

tion in autopsies. Dr. Seibert agrees with him. He explains, and I think justly, many of the so-called typhoid lesions in this way. It is desirable that a very careful consideration of pseudo-typhoid intestinal lesions be made, for it brings up a condition which is not recognized by our existing classifications of intestinal diseases. It is not impossible that the name, enteric fever, if it does not include more than one distinct disease, may possibly be a disease of more than one cause. That is to say, beside the cases undoubtedly caused by the Eberth bacillus, there may be other elements at work, whether bacillus coli communis, or the bacteria connected with milk infection which produce an analogous condition. Whether it will, at a later day, become possible to clearly distinguish these divisions is impossible to say.

The later stages of typhoid fever after the formation of ulcers when they exist, are essentially a septicemic condition from the poisoning by various bacteria and their ptomaine products, but more especially by streptococci. It is certain that, as the disease progresses, the Eberth bacillus becomes less numerous and the streptococci and staphylococci more numerous. The picture of the disease, then, is indistinguishable from the condition so common in severe, long-continued gastro-enteritis, or milk infections which we observe in summer.

Vincent, in the *Annales de l'Institut Pasteur*, 1893, studies this later and secondary condition of infection by a combination of Eberth bacilli and streptococci. In the bacteriologic examinations from the spleen and other organs, in thirty-one autopsies of typhoid cases he found six times streptococci associated with typhoid bacilli. He regards the typhoid patients peculiarly exposed to streptococci infection, since the system in a great measure has lost its resisting power, and only an angina, parotitis, otitis, or some other source of pus is needed to start this double infection. Even the saliva contains numerous streptococci, and ulcers in the intestine may permit absorption. Furunculosis is common.

He examined forty-one abscesses occurring in typhoid cases, and in thirty-two he found staphylococci, pyogenes aureus or albus, and found that these cases happened to recover. In eight cases he found the Eberth bacilli also, five of which cases died. He claims from his test that typhoid bacilli and streptococci, combined, cause a more virulent poisoning and thus a special danger to the patient. In a fatal case of typhoid fever with rose spots and clear history, on autopsy he found very slight lesions in Peyer's patches and intestinal follicles, spleen not much swollen, and in the different organs typhoid bacilli and streptococci.

In a series of animal inoculations he found that injection of the Eberth bacilli cultures, alone, was followed by an active phagocytosis, but injection of Eberth bacilli and streptococci together was followed by no phagocytosis, the animal eventually succumbing to this double infection. This, though only a limited work, opens up a new field of investigation in typhoid fever, and a possible explanation of its characteristic course and exceptional features.

Our present state of knowledge will perhaps enable us to decide that these aborted and short cases, with their early symptoms as described, are more purely the result of simple infection by the Eberth bacillus, while the later course, in common with the condition occurring after gastro-enteritis or milk infection, may

become a simple streptococci infection or a septicemic condition.

This conclusion is simply analogous to conditions present in other diseases.

The severity of an attack of diphtheria varies largely in proportion to the extent the infection by the Löffler bacilli is complicated by streptococci.

In scarlet fever the same is true, and in tuberculosis of the lung, as Prudden has so forcibly demonstrated, the lesions and symptoms vary according to the complication of tubercle bacilli with streptococci.

In conclusion, we would once more emphasize that typhoid fever in early infancy in a typical form is rare in this country, though not uncommon abroad. It is in a mild or abortive form that we must look for it here, if we wish to separate it from other intestinal or meningeal diseases that may appear.

And, lastly, when we have a case which is severe and prolonged, we may see in it not the result of the simple infection by the typhoid fever bacilli, but a complication by other pathogenic bacteria.

162 W. 73d Street.

### TYPHOID FEVER IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY JOHN ELIOT WOODBRIDGE, M.D.

YOUNGSTOWN, OHIO.

Typhoid fever is the same disease, is produced by the same causes and is governed by the same laws, at whatever time of life it may occur, from earliest infancy to the frailest anility; modified as it may be, by age, by organic development, by concurrent affections, or by extrinsic causes, and probably by the quantity of poison ingested. In the child as in the adult, it is caused by the same morbid influence, which can be neutralized by the same antidotes. In either instance the patient should be regarded and treated simply as the container of the specific poison.

It follows, that notwithstanding the minor modifications which the character of the disease may undergo, on account of age or other causes, that it is amenable to practically the same curative treatment in infancy as in adult life.

I must, therefore, make the same declaration here that I have made in every medical society before which I have discussed typhoid fever since 1880, viz., that every case can be aborted and that death is a wholly unnecessary consequence of the disease; and farther, that these results are attainable by a treatment so mild and gentle that, should the newborn babe be given the dose intended for a robust manhood, no harm would result; or should the child, overfond of its medicine, take at once the portion intended for fifty doses, it need cause no anxiety.

