Clinical Observations on Typhoid Fever.

John Brooke-Ridley.

M.B., C.M. Edinburgh University 1885.

Late Resident House Surgeon to the Huntington County Hospital for 8 years.

Late Medical Officer to the Metropolitan Asylums Board of London for 5 years.

Now private practitioner at Woking, Surrey, England.
In reply to your letter of ......................................... I beg to state that

J. G. Ridley submitted a thesis on diphtheria fever in 1889 which was rejected. He was studying on a specific subject.
In thinking over the subject of my thesis, and endeavouring to provide material which might contain the results of original observation, I beg to lay before you some thoughts engendered by a review of my own personal experience in connection with typhoid fever. Hence I do not propose to trouble you with any detailed analysis of these cases of typhoid which have happened to fall under my own personal supervision, in fact I desire rather to bring before you some of the chief points which to me at least appear of special interest.

The subject matter of this thesis is derived from the attentive consideration of some 200 cases of the disease which have been entirely under my care. It is a disease from which no class of the community is exempt; nor is it possible to be in practice long without having cases of this disease to deal with, so that any facts borne out by clinical observations which tend to show any improvement in its treatment must be looked upon with keen interest by those who have to battle with this disease.

The death rate is always more or less
heavy, and it behooves each one of us
to do all in our power to lessen the
mortality of this disease.
There is no doubt that the liability
to the disease which has its primary
stage in the salivary and amniotic
glands diminished with age, in early
life there is a heightened degree of
physiological activity, so that a person
is rendered more liable to the introduction
of pathogenic microbes, but as age goes
on the glands undergo a certain change
which renders the person less susceptible
to the introduction of the foyer, and the
same can be said as regards the bowel
in scarlet fever, and another reason
why those under 20 years of age are more
liable to the disease, is no doubt due
to the greater alkalinity of the blood
Srowls, and intestinal secretions in
early life, when the disease occurs after
this age it is generally due not only
always, in those whose vital condition
is in a depressed state, or in those who
have had an insufficient supply of
food, those cases of immunity against
the disease I look upon as associated
with an increased formation of acid
in the system.
The Yersin Duchesne Bacterium grows best in the alkaline contents of the small intestine where there is no oxygen, and it is no doubt owing mainly to this latter fact that Peroxide of Hydrogen is such a powerful antiseptic to the bacteria in this disease, but—may say that it requires to be given with extreme caution, and in fact—I can not advise it to be given by the mouth at all, owing to its rapid absorption it is very liable to produce alarming symptoms. I have generally given it in the form of Nuxia diluted well with cold water and to used, I have seen very beneficial results.

As regards the etiology of the disease, I am a strong believer in the bacillary origin and hold that its virulence is greatly dependent upon its capacity for spore formation outside the body, a method of reproduction which is carried on at its greatest activity when the temperature ranges from 80 to 100 °F.

Of one thing I am certain that no single remedy would give rise to the very varied toxic symptoms which characterize different cases of the disease.
In the majority of the cases the intestinal symptoms were not more severe or prominent than those of the respiratory and nervous systems.

As far as the bowel was concerned the only complications that need to be dreaded were those of hemorrhage and perforation, and in the latter of these in my experience it was to a great extent be avoided by the prevention of any distention of the bowel, a condition which is to a large extent due to the excess of treatment that may be adopted.

Hemorrhage was often a very serious complication, and in several of the cases under my care placed the lives of the patients in imminent danger.

From my own experience derived from 200 cases extending over a period of over eight years, with a mortality of under 10 per cent I feel strongly convinced that in by far the largest proportion of cases the extreme antisyphilitic treatment of the present day is contra indicated, and is based upon a mistaken view of the febrile process. In support of this statement I need only refer to the very high temperature occurring in relating fever, which
often rises to a 107° Fahr, with a mortality of only about 1 per cent. It appears to me that the symptoms pyrexia need not be one of such grave omen.

The presence of albumen occurring in the urine is one of great-clinical importance, giving an it does a valuable indication of the state of the circulation, as it not only tends to indicate a condition of renal congestion associated with defective cardiac energy, but also a diminished vis viva in the circulation, and a state of case motor paroxysm.

It is a condition upon which very little if anything is stated in any book upon the subject, as far as I have seen, and as I shall show forms not only a very fatal complication, either alone or in conjunction with others, but it is also a clinical factor upon which a good deal of the prognosis of the case must rest.

It is much regret to myself that I was only able to make valuable notes in 75 cases of the disease owing to the great-pressure of work at the time. Therefore the information is only derived from the 75 and does not apply
The late Dr. Murchison states that out of 549 cases he found albumen present in 157 or 28.6 per cent, but he does not state how many died of those where it was present.

I found albumen present in 42 cases absent in 33. out of the 75 cases. That is it was present in 56 per cent of the 42 who had albumen in the urine and 9 of these died directly or indirectly from this complication, giving a death rate of 21.4 per cent. None of those without albumen have died.

Amongst the 42 who had albumen there were 3 children none of whom died. Amongst the 33 who had no trace of albumen were 14 children.

This I think shows how much less liability there is in children to the presence of albumen than in adults, and more, or that in those in whom it was present now died.

I was able to classify these cases of albumenuria under 3 headings. Firstly those with preexisting kidney disease, now these cases proved to me too rare that they almost might be
left out of consideration.

Secondly, cases where there was abundant and persistent albumen in the urine of the extent of 0.05 up to 0.1 per cent, in some the mortality was very high and post-mortem examination showed interstitial or diffuse nephritis with glomerulitis and hemorrhages. I could only look upon the nephritis in this class of cases as septice.

Thirdly, cases where the albumen existed only as a trace and that only for a short time. Amongst these the mortality was small, and renal changes scarcely to be detected, and upon microscopical examination the chief alterations seemed to be vascular engorgement with capillary hemorrhages, slight cellular infiltration and multiplication of nuclei with cloudy swelling of the epithelium. Paranechymatous nephritis with fatty degeneration of the epithelium was not found, though some degenerative changes were generally present but difficult to distinguish from those alterations which occur so rapidly.
post-mortem, especially in death from peritonitis due to perforation.

Of the 9 fatal cases out of the 42 with albumen present.
I consider one came under the 1st heading; but as no post-mortem was allowed I was not able to say for definite certainty, but considering the life history of the case, he was a patient in which one would expect to find pre-existing kidney mischief, but clinically it was difficult to say, owing to the typhoid condition predominating and to masking any organic renal change of long standing, but as he was a hard drinker, if rather had been for many years, I was justified in diagnosing him as a case in which pre-existing disease was present, in all probability the early stage of granular contracted kidney.

