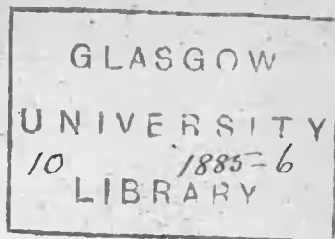


Typhoid Fever  
with  
Five consecutive cases



*"Perseverentia omnia vincit."*

*"Prevention is better than cure."*

*James C. Herbertson*

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The term Typhoid Fever is derived from the Greek, meaning like Typhus ( $\tauύφος$  stupor;  $εἶδος$  appearance)

It has at different times been called by various names, as - Enteric fever; Gastric fever; *Febris putrida*; *Febris mesenterica maligna*; abdominal Typhus; Gastro-bilious fever; night soil fever; and Pythogenic fever. This last term was given it by the late Dr. Murchison, who held the opinion that it spontaneously originated from ordinary sewage emanations or putrifying animal matter, and that even in the stools of a Typhoid patient the poison was the product of decomposition.

It is considered an endemic fever, very slightly contagious, and that from the excreta and not the exhalations of the patient. It is generally most prevalent in warm weather.

It originates in a specific virus quite distinct from that which

causes Typhus fever, and one attack does not protect the person from another. Relapses often occur during the course of the disease.

Coats, Eberth, and Klebs maintain that they have found a specific bacillus, but it has yet to be proved that it is the cause of the disease. The bacilli have been seen, in the circulation during life by Maragliano of Genoa, and in the blood of the spleen and mesenteric glands after death by various observers, as - Sokoloff and Fischel, &c. "Querin maintains that the toxic element in enteric fever results from the fermentation of faecal matters retained and accumulated at the end of the small intestine, behind the ileo-caecal valve." (Theory and Practice of Medicine, 5<sup>th</sup> Edit. Roberts, page 120).

The opinion generally held is, that the poison is generated by bad drains, sewage gas, and water

contaminated therewith, or that by some means or other the water supply has been infected by Typhoid excreta, which have not been properly disinfected.

The contagium is chiefly in the faeces, and by their agency it is most frequently propagated. The stools when passed are comparatively harmless, but derive virulence from concentration, stagnation, and a certain degree of heat with little air.

A very common means of infection is by the milk supply, the milk having been infected from contaminated water, or some of the excreta themselves.

The theory has also been advanced that the milk of cows feeding on soil containing much sewage matter has communicated the disease, or, that if the flesh of animals be eaten while suffering from the Disease, the fever will be spread.

It is a disease which attacks all indiscriminately, rich and poor, young and old. As a rule however, typhoid fever occurs amongst those of youth and adult life, it is rarely seen amongst infants and old persons. Sex does not seem to predispose to the disease in any way whatever.

It is most common in summer and Autumn, especially the latter, and is more prevalent if the season be hot and dry.

Overwork, deficient ventilation, and debility of any form may predispose to the disease. It is held on the other hand that pregnancy, some chronic and acute diseases seem to afford protection against the fever poison. If, however, a pregnant woman be attacked with typhoid fever she generally aborts, or the foetus dies.

The usual period of incubation varies from one to three weeks, and

then the symptoms set in slowly and insidiously, except on rare occasions, after exposure to the poison. If the poison be concentrated, the disease may set in with vomiting and purging and the patient be overcome and die early with cerebral symptoms, as delirium and coma.

As a rule the disease begins with languor and depression; with a feeling that the person can't be bothered with anything. There may be slight rigors, but these are as often absent. There is generally frontal headache, with giddiness and ringing in the ears; abdominal uneasiness; and pains in the legs and arms. In some cases epistaxis presents itself.

The bowels are generally loose and pale in colour, but there may be at first constipation.

The face though pale may be flushed on the cheeks, and the skin

hot and dry, and, as a consequence of pyrexia, there is great thirst and loss of appetite. Nausea and vomiting are present in a few cases.

At first the tongue is covered with white fur on its centre, the edges and tip being normal in colour, it may or may not be cracked transversely. Though the temperature be high the tongue may yet keep clean for a time.

The pulse is weak and soft, and is increased on an average up to 100-120 beats per minute. As the case proceeds the first sound of the heart may be lost, this is due to muscular weakness.

The abdominal symptoms are generally marked, the abdomen is large, swollen and painful, especially over the right iliac region, and gurgling is heard there on pressure. This latter symptom is present in most cases whether there be diarrhoea or not. Sometimes Tympanites is present, and



The spleen is generally enlarged.

Diarrhoea is considered characteristic of the disease, but sometimes constipation is the rule throughout.

The typical typhoid stools are thin and of a pale yellow-brown colour, resembling "Pea-soup." They have a very offensive sometimes ammoniacal odour. On chemical examination they are found to be alkaline in reaction, and contain blood, mucus, undigested food, and other debris. Albumen and the triple phosphate are present, but amongst the salts Chloride of Sodium preponderates.

As in all febrile conditions the urine at first is scanty, containing large quantities of urea and uric acid, with the chlorides diminished. Later on it gets more in quantity and lighter in colour. At this later period it may be retained or passed involuntarily. As a rule blood and tube casts are not noticed. If the kidneys



*Typhoid Rash.*

*Rose coloured spots.*

*Taches bleuâtres.*

be affected albumen is noted in the urine.