Yet, symptomatically treated, typhoid fever is one of the most serious affections of infancy and early child-life; and in the most alarming forms of the disease, in which the fever rises rapidly to an excessive height and the nervous symptoms point to some grave cerebral lesion, the true character of the ailment is rarely recognized in time to benefit the patient. Indeed, in a very large majority of these cases a correct diagnosis is never made. Therefore, while treating of typhoid fever in the adult, my pleading has always been for an *early* diagnosis. In discussing typhoid fever in children, the burden of my plea must be for a *correct* diagnosis; since the disease in babyhood is so frequently overlooked.

While Murchison and other eminent authorities have recognized and acknowledged the possibility of the occurrence of typhoid fever in earliest infancy, and even during utero-gestation, yet neither the best text-books, the teachers in the medical colleges, nor the general practitioner have realized how frequently the disease occurs in desperate forms during early childhood.

Reynolds' "System of Medicine" devotes more than seventy-five pages to typhoid fever and does not mention the disease in children in the whole article. Pepper's "System of Medicine," in five large volumes, justly praised wherever the English language is spoken, yields less than two dozen lines out of more than one hundred pages on typhoid fever to the disease in children. Professor Osler, whose "Principles and Practice of Medicine," is perhaps more largely quoted than any other work on the subject, disposes of typhoid fever in children in less than one dozen lines, and this is the author who said: "Cases (of typhoid fever) coming on with severe headache, photophobia, delirium, twitching of the muscles and retraction of the head are almost invariably regarded as cerebro-spinal meningitis." And again: "I have thrice performed autopsies on cases of this kind, in which no suspicion of typhoid fever had been present; the intense cerebro-spinal manifestations having dominated the scene. . . . Cerebro-spinal meningitis is, however, a rare disease; typhoid fever a very common one, and the onset with severe nervous symptoms, is by no means infrequent. Fully one half of the cases of the so-called brain fever belong to this category."

But while medical literature has recognized the possible predominance of the nervous symptoms of typhoid fever in the adult, it has failed to give due warning of the frequency with which these symptoms occur as the most prominent manifestations of the disease in early childhood, an omission which has been responsible for many errors in diagnosis and treatment.

In the first number of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for this year, a distinguished professor of the diseases of children, says that: "It has been my good or ill fortune to see during the past ten years, a number of cases in children under the age of 2 years, which presented mild intestinal disturbance, no marked tenderness over the bowels, a very high temperature, and where the apparent cerebral complications, delirium and stupor being prominent symptoms, were the apparent cause of death. In these cases, in the death certificate, the cause of death was usually given as congestive fever or meningitis. Two of these cases occurring within the past year, in both of which the post-mortem examinations revealed a pronounced error of diagnosis, has emphasized in my mind the thought that typhoid fever exists more frequently in early child-life and in a serious form than is generally suspected. I present the following case:

"A little girl of eighteen months, the child of a very prominent physician, was taken sick early in May, with marked intestinal disturbances; the evacuations from the bowels were frequent and copious, accompanied by mucus and blood. The temperature ranged from 102 to 104, and on one occasion reached 105 degrees. There seemed to be a history of acute indigestion. The usual treatment was applied in this direction, and the temperature was controlled by

cooling baths. Flushing of the colon with medicated warm water was applied, followed by starch water injections containing a few drops of laudanum, for the purpose of calming and reducing the frequency of the operations which interfered with sleep. During the early part of the attack, the child, though having frequent operations, was noticed to be calm and gave no evidence of pain. Not until the fourth day, however, was marked obtundity observed and the staring appearance of the eyes, together with the indifference to surroundings, impressed me with the fact that there was a cerebral complication. The course of the treatment was continued and the supposed cerebral complication became more pronounced. Inability to distinguish light or sound, and a crossing of the eyes, apparently justifying a diagnosis of meningitis. The child died about the tenth day. Post-mortem examination developed the absence of meningeal inflammation and the presence of ulcerations of the glands of Peyer, showing us, the physicians in attendance, how little we knew of the cause of death."

The author adds: "The indications for treatment were the same. A recognition of the disease in advance would probably have made no difference."

I have quoted thus largely from this paper because it is really a valuable contribution to medical literature, and I honor the learned author for giving less enlightened members of the profession the benefit of the many sad experiences which have finally opened his eyes to the fact that he has been stupidly floundering in his differentiation of diseases, albeit he has yet to learn of his greater deficiency and gross culpability in the treatment of typhoid fever. I forego all criticism on the long years and the number of pronounced errors of diagnosis which were required to implant in his mind a just conception of the vast number of children who must die annually of typhoid fever, after having been treated by the average practitioner for acute indigestion and later for meningitis, and finally are buried under a false death certificate. If this article, by one of the world's most distinguished professors and medical editors, truly represents the practice of the class to which he belongs, it paints a sad picture of the little victims of typhoid fever who were so unfortunate as to have come under their skillful care. It presents to our view what costly mistakes these illustrious gentlemen make, and yet the author eliminates but one or two of the diseases with which, in infancy and early childhood, typhoid fever is so often confounded.

