, specific differences have been gradually becoming more & more obvious.
Formerly Typhus & Typhoid Fever were
supposed to be identical. In 1827, Pasteur of
Paris on investigation of 150 cases of
Saireau's fever, found always inflammation, with
or without ulceration of the mucous membrane
of the intestine. In 1829, to some extent gave a connected view of the symptoms, 
itself dealing, in the fever less common
in Paris. Other observers finding that the
disease was absent in many cases where it
was intentionally looked for came to the
conclusion that there were in fact two
diseases which were indifferently known
as Typhus, & Typhoid. Other physicians,
English, French, & American took up
the investigations. Opinions as to their
two separate distinction, were divided up
until the year 1846, when Dr. Jenner began
investigations. He was the first to argue
that the material media by which they
are propagated, are specific & different
from each other.

Since 1851, proofs of difference have
accumulated by observations of the late
Dr. Wm. Budd of Clifton, Bristol,
The late Dr. Murchison of St. Thomas Hospital, the late Professor Wunderlich of Leipzig, Ven. W. Siemenz of Zurich & others.
Etiology

Influenza fever is a disease of worldwide prevalence, occurring for the most part in an endemic form; but occasionally assuming the proportions and behaviour of a genuine epidemic. In Europe, it occurs in Russia, Denmark, 
Middle Europe, especially in England, France, Germany, and Holland.
It is most prevalent in the autumn, during the months of August, September, October, and November. It is least prevalent during February, March, April, and May.

Most epidemics occur after the summer, when the ground is drier in its posterior depths.
Others occur independent of time or degree. Its extent is usually limited to a town or part of one, perhaps to a single house, in which case it may be traced to its water or drainage. It most occurs in persons between the ages of 15 to 25, in men more than women, in the strong well-nourished and proportionate in the poor. It rare occurs in infants and old people, in persons suffering from cardiac, Tuberculous, or Carcinomatous disease, acute or chronic diseases, or in pregnant
or nursing women.

"Dr. Macleod's investigations show that more than one half of the total number of cases admitted into the London Fever Hospital during 10 years, occurred in patients between the ages of 15 and 25. More than one fourth, in persons under 15. One tenth, in persons between 25 and 30. "From that age onward, the numbers rapidly diminish." (Bristow, Page 201).

Except in rare cases, one attack confers immunity. People may become less susceptible to it by living in places liable to the disease as in Munich. It is doubtful if it is contagious, tho' this has been strongly advocated by the late Dr. W. Budd of Brixton and others.

There are various theories as to its origin.

1) From decomposition of organic matter.
2) "A specific poison yielded by the bowel of typhoid fever patients," probably by them alone. (Bristow, P. 201).
3) "Vaccinomatous origin, rendered probable by cases occurring in places remote..."
from travel, & where there is no suspicion of Contagion. The probable explanation of this is, that the organism may originate, & develop first only in the body & depart; but outside of them also" (Preimayer P625).

Some held that it may be caused by milk from cows fed on soil, containing animal sewage, or from eating the flesh of animals that have suffered from the disease (Roberts P720).

The poison clings to the deposits from patients; but it is doubtful if it can be communicated by emanations from the skin & lungs. The fecal dejections don't seem to spread the disease; so they probably undergo some fermentative change which renders the forms more active after reaching some place favorable for their development; & then re-enter the human body.

The poison probably enters by the alimentary canal; but Preimayer P625 says: "Absorption takes place through the lungs themselves; but several cases have been
caused by contaminated well water. It is doubtful if the poison can be swallowed with decomposing meat."

In the army statistic, the cavalry those artillery regiments have seen an excess in some years, according to the sanitary commission, the reason assigned by medical officers for its difference, is connected with foul stables. If stable duties, attention is drawn to the fact, that horses in these stables are liable to attacks of enteric fever. If the connection be justified, it opens up an hitherto unrecognized proof of the disease, an interesting in comparative pathology. There an alarming bearing on all the mounted corps. The result, in effect, put an excess to those, with much sickness among the horses. The excess is not general. In some cases may be traced to other causes, as localities of barracks (Welch 195). The Deothe probably contain some virus, the powers of which may last for long periods. As instances of this:
Dr. Layle, in his Egyptian lectures says, "Typhoid fevers were burned in a dung-hill. Some nine weeks later, five persons who were employed in removing the dung from the heap, were attacked by Typhoid fever; their alone discharges were buried deeply in the same heap; four months later, one of the men who were employed in the complete removal of the dung, was attacked and died."