It is said the temperature rises peculiarly about  $1^{\circ}$  per day till the maximum is reached, and the difference between night and morning about  $2^{\circ}$ . I have noticed however, that very often the temperature is near its maximum ere the patient lies up. During the height of the fever it does not vary much, and from the crisis and during convalescence it oscillates up and down, the remissions being several degrees between morning and evening.

If a high temperature be observed for some time, without any other symptoms (and after careful examination of the patient for other diseases), Typhoid fever may fairly be suspected.

At the commencement of the second week a rash appears. This is in the form of small raised rose coloured spots, the rest of the skin being of normal appearance. These spots generally appear on the abdomen,

Chest and back. They last three or four days, are never petechial but disappear on pressure to reappear on its removal. They are not seen after death. The rash appears in successive crops, which last till about the twentyfirst day of the fever. In addition to these spots delicate blue marks (*Taches bleuâtres*) are sometimes seen on the abdomen, as if a stain had been left on the skin by the finger of a black glove. If there be a relapse the rose-spots generally reappear.

As the disease advances the symptoms get more severe, the patient is flushed, the eyes are sometimes congested, the pupils dilated, there is restlessness—there may be slight muttering delirium, at first it is nocturnal, then it gets continuous or there may be drowsiness through the day, occasionally the delirium is violent, in some cases

requiring restraint. The patient gets emaciated, and, as a consequence, Myoidema may appear on gently tapping the pectoral muscle. This is due to contraction of the degenerated fibres of the muscle.

Sordes appear on the teeth and lips; the tongue is dry and brown, something in appearance like burned leather, though not so marked as in Typhus. The breath has a nasty odour.

There may be copious hæmorrhages from the bowels, and the urine and stools passed involuntarily. Bedsores are very apt to form at this time, from pressure and the presence of the discharges, if the patient be not kept scrupulously clean and dry. A hard smooth bed is better than a soft one. Best of all is a water or air bed, as the pressure from either is equal all over the surface exposed to it.

Sudamina, i.e. minute blisters full of sweat, may appear all over the trunk and sides of the neck. These are not peculiar to Typhoid fever, as they appear in all diseases in which there is much sweating.

The respirations are quick and shallow, and there is danger of hypostatic congestion of the lungs. Signs of bronchial catarrh are usually manifest.

By the beginning of the fourth week in favourable cases the symptoms commence to abate. There is no crisis in this disease as in other fevers but a lysis (from λύω to dissolve) a gradual subsidence of symptoms.

Convalescence is very slow, and is liable to be retarded by relapses, complications, and sequelae. There may be more than one relapse, the whole symptoms reappear, or

It may be pyrexia only. The duration of the relapse is generally shorter than the original attack, and may be due to dietetic error.

Complications are very apt to retard the recovery and even endanger the life of the patient. Pneumonia, pleurisy &c may attack the respiratory organs, There may be perforation of the bowel and peritonitis, the latter either local or general. This accident is especially to be feared as it is generally fatal. It occurs mostly after the end of the third week. Severe haemorrhages may also come on from the separation of sloughs. There may be embolism and its effects, thrombosis of the veins of the legs, or in some cases meningitis may appear.

The sequelae which follow the course of Typhoid fever are numerous, - Phlegmasia dolens from thrombosis; temporary paralysis; neuralgia;

mental weakness or insanity; Phthisis.  
The most serious sequela is, when  
the villi of the intestine are destroyed  
and the mesenteric glands atrophied.  
This leads on to debility which  
soon ends in death.

Death during Typhoid fever  
may be due to Hyperpyrexia; exhaustion  
from diarrhoea &c; pulmonary or  
cerebral complications; and haemorrhage.  
If the temperature be persistently over  
 $105^{\circ}$  F. it is a very unfavourable sign,  
but over  $108^{\circ}$  F. it is generally fatal.  
There may also be blood-poisoning  
from septic absorption in the bowel,  
peritonitis, or in some few cases  
uraemia.

- Murchison mentions three  
varieties of Typhoid Fever:—
- 1<sup>o</sup> The mild or abortive, as it only  
lasts about a fortnight, and the  
symptoms are slight.
  - 2<sup>o</sup> The Grave, this he subdivides





*Thickened patch on the Ileum  
in Typhoid Fever. (Specimen)*



*Thickened and sloughing Patch  
on the ileum. (Specimen.)*

according as the symptoms predominate  
-e.g. inflammatory, abdominal,  
thoracic, haemorrhagic, &c.

3°. The insidious, latent, or ambulatory -  
as the symptoms are very slight the  
patient may go about during the  
whole course of the disease. In this  
form sudden deaths often occur  
through perforation of the bowel or  
haemorrhage.

A postmortem examination  
reveals characteristic changes in  
Peyer's patches of the small intestine,  
which are considered pathognomonic  
of Typhoid Fever. These patches, and  
especially those near the ileo-caecal  
valve commence to swell and get  
congested about the fifth day of the  
fever. about the ninth day they  
ulcerate and the patch sloughs off.  
The axis of the ulcer is in the axis of  
the bowel, and its edges are thin  
and sometimes undermined.