With our present knowledge of the causes which produce typhoid fever, and the susceptibility of young children to their influence, taken in connection with the exceedingly limited number of cases of the disease, which are reported to the various health departments in our cities, where the disease prevails, it must be evident that the eminent writer of the paper quoted is not the only physician who should have had the fact emphasized in his mind "that typhoid fever exists more frequently in early child-life and in a serious form than is generally suspected."

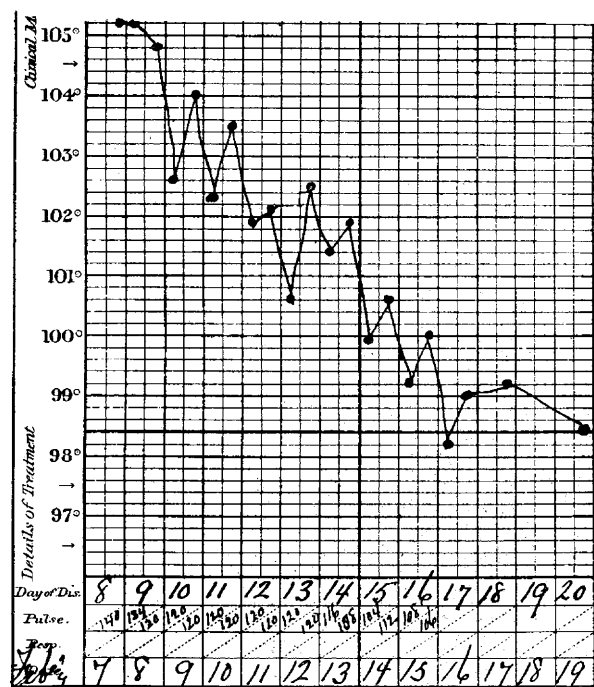
I have, in consultation, seen typhoid fever in young children mistaken for malarial fever, pneumonia, cholera-infantum, teething and even for worms, in addition to meningitis and acute indigestion.

The diagnosis of typhoid fever in children as in adults, should be made by reasoning by exclusion, and if thus the disease can not be eliminated from

the patient's possible ailments, the case should be treated as typhoid fever; because no other disease is so insidious in its character; because no other disease is so amenable to treatment in its earlier stages and so intractable after its anatomic lesions have reached a certain stage; because it is so often impossible to make a positive diagnosis in time to save the patient's life; and, finally, because the best treatment we yet know for typhoid fever not only fulfills both of the requirements of Hippocrates—it is curative, it is harmless in health or in any pathologic condition at all resembling the disease for which it is instituted.

I learned the importance of making a correct diagnosis in typhoid fever many years ago, and in 1881 I was taught a lesson on the management of the disease in children which I shall never forget.

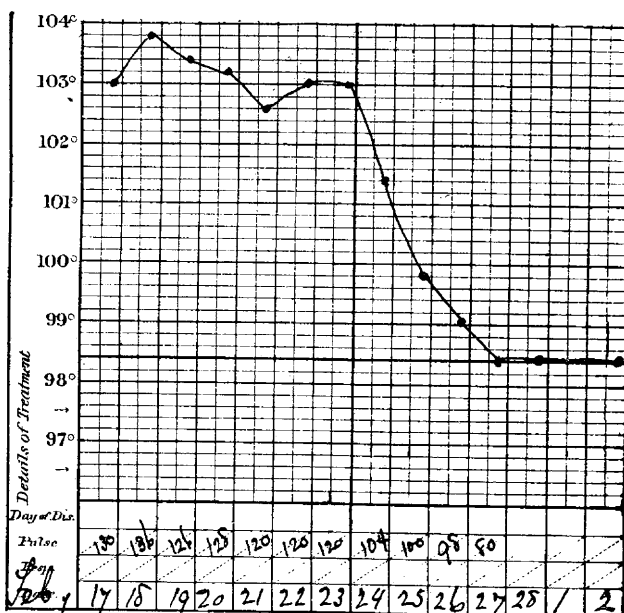
Little Gracie Wick, aged three years and ten months, was taken sick on December 14. Her temperature on my first visit was 105 degrees. In fourteen days she died of typhoid fever. A few weeks later her younger



Annie W., age 3 years; date of admission, Feb. 7, 1895.

cases, I wish to present the clinical charts of a few of the cases of typhoid fever I have treated during the intervening years and relate the annals that have been kept of them, and as an addendum give the records of a few cases treated by other physicians, by that which, for want of a better name, I have designated antiseptic medicine, for it is antiseptic medicine, and it is also something more.