At the same time in India, five years had elapsed, between the Shutting up of the old wells and cesspits. The outbreak of the disease in the 25th Regiment, traced to well water contamination by them. (Welch "Native Fever" Page 197)
Pathology.

In the Early Stage — Here is little emaciation. Mucous Membranes well marked, firmly thickened. Hypertrophy, sometimes rather, common. The heart, the back ground of the heart, the large vessels, is thick, dark, sometimes contains espula.

In the Later Stage — The blood is poor in albumen & corpuscles. There are always changes in the Respiratory System, such as, Laryngeal ulcerations, Bronchial catarrh, Hypertensive congestion, Edema, or collapse of the lungs, lobar or lobular, pneumonia. The Bronchial & Tracheal glands are often affected.

The heart is usually relaxed, the endocardium, lining membrane of the vessels infiltrated red & discoloured.

The Alimentary System. — The Pharynx & Oesophagus, may be congested, inflamed, or covered by a Diphtheric deposit.

Sometimes there are superficial ulcerations. The Stomach is generally normal; but the Mucous membrane may be hypertrophic,
The Intestines. Here are found the characteristic lesions of enteric fever, affecting the cecum, Travers' glands, and the Descending glands in relation to them. The rest of the lesions is in the lower third of the small intestine, their number and size increasing towards the ileocecal valve, but they may extend much higher up, or lower down, in certain cases.

The following is Pakettinsky's description of the changes which take place. He divides them into four stages.

First Stage. — The mucous membrane of the whole intestine is congested, and appears swollen, relaxed, clouded, and covered with mucous and epithelial masses. This is most marked in the lower part of the intestine. The Descending glands are moderately swollen, soft, vascular, and dark colored.

Stage of Typhus Infiltration. — The general redness and swelling of the mucous membrane is increased, and concentrated...
around the Peyer's solitary glands, in
the lower part of the ileum. The size
of the solitary glands varies, from a
onion seed, to that of a pea.

The Peyer's glands usually coalesce over
the valve, thus often cover a strip of
mucous, several inches long.

The cut surface, looks as if infiltrated
with a soft, papil white, or pale reddish
enlarged ones, called Medullary
infiltration. Sometimes also, the degen-
eration extends, there is a Medullary
infiltration of the connective tissue of the
mucous membrane in the villi to
a cellular oreepplasm, arising from
connective tissue corpuscles.

The Grecenneri glands are the size of a
bean, or hazel nut, papil red, in colour,
& quite hard.

**Third Stage. Stage of Relaxation, Deteriorating, Breaking down. The changes vary.**

Sometimes there is Revolution, Iowo,
chiefly in Abortion. Syphilis.
C. Sometimes, the surface of the poleis is changed to a long prubleous (yellow from the faces). This sometimes extends over the whole plant, or only over parts.

B. Sometimes, the poleis plant may rupture outwardly, without their covering sloughing, which in this case, looks full of holes, reticulate. The nextentary plants are most prominent in this stage. Sometimes are the size of a hen's egg. Their colour is generally bluish, or brownish red. Their appearance has a fagist red, onedullary appearance.

Fourth stage. — The slough is thrown off in one piece, or in pieces, it leaves the Typhus ulcer. The ulcers are of course opposite the micron of the nextentary. Their long diameter is not the length of the micron. The margin is bluish red, later on, is plate colored. The border of the mucusous Membrane is about a line in breadth, it is movable over the surface of the ulcer.
The floor is formed of a delicate layer of subserous connective tissue, which covers the muscular coat. When the fold is detached, the mesenteric glands subside; but long remain flatter, and more vascular than normal. (Dane's Page 628).

It is doubtful if there is any previous hyperaemia. Murchison denies it. The deposit consists chiefly of granular matter, oil globules, lymph corpuscles, and frequently paint cells formed partly in the glandular plexus, which burst into the surrounding cellular tissue, or there may be an increase of cells here also. The date at which the deposit takes place is doubtful. Murchison says it has been seen on the first or second day. (Touzén gives the point of first day, as the time of its appearance.) The subcutaneous glands are not always involved, or are more liable to be attacked in children. Sometimes they may be alone affected.
It has been stated above, that after the infiltration, there may be reabsorption. The hands may subside, due to the reabsorption of the contained matter.