The sloughs are either brownish from bile staining, or blackish if gangrenous. The ulcers begin to cicatrize about the twenty-first day. As a rule in their healing there is no constriction of the intestine. If the sloughing be deep, perforation may occur, followed by peritonitis and death from shock.

The solitary glands of the large intestine, especially those of the Caecum and ascending colon are also similarly affected. The mesenteric glands get infiltrated, swollen & break down. The Spleen is enlarged, softened, and is dark in colour.

The Liver may be congested, and sometimes the gall bladder may even be ulcerated.

The Kidneys are generally congested, and the tubes may be choked up with epithelial cells.

The muscles of the body are generally degenerated, and when

the muscle of the heart is affected, sometimes fatal syncope occurs.

The lungs may have the signs of bronchitis, inflammation, or hypo-static congestion.

The prognosis of Typhoid fever is very uncertain throughout. It is said to be worse in females than males, and it is bad in old people. In the cases I have myself seen the prognosis was equally good for both sexes. Some hold that pregnancy increases the danger, while others assert, it does not. As a rule pregnant women abort. Those of the latter opinion say that neither pregnancy nor parturition materially interfere with the prospect of recovery. I am of opinion, however, that pregnancy and parturition make the prognosis more unfavourable for a pregnant woman as a rule can't stand so much as if she

were not pregnant, because she has not only to nourish herself but also the foetus. If she abort, or is delivered at the full time during the fever, she has to contend against two difficulties, viz the fever and the confinement and if by any means a small portion of coagula get into the vagina, you will have in all probability puerperal fever set up, and would most likely prove fatal.

In cases of drinkers the prognosis is bad, from the effects which alcohol has on the human tissues and they not being normal can't withstand so well the ravishes of the disease.

It is favourable in the young, and some families stand this fever better than others.

If the pulse be quick, weak, and very

compressible, the prognosis is grave, but if the beats run into each other producing a feeling of fluttering the danger is imminent. If the temperature be high and continued the prognosis is grave, and a sudden rise or fall is bad, the latter generally indicating a coming haemorrhage. Complications make the prognosis more unfavourable.

As the disease spreads most certainly from the excreta, these should be thoroughly disinfected and destroyed. Before giving the patient the bedpan some Condy's fluid, iron alum &c should be placed in it, and after being used it should be further disinfected with crude Hydrochloric or Carbolic acids &c. After some time has elapsed they should be put down the water closet with plenty of water to flush the pipes. A caution is necessary, as in most cases the

pipes are made of metal and therefore the strong acids such as Muriatic would act on the metal, so in that case other disinfectants would require to be used. If in the country, where outside privies are the rule, the excreta should be buried in deep trenches (apart from the water supply) and plenty of Chloride of lime used in its bed. I have found Chloride of lime a very good disinfectant for placing in rooms where there is an infectious disease. Patients complain at first of the smell, but in a short time get quite used to it.

The soiled sheets and bodily clothes should be steeped for some time in water containing a disinfectant, as Condy's fluid, Hartig's patent chloroform powder (Crimson Salt) Zinc chloride &c, and then thoroughly washed.

If called to a case early, when the patient is listless and apathetic, before the rash appears, I think the best thing to be done is to give an emetic, for by this means the disease may be warded off. On the other hand purgatives are recommended not to be used, but I have seen cases, (which to all appearance would have suffered from the disease,) have all their symptoms removed by a brisk purgative. Of course great care has to be exercised in their administration.

The general rules to be attended to in treating this fever are, - to watch the case and treat symptoms as they arise

Patients should be laid up at once, as by so doing they have the best chance of ultimate recovery. This you will scarcely get patients to do, for as they don't feel very ill at first



They wont lay up but go about till the disease has a fair hold of them. This has been my experience in most cases.

If they require to be removed great care is necessary to prevent them being jolted or roughly handled. The best means of transport is the ambulance stretcher.

The bedpan should always be used, as it is dangerous, even though the fever be slight, for the patient to sit up. I have seen a patient refuse to use the bedpan, and only move his bowels when allowed to get up to the night stool, and yet nearly fainting ere he could regain his bed. Of course the night stool was removed and he had to use the bedpan.

The diarrhoea may be excessive and weakening, and should therefore be checked. If the bowels be not moved

more than three daily I would not check the diarrhœa, as by its means the intestine is freed from fecal accumulations. If it require to be checked astringents may be given, as Kino, Catechu, acetate of lead &c, or Oil Plumbi cum opio, Dover's powder either alone or with carbonate of Bismuth, or Sulphuric acid with laudanum, or opium itself either alone or with vegetable bitters. Dilute Hydrochloric acid is very good also, cases treated with this drug throughout have been very successful. A very good way of giving opium is the enema in which laudanum or Battley's Solution is placed. If the diarrhœa be excessive some powdered catechu can be put into the starch enema along with the opium.

Sometimes diarrhœa is not present but constipation, care is required in the use of laxatives.

Castor oil is the safest, and it should only be given in small quantities, and repeated if necessary. I don't think a purge given at the commencement of this fever is wrong, as by it the bowels are cleared, and the swollen & ulcerated patches saved from irritation later on. A simple enema is considered much safer and better. It certainly is much safer in the later stages of the disease, and I have seen an enema ease the patient and give him some refreshing sleep.