**Case 105.**—Annie W., aged 3 years. (Cousin of Case 78, John J.) I was called to see this patient on February 7, and given the following history: she had been sick eight days, had been treated by an irregular physician, under a diagnosis of malarial fever until the parents, alarmed by the severe symptoms, continued high fever and the enormous tympanitic distension, questioned him closely as to the nature of the disease, finally eliciting from him on admission that it might be typhoid fever; when he was promptly discharged. I found the temperature 105.5 degrees, pulse 140, on the evening of my first visit and the same the next morning, the parents having about given up hope, as the child was thought to be dying twice during the night preceding my first visit. There was marked impairment of vision, deafness, and well-marked retraction of the head. When asked if I entertained any hope for the life of the child, I gave my usual favorable prognosis saying: "I think the child will recover and she certainly will if she survive the next forty-eight hours." She had intestinal



Sarah J., age 13 years; date of admission, Feb. 17, 1895.

sister Emily, aged two years and ten months, was attacked by the disease, which ran a parallel course and ended in death, again on the fourteenth day. Both children presented abdominal symptoms. In both, the nervous symptoms predominated. Both had opisthotonos, and both died the victims of almost criminal stupidity on my part. They were my last two fatal cases of typhoid fever and to-day should I be called as promptly as I was then, they would have been in no danger of dying.

Looking back to those gloomy days, I can not realize why I let those children die, for I knew well enough how to treat typhoid fever in adults even then. I made a very inadequate effort to assuage the pangs of conscience, by calling two of the oldest and ablest physicians of the city in consultation, after the time had passed when counsel could have been of any avail.

As a marked contrast to the sad picture portrayed by the death of these little ones, my last two fatal

hemorrhage, which in my experience is rare in young children. She also lost all power of speech, her lower limbs were paralyzed, she had just recovered from whooping cough, which returned to plague us during this attack of typhoid fever, in spite of which she made a good recovery. Her temperature, as you will see, touched normal on the tenth day of treatment, but went up slightly again on the eleventh day. On the thirteenth day the temperature and pulse were normal and the patient was discharged, and ten days later was in more robust health than before her illness.

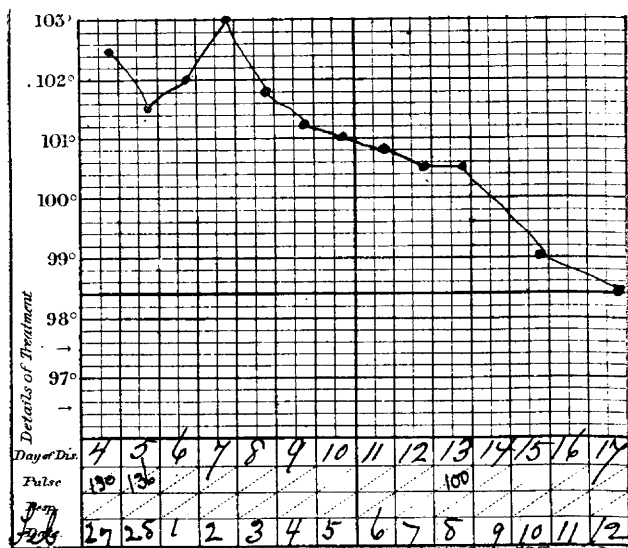
**Case 111.**—Sarah J., aged 13 years. (Cousin of Case 105, Annie W.) When I first saw this case her temperature was 103 degrees, pulse 130. The next evening it was 103.8 degrees with a pulse of 136. I gave my usual prognosis—ten or twelve days of illness—no danger. Her temperature touched normal on the tenth day of treatment. This case was an exception to the almost invariable rule commented on by so many observers, that after this so-called antiseptic treatment of typhoid fever, almost as soon as the temperature touches normal, the patient is in better health than before the illness. This patient had had some stomach trouble before her illness, and although she recovered quickly from the fever and her appetite was better than usual, for a week or two, she has since been to my office several times for treatment of her old trouble.

*Case 112.*—Florence J., aged 11 years. (Sister of Case 111.) On February 27, the temperature of this patient was 102.5, pulse 130. Three days later it was 103 degrees, from which time it declined to normal on the thirteenth day of treatment, the patient being in good condition and having an excellent appetite.

*Case 113.*—Blanche J., aged 5 years. (Sister of Case 112.) This patient had temperature of 101.5 on March 2, with a pulse of 128. On the third day of treatment it was 104 degrees, from which point it declined to normal on the eleventh day.

I am not infrequently called to see young children, especially in consultation, in the late stages of typhoid fever, when no suspicion of the character of the disease had been aroused, but in which the symptoms are so distinctive that no trouble should have been experienced in making an accurate diagnosis. One case of this sort which had been, however, under the care of an irregular practitioner was

*Case 98.*—Margaret O., aged 2 years. I found the child lying in a cradle, in the corner of the kitchen, between the wall and the cooking range. She was moaning pitifully and sometimes screaming violently; her head was retracted and turning rapidly from side to side. A diagnosis of brain fever had been made. The temperature was 106 degrees; the bowels very tympanitic and the stools very frequent. Taking the necessary steps in the order of their importance, I first



Florence J., age 11 years; date of admission, February 27.

dropped a little powder (to be described hereafter) on the child's tongue; I then ordered the cradle to be moved as far as possible from the fire, and had the child sponged and ordered that the powder be given every fifteen minutes. Later in the night I visited the child but found little change in its condition. The next day I visited her three times and that evening the temperature fell to 105 degrees. The following day the symptoms began to improve rapidly, and she made a quick recovery, being well in ten days.