Dr. F. M. de Bourbon considers that this reabsorption is what probably occurs in cases where the disease is mild, of short duration. The cases which do not go on to ulceration or phlebitis, in which the whole of the presumed poison is absorbed into the blood, are always the slightest.

Dr. Friedrich of Dresden reported the elimination of the deposit from the pericardia, in the Intermittent fever of children, in the formation of tough, coagulated, undulating, as extreme signs. (Atkinson, 59.)

Dr. Budd in his work on Yellow Fever, (Pate 49) says, in reference to the changes in the intestines, "When we remember that the affection is characteristic of the fever, that it stands in the same relation to it, as a diagnostic mark, at least as a peculiar rash, peculiar eruption to small-pox, that it is an affection which proceeding..."
from written breaks out on the surface, that it proceeds in the elimination of the crooked product. In fact, that the product itself, in the one known specific product of a contagious fever, the evidence becomes inescapable, that we have here the essence of an eruptive poison, whatever the name by which we choose to call it."

There are two forms of patches, described, viz: "Plaque, Wallace," & "Plaque, Duers, (Mackenzie)."
Both may exist at the same time, or there may be gradations between the two.
In "Le Plaque, Wallace," the deposit is less abundant & is confined to the glands, which in "Le Plaque, Duers" have burst & discharged their contents.
The depth of the ulcer may vary with the severity of the lesion; it may be bounded only by the peritoneal coat of the intestine; the ulcer has a punctured out appearance.
Klebs has found Bacilli in the deceased patches of the intestine; in the necrotic glands. Koch confirms the statement. In the plaques of the intestinal ulcers, Scott long before Bacilli have been seen.
In the symptomatic glands, as in the tonsils.
Bacilli also were found in the vessels of various organs, especially, the spleen, kidneys, liver. Probably they are the existing causes of the disease. Maraphain has found similar bacilli in the blood of living typhoid patients.
The above differs from the research of Fechle and Ehringer, who detected micrococci.

"Is it possible that the only residue in the typhoid ulcer, by any of a secondary infection. (Béjler's Pathology, "Anatomy, Article 206").

Perforation may be caused by:
1. Molecular disintegration, or extensive ulceration, producing one or more minute holes.
2. More or less extensive ploughing, involving the peritoneum, the bowel perforating, leaving an opening of variable size.
3. Rupture, or laceration, causing an elongated perforation, which may even happen after eradication is complete.
(4) Mechanical violence, as by the use of injudicious food, vomiting, 

Sometimes prior to the perforation, adhesions have 

taken place with the neighbouring organs, due 

to previous perforation.

The Healing of the Ulcer—The following 
is a tentative description of what takes 
place. — The loose border of the 

Mucous Membrane forming the edge of the 

ulcer, becomes attached to the floor, 

gradually, from the periphery, to the centre. 

At the same time, it becomes paler & 

thinner. The delicate connective tissue 

covering the floor of the ulcer, becomes 

whiter, thinned, & finally transformed 

into a porous plate, into which the adherent 

border fuses imperceptibly, thinning as it 

approaches the centre. The Mucous Mem- 

brane gradually extends over the plate, 

towards the centre of the ulcer, but at the 

same time, becomes thinner from tension. 

When the edges of the Mucous Membrane come 

together & adhere, healing is complete. 

From the thinning of the Mucous Membrane
The ulcer sometimes causes a slight depression, often
pigmented, smoother than the surrounding
parts, & studded with a few tufts.
Carcinization never causes structure of
the Intestine. At the same time the
Peritoneal planes shrink, to form, platyey
nodules; sometimes also they becomeaceous
or calcareous" (Eminger page 65).
Sometimes, healing may be delayed; or
the ulceration may extend into vessels,
causing hemorrhages; or into the peritoneum,
causing peritonitis.

The Peritoneal planes are generally enlarged
from the start; & the same increase
takes place in their lymphatic elements,
as in the intestinal planes.
They sometimes burst into the peritoneum.
The Mesocolic planes are similarly
enlarged, when the colon is affected.
Other planes may enlarge from irritation.

The spleen is generally enlarged, especially
in young persons. It may be twice, or
even five times its normal size.
It may contain opaque yellowish masses. May be quite fulchy. Sometimes it pusifies
As before placed, short Bacilli have been seen in the blood of the spleen.