As the walls of the bowels may get paralysed, don't favour accumulation of faeces. Some physicians say it is better if the stools are just formed, but I think diarrhoea if moderate is better as the ulcerated bowel is less likely to be injured thereby. Should haemorrhage take place, it may be arrested

by placing an ice-bag over the right iliac fossa, and giving ice to suck, or by gallic acid, aromatic sulphuric acid, tincture of Iron, tincture of Hamamelis, Turpentine or cold enemata. If the haemorrhage be very severe I should inject three grains of ergotine subcutaneously. If the patient be restless, or delirium violent, he may be given opium, Chloral, Bromide of Potash, Tinct. Hyoscyamus &c. if he would not or could not swallow, I should give them by the rectum. The latter method I think the best, as these drugs generally throw the stomach more out of order than before their administration, and hence as they don't enter the stomach don't affect its action so much. The patient should not be forcibly restrained but coaxed to do the thing wanted.

The room in which the patient is confined should be temperate, with free ventilation but no draughts. Keep him scrupulously clean, and if possible prevent bedsores. Don't let him lie too long in one position, and if any part is getting red, sponge it frequently during the day with spirits, white of egg, &c. I have found that strong whisky or freshot. answers this purpose best. This has the effect of hardening the skin. If bedsores do form treat them as ulcers.

Milk is by far the best and safest form of nourishment for Typhoid patients. An adult requires about four pints daily, some recommend even five and six, but I think it is too much, and does more harm than good, in clogging as it were the internal workings.

Too much should not be given at once, as hard curds are apt to form in the stomach, and their passage through the intestine causes harm and great irritation.

It should be given in small quantities at a time and frequently. I generally recommend every hour. If there be vomiting, a little Soda water or lime water or iced water may be added to the milk, that often stops this disagreeable symptom. These remedies also prevent the milk curdling so much and therefore assist in digestion. Patients may also get barley water, or in some cases eggs sweetened in milk do very well. If the patient be very thirsty he may drink, in small quantities at a time, iced water, or suck small portions of ice, mucilaginous drinks, toast and barley waters, coffee and tea. He may suck a few

grapes from which the stones and  
stones have been taken, but no  
other fruit is allowed during the  
course of the disease.

When the patient is convalescent  
the diet has to be very gradually  
enriched, beginning with a little  
Lythacs, weak soups, arrowroot &  
cornflower, and beef tea. The latter  
should be withdrawn if diarrhoea  
occur. Then solid food may be given,  
(but not till the tongue be fairly clean  
and no pain felt on pressure over  
the right iliac fossa) as - bread,  
white fish, mutton and lastly beef.

The convalescent should not be  
allowed to rise too soon, and he may  
be assisted with tonics, such as  
quinine, some of the preparations  
of cinchona bark, iron, and,  
perhaps the most beneficial, change  
of air. A glass of light wine taken  
along with food frequently assists digestion.

If there be much wasting and debility  
Cod liver oil is strongly recommended.  
There is also a syrup made from  
the large black shugs, which acts  
similarly to Cod liver oil, and has  
this advantage over it that it does  
not cause diarrhoea. You have  
some difficulty, however, in getting  
patients to take it if they know  
what they are getting, although the  
taste is excellent.

As the disease is propagated by  
specific organisms, some physicians  
recommend that antiseptics be  
given in the treatment of Typhoid  
cases, with the hope that the germs  
may be destroyed thereby. Hence  
Carbolic acid, Sulphurous acid,  
Salicylic acid and the Salicylates,  
sulpho-carbolates etc have been used.  
These may assist the healing  
process of the intestinal lesions  
and prevent the formation of septic



matters, and lessen the chance of blood-poisoning. I think this theory, though it sounds well, is erroneous. As the organisms are in the blood these drugs don't act directly on them, for they are changed in form when taken into the stomach & in this changed form pass into the blood. That they assist the healing process of the intestinal lesions I firmly believe.

Symptoms have to be treated as they arise. If the heart be weak and failing, with loss of the first sound, digitalis or *Convallaria majalis* strengthens its action. If there be epistaxis, styptics, cold applied to the nape of the neck and over the bridge of the nose &c may be used, in very severe cases the nares may be plugged. If there be much pain in the abdomen or

Tympanites, frequent linseed or mustard  
poultices relieve it. I have found  
hot turpentine stupes most serviceable.  
The Tympanites may be relieved by  
the internal use of Turpentine ℥x  
to ℥xxx every three or four hours,  
and enemata containing Turpentine  
or Assafoetida. A blister or several  
leeches has been recommended to  
be placed over the caecum if the  
pain be very severe in that region.  
I would not be inclined to use  
a blister for this reason that  
sometimes you can scarcely  
get the broken surface of skin  
healed, and if it discharges  
long it tends to weaken the  
patient. Leeches should be put  
aside as the patient requires  
all the blood he has without  
having its quality (as the quantity  
is soon made up from water)  
reduced by them.

Opium or any of its derivatives may be given to allay severe pain. If perforation and peritonitis occur, give the patient complete rest, give little or no food by the mouth, I prefer to feed the patient with nutrient enemata, and use opium freely. If there be constipation use simple enemata only and not aperients.

If there be symptoms of bronchial Catarrh, pneumonia &c, use poultices or hot turpentine stupes to the chest, and give a stimulant expectorant. I find that one containing Carbonate of Ammonia and the solution of Tartar emetic does best. If there be thrombosis of the veins of the leg, let it be elevated, kept warm and at rest, and supported by a well-applied flannel bandage.