Seven deaths out of the 42 came under the 2nd heading, but as they all or nearly so had other complications as well, but I have noticed that complications even more severe
Than these, never terminated fatally as they did when accompanied by persistent albumen in the urine.

One came under the 3rd heading.

Now from the above it will be seen that when albumen is present and persists in large amount that the prognosis would certainly appear to me to be more grave, and so it practically is, but at the same time it would be difficult to say what the mortality would be with private cases, as I made these observations upon Hospital cases, and the disease is as a rule well advanced when admitted.

Another point of clinical interest is the rash, it is generally stated in text books, that it appears during the second week of the disease, now in almost every case I have found that it always appears during the 3rd and very often the 4th week of the disease.

In reviewing my own personal experience into the management and successful treatment of typhoid fever, there were
one point which appears to me of such eminent importance as to dwarf all others into comparative insignificance, I allude to the diagnosis of the disease, it is so easy to differentiate one disease from another on paper, and now different the whole aspect of the case becomes when we are brought to the bedside of our first patient, and I may say that the difficulties of diagnosis have been a thousand fold increased during the past 3 or 4 years by the prevalence of epidemic influenza. In many instances it has been impossible for me to decide within a week or more and the nature of the disease, especially is this the case when the patient may have been treated elsewhere and in all probability had antipyrin, salicylic acid or any other of such drugs which give rise to simple hyperemia, military eruption, erythematous rash, and urticaria. I have seen cases where a single dose of antipyrin produced a rash almost identical with scarlet fever. In hospital cases I think the diagnosis has to be made under unfavourable
circumstances and is therefore some
what more difficult in the early stages,
but as far as my own experience goes,
I find that acute diseases are more
often taken for typhoid than the reverse.
I have on more than one occasion had
patients sent into hospital as suffering
from typhoid who failed to exhibit any
of the special signs of the disease, such
as the marked evening exacerbations
and morning remissions which take
place in the first few days, together with
the restless aspect of the patient, the
tongue forced in the centre with red
tip and edges, the swollen abdomen
and enlarged spleen, and later on
by the dark brown acid motions,
which soon become of a greenish
yellow flocculent-strauch character
and alkaline in reaction, and the
characteristic red punctular spots
upon the abdomen and chest.
Typhus fever is a disease which is at times
mistaken for typhoid, but here the rash
consists of dark brownish spots with
a dusky mottling, and the head symptoms
drawn to the more pronounced whilst
fever, vomiting, diarrhoea, and abdom-
ninal tenderness are absent.
features which are always more or less well marked in typhoid.

On looking over my notes I see that the following cases were sent in with a diagnosis of typhoid:
1. Peritonitis of the abdominal viscera.
2. Abscess of the Brain.
3. Septic meningitis from disease of middle ear.
4. Tuberculous meningitis.
5. Meningitis with pneumonia.
6. A severe case of basilar meningitis.

From the above it would appear that the chief error was in mistaking these affections of the brain and membranes for typhoid, but as far as I have seen, the temperature is not so high as in typhoid; headache and vomiting are much more persistent, the bowels are usually constipated and the abdominal walls are retracted, and there is generally paralysis of some of the ocular muscles and nerves, as well as other cranial nerves, and there may be double optic neuritis.

I have never found the knee jerk absent in typhoid, but in fact in the more severe cases it is much exaggerated and is often accompanied
by ankle clonus.

The last two of the above cases recovered, but others died so that the diagnosis was verified by post-mortem examination. I have seen a case of acute pneumatic meningitis closely resembles typhoid in many of its clinical features.

In meningitis the fever is of an irregular type, the knee jerks are exaggerated before effusion has taken place, and in some cases even ankle clonus may be present. During the hyperasthetic stage the head is generally retracted, and tonic contraction of all the flexor muscles of the limbs, so that the joints were acutely flexed, but this is more often seen in the chronic form of the disease than the acute. I attach great clinical value to this hyperasthetic stage, which is present in all cases of meningitis in the early stage, whilst in typhoid the patient is in an apathetic condition. In bacterial meningitis where the inflammation is confined to the base, hyperasthesia is rare an early symptom, but not always present, and as a general rule the patient is quite intelligent, and if any delirium is present it is when the patient is under
in dozing, and in addition to this they are restless, more about from side to side with a feeling of being uncomfortable, pick their lips and often blow their noses to try and get rid of the irritation of a little dried mucus which in a case of typhoid would not be noticed. Again in some cases I have noticed that although the upper limbs may be acutely flexed the lower are rigidly extended. I think this when the cerebellum is affected, the knee jerks are most exaggerated, and their ankle clonus is established, or even knee clonus may be well marked, the triceps reaction at the elbow and fibrillary contraction of the muscles are easily elicited, in the majority of cases the head is rigidly retracted though there may be this symptom about in meningsitis of the vertex the cerebral phenomena are well marked, hyperesthesia and headache are prominent, whilst the delirium may be of a lively type and a point of clinical importance is that the muscular rigidity and exaggerated deep reflexes are not present to the extent that
They are in bacterial meningitis. I have gone some length into this subject of meningitis, as I have found the difficulty seems to be in diagnosing meningitis in place of typhoid.

As regards Ehrlich's d bör reaction in the examination of the urine, I do not attach much clinical importance to the test as I have found it present in other diseases.

In a few of the cases I had under treatment pneumonia was present in addition to the typhoid, and an error in the diagnosis was made in one case due to the fact that the attack was ushered in with a rigor, high temperature, and laboured breathing, but as a rule there ought to be no difficulty after a few days' close watching of the case. I may also say that there are some cases of pneumonia which present a very typhoid-like aspect.

I do not think that I had a single case of typhoid mistaken for any other disease and I am afraid that when errors do arise it is from judging too much from the aspect of the patient without weighing the other factors of the case. Of course there are many in which a diagnosis may
be doubtful for a few days, especially in the early stage of the disease before any clinical signs have manifested themselves.
The onset of some cases may be sudden in a few of my cases the temperature reached 104° F. on the 1st evening. Bronchial catarrh and hypostatic congestion were frequently present but these conditions especially the latter occur at an advanced stage of the disease, and as a rule did not give rise to any difficulty of breathing. Typhoid fever is especially liable to many complications, and there is probably no disease in which death may take place from so many quarters. It is therefore essential that the temperature chart should be most carefully watched.

The treatment of such affections as bronchitis, hypostatic congestion of the lungs, pneumonia and pleurisy usually demands stimulants. Especially ammonium caffeine, bark, digitalis, quinine and some alcohol. These generally found the following mixture of great service.