The Liver is sometime congested, or softened.
The cells always become more or less familiar. This is well marked in severe cases.
The gall Bladder may have a little catarrhal inflammation. It may even contain ulcers.
The bile after three weeks, is often thin, watery & colorless; that an acid reaction. [Roberts, p. 24]

The Peritoneum. — There may be the remains of peritonitis, fistulae, extensive or circumscribed abscesses
It may be perforated in one or more places. There may

1. Be general, or one perforation; but there may be two or three or more. They are generally situated in the lower part of the abdomen; but may be found lower down or higher up, or even in the large intestine.

The Kidneys. — Similar degeneration of the gland cells, occurs in various degrees, the organ is sometimes congested; may have the tubers choked with detrited chylulium.
Hoffman says: "The minute vessels are in a state of extreme fatty degeneration." (Action p. 596)
The Bladder may be congested or inflamed.

The blood—certainly undergoes a degeneration. It sometimes does not coagulate. As before mentioned, bacilli have been found in it, both before and after death.

In some cases, soon after the placenta was expelled, the white corpuscles were numerous, considerably smaller than normal. They were remarkably active, throwing out numerous amoeba-like projections, in all directions. This activity lasted for at least three hours, after the blood was placed on the slide.

In the figures examined, were minute, but well-defined, spherical, homogeneous masses, as of albumen; but showing no movements, even when kept for hours. In some instances, too, the red corpuscles (or corpuscles not to be distinguished from red ones, when quiescent) showed a similar tendency, throwing out projections,
Sometimes conical, sometimes flat-shaped, & oftentimes very irregular in outline. With the movements of the Amoeba-like processes, the cosphecioldes became thinned & lighter in colour, & then formed a spherical point or points, one to five in number, could be discerned in their interior, very similar to the free masses in the Ligier Sanguinis. The processes thrown out did not carry any coloured matter with them. The movements lasted two hours. All the cosphecioldes did not show this activity. After the changes had continued for some time, it was difficult, not to distinguish red from white cosphecioldes” (Welch page 148).
"It will be seen, that the essential lesions in Enteric Fever, all belong to, and involve part of the lymphatic system. The glands involved, are in a state of inflammation, due to the infection of some person, absorbed from the bowel — the actual poison being usually swallowed with the inlet, so that the more normal and active the functions of the glands are performed, the more will they absorb the poison. Hence Enteric fever is most common in persons under thirty years of age. Nor through involvement of the hepatic patches, the mesenteric glands, that the spleen, stomach generally become infected, & excite intestinal catarrh & diarrhoea, either as the result of such contamination, or of the extension of inflammation to the glands of Lieberkühn, i.e. to the mucous membrane generally."

(Author Page 596).
Symptoms.

Fever usually begins gradually, so as often to precede, that it is difficult to fix the date of its commencement; but it is sometimes more marked.

The commencement symptoms may last for several days, or even for several weeks, and comprise mental dizziness, indigestion, restless sleep disturbed by dreams, headache, dizziness, wandering rheumatic pains, repeated epistaxis. There are frequently several chills, but rarely shivering or chattering.

During the first week, the patient is often not confined to bed; but complains of headache, especially in the forehead, buzzing in the ears, flashes in the eyes, dizziness, weariness, pains in the extremities. He is drowsy by day, 7 like to sit over the fire; frequently he is wakeful, or dreams at night. He complains of irregular chills and fevers.

There is an increase of both the
Temperature is quite high. The tongue is red or coated. The patient complains of great thirst, loss of appetite, & unpleasant taste in the mouth. There may be vomiting, or diarrhea & abdominal pain. Memerop (Page 63) says that "Here is general constipation; but sometimes diarrhoea." Frequently, however, the diarrhoea is one of the earliest symptoms. There is often repeated respiratory distress. Sometimes there is some bronchial catarrh. The face, especially the cheeks, appear red when the patient is lying down; but pale when he is sitting up.

If the tongue has a thick coat which is pale, this is generally detached from the point beside, first, or else from the middle, thus leaving a red line, which is often broader towards the tip & looks triangular.

The abdomen is generally enlarged from the part, & pain is felt on pressure, more distinctly in the
Right ileocecal force, where we may detect "ill-considered fumigation". As opposed to this fumigation, many hold that its use for diagnostic purposes is not unaccompanied with danger, since it can be heard sometimes in health or frequently in other conditions of disease; its value in a diagnostic point of view is small. The spleen becomes enlarged towards the end of the first week. It may project beyond the ribs or may be pressed upwards against the diaphragm or backwards against the spine. It may be mere as low as below the fourth or fifth ribs. The diagnosis by percussion depends very much upon its position.