The antipyretic system of treating

fever patients has been strongly recommended, and there are two great divisions of it, the medicinal and the hydropathic. In the former large doses of Quinine are given within a short time, and then not repeated for a day or two. From ℥j to ℥ij of Quinine may be given in the space of half an hour, and not repeated till a day or two elapse. Large doses are sometimes given and yet no physiological phenomena appear. I have known of ℥iv of Quinine given in a day, (8℥ doses every three hours, and ℥ij in the space of half an hour - this was done through mistake of the nurse) and yet no symptoms of Quinism resulted, nor were any unfavourable signs noticed. Sometimes Digitalis may be combined with the Quinine & large doses of the latter

drug given subsequently.

The Hydropathic treatment has been strongly recommended by Dr. Brand of Stettin, Professor Leibermeister and others. Various advocates use the bath differently. The method of employing this treatment is as follows - If the temperature be over  $103^{\circ} F.$  the patient is put into a full sized bath with water varying from  $65^{\circ}$  to  $75^{\circ} F.$  Some make the temperature of the bath  $80^{\circ}$  -  $90^{\circ} F.$  and gradually cool it down. The patient is left in the bath from ten to twenty-five minutes, he is then taken out, placed in bed, dried and covered with a light cover and kept at rest. Brandy is given before and during the bath. The patient gets from three to eight baths in the twentyfour hours, according to the severity of the pyrexia.

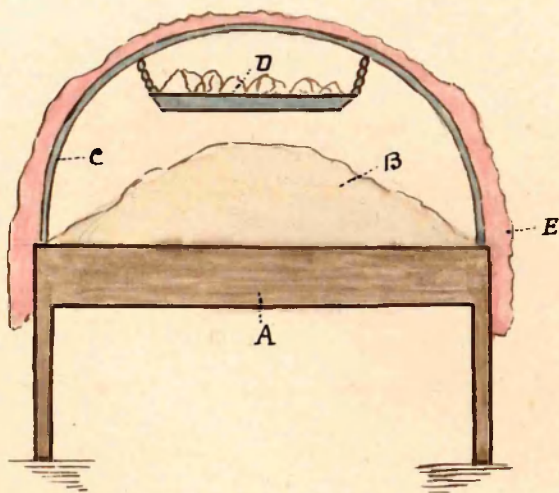
This treatment is continued two or three weeks.

The advantages claimed for the bath are - that it prevents the temperature getting to an injurious height, and prevents fatty degeneration and limits intestinal lesions.

I would not use it too cold, for if there was any tendency to internal haemorrhage, the cold bath only cooling the surface might encourage the bleeding inwardly. Another objection is that it requires the patient to be moved out and into bed to the bath. It can only be got properly done in hospitals, or in private houses where trained nurses could be obtained. In some cases it is disagreeable to the patient, and although it keeps down the pyrexia, relapses are common during this treatment.

A milder method of hydropathy is the cold pack or cold wet compresses. In using the cold pack, wrap the patient in a sheet wet with tepid water, throw a thin blanket over him and keep him thus till the temperature falls to the normal, or shivering occurs. In using the compresses, several are placed on the chest and abdomen and changed periodically very frequently from above downwards. Tepid or cold sponging night and morning is very good, as also sponging frequently with a lotion composed of 3j of Quinine in ℞j of Spirits of wine. These repeated spongings quiet and greatly comfort the patient. Of these two methods I prefer to use the cold pack.

It is much easier employed than the bath, and can be done in



*Cross Section.*

- A. The patient's bed.*
- B. The covering over the patient.*
- C. The cage over the patient.*
- D. The ice tray.*
- E. The thick covering over cage.*



the cot as well as the palace, & it is more agreeable to the patients themselves, and it brings down the temperature just as well.

Various other ways may be resorted to for the purpose of reducing the pyrexia - by use of the ice-cap, or by laying the patient on a water bed, filled with cold water, or his temperature might be reduced by Leiter's temperature regulator. I think a very good method of reducing the pyrexia is to place the patient in bed with a thin sheet over him, and over him a large cage is placed so that all the clothes are kept off him. in this cage is hung a tray of broken ice & over it is thrown some thick covering - the head is

the only part of the person exposed. This reduces the temperature of the patient without disturbing him at all. The temperature has to be carefully watched on the thermometer, so that it may not be brought dangerously low.

There is great diversity of opinion as regards the use of stimulants in fever, some holding the opinion (especially on the continent) that it should be given in large quantities, as in fever there is increased destruction of nitrogenous matter and great oxidation goes on, and alcohol in these large doses prevents waste and lessens oxidation, and thus lowers the temperature and lessens the amount of urea excreted. Others hold the opposite opinion that little or none should be used,

and then only if the symptoms urgently require it. It may have to be given in large doses in special cases, but generally it is best in small quantity, or in some cases none at all. If possible I think it is best if it can be done without. Patients often continue taking stimulants long after the medical man has stopped them, and they may continue their use till by and by they get confirmed drinkers. Old people and young children bear alcohol well. It is best not to start with stimulants at the beginning of the fever but let a week or so pass ere they be begun. Their use should be well watched and if it be seen that they could be done without stop them.