While visiting this child on the second day, I saw a younger child sitting in a suspicious position and when it moved a bloody stool remained. Glancing around the floor I saw two or three others, which though small were quite apparent. I asked the mother to explain and her answer was brief and to the point: "I declare to goodness he's been doing that all day!" Upon examination I found the child with a very rapid pulse and a high temperature. The recovery of this child was somewhat tedious, owing to the advanced stage of the disease when I was able to begin treatment.

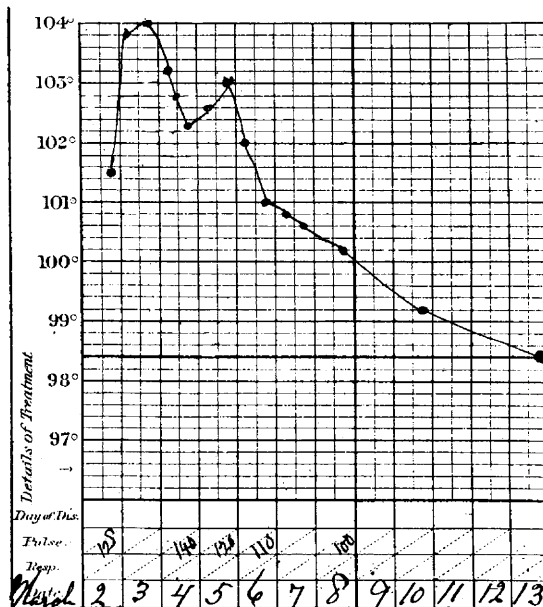
One of the most prominent physicians in Chicago, (a gentleman who was long at the head of Cook County Hospital, and was for many years one of the most highly esteemed professors in the foremost medical college in that city so noted for its clever and accomplished preceptors, and whose name is cut in the corner-stone of the college, as one of its founders) has

done me the honor to write me several letters of inquiry (he is altogether the best questioner with whom I have ever corresponded) in regard to my method of treating typhoid fever. He has favored me with the reports of several cases treated since our correspondence began.

Case marked—"Dr. McWilliams No. —Helen McC., aged six years and three months. She was taken sick, as you will observe, while away from home at a summer resort. A diagnosis of typhoid fever was made by a local physician, and on the tenth day she was sent home to be under the care of the family physician, Dr. McWilliams. Her temperature was 106 degrees the first day that the Doctor saw her and on the tenth day she was sitting up, dressed, enjoying 'Judge,' 'Puck,' etc."

Dr. Cunningham, of Youngstown, reports the following:

Case marked "Dr. Cunningham No. — Ella G., aged seven months. She was under the care of three different physicians, before I saw her in consultation.



Blanche J., age 5 years; date of admission, March 2, 1895.

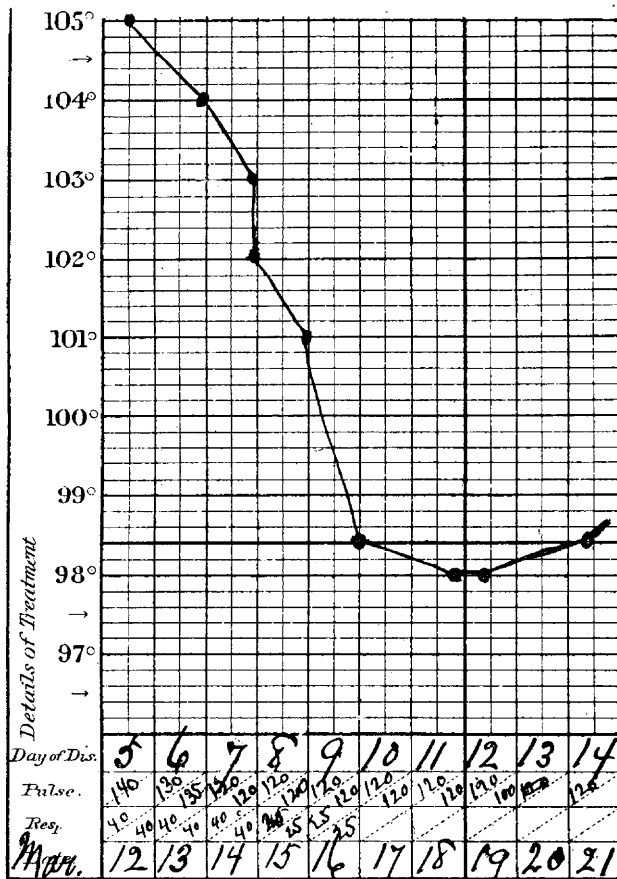
The first physician (according to the statements of the family) made a diagnosis of whooping cough; the second physician said it was meningitis." The child growing worse, Dr. Cunningham was called and made a diagnosis of typhoid fever. When the temperature went to 105 degrees he called me in consultation. The chart indicates the rapidity with which the child recovered. The correctness of the diagnosis was corroborated a few weeks later, when the mother of the child (see chart marked Dr. Cunningham No. — Mrs. G.) had an attack of typhoid fever, from which she recovered; and the uncle (see chart marked Dr. Cunningham No.— James K.) died of shock, resulting from an intussusception, occurring after he was almost well from an attack of typhoid fever.