Dr. Auri. Carb. 15 prs. Caffeini. 2 prs. Quinina

Dr. Sin. 3 grs. given in effervescent mixture with 10 prs. of citric acid every 4 hours.
A sudden fall in the temperature, with a blanched anxious face and small weak pulse are the chief signs which usher in haemorrhage, even before the blood appears in the stools; the lines of treatment that I have generally pursued, and which seemed to me to give the most-satisfactory results, is to have a large ice bag or Leclerc's tubing kept constantly applied to the abdomen as long as there is a tendency to haemorrhage. The peristaltic movements of the intestine are best controlled by repeated doses of opium, but there is no doubt—like hemostatic to my mind—is undoubtedly hyoscine given in very doses every hour or two either in the form of an emulsion or in a saline extract, or in the form of the following combination which I generally use, and I may say is of special value, and there is no doubt that it exerts an antispasmodic action as well.

Glycerin
Glyceryl Caryophylli \(\text{Fm.} \text{v.} \)
Glycerin Sorebitum \(\text{Fm}. \text{v.} \)

Hyoscine nitricus A.D. \(\text{Fm}. \text{v.} \)
Muriatic Acidic. aed. \(\text{Fm}. \text{v.} \)

Syrup as \(\text{Fm}. \text{v.} \)

8 fl. oz. Every 4 hours.
In fact, my own views are that many more lives might be saved if the oil of turpentine were more freely used in this disease. The volatile nature of the oil is such that at the temperature of the human body, the vapour must get in contact with the mucous membrane of the intestine.

If there should be defective arterial tone, I generally give ergot by the mouth, or ergotine injected hypodermically, or any likelihood of fainting a little alcohol in the form of brandy is the best. I find it is best not to trouble the stomach with much food, so I generally give a little beef extract, light soup, whey, or ice to drink.

I look upon profuse hemorrhage about the 4th week, from ulceration into a blood vessel as a fact of the gravest significance. The patient is not in a position to bear the loss of blood, and the sudden fall of blood pressure at once places his or her life in the most imminent danger. I always order the horizontal position to be maintained, and if there has been much hemorrhage it is as well to raise the foot of the bed to as to depress the patient's head below the rest of the body, and I think
it best to draw off the patient's urine with a catheter.

In a few of my cases there was bleeding from the nose, penis, lungs, urethra, and severe menstruation in women. I looked upon them as symptomatic of a hemorrhagic diathesis.

In any case of death from hemorrhage I have always found that the bleeding has taken place not from one point, but from numerous points in one or more of Peyer's patches.

The next complication I had to deal with was that of perforation, with peritonitis which must necessarily follow after a lesion of this nature. It was the cause of death in 7 of my cases, but there was no doubt that 5 others had it and recovered. Now the great question that of course presents itself to one's mind at the present day of modern surgery is how far one is justified in opening the abdomen and washing it out, securing the rupture, or I think what would be better, to trust to nature setting up a process of inflammation and so exterminating this portion of the
intilute to another coil, and content oneself with washing out the abdomen with the antiseptic solution, for it is the peritonitis which sets in as the result of the perforation which kills. I have no doubt that there are some cases in which the perforation is so large, and the shock to the system so great, that death takes place before peritonitis sets in.

In two of my cases I was quite prepared to do a laparotomy, but I could not get the consent of the parents, of course they both proved fatal in spite of the ordinary treatment. I never was able to perform a post-mortem in each case, and by this means I was able to verify the diagnosis; in both cases there was acute diffuse peritonitis and the perforations in both cases were not larger than a small pin head, the peritonitis in both cases which brought about the fatal issue was no doubt due to a small escape of fecal matter, and from the post-mortem evidence I feel confident that had the abdominal cavity been washed out in these cases they both might have survived, however the question is
worth of every consideration. This perforation due to ulceration is of course a very different matter to when it is due to necrosis of a Peyer's patch, as in this latter case there is often a very large rent affecting the whole thickness of the wall of the intestine, and of course the symptoms of shock and collapse are so great in this class of case that operation is quite out of question. So that when, in any case the temperature suddenly falls, and there is a livid condition of the face covered with beads of perforation, and a distended condition of the abdomen with a weak thready pulse, increased frequency of breathing and a general state of collapse, and is justified in arriving at the diagnosis of perforation, but then on the other hand, many cases diagnosed as perforation have recovered, this I look upon as being due to two causes.

Firstly the perforation may be so small as to prevent any escape of fecal matter or gas, I think it is quite possible for this to take place if the intestines are in a flaccid condition, and not blown up with gas, now when a perforation takes place with
distended intestines no matter how small the perforation, some of the liquid faeces, as is sure to be forced through with the escaping gas. There are some cases in which the shock to the nervous system is as great from a small perforation as it would be if a large one had taken place, this I think goes to help to explain some of the cases of recovery after undoubted symptoms of perforation.

Secondly. The Peritonitis may be partly localised around the area of perforation, so that the extravasated contents are prevented from setting up a diffuse inflammation, absorption gradually taking place.

The chief objections against operating which appear to represent themselves to my mind are:

1. Difficulty of Diagnosis.
2. The condition of the patient.
3. The liability of death under chloroform.
4. The difficulty of finding perforation.
5. The diseased condition of the peritoneum.

Of course if the laparotomy was done with the object of simply washing out the abdominal cavity, these two latter questions would not be considered.

When symptoms of perforation look
Here, I always administered opium freely, little or no food was allowed to pass the stomach, when signs of collapse manifested themselves I generally gave stimulants and hypodermic injections of ether; nutrient suppositories and enemas have found of great value as in this complications it is so necessary to keep up the strength of the patient as much as possible, and food given by the mouth is fraught with danger.

Another complication of great trouble and discomfort to the patient is that of tympanites, and it was present in a large number of patients, and varied from mere flatulent distention, to that very excessive form of tympanites which was most marked in those cases of great nervous prostration, an ice bag or cold compress to the abdomen always seemed to be most beneficial to the patient. It always seems to me that intestinal antiseptics should be of great value in this complication, and when one takes into consideration the origin of the tympanites, I myself look upon it as due to a septic fermentation, and clinical experience goes to show that when certain
antiseptics are given, they lessen the factor and prevent decomposition of the contents of the bowel, and judging from my own experience, I fully believe that as our knowledge of the great value of internal antiseptics becomes more perfect, and their use more general, that not only will this one complication be greatly diminished, but I even look to the time when a complication will be rare, and this disease will be held within bounds, so that the mortality will be greatly diminished and the necessity for the large use of alcohol will be done away with, in fact there is a large field for clinical study in the antiseptic and dietetic treatment of this disease, and such I am glad to say is being more recognised each day. In fact since I have used antiseptics and altered the diet in this disease, I have seen the most marked improvement.