Substitute some non-alcoholic

stimulant for the alcohol, as essence of beef, etc.

The dose of alcohol should be small and well diluted, and repeated every two or three hours ℥j - ℥iv according to the age of the patient. When given in small quantities the heart is more uniformly supported and there is less chance of syncope. If some light food be given along with it the digestion is aided thereby. Some stimulants agree with one and not with another so discrimination must be shown in selecting which should be given. as a rule, however, Brandy or Whisky agree with most people.

The rules regarding the use of stimulants in fever have been formulated by Dr. Armstrong as follows -

- 1° If the tongue become more dry & baked, alcoholic stimulants do harm; if it become moist, they do good.
- 2° If the pulse become quicker, they do harm; if it become slower, they do good.
- 3° If the skin become hot and parched, they do harm; if it become more comfortably moist, they do good.
- 4° If the breathing become more hurried, they do harm; if it become more and more tranquil, they do good."

(Ringer's Therapeutics 10<sup>th</sup> Edit. p. 355).

If after getting the stimulant the patient gets brighter, less delirious, sleeps quietly and awakes sensible, it is beneficial.

Up to the end of the second and beginning of the third weeks strong stimulants are recommended, after that wines, as it was thought

that as they contain compound ethers, they were more beneficial during convalescence.

My experience has been that the strong stimulants as Brandy and whisky in smaller quantities do just as well during convalescence, and that they are not so apt to disagree with the stomach. I am of opinion that, if the patient has not been in a fairly nourished state ere the attack come on, it is well to commence the administration of stimulants early, as it is more easy to keep the body up than to build it again after having fallen down. In young children also, who have not much stamina, stimulants should be given early - but in all cases the action of the stimulant must be carefully

watched on the circulatory and nervous systems, and according to the indications so must the administration be.

The house in which the cases of Typhoid Fever occurred (to be afterwards noticed) was in a long brick row of forty-two houses. Each house is separate from its neighbour. It contained one large room, the kitchen, with two fixed beds, opening off this is a smaller room with one fixed bed. From the kitchen a passage leads to the coal and wash house, and the back door. There are three outside privies for these houses, standing about thirty yards to the rear of the row. There are no other dwellings near this part. The drains seemed to be in fairly good condition, and the open sewers at front and back were swept daily & flushed well.

with water twice or thrice weekly.

The water supply is obtained from a pit at some distance. The water is pumped into a pond standing on the top of a moor, from which it is carried in pipes to two tapwells which supply the row. The water as it leaves the pit is very good, clear and impregnated with lime, but when it leaves the pond, its character is not so good, vegetable and animal impurities being found in it. Occasionally dead cats and kittens may be seen floating in this reservoir. So therefore the water is open to suspicion as having caused the disease.

As milk is a common vehicle for conveying the germs of the disease, careful enquiry regarding the milk supply found that there was nothing suspicious at the dairy.



nor was there any other source of infection found. There were no other cases of Typhoid fever in the district.

Case 1. Mrs H. aet. 50 years.

Patient had been complaining for about six months of her stomach and was under treatment for it. About the 12<sup>th</sup> January 1885 she commenced to feel greatly depressed, not inclined to do anything, but rather sit still or lie down. On the 26<sup>th</sup> January she took to bed, complaining of pains all over her body; with great frontal headache; nasty taste in the mouth, and bad smelling breath. The tongue was covered with a white fur, and it was moist. She was very thirsty, and her appetite was gone. The temperature in the axilla was 102° F. The pulse was soft and rapid, 112 beats per minute.

These symptoms lasted about a week, and then the bowels commenced to get loose, and gradually assumed the characteristic "pea-soup" stools of Typhoid fever. She generally had passage three or four times daily. The urine was febrile, containing the urates and uric acid in abundance. Only a small quantity was voided.

As her skin was naturally dusky the rose-coloured spots were not distinctly made out, though several suspicious looking ones were marked and watched. These had disappeared five or six days after their appearance.

During the second week she was slightly delirious, raving especially at night, but never very obstreperous. On one or two occasions she tried to get out of bed, but by gentle persuasion she was prevented rising. The tongue was dry, covered with

brown fur and cracked; the temperature varied between  $101^{\circ}$ - $103^{\circ}$  F.; her pulse was rapid, soft and compressable, 120 beats per minute. She complained bitterly at this period of pains through her whole body, more especially the abdomen, which was considerably enlarged by flatulence. There was gurgling and pain on pressure over the right iliac fossa. The tympanites was relieved by hot turpentine stipes. Her eyes were slightly congested with the pupils dilated. Bronchial rales were detected but this symptom did not require treatment. During the second and third weeks she had marked deafness, which gradually left her as she became convalescent. From the twentyfirst day she gradually improved, (with one or two days exception during the fourth week) the symptoms abated,

The pains left her, the temperature fell with oscillations till by the beginning of the fifth week it was normal. At this time she began to get up a little, and gradually lengthened the period she was up till she was fairly well, and able to go about her usual household duties by the eighth week. The highest temperature noted in her case was  $103.5^{\circ}$  on the nineteenth day.

Case 2. Michael H. aet 9 years.