Dr. C. N. Udell of Iowa, kindly sent me a report of twelve cases of typhoid fever, and one of cholera-infantum treated by my method, with excellent results from which I extract the following record of cases of typhoid fever in children:

*Case 8.*—S. B., male, aged 9 years. Was taken with chills

fever, headache, vomiting and some abdominal pains. Treated by the family for ague. I was called after the boy had been sick eight days. Found the temperature 104.6 degrees, skin dry, tongue very dry and red, dirty gray fur in center; very nervous; hyperesthesia, delirium, a papular rash, secretions locked. Gave to this boy Nos. 1 and 2 for two days; repeated it at short intervals. Then No. 1 for three days; No. 3 for four days. Discharged patient on ninth day. In this case, as in all others, I insisted on frequent sponging of the body, frequent change of linen, good ventilation of the sick room, same food given at regular intervals, etc.

Case 10.—N. S., male, aged 8 years. Had an intermittent fever. Prescribed c. cath. pills and quinin without seeing patient. Continued sick and weak; no improvement. Visited the boy and found temperature 104 degrees, skin dry, suppression of urine; very weak, headache, and general aching; some delirium, very foul breath, heavy gray fur on tongue with edges red, sordes on teeth, a good deal of tympanitis, some eruption, and sudamina. Diagnosis: septic fever, or paludal typhoid.



Ella G., age 8 months; date of admission, March 12, 1895.

Gave R. No. 1 and No. 2. After three days gave R. No. 3. On the seventh day gave Nos. 1 and 2 again. Then No. 3 for about one week at longer intervals. Patient discharged well.

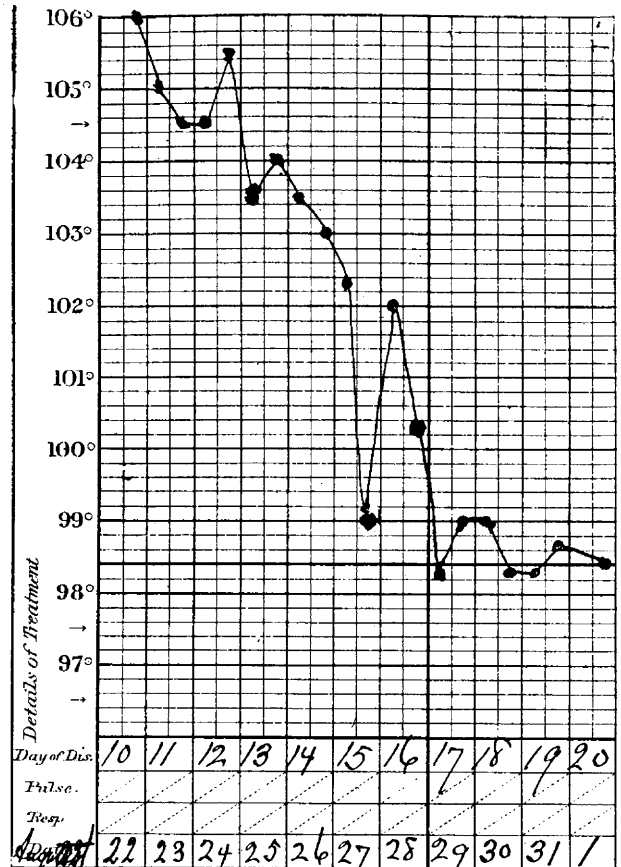
Case 11.—D. H., male, aged 2 years. Was sick with diarrhea, high fever, very restless, abdomen puffed, vomiting, and furred tongue with foul breath. Gave baptisia tinct. R. No. 3 in minute doses. Recovery in five days.

Case 12.—E. P., aged eighteen months. Hygienic surroundings very bad. Child had cholera infantum with very offensive stools. Gave R. No. 1 in very minute doses every half hour. Had the child kept as clean as possible, and that was not very clean. The child recovered speedily in spite of bad nursing.

These cases illustrate the admirable results which may be invariably obtained and even confidently predicted, when proper treatment has been instituted at a sufficiently early stage of the disease and intelligently and energetically prosecuted; and they by

contrast, serve as a warning against the danger of mistaking the nature of the most common, the most dangerous and by far the most frequently overlooked cases of typhoid fever in children, viz., those cases in which the nervous manifestations are in the ascendant; those cases which are diagnosed as brain fever, meningitis, or cerebro-spinal meningitis. These are the cases in which an inaccurate diagnosis is most liable to occur and which is so often followed by such disastrous results.

As long as the best treatment for typhoid fever, known to the medical profession, aimed only to ameliorate the most perilous symptoms as they presented themselves, it did not, perhaps, greatly signify when an exact diagnosis was made, or indeed, whether or not it was ever correctly made, but we are approach-



Helen McC., age 6 years and 3 months; date of admission, Aug. 22, 1894.

ing a more enlightened era. In reality, the day has even now dawned upon us in which the treatment to a fatal end, of a case of typhoid fever with a temperature of 105 degrees, as a case of indigestion, with inefficient antiseptic medicine, starch and laudanum injections, and cooling baths, is no longer admissible.