Of course the idea of an antiseptic treatment of this disease is by no means new, for Mr. William Jenner after back as 14 years ago advised charcoal to be given two or three times a day, but to-day we possess antiseptics less cumbersome and more effective.
than charcoal, the late Dr. Murchison speaks
of antiseptics acting upon the poison in
the intestinal canal. Niemeyer used chlorine
water and so we have gone on step by
step, till at the present-day we use the
most-complex and modern of antiseptics
such as Salol, salicylic acid, carbolic acid,
naphthol and many others, but—from a
practical and clinical study I will give
you my own personal experience of those
that have been used.

At one time I always used Salol for owing
to its insolubility it passes into the intestines
and is there decomposed into salicylic acid
and then of in the alkaline contents of the
small intestines, and there neutralises free
phlogenes—which result from faeco-intestinal
causes. I generally gave 10 grains every
4 hours, and it was noticed that it
promptly removed the foul of the stools,
and greatly diminished or removed the
symptoms, and if the diarrhoea was in
any way excessive I generally added 10
grains of salicylate of bismuth. I have also
used salicylate of bismuth.

At one time I was in the habit of using
B. naphthol but as I have seen to much
faecal irritation caused by this drug
I now quite discarded its use.
It seems to me to have some action upon the milk that was taken regarding its dejection, and so producing a milk dyspepsia, I tried it in the form of a pill coated with Keratin, but it made no difference. It has an odour of carbolic acid, is very toxic, and in several cases produced a dark discoloration of the urine and slight symptoms of poisoning. It seems to be better tolerated in children.

There is not the slightest doubt that these antiseptic agents shorten the duration of the fever, and tend to lessen the chloric enlargement, albumenuria, and other complications, and seem to bring about a more satisfactory convalescence. The risk of propagation is also diminished by destroying the infectious nature of the stools.

There is no doubt that when the condition of dyspepsia comes on and the nerve power of the patient is at its lowest, and the contractile energy of the abdominal and intestinal muscles is consequently at its minimum, hence the want of power to expel the feces and excreta in the quantity formed, and as this takes place about the 4th week, when the turgidity and ulceration of the intestinal walls...
are at their height, and when one takes into consideration the state of the stomach and glands with their antiseptic digestive properties arrested it only stands to reason that the food that goes into the intestine becoming mixed as it does with the secretions from the diseased intestine readily undergoes gas generating decomposition, hence it seems to me, the great necessity of combating with this condition of saponification before it has time to begin, as of course the more prolonged the intestine the greater the liability to perforation, and this is one point where the great value of antiseptics come in.

For my own part there is nothing to equal tannin as a general antiseptic. In fact Etheridge has shown experimentally that it is one of the most powerful antiseptics against the typhoid bacillus and checks its culture. For some time past I have been in the habit of combining its action with that of chlorine. This latter remedy was so highly recommended by the late Dr. Murdochison, I must say that I have had very satisfactory results from its use. The way I generally have it prepared is to put about 30 grains of Chlorate of
Potash in a 24 oz. bottle and add about a couple of drachms of strong hydrochloric acid, the result being that chlorine gas is given off, small quantities of water should now be added, and the mixture well shaken, and so on till the bottle is full.

Then have my solution of free chlorine, now to this mixture I now add about one drachm of guanine, and some spirit of orange peel, and order an ounce to be given every 4 hours according to the severity of the case. Now one of the first results after giving the mixture is cleansing of the bowels, the color of the stools generally disappears, so that it seems to me to exert an antiseptic influence in the blood and neutralizes those substances generated by the typhoid bacillus. The excrections into the mixture are modified, I therefore have come to look upon it not only as an intestinal, but also as a general antiseptic.

There is no doubt that the beneficial results are very great; there is a modification of the febrile temperature, the course of the fever seems to be lengthened, the physical strength of the patient seems to be better maintained.
Food is tolerated with greater power, and the convalescence is more rapid and complete, and there is also less evidence of a septic state of the blood, in the form of marked diminution of abdominal tenderness and meteorism, as well as a decided fall in the quantity of albumen present.

I do not wish it to be thought that this is the very best method to follow in all cases, or that a more perfect line of antiseptic treatment may not be attained, but there is no doubt from what I have seen, that some constitutions are more influenced by one method than another, and there is no doubt that the methods of applying the idea will grow more perfect as our knowledge becomes more complete.

Practically there met with extreme views both as regards the treatment of the symptoms of hyperacid and the troubles incident to the bowel disturbance, this bowel symptom being almost invariably constipation. The question arises are aperient remedies to be given or not? Personally I have been most favorably and strongly impressed with the advisability and from my own experience I should add the
importance of refraining from any kind of aperient drug during the entire course of the fever. I may say these never given a patient suffering from typhoid aperient medicine and there is no cause for regretting my firmness on this point.

As regards the occurrence of constipation, it was present in a few cases, and the more marked it was, the greater was the liability to haemorrhage, in fact in other words the cases in which it appeared were always severe ones, this is of course due to the fact that a deep alteration must paralyse the bowel, a clinical point of no small importance, and I can only say that it is mainly upon this that I most strongly condemn, and should hesitate before giving purgatives, as it is not only fraught with very great danger to the patient, but are strongly contraindicated when the pathological condition of the bowel is taken into consideration, and I certainly fail to see how the brilliant results which follow the administration of calomel when given for constipation in this disease are brought about as has been so strongly advocated by some.
writers in the medical papers, the cases must be very few indeed, and considering the lesion in the bowel which has brought about this constipation. In nearly every case, it is not difficult to see how a fatal perforation and subsequent peritonitis may be brought about.

The prevention of bed sores is often a great trouble, a good plan I have found is to paint the parts most exposed to pressure with collodion daily, or what is even better I found is to put very thin layers of cotton wool over the prominent parts, and to fix them down with collodion to act as a thick pad formed which most thoroughly protects the parts exposed to pressure namely the trochanters, sacrum, and elbows, and in addition to being of immense comfort to the patient, as an alleviating bed sore is a most troublesome complication and very often seriously interferes with the convalescence of the patient.

Otorrhoea is a condition which occurred in several of my cases, a daily curing of a warm boric acid lotion, and after drying filling the ear with powdered
In conclusion, if this is done as long as any discharge remains I find that they quickly heal.

Frontal headache in some cases was a very troublesome symptom, a head worm, evaporating lotions, ice, e.g., 16 grains of antipyrine with 3 grains of caffeine, or the Elixir of Guarana, Bromide of ammonium, were the various modes of treatment adopted.

For the sleeplessness I have generally found that — a combination of Chloral, Bromide, and Herbae answers the purpose very well, but I have no hesitation in saying that — if they can be done away with altogether, so much the better, in fact — they must always be given with caution, and to my mind, there is no doubt that alcohol answers the purpose better, but since there have been in the habit of using antiseptics so much I have noticed that there is less tendency to both frontal headache and sleeplessness.