This patient lay down on the 17<sup>th</sup> February just three weeks after his mother. For a week before this he had been feeling fairly done up. On the day he lay down he complained of pains over his body, severe frontal headache, and the tongue was covered with white fur, he had great thirst, and loss of appetite.

The temperature (in this and following cases was taken in the mouth) was  $103^{\circ}$  F. The pulse was rapid and compressible, 120 beats per minute. About the seventh or eighth day of his illness rose-coloured spots appeared and were marked as successive crops appeared and disappeared. Three crops were noticed. The spots lasted three or four days and then faded away. The bowels in this case were costive throughout, twice he had 3j Castor oil given him, with the effect of moving his bowels twice or thrice. At the beginning of the second week of the fever he commenced to get deaf, and by the fourteenth day could scarcely be got to hear, even though shouted to. He was got to understand well enough by signs. During the second week he talked and raved incessantly if not disturbed, and

on two occasions tried to get out of his bed. From the fourteenth day the deafness gradually disappeared, and by the twentyfirst day of the fever he had quite recovered his hearing. There was pain on pressure over the right iliac fossa and faint gurgling was heard. Tympanitis was also present, which was relieved by hot turpentine stupes and castor oil. The eyes always remained clear, the pupils dilated, but the conjunctivae were not injected.

The urine was febrile in character. During the second week there were pulmonary complications, bronchial catarrh and hypostatic congestion. These symptoms were relieved by hot linseed and mustard poultices and an expectorant mixture.

His temperature ranged from  $101^{\circ}$   $104^{\circ}$  F. in the mouth.

He rose on the Twentyscond day,  
and progressed rapidly till by the  
fourth week he was quite well.

He and his mother complained  
of great weakness and pain affecting  
their right arms most.

Case 3. Mary Lane H. aet 11 years.

She was complaining of  
feeling out of sorts and useless  
at the time her brother lay down,  
but she kept up till the 3<sup>rd</sup>  
March, when she gave in and  
had to lay up. The tongue was  
heavily coated with white fur,  
she was pale with flushed cheeks,  
and her urine was loaded with  
urates. The temperature was  
101.5° F. in the mouth; her pulse  
was rapid and strong. She com-  
plained of pains over her whole  
body, being most severe in her legs.  
She did not complain much of  
headache. On the third day after

lying down the rash appeared, the spots were marked and carefully watched, and other spots marked as they successively appeared. About the seventh or eighth March the bowels commenced to run, and in a day or two had assumed the "pea-soup" character. Ten days after lying up she turned deaf, it was so extreme that she did not hear at all, she had to be communicated with by signs. This continued, though gradually improving, till by the end of the fourth week she could hear perfectly well. She improved slightly from the fourteenth day of the fever, but it was not till after the twentieth day that the improvement was marked. At the end of the fourth week she was able to get up, and a fortnight later was quite



strong and well again.

She never was delirious but lay quiet; her eyes were clear and bright. The reason she did not improve much from the fourteenth to the twentieth day was due I think to a fright. She was in a small bed by the side of the fire, and one day part of the ceiling fell on her and gave her a shock. She did not, however, get the full force of the blow as it was broken in its descent, yet it came with such force as to break through a wooden chair bottom which it happened to strike.

Her temperature varied from  $101.5^{\circ}$  -  $104^{\circ}$  F in the mouth.

While this patient was lying ill, her sister Helen (aet 15 years) complained of feeling restless and done up, her tongue was white and furred, and she was feverish,

and I fairly expected her to be laid up next, but, on the second morning of her listlessness she took a smart purgative of Epsom salts, and this seemed to completely cure her, as she had no symptoms after the medicine had operated. It was not due to constipation as she had passage every day before.

Case 4. Edward H. aet 12 years 10 months.

He was going about apparently well till the afternoon of the 26<sup>th</sup> March, when he came home from his work complaining of headache and general uneasiness, and went to bed at once. Next morning the temperature was  $101^{\circ} F.$  in the mouth. These symptoms gradually increased till Monday the 30<sup>th</sup> March when there were several rose-coloured spots visible

on the abdomen, these were marked. The temperature now rose to  $103^{\circ}\text{F}$ . The pulse was rapid, soft and compressable, beating 130 per minute. By the end of the week he was delirious, kept continually talking, and at times was pretty violent, requiring to be held in bed. This continued till the ninth or tenth April when he became quieter. There was pain on pressure over the right iliac fossa, but there was no tympanites. On the eighteenth day of the fever the temperature rose to  $105.2^{\circ}\text{F}$  in the mouth. He was very tremulous and could scarcely turn himself about. From the eighteenth to the twenty second day he was troubled with bronchitis and hypostatic congestion of the lungs. These symptoms were relieved by poultices of linseed

meal and mustard, and a stimulant expectorant. From the nineteenth to the twenty second day of the fever this weakness continued, and after that he gradually improved. In a fortnight after he was able to get up a little, and improved rapidly. For some time after getting up his mind seemed slightly affected. He would sit and crouch over the fire, make grimaces, and occasionally come out with some witty remarks. He was very petulant and easily angered; during this time the temperature was normal. These symptoms had disappeared in two weeks time. He never had diarrhoea, sometimes he was rather constipated, but as a rule he had one formed motion per day. On three occasions he got ℥j Castor oil, which slightly

purged him each time. A short time after he was quite well and out at work again.