The typhoid stage may appear towards the end of the first week; rare earlier than the fourth, or later than the 14th day. They are to be seen on the epigastrium.
surrounding parts of the abdomen, chest, & back; & sometimes, but
rarely, on the face & extremities. They are rose coloured, lenticular,
rounded on the surface, & soft.
To the first touch, it disappears on
pressure. Their size varies from
a half, to two & a half lines in
diameter. They appear in success-
rive crops. They are rare & numerous.
There may be two or three, or even
ten, twelve, to twenty, at a time; but
generally few. Each crop lasts for
about two days, but sometimes, may
remain for from two, to three days.

The juice is merely concentrated,
high coloured, & has well marked
lentile characteristics, with an
increase of muri, & muri acid, &
a decrease of Chloride of Sodium.
The pulse during the past week, read 90, or 100, or more, beats per minute. Its frequency does not correspond with the temperature, which is influenced by other causes. E.g., if increased 2 or 3°, so beats a minute if the patient rises up, or strains, or gets excited.

The blood flow is usually large; but the artery feels soft during diastole, & we often find a second wave; hence a double pulse, due probably to a parasitic condition of the contractile elements of the arterial walls.

During the second week, the pains in the head & limbs cease; but the dizziness & noises in the ears become worse, due not to disturbed irritation, but to propagation of crafts large, & catarrh to the Eustachian tube (Tympanum). (蒯n Meyer Page 636.) The patient now takes his bed. All the symptoms increase in intensity, & the fever reaches its-
height. The skin is hot & dry; but liable to perforations. The vomiting may have persisted. The tongue tends to be fissured, transverse, & dry. The teeth gums, & tongue, are covered with a brownish black crust, which smells bad. There is fast thirst; there may be soreness in the throat & difficulty in speaking & swallowing. The patient is generally comatose, & tricked during the day. His sleep is disturbed by dreams, or he may be delirious.

There is generally now well marked diarrhoea. The number of motions daily, varies. May be from three to four, or even to twenty, in number. The stools have a very bad smell; have the appearance of badly cooked meat soup. When allowed to stand they separate into two layers.
The upper layer is watery, yellowish or brownish in colour, contains only traces of albumen, salts in solution including chloride of boric acid and carbonate of ammonia. The last named salt gives the solution an alkaline reaction.

The lower layer of deposit consists of the remains of food and detritus of epithelial fragments, corpuscles, blood, small yellow flocculi, shred of plant fibres, nuclei, or triple phosphate.

The chest muscles show marked dulness at the lower parts, the respirations are increased in frequency, there may be non-expectoration, and cyanosis exists.

The conjunctiva may be injected and the pupils dilated.

The pulse is generally double, full, rapid, it frequently numbers 110 or 120 per minute. The patient may lose control of the bladder or forget to empty it.
Third week. About the middle of this week the patient may begin to recover. There is an improvement in all the symptoms, the chills pass into natural sleep, and when awake, the patient recognizes his friends. The respiration becomes lower, and the patient often expectorates some yellowish mucus. The mucus becomes less frequent, and of a more normal consistence. The tongue becomes moist at the tips and edges; the fur is gradually thrown off. The temperature does not rise, but J just lower in the mornings.

In a large number of cases however, the patient passes into what is known as the "malignant condition." He becomes very weak, lies on his back and turns to the left or to the right of the bed. The tenderness of the skin increases. He may find the bedclothes or pet umbilicus tenderness. Here is loss of control over the sphincters. 
Retention of urine. All the symptoms are increased in intensity, but the spleen begins to subside. The spot continues to come out, and may become paler or petechial. The pulse is more rapid and towards the end becomes imperceptible at the wrist. Bedsores may arise on the sacrum. The patient's breath becomes foetid. As the condition advances the patient passes into profound coma.

Bretton (Page 100) holds that this condition is due to uraemic poisoning. The disease is most fatal during this week. The average mortality ranges roughly from 15 to 25 percent but differs in different epidemics. Death may be due to:

1. Radical retention alone, or combined with anaemia.
2. Direct loss of blood from the gut, or haemorrhage.
3. Poisoning of the blood from imperfect excretion, or to
Abortion of Reproductive
14. This hyperemia.
15. Edema: of the lungs, surface of the heart.
16. Complications, especially
17. Superficial ulceration of the bowel, phlebitis.
18. Rupture of the spleen, or presence of fluids.