I look upon typhoid as a disease which varies to very much in severity, that I do not believe in any routine system.
of treatment— as applicable to all cases alike.

In all cases it is possible to insist upon the ward or room being large, airy, well ventilated, and always kept at a temperature of about 60° F. The beds should have narrow slats so that the patient can easily be approached from either side, fitted with a spring and hair mattresses. All flock and feather beds, eider down quilts, and other non-conductors of heat have a strong dislike to.

The patient being put to bed at once, the horizontal position should be maintained through out the course of the disease, and the bed-pan to be used from the beginning; as in the early stages of the disease the erect or sitting posture may be attended with fatal syncope.

These found the following aromatic and antiseptic lotion most refreshing to the patient:— to sponge the body all over with night and morning, by this means not only is the skin kept clean from contamination by the excretions, but the temperature is reduced as well as the burning
Feeling of the skin and a general toxic influence is produced

R. Thymol. 20 grs. Ipt. Levandula FF

III

II

III

I

Poitiers 30 grs. Re. Acet. Vn. FF

I

II

III

II

III

I

I

I

II

III

I

III

II

Poitiers 50 grs. m. t. cito.

I look upon the cleansing of the mouth and teeth three times a day as most important, and the method I generally adopt is, by means of a piece of absorbent cotton tied on to the end of a stick and dipped in some alkaline water to which a little antiseptic is added by this means the teeth and gums are kept clean, and the prevention of caries.

I believe in the oil of Eucalyptus being placed about the room, or different parts of the wards.

I cannot say that I have much faith in giving a great quantity of medicine in this disease, apart from the complications that arise. Certainly the most rational treatment at the present state of our knowledge seems to me to be the antiseptic one, in fact I am a strong advocate for it, and have elsewhere stated my own views on the beneficial results obtained from them.
I always have the temperature of the patient taken every 4 hours.

I much prefer the use of iodoform for cleansing in place of disinfectants. Sponges, handkerchiefs, or pocket-handkerchiefs, it is cheap and can be burned at once.

All sheets, blankets etc. that are removed are put at once into an antiseptic fluid, preferably of mercury (1 in 200) being probably the best, and mostly certainly the fluids must be mixed with an abundant supply of the disinfectant fluid, and allowed to stand for some time before being poured down the water closet. Avoid the practice of burying the fluids in the earth which prevails in the country to much as extremely dangerous, and has been clearly shown that dirt does not destroy the vitality of the bacillus.

I am always careful about all articles being washed in hot water and disinfected. From my own observations I believe it is quite possible for typhoid to be taken by those in attendance upon the patient if great attention is not paid to cleanliness, any soiled stained linen when it becomes dry, must necessarily be burned as dust-in
The changing of the patient, and in this way the germs may be inhaled by nurses, in fact - in the only case in which a nurse caught typhoid to my knowledge was in this way. I always enforce that nurses shall wash their hands immediately after attending the patients, and before either giving or taking food. I hold that water companies should be heavily fined for supplying water polluted at its source or transit. There seems to me to be a necessity for legislative reform in the existing system of the drainage of dwelling houses, and the landlord of any property ought to be held accountable for the state of drainage, and punished by a fine if found defective quite apart whether disease has broken out or not. I also think that there ought to be two sets of plans of the drainage of property, one kept by the landlord, and another at the sanitary offices where tenants or those about to rent property might inspect it upon paying a small fee.

I will now narrate a few of the sequels of the diseases I have met with amongst
my cases.
The first case was that of a young man of nervous disposition, who after the
usual symptoms with rather severe
haemorrhage and an intercurrent
relapse, was taken on the 34th day with
rewards affecting the outer and inner
cords of the brachial flexors on one
side. There was pain, hyperesthesia
followed by anaesthetic weakness
and muscular atrophy. Trigeminic
massage, and the paraffin current
produces a decided improvement.

In the case of young woman who
after a protracted course of the disease
a severe relapse, with haemorrhage and
constipation, a sausage-like tumour
began to show itself in the ileo-cecal
region, it developed fluctuation,
and on the 3rd day after having
seen first observed, opened it with
the discharge of some faecal swelling
pus. I thought it was doubtfull whether
this was due to perforation caused by
an ulceration or to impacted faeces
accumulation, however she made
a good recovery.

Influenza shows itself in a few bui-
it was generally in women, I found a liberal diet, with stout, fort-wine, and good nursing consoles the best.

Infantile Hemiplegia. This came on in a little girl whose was a very severe attack of typhoid. The attack of paralysis came when she had been convalescent for some few days. It was of the usual cerebral type, the face, arm, and leg being affected on one side with aphasia which was only temporary, and the power of speech came back in a few days but was somewhat thick; it was slight sensory impairment, the reflexes were increased, and a certain amount of rigidity and contracture supervened upon the paralysis, which will sooner or later develop into the mobile spasm of Atetosis.

Dean only looks upon this very rare sequela as the result of inflammation of the cortex, a potoxic encephalitis which is analogous to that in the grey matter of the anterior horns of the spinal cord which causes Infantile Paralysis or it might be due to an arterial or venous thrombosis, the typhoid poison might act like alcohol or arsenic
in bringing about this condition from acute poisoning, Salomel and
the ice bag to the head with bromides.
During the acute stage, take, on I
bored the inside of the mouth, massage
when the left Hospital there was little
or no sign of any improvement.

I can not say that I have much faith
in giving a great quantity of medicine
in this disease; apart from the complications
that arise, the most rational treatment
at the present time, seems to me to be
the antiseptic one, in fact I am a strong
advocate for it and have elsewhere estates
my own views on the beneficial results
from some of them.

I think that there is no doubt that the
administration of the dilute mineral acido
is followed by good results. They make up
for the deficiency of acid in the gastric juice,
which is a marked feature in this disease,
they also increase the saliva, and remove
the parched condition of the throat and
tongue, and at the same time tend to
neutralize the excessive alkalinity
of the blood, and correct the acid
alkaline motions.
As regards the antipyretic treatment of the disease, I have given up the use of drugs - unless it be quinine - as agents by which the temperature may be reduced, if indeed the hyperpyrexia is to be regarded as such a dangerous symptom which personally I myself have some doubt.

I look upon many of the modern day agents for suddenly reducing the temperature as powerful cardiac depressants and blood cell disintegrators. I have no objection to their occasional and cautious administration, but to be used with a free hand and as a matter of routine because there is pyrexia, I must protest, as I have myself seen alarming symptoms to follow a single dose of some of Antipyrexe.