Case 5. Peter H. aet 24 years.

For a week before he lay down he complained of headache and general malaise, and, although told repeatedly to lie up at once, he continued at work till the 27<sup>th</sup> March, when he was compelled to lay himself up. On that day he was examined. His temperature was  $103^{\circ} F.$  in the mouth, his pulse was rapid and full, and his tongue covered with a white fur, and he complained of frontal headache. On Saturday the 28<sup>th</sup> March several spots were visible.

When spoken to, he rather stuttered in his speech, as if the tongue were too large for the mouth. It was dry and covered with a whitish-brown fur, and

red at the edges and tip. He complained of great thirst. By the fourteenth day of the fever he was slightly delirious, and one night tried to get out of his bed. On this day his temperature rose to  $104.2^{\circ}\text{F}$ . in the mouth. This was the only occasion on which he tried to get up. The bowels were as a rule constive, and on several occasions he had to get Castor oil, Zip being found sufficient to move them. After the fourteenth day he began to improve rapidly, and by the twentyfirst day was able to sit up a little. He was allowed a little beef-tea, but as this set up diarrhoea, it was discontinued.

A fortnight later he was able to go about as usual, and by the beginning of May he had resumed work, though not feeling quite strong.

He always complained of his right arm being benumbed, more especially the ulnar side of the forearm, and in the hand the ring and little fingers were partially powerless. The treatment employed was friction and it was successful in gradually removing the strange feeling.

The treatment followed was similar in all the cases. The patients were not allowed at first aught else but milk, the adults getting from three to four pints, the juveniles about two or two and a half pints daily. In a about a week from the commencement of the symptoms of the disease a swatched egg in a cup of boiling milk was allowed given in small quantities throughout the day. Alcoholic stimulants were used in all the cases.

None of the family were strong, and as the father, a miner, had been out of employment for some time they were not properly nourished, and as they were weakly they had to be kept up by stimulation.

Brandy was the stimulant used. It was not commenced till the end of the first week of the fever, and was continued only as long as it was absolutely required. In the case of Mr. H. (case 1)  $\text{Zv}$  were allowed daily. Peter H. (case 5)  $\text{Ziv}$ . Edward (case 4)  $\text{Zij}$ . Mary Jane (case 3)  $\text{Zip}$ , and Michael (case 2)  $\text{Zij}$  were given daily. The Brandy was given in  $\text{Zj}$  or  $\text{Zij}$  doses at a time and well diluted. As the patients improved the quantity of Brandy was diminished gradually, and beef-tea, chicken, and rabbit soups substituted. The bowels were watched and as occasion required were



relieved by small doses of Castor oil.  
Mr. H was the only one where a  
tendency to bedsores was noticed.  
Redness appeared over the right  
trochanter, but the skin was pre-  
vented breaking by sponging the  
part well several times daily  
with strong whiskey. In the cases  
of Michael and Edward (cases  
244) where there were pulmonary  
complications an expectorant  
mixture containing-

Sol. Antimon. Tart.

℥iij Speac.

Ammon. Carb.

Aquae -

was given. All the cases made  
good recoveries, and at the present  
time are quite strong and  
healthy.

The case of Mr. H was a fairly  
typical one of Typhoid fever,  
lasting the twentyone days -

ere the lysis began, but cases 2, 3 & 5 were what Murchison would call the abortive type. The symptoms were all mostly there, but the fever did not run on so long as usual. I may mention that the medical officer for the district, a well known physician of over twenty years experience, saw the cases along with me, and corroborated my diagnosis. After the second one of the family took ill, we wanted to remove him to the Fever Hospital but, as there is no authority to compel the removal of infectious cases, the patient was not allowed to go. Each patient had a separate bed so there could be no source of infection from lying together. From whence then did the infection come? The only way I can account for it is this - At first where

Mr. H was laid up, milk was kept in that room, though the family were warned not to do so, and the daughter and father who attended her might touch the vessel containing the milk ere they had washed their hands after removing soiled things from the patient, and by this means have contaminated the milk, and communicated the disease to the family.

The family at home consists of the father, mother, two sisters, and three brothers. The most of the nursing devolved on the father and the sister Helen, who were indefatigable in their attention, and carried out as far as they were able the treatment prescribed. No other persons were allowed to come into the house, nor were they allowed to go visiting.

Saucers full of Condy's fluid (red) were kept in the rooms, and after the second case was attacked Chloride of lime was also kept exposed. Some Condy's fluid was poured into the bedpan before being used, and afterwards the excreta were deposited in a deep trench and buried with a plentiful supply of Chloride of lime.

Those in attendance were warned about cleanliness, as regards washing of the hands in a disinfectant after having touched the patients. After the second case was attacked milk was not allowed to be kept in the rooms, except what the patients were using. The nurses were enjoined to take plenty of outdoor exercise. The rooms were kept thoroughly ventilated and not too warm.

After the cases were better the house was thoroughly disinfected. The crevices, the windows and fireplaces were all stopped up and the rooms thoroughly fumigated with burning Sulphur. They were then well aired and everything washed.

The soiled linen &c were steeped in cold water and Condy's fluid for some time, and then thoroughly washed.

The fever did not spread, but was confined to the one house. There has not been any case since nor had there been before for some years, so that it remains a mystery as to its origin.