Accidents
19. Perforation during the first week.
20. Haemorrhages during the first week.
21. Abundant diarrhoea: during the
22. Second or third week, etc.

It is itself less dangerous, than
perforation haemorrhage: that is merely
a bad pain. One can often
by acute haemorrhagic diathesis.

Complications
23. Among the principal of these may be
25. Consequences: Phlebitis, Pulmonary,
26. Meningitis, Pneumonia, Pleurisy,
27. Edema, Kidney affections, etc.
Relapses may appear ten days after the temperature has become normal. Sometimes there is only a return of the pyrexia; but a true relapse has the characteristic symptoms & lesions. A relapse rarely proves fatal.

Sequelae.
Among the most important of these are:
1) Rheumatic Delays from thrombi.
2) Partial weakness of joints.
3) Fibrinosis.
4) Rheumatic Palpitations.
5) Partial anæsthesia, or Paræsthesia.
6) Peristalsis.
7) Dehiscence, due to the destruction of the bile glands of the intestines, accompanied with a swelling of the mesenteric glands.
The Temperature in Intercurrence

Woundail's Law. The course of the disease

presents two sharply bounded distinct

periods, which correspond to the
definition and recomment of the myelobla-
tions & excavations. These periods in

regular or nearly regular cases

correspond with the first & last halves

of the disease. In mild cases, the

first period lasts one or one and a half

weeks, the entire disease lasting

three or four. In severe cases, the

first period lasts for two, three or

three and a half weeks, the entire disease

five or six & occasionally eight or ten

weeks.

In the first week it is such an

absolute rule for the temperature to rise

2° towards evening & to fall one degree

in the morning, that if the

temperature on the second or third day

be 104° or over, we may conclude

Typhoid, also if between the first

& seventh days, the evening temperatures

do not rise to 103° & last if
the evening temperatures begin to decrease again as early as the second half of the first week.
A decided increase of temperature during the first week is unfavorable,
but a slight increase is favorable.

In the second week we may exclude Typhoid if the temperature be below 104° on one or more evenings between the eight and eleventh day.
Since any other decline shows such a decided rise of temperature to 70°.
A favorable course during the second week makes it probable that the third week will be still milder.
A favorable indication in the second week are—an evening temperature of 104° or 105°, morning temperature, one or two degrees lower, late occurrence of the exacerbations (not before 10 A.M.), early occurrence of remissions (midnight) and regular day moderate decrease of temperature.
Unfavorable indications are continued elevation of the morning temperatures, an increase in the evening to 70° to 70½ or more; an early recurrence of the exacerbations, a late recurrence of the remissions, or a high temperature at any time.

In the third week, in mild cases there are frequent morning perspirations, 8° or 5½ below the evening; the temperature may become normal towards the end of the week; from the middle of the week, the evening temperatures also decrease. In severe cases the temperature sinks but little or even rises. Where we may expect a fourth week we must look for a decided decrease before the fifth week. Death may be expected if the temperature remains sometime at 107° if it suddenly rises to 107° or 108°, or if it suddenly falls to 87° 94°.

One may die in 640.

A marked fall in the temperature often gives notice of impending intestinal hemorrhage.
Varieties of the symptoms of Enteri fevers.
There may be several forms in which it may occur.

1) An abortive form in which all the symptoms resemble normal febrility in the first week; but in the second week, all the symptoms are modified; the temperature generally becomes normal towards its end, or at the beginning of the third week.

In exceptionally are there a few spots on the epiaphrium. There is no diarrhoea, or sensitiveness of the abdomen.
In the third week, convalescence sets in, but is slow.

A case illustrative of this form was that of Dr. A. aged 5 years, in whom all the symptoms were well marked at the commencement; the temperature was characteristic; there was no diarrhoea, and a few spots, of one on the epiaphrium, of two on the back, were detected; convalescence was established by the end of the third week.
A form often known as Typhus Ambulatory, in which the patient may suffer from little, if any, indigestion, but suddenly may have perforation, or hemorrhage. This form is probably due to the person acting once locally than constitutionally.

A Constitutional form, in which the pain seems to act very little locally in the intestine. There is no diarrhea, but frequently there is severe bronchitis, and complicated with hypothermia or collapse of the lung or pericardium. This form is often fatal.