As regards the various methods of applying cold water as a means of lowering the temperature in those severe cases where the thermometer showed the temperature to be 105-108 F and to have a tendency to rise rather than to become lower, so that the condition of the patient was such as to necessitate some active steps to be taken, and the hyperpyrexia to be combated if the life of the patient is to be maintained. I look upon it that...
It is not the hyperpyrexia per se, which is so dangerous, but the various changes that are brought about in the system by an excessive high temperature found within the body, and probably of the nature of a morbid process, due to changes in the blood of a chemical nature which soon render life impossible.

These reverse every high temperature in one case produce little if any danger, when another will have a temperature of not nearly so high with alarming symptoms. It is of no use then in this disease to stand by with folded arms and say “wait and see what follows” or delay for a few hours is to lose a golden opportunity never to return.

As a general rule I always order every case a warm bath on admission as I think the soothing and cleansing effects are very beneficial to the patient, and often absolutely necessary in hospital cases.

In some 20 cases I found the cold water enemas of great value where the temperature still persisted high, and the wet pack seemed to have no lowering effect upon it, the water should be retained as long as possible, in fact to
some hours, for if allowed to be rejected
the effect will be very slight, I have
found that the best way is to raise
the foot of the bed, insert the nozzle
of a syringe into the rectum and
attach to this a few feet of india-rubber
tubing to which a funnel is fixed, the
water can then be forced down this
from a height of a couple of feet; in
this way it gravitates into the bowel
more steadily.

Ice, ice-bag, cold compresses, and ice-bag
all have a most decided effect upon low-
ering the temperature, and to my mind
possess a great advantage in being easily
applied in severe cases, I have found the
ice-bag exceedingly useful in several cases
of abdominal distention and intestinal
haemorrhage, in one severe and protracted
case I had it applied to the abdomen for
25 days, constantly, and it had a most
beneficial effect in keeping the temperature
down. I may say that the case ultimately
recovered.

There is no doubt that the ice-bag is the
most efficient way of applying cold, I
generally am in the habit of using it for a short-
time or continuously according to the condition
of the patient and the effect produced upon the
patients. In some of the most severe cases it lasted from a few days up to as many as 20 days, according to the severity of the cases.

The way I generally apply it is to have the patient enveloped in a sheet, wringing out of cold or tepid water, and covered with a blanket, as soon as the sheet begins to dry I replace it by another. These found it best as a rule not to employ too cold water as the shock to the nervous system is in some cases very great and there is then marked liability to vasomotor paralyses and internal congestion.

I have in a few cases used the ice water pack, but only in those conditions where there was almost total abolition of the senses, with a general poisoning of the whole system, and where it seemed to me that a decided shock to cause the nervous system was absolutely necessary.

I am unable to advise the use of the cold bath as a general remedy in this disease, nor have I had any experience with the treatment—by the continuous tepid bath, the disadvantages of it appear to me to be very great.
The Dietetic Treatment of the Disease.

There is no doubt that much of the success in Typhoid cases is to be attributed to the line of treatment adopted. It is therefore most necessary to enforce a proper diet, and to carefully look out for any symptoms or complications that may arise from injurious forms of diet, and there is no doubt that great errors are committed, and were more or years before we became so enlightened about the physiological action of food.

I think many lives might be saved if the question of diet was more considered, as it is, and to my mind a strong point for this failure is the small amount of knowledge there is shown by some practitioners upon the compositions of foods. I am sorry to say that to some it is quite enough to know that the patient is having a liberal supply of milk, strong beef tea, port wine, and in many cases alcohol literally poured down the patient's throat every hour of the day and night from the very day the case was diagnosed as Typhoid.
is it to be wondered at then, that the case goes from bad to worse?
I am quite ready to admit and to recognize the necessity of administering a sufficient quality of food to fever patients, especially with the object of lessening or compensating for that tendency to destruction of tissue which—and I have no hesitation in saying it—is one of the most serious consequences of fever; but there is no doubt that in large institutions—and I am speaking from experience—the free administration of food and alcohol is far too much a matter of routine, and I am sorry to say very often takes the form of a determination upon the part of the nurse rather than a determination.
How often have I seen the poor fevered lips and parched tongue craving for a cup of cold water, and yet it is denied them, and in all probability get a drink of black beef tea and port-wine in place.
From my own experience then, I would say that there should be more determination and less routine in the feeding of fever cases and a better consideration of the fact that good undigested only serves to
intensify the febrile process, and adds to the distress of the patient, and that, in giving concentrated solutions of nitrogenuous excretions, we may incur the danger of adding to the already large accumulation of nitrogenuous waste in the blood.

I am of opinion that there should be an endeavour to utilise to the greatest extent that is safe and possible, for the purpose of checking the work of tissue which is associated with the febrile process, and I am always careful that no food should be administered that can not be readily absorbed and assimilated, of course the functions of the digestive organs are greatly impaired during fever, due to a condition of catarrh of the stomach and therefore to give food which the patient is not able to digest is only to result in decomposition in the stomach and intestines, and not only give rise to much local irritation, but will at the same time augment the febrile state; thus the desire to force food in the absence of all appetite is only to do more harm than good.

I take it that there is a universal opinion amongst all authorities now, that owing to the interference of the normal digestion...
all food should be given in a fluid form in this disease, such as can be readily and immediately absorbed, and I maintain that it should be given in small quantities and at short intervals.

Now the two kinds of food most generally used in this disease are milk and beef tea. There is no doubt that milk is a very ready and handy food requiring no preparation and therefore gives no trouble, but from my own experience I must say that I look upon this as a danger in itself especially with nurses, and it is a curious fact that one that is little taken into account, and at the same time the one great drawback to the use of milk in acute diseases, is that although it is a fluid food out of the body, it becomes a solid food in the stomach and intestine.

Where it is quickly digested I tolerate and although I have no hesitation in saying that it is an excellent food, but I am sorry to say that there are many cases in which this is not so, and it is in these patients in which such very serious injury may be done if this peculiarity is overlooked, or even not thought of which is more often the case.
hicks may be a complete food and contain all the elements needed for the nutrition of the body, such as albuminoids, fats, carbohydrates, and salts, but I must hereby say that where it fails to be given for several weeks in cases of epilepsy, it fails to meet the excessive tissue waste as a perfect food; this I must say is due to the defective amount of carbohydrates it contains, but, of course on the other hand it is rich in fat and albuminoids, and also in chlorides and phosphates, facts essential to the due nutrition of the tissues. I have therefore for some time past now been in the habit of administering farinaceous foods containing carbohydrates, such as finely pulse bread, oatmeal, barley flour, taking care that they are obtained from all parts of the meal, one of these foods is boiled with the milk in which some flavouring substance may be added, such as cloves, nutmeg, or lemon peel, and sugar, and I have always found it an advantage to add a small quantity of butter, by this means defining that an adult will get about 15 to 20 ozs. of such food daily from 2 to 3 ozs. of butter in the day, and certained the tissue
waste does not appear to be anything like as great as when the diet consists
totally of milk.
I look upon it that the best diet to
prevent wasting in this disease has not
as far as I am aware been yet found
out, but it seems to me that where
milk is the only diet the tissue waste
is exceedingly great. I feel therefore con-