The physician who respects the Hippocratic oath and does the utmost in his power for his patient, must acquire skill in differentiating betwixt those diseases which can and which can not be benefited by the abortive treatment of typhoid fever.

Without entering into the field of speculative controversy, it may be generally stated, that any of the so-called microbic diseases, such, for instance, as diphtheria, malarial fever, measles, scarlatina, cholera infantum, etc., would lose much of their fatality if treated on the same general principles which I

have so often advanced for the treatment of typhoid fever.

In the treatment of typhoid fever in children, the first and most important step is to thoroughly asepticize the alimentary canal, and to eliminate as much as possible of the specific poison, by free catharsis and diuresis.

This can be effectually done in older children, with the tablets and soft capsules described in a previous paper, published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. In younger children, my method of procedure is to begin the treatment with the following powder:

R. No 1—Podophyllin resin . . .	grains 1.	06
Mercurous chlorid, mild . . .	drachms 1.	4
Guaiacol carbonate . . . . .	drachms ii.	8
Menthol . . . . .	grains x.	60
Eucalyptol . . . . .	q. s.	qs.

Of this powder I give to a child 1 year old,  $\frac{1}{2}$  to 1 grain every hour or oftener, if the case present very severe symptoms. I order each dose of medicine to be washed down with large draughts of distilled water, urging the child to drink as much as possible between the doses of medicine. These doses of the powder should produce free catharsis during the second period of twenty-four hours. Should diarrhea be present before treatment is begun, the indication for the antiseptic medicine is all the more urgent and nothing should be exhibited that could in any way interfere with its action or its administration. As soon as the free movements of the bowels change in color, or the absence of odor shows that the physiologic effect of the antiseptic has been secured, the remedy may be given in smaller doses and less frequently. If the carbonate of guaiacol in the powder is insufficient to produce the desired condition, it may be given separately or combined with eucalyptol in olive oil or any other suitable diluent. If the temperature continue long at 105 degrees, guaiacol and eucalyptol may be used externally, or an occasional sponge bath may be given.

#### DISCUSSION ON PAPERS OF DRS. NOYES AND WOODBRIDGE.

DR. WILLIAM OSLER, of Baltimore—In typhoid fever I think we are agreed that young children are really not so susceptible as adults. Take an epidemic like that Plymouth, where many young children are exposed, and yet we find the percentage of susceptibility among them not so great as in adults. There is, therefore, less susceptibility on the part of very young persons. In a large number of cases in children, the disease pursues a milder course. There are many practitioners who have observed numerous cases without a death, and nearly all of us may have had a series of thirty or forty cases without losing one. I have treated a series of fifty-three cases without a loss; again, in another series of cases there would be considerable mortality.

An important point referred to by Dr. Noyes and others, is in reference to the simulation of typhoid fever by other diseases. That is to say, the frequency with which typhoid fever begins in children with head symptoms. This fact requires constant emphasis. The disease may set in with severe headache, or crampy attacks, or general twitching of the muscles. Another point that has been referred to is the anatomic diagnosis of typhoid fever. It is not a new observation that there are many cases in which the Peyerian glands are enlarged, and where there are those febrile influences at work. There are other cases where we meet the typhoid bacilli not so much in the lymphatics, as in the spleen and other parts of the body. There are two or three recorded observations in which the disease was shown definitely to be typhoid fever by bacteriologic examination, where the Peyerian glands were little or not at all affected. Typhoid septicemia may be due to general invasion of the blood or organs by typhoid bacilli. Several such instances have been placed on record.

Now we come to the treatment of typhoid fever, which of course, is the burning question. It is difficult really to

know what to say about the treatment, and in relation to the statement which Dr. Woodbridge makes, it is a question whether it is not better to say nothing at all. When a man comes forward with such emphatic statements as Dr. Woodbridge makes, it startles us. We are not accustomed to them in the medical profession. It is an innovation to meet with such an emphatic statement as the Doctor makes, namely, that there need be no case of typhoid fever resulting fatally. He must know his disease well to say that, and you have to know that which he does not appear to know—that typhoid fever is not a disease in which the bacilli live on the surface of the bowel, but that typhoid bacilli live in the tissues themselves, and what can you do to disinfect the intestine with such a mixture as Dr. Woodbridge describes?

It is astonishing what a degree of credulity we have in the medical profession. We all have it in a measure, and it is painful that it is so. I am not one of those who cry out: "Can any good come out of Nazareth?" There is just as good work done in Youngstown and similar places, as in Baltimore or Philadelphia; but I do say that such emphatic statements should not be made, except when based upon a long list of cases, and upon cases studied more rigidly and thoroughly than Dr. Woodbridge seems to have studied his, particularly with reference to the question of diagnosis.