As an instance of this form may be mentioned the case of John S—aged 36. When first called to see this patient, he complained of pain over the liver, feet swollen, severe frontal headache, constipation, his temperature was 107°F. This had the characteristic face she fell throughout.
the highest point that it reached was 104.8°. The pupils were dilated, the conjunctiva injected. The headache throughout till the end of the second week was very severe. Quinine was given & ice bags applied; but little relief was afforded until after the application of five leeches to the temples. There was great want of sleep, & when this was induced by a mixture of Chloral & Bromide of Potash, delirium of a wandering character ensued. Toward the end of the second week the circulation became very feeble; & brandy was given. The constipation continued throughout the illness; had to be relieved by enemata. No spells were seen before the twentieth day; often they continued to come out in crops of two or three until the nineteenth day. Convalescence in this case was very slow; the patient not being able to resume his occupation (a clerk)
for over seven weeks from the
date of the commencement of her
illness.

A very severe form, with all the
symptoms very intense perhaps dealt
in the second, or even in the first week,
or perhaps it may follow the ordinary
course during the second or third weeks.
An instance of this form was the
case of Henry W. aged 10 years.
The boy was delirious from the
first, his temperature was character-
inic of its disease, and all the symptoms
were well marked. He was more or
less unconscious throughout his
illness, and died on the seventh day
from its commencement.

A very mild form. The patient has
for a little rectal intestinal catarrh, with
little constitutional catarrh, but disturbance
but the temperature is characterict
3) A very slow form lasting one, or even weeks or more; this is frequently due to convalescence being retarded by the healing of ulcers, or bybed sore spreading.

There are also various grades of severity of the disease, differing more or less from the normal type, by the predominance of special symptoms as diarrhea, haemoptysis, etc.
Diagnosis.

In all cases it is important to enquire thoroughly as to the history and surroundings of the case; as sometimes these or the temperature, are all that we can rely upon, since there may be an absence of spots, or of abdominal symptoms, with diarrhoea.

In distinguishing from ordinary febrile cataract, the temperature is also of the greatest importance.

From Typhus Fever, the main distinction is provided by the precipitate commencement, the character of the rash, which appears earlier in Typhus & does not come out in successive crops; the abdominal symptoms, which are usually vague in Typhus, but well-marked in Typhoid; by the regular, diurnal variations of the temperature in Typhoid; & by the mode of termination, which is abrupt in Typhus, but gradual in Typhoid.
Prognosis.
The percentage of mortality varies little with age, but is less below the age of twenty, than in the later periods of life.

We must be guided for the most part by the constitution of the patient, the severity of the disease, and the occurrence of accidents or complications, but should be always very guarded.
Treatment.

Phosphorus is secretion, since the poison spreads from the defect. All discharges should be disinfected before being passed into the sewer. All clothes soiled by the discharges should also be subjected to the action of disinfectants.

For this purpose may be mentioned Carbolic Acid, Congs Fluid, Chloride of Lime, fulminate of Iron. It were better if the discharges could then be buried in a place distant from any water source or supply, so as to avoid the risk of contamination of wells.

The use of suspected water or milk should of course be discontinued.

General Treatment. — The patient should be kept in a well ventilated room, the temperature of which should be about 60° or 65°. The body should be sprayed twice or thrice a day with a weak solution
of Hydrochloric acid or Alcohol; & should be kept scrupulously clean from drainage, since these may cause cystitis, & subsequent bedeces. If Cystitis appears, we should wash the parts with a solution of alcohol & Tween, provided by the use of cotton wool or water cushions. The incrust should be washed out with a solution of Chlorate of Potash or very weak Congo Fluid, or a little warm water, as to prevent the sticky mucous, drying & decomposing. If this is done, the patient enjoys this food better than less edible meat.

The Diet is of first importance. For the most part, animal foods should be given. Gray pie, beefsteak, mutton or chicken breast, milk, eggs, curdled milk. The motions should be watched & not allowed to become too bulky, or contain undigested food, as is sometimes the case after pinn cornflour, arrowroot etc.
As regards drink, we may give such things as soda & milk. Pearl water sweetened with the juice of a lemon added. Lemonade.

Therapeutic Treatment.

In mild cases very little medicine is required. We may give ten or twelve doses of hydrochloric acid every four hours. In the second week if there is any Bronchitis, we may give a little Mercuaria, with the acid, & in the third week should give a little as Cordia.

Various special forms of treatment have been recommended.