defident that if we want to try and
lessen this waste of tissues, we must
supply a fair amount of carbohydrates
and certainly from my own experience
I have been most favorably pleased
with the results.
It is also an open question if the
present routine dietary which is
usually given in this disease, in a
large number of cases, consisting as it
does almost exclusively of animal
products without any vegetable juices
does not tend to produce a morbid
state, and to favour the tendency to
hemorrhage. I have therefore made it
my aim as far as possible to maintain
a normal condition of the blood and
blood vessels, and to encourage a healthy
reparative action in these tissues.
Milk no doubt is an antiserootive
but when it is made an exclusive diet, the blood is not sufficiently replenished with its normal saline constituents. I am therefore in the habit of ordering a powder consisting of about 100 gr. of bicarbonate of soda, 20 gr. of chloride of sodium, 2 gr. of chloride of potash, and chloride of calcium. To be added to each pint of milk.

Furthermore, I am always careful that the patient should have no more food than he absorbs as only harm results in failing to allow milk as a concentrated food which is apt to coagulate into indigestible curd on entering the stomach or intestines with their acid secretions. I am therefore in the habit of always giving the milk diluted either with pure water, or ice water, lime water, or soda or potash water, half and half to which one of the above powders is added, by this means no irritating caustic is formed when it reaches the stomach, and it is thus allowed to pass into the stomachum in a fluid state.

By this means it will be seen that I add certain necessary salts to the food, which from the absence of vegetable...
foods the patient does not yet. I also took
upon common salt as an excellent anti-
defice.
One of my patients craved for days to be
allowed a salt herring to eat, I took
the hint and added salt to her milk.
She expressed herself as greatly better,
it was not the herring she wanted,
but it was the one kind of food
which occurred to her mind at the
time, which would supply salt to her
system, it taught me a lesson in Asper
that I have always given salts in bad
cases since.
I must say that I am not in favour
of peptoneated foods, their unpleasant
smell and taste are not at all
agreeable to patients, I think their fibre
also is for regular alimentation.
I always say that a fever patient must
be fed every hour, two ounces of
milk with two ounces of some alkaline
water given every hour will give 2½ pints
of milk a day, which with other forms
of food as soups, will be ample.
I have myself had several cases of
typhoid in which the administration
of milk has not appeared to produce
any fasting disturbance, but yet has
set up great intestinal irritation, and
the motions have been largely composed
of firm curds of milk, when this is the
case there is not the slightest doubt
that this is greatly owing to the fact
that it is given in too concentrated
a form and in too great quantity, and
that this is really so practical observation
has shown over and over again in my
own cases, for when hot milk is diluted
and why should anyone hesitate to
dilate it with water and these patients
require water and in very much larger
quantities than they usually get, and
therefore I am in the habit of always
giving some of this water in the milk.
There is a complete cessation of the
intestinal irritation, and an absence
of firm milk curds in the stools.
I am of opinion that why should not be
more used than it is in this disease, it
is so easily made in a pleasant form
by boiling a pint of milk with a
few tablespoonfuls of lemon juice, then
breaking up the curds and straining through
muslin, meat juice can then be added
to this, or if an egg be beaten up in
boiling water, strained, a fluid is
obtained holding in suspension a
considerable quantity of albumen, and to helps to supply the defective albumen. I look upon eggs as a valuable form of food which ought to be more used in this disease than they are, and can easily be given beaten up in hot milk and water.

A few words as regards my own experience of历史上. I must say I look upon it as it is generally given in this disease in a very concentrated form, as a source of special danger to the patient, and the best means of setting up definite changes in the intestinal canal in the shape of excess intestinal fermentation, and not only this I must protest strongly against the amount of sweet potatoes that I have known to be given in this disease, and during the acute stage of the fever, by this line of treatment, and I must say that from my own experience it is the sort of routine diet which is ordered in many of the provincial hospitals—a fermenting mixture is formed in the bowel out of which poisonous fomammaries may be the result. Such a state of affairs is thus brought about which must thus jeopardise a patient's life from
The fact that due to the amount of abdominal distention and symptoms thus produced, as these already state that should a fever patient require so much water, why should not some of this water be given with the beef tea, instead of in the highly concentrated state in which it is generally given, so that patients could to relieve the most intense dislike to it. It seems to me to be a mere piece of routine, imagine the fearful monotony of strong beef tea and milk for weeks. Now there are many meat infusions that can very easily be rendered palatable and are infinitely better adapted to serve as food in typhoid than strong beef tea.

I generally order well made mutton, veal, and chicken broth to which I have added well strained barley meal, oatmeal, or arrowroot. They make excellent foods and are highly appreciated by the patients. They are in a dilute form, and contain more nutritive materials than the beef tea. And again, I often order clear soups, and those vegetables cut up, with herbs placed in a muslin bag and boiled in it. They are exceedingly agreeable. They are very readily absorbed and stimulating, and the juices and
Salts of the vegetables add greatly to the food value.

Cold meat-jellies of various kinds are all of special value.

I must say I am a strong believer in farinaceous foods such as thin oatmeal, barley, pearl, arrowroot, ground rice, added to clear soups carefully strained--they are valuable foods to a fever patient.

I maintain that it is an important fact to bear in mind, that there are cases in which there is a tendency to an accumulation in the body of the products resulting from the destruction of the tissues, and that these act as poisons in the blood and that by allowing water to be freely drunk, their elimination is favored.

To assuage the thirst I always allow about barley water, but the best of all to my mind is strained lemon water. It keeps the mouth clean and is most grateful to the patient and refreshing. I see no reason why tea, coffee and cocoa should not be given in those cases where the patients have a desire for it. As I have stated before every fever patient should be allowed to drink freely of water, and when the temperature is high I give iced water.
Another point with regard to beef-tea is that it contains little if any albuminates, and from my own practical experience I am sure that much harm is done by its use in such a concentrated form, as the tissues are undergoing a process of destruction and attempts to build them up are useless at the time.

The only effect of such a diet appears to me is to throw additional work on overburdened kidneys, and to bring about an inflammatory condition of the organs, and increase the tendency to albuminuria and such is rarely the case in my experience of the disease.