I was extremely grieved to hear the jokingly ungallant remark of my friend, Dr. Adams. The character of his resident physician must be very exceptional. I do not think I ever had to deal with a resident physician into whose hands I would intrust the giving of a typhoid fever bath. I think it should be given by an intelligent nurse. (Laughter.) Doctors have not the patience, moreover, their skins are too sensitive; it is well known that the skin of the hands and arms of the female is much less sensitive than that of the male, and woman alone can give the thorough frictions of rubbing which form such an essential feature in the treatment. I am sure the Doctor's list of mortality would be very greatly reduced if he were to instruct his nurse in the matter of giving the bath, and not trust so much to his resident physician. (Laughter.) I am a warm advocate of the Brandt method, have used it with the usual success that attends that method in the hospitals, and have reduced the mortality by from 6 to 7 per cent., varying with the severity of the cases. There can be no question that in the hospitals throughout the country the mortality may be reduced by that percentage if the Brandt method is introduced, and the bath is trusted to the nurse. (Laughter and applause.)

DR. PEPPER, of Philadelphia—We have not said the last word as to the diagnosis of typhoid fever, nor as to any particular method of diagnosis. We have assumed at times that we knew all the affections. There are many that await discovery, and these display themselves in adults and children in such manner that at times they resemble affections with which we are more familiar. We must apply ourselves to an immense series of typhoid fever cases as occurring at all ages, and in different localities, because age and locality modify typhoid fever preëminently, and we must apply a more defined diagnosis than not only is applied to-day, but perhaps more defined than our knowledge of physiology will at this time permit, before we can attempt to dogmatize in reference to this disease.

I would urge, then, the greatest caution in regard to this question of diagnosis and great reservation in drawing conclusions. How often have the conclusions of one generation been repudiated by the diagnosis of the succeeding generation, and it is not only to-day that we have the means of that refined diagnosis on which all these statistics of the future as to anatomic lesion will ultimately be fixed. I have been treating children for thirty years, and have been trying to diagnose typhoid fever in children for over thirty years, and I feel great modesty in regard to the matter, because I find myself making as great blunders to-day as I made many years ago, due, perhaps, to giving too much attention to the later methods. This is so in regard to every test, except that of pure bacterial culture, and upon that, I think, is going to rest the diagnosis that shall stand the test of time.

I have treated a long series of typhoid fever cases without a death, and have also treated a long list of typhoid fever coming from the same communities, with the same care and same remedies, and have had disastrous results in a certain proportion of cases. I have used the Brandt treatment rigidly, and have had patients to die after it had been used with the utmost care. When we come to the question of treatment, I would unhesitatingly give my acquiescence

to Dr. Adams' position. It seems to me that with the evidence before the world to-day, drawn from every country in the world, in hospitals, and in private practice, that the medical practitioner who does not use the cold bath treatment in infectious diseases is derelict. It appears to me that he must be prepared to use it when certain conditions arise. I think, also, that the man who depends absolutely upon it, and applies it in a strictly routine way, without reference to the qualifications of particular cases has not yet learned the resources of his art.

I think the Brandt treatment as liable to abuses as any other treatment that has been brought forward, or that ever will be brought forward, but that in dealing with continued high fever infections—continued fever—it is the best method of treatment, is evidenced by the most convincing proof. It is perfectly compatible with other elements of treatment. I am less of a skeptic than my friend Osler, as regards medication. I believe myself that in a disease like typhoid fever, where we have a large anatomic lesion, as a rule, he is perfectly right in saying that we should remember that it is not a question simply of intestinal lesion. Some symptoms are so virulent that the system becomes saturated with the poison to such a degree that no treatment will save that subject. But in the ordinary cases, in the majority of instances, we have those intestinal lesions as a source of abiding danger, as a source of many symptoms.

I believe that upon the diet largely depends the extent to which this intestinal lesion may develop. I believe this in consequence of a very long and extensive observation of the disease, continued after the introduction of the Brandt method, and I believe in the use, at the earliest moment suspicion enters the mind of the practitioner that there may be an infection and symptoms similar to typhoid fever, of some remedy, because of its harmlessness, which shall exert its influence upon the intestinal lesion—antiseptic, if you please, or a sedative. We should apply some remedy to affect the intestinal walls. I do not attempt to dogmatize as to what that remedy shall be. We are not going to do any harm if we follow that up by the Brandt treatment. Some of the formulas I see published, I should not consent to take into my own stomach if I had typhoid fever, and I do not think they ought to be administered to patients. It is well to apply those remedies that are harmless, and I believe that before the Brandt treatment comes in there is an opportunity for direct local treatment of the mucous membrane by rigid diet, and by such medication as may, to some degree, influence the extent to which the disease may progress and limit the subsequent course of the case. Once let the case reach the end of the second week, and I do not think anything in the world will affect remedially the intestinal lesion. That is the time when the Brandt treatment is our sheet anchor, as it were, but I would not pin my faith to any one specific treatment. I think it is dreadful to say the treatment of