4. The Antiseptic treatment, by the use of Creasote, Carbolic Acid &c.
5. The Hydropathic
6. The Pyrathic

Colostrum has been strongly recommended during the first week, before any spots have appeared, & where there is little diarrhoea, it has
been suspected to cut short the attack, & blunderbuss Forty
Pindle is considered as specific
by Wallerbrand, Hiebermetter also
recommends it use.
Undoubtedly a dose of Calomel or Castor oil
may do good, at the very outset of the disease; but after the first three or four
days, it is much safer to resort to
enemata, if constipation be present.
If diarhœa be present, it is best
not to interfere with it, unless
it becomes excessive; in that case,
we must try & lessen the catarh
of the bowels, & limit the formation
of the phlegm. For this purpose,
Bismuth should be used, as it has
a sedative action on both the
stomach & bowels. The best form for
its use is the following

Bismuth : Subnigrat : zi :
Soda : Bicarb : zfs:
S1 : Chlorid : zi :
Ac : H supremum : zviii:
Muriate, qS. Qd : zviii:
Sis / zi every four hours.
This tends to lessen both the vomiting and the diarrhoea; to bolster the system generally, for the diarrhoea also, we may give the Pulv. Batar. Co. or Pulv. Batar. Co. & Opio, but it is best not to use opium during the first stage. Acids have a doubtful utility, sometimes we may have to resort to emetate of Sanguis Opium.

Murchison, Todd, and others argue that we should always restrain the diarrhoea. They say "Secure Diarrhoea is the most frequent fever, when you have first locked up the bowels, keep them so; Patients will go for four or five days or even longer without suffering inconveniences from the state of constipation."

(Aston Page 621).

For the treatment of Meteorism, we must limit the diaphore. They give Tinctur. Tarentarum, or Charcoal or use emetate containing acetate of Opii. If not be caused by the accumulator.
of escenita, may one bland or
Turpentine Cremona.
Flannel wrapped in Turpentine, to
spring bandaged over the abdomen;
present the accumulation of fluid,
A jute purgant" (Welch, p. 158).

For pleurisy, we may use
Bronnus of Potash, Menthe, Alcohol,
or Bitter Powder. Alcohol very
frequently does good, especially if the
patient is very weak. We should reduce
the calls to that. Opium should
be very carefully used, if at all,
during the first days of the disease.

For intense Headache, we should use cold
applications, as vinegar, water, or brand
water, or ice-bag. In some cases require
two or three leeches, but it is better to
avoid the use of these, if possible.
Internally we can give a mixture of
Bronnus of Potash. Alcohol, as the want of
sleep is frequently the cause of the
headache.
For Excessive Feverations, we may give a mixture containing Acid Sulph Bismuth &c. This fed.

For Excessive pain in the Abdomen, use Turpentine stops, hot fomentations, emascarium, or in bladder, the application of a few leeches in the bladder fossa frequently gives relief.

If there be much Tenesmus use cold to prune enemata.

For Constipation, a dose of colocynth or of castor oil is recommended in the earliest stage; but it is generally better to use Soap or water enemata.

For Hyperpyrexia, we may give Digitalis especially in the febrile, or if there is any malarial element in the case. Digitalis has been highly recommended by Wunderlich & others. Of internal remedies fail we may use hot packing, douche, sponging, but it is best to put
baths according to Foreman's plan. The first step is to put the patient in a bath at $94^\circ$. While the body and limbs are put in, rubbèd, pour cold water into the bath, until the water is reduced to $65^\circ$. The patient should remain in the bath 20 or 30 minutes, until he is completely chilled, then take him out of the bath and put him in a warm bed.

Chevalier Page 652 says give 1 or 3 jps of Quinine with the bath, then give bromide of potash to repeat them as frequently.

For a week of failure heart, Digitalis is especially useful; or we may give alcohol in the form of brandy. Alcohol is most useful after the first stage, for the suppressed perspiration, or may be used in the first stage of mental weakness, tremors, or acute delirium is present.
Haemorrhage from the bowel. Must be treated cold or ice compresses, Alum solut., Opium.

If there is Abundant Scabs or scab-loads, hot compresses should be applied; but sometimes we have to play the waiting game.

If perforation occurs, we must apply
cold compresses, hypodermic ice or ice cold water, Opium in large doses as far every hour or two.

Peritonitis must be treated with
cold compresses, Opium. The general treatment of peritonitis.

Complications, as Peritonitis, Obstruction, Edema, kidney affections, etc., must be treated on the general plan.