In the preparation of beef-tea, it seems to me that there is considerable waste of material which no doubt arises from a desire to give food of high nutritive value in small quantities, irrespective of its component parts combined in natural proportion. It is often subjected to prolonged distillation at high temperatures, when it evolves ammonia, becomes syrupy, loses the property of coagulation and quickly putrefies, thus I have convinced myself of practically, and thus its nutritive property comes to be destroyed, hence the dangers to the patient that arise.
To stimulant action is no doubt due to the potash salts, they in large doses have an injurious effect by their direct action upon the blood flocules, and they further prevent the normal exhalation of carbonic acid, and consequently the introduction of proper. The salts are out of all proportion to the albuminates, the result being when given is to increase the heat, depress the body temperature, and increase the nitrogenous waste, and 2/3 of the digested fibre, unmented refuse, being thrown away by many.

I have always maintained that in making beef tea there should be neither refuse or remainder, and after many trials I find that 4 oz of meat can be suspended in a pint of water and be taken without disgust by the patient. Make it that if a patient receives a pint and a half of such food in 24 hours he gets a large supply of nitrogenous food, and enough for a healthy man at rest.

I have often observed in several cases, that when large quantities of concentrated beef tea have been given there is a condition of lister and heaviness comes
over the patient, this is generally attributed to the potash salts, but—my own opinion is, that it is due to the excess of nitrogenous extractive matter.

Another point—which is not sufficiently considered in Hospital cases, is how very improperly many patients have been fed before they contracted the disease, and it seems to me that there is an unhealthy condition of the tissues and it is the duty of those in attendance to prevent further degeneration. I must say that there has been a most wonderful difference, when an antiseptic line of treatment is employed, and a more discriminating diet is used, such as these tried to explain, from my own experience, that old system of the routine diet of milk, concentrated beef, and alcohol was most deadly to the patient, in consequence of the more severe complications, but I can confidently say that although many of my cases were very severe, there was less tendency to hemorrhage, abdominal distension, the wasting of the patient was not—near to peel, there was little albumenuria, hyperpyrexia was not so frequent, and the "lump ensemble of..."
The patient was that of a marked improve-
ment, nor was the metaphor "the shadow
of death" so often observed.
When the temperature has been normal
for a week or more I generally begin caution-
ously with fish, chicken, mutton, game,
boiled eggs, buns etc. If a relapse takes
place I am generally inclined to believe
it is often due to constipation, than
to the use of solid food. Nourishing bitter
beer, stout, or a few pieces of port, and
there is no doubt that here is the place
for stimulating wines such as champagne
and port, and not in the acute stage
of the fever as some are often wont
to hold.
I think that it is highly advisable to
keep the patient for a considerable
time upon light diet. Two or three
cases falling under my own observation
go along way to prove the evil results
following too early a return to a
meat diet - have caused me to recommend
allowing any case to return to the
ordinary diet till some time has
elapsed, in fact - I have come to regard
it with great dread, as an example
one case took a substantial meal of
roast mutton upon his return home
the death in opposition to the advice I gave him, poison and intestinal mischief followed and death took place in 3 days. Another case after a meat diet had perforation and died. These two cases sufficiently to show I think what very great care should be exercised for some period after the temperature has been normal.

The question of alcohol in this disease is one upon which a great deal of controversy of opinion has been raised lately, and is therefore a very difficult matter to decide. I am thoroughly of the opinion that no definite or routine rule should be laid down, but that each case should be taken upon its own aspect. I am fully aware that there are lots of cases that require no alcohol from first to last, but at the same time there are also others which require a little even early in the disease, but to order alcohol at large amounts because it is a case of typhoid, quite apart from the good or evil which will arise, and it is generally the latter I must strongly condemn, as it is
absolutely dangerous to the patient.
I have myself seen more than one patient suffering from the over dose of
alcohol, which was regarded as the delirium from the irritability of the
fever.
I am never in the habit of giving alcohol
in the early stages of the disease, but
only prescribe it when the severity of
special symptoms indicate it, nor am
I in the habit of pushing its use when
the temperature rises, with a disturbance
of the heart's action, increase of delirium
sleeplessness, or a certain state of drowni-
ness, or if the urine contains much
albumen.
This is a fact worthy of record that
since I have used drugs for intestinal
constipation I have used little or no
alcohol, the conditions of the patient
not requiring it, this I look upon
as a marked improvement in the
Treatment of the disease.
In my earlier cases not only was
the amount of alcohol much
greater, but the death rate was
also higher, the complications were
more serious, and the duration of
the fever was longer, and I look
upon this being due in a great measure to the fact that no antiseptic treatment was used, and therefore the high rate of mortality was due not only to the more serious nature of the complications, but also to the then excessive use of alcohol which gave to buy and combat them.

From my own experience I state, and with no hesitation that to give alcohol to children is most injurious, and the very small quantity which is required to produce symptoms of intoxication in them, indicates that they absorb it rapidly, and tolerate it badly.

Nearly all the good effects of alcohol where it is indicated are to be obtained by 6, 8, or 10 ozs. of brandy in 24 hours, and I maintain that it is only in exceptional cases that more than 12 ozs. of brandy in the 24 hours can be taken without inducing some of the worst symptoms of intoxication. But I think that there should be no hesitation as regards the use of alcohol when such clinical symptoms as the following manifest themselves: A low muttering delirium passing into
Stupor, with coma, frequent delirium, development of the senses, with hallucinations of sight and hearing, urine and feces passed unconsciously. There is also great muscular weakness, the patient lies on his back and tends to sink down to the bottom of the bed, the lips and gums are covered with froth, and the tongue dry and black, subcutaneous leucism is also generally present. The pulse frequently running, small, weak, and irregular, the heart is impalpable, greatly weakened, the first sound almost or quite lost at the apex, the skin dry, high temperature, and there may be delirium and tendency to convulsions, the breathing hurried and shallow, and may later on the type of Cheyne Stokes. I am glad to say that such a clinical picture as I have portrayed above is not often seen now, in fact, where an attempt at treatment is adopted, I feel certain that such a state of matters could not exist, and therefore I have no hesitation in saying that the progress that such a line of treatment is making amongst physicians in all parts of the world calls for special attention, and in addition I would say that observations are getting more numerous, and results
more favourable. I do not wish to lay any special stress on any particular way of carrying it out, as perhaps the best mode has not been arrived at yet. But I think that I have been able to make it clear that the possibility and the duty of maintaining intestinal antiseptics in the treatment of this disease is quite shown as the result of clinical experience, and that it certainly brings about a lower death rate and that this being so I state that it is our duty to follow in the antiseptic line and that by so doing we shall not only promote the credit of our science but at the same time by diminishing very greatly the mortality from this disease we shall be conferring an immense benefit upon suffering humanity.

The following table will show the very great difference in the modes of treatment of the cases under my care.

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<th>Days of Relief</th>
<th>Days in Hospital</th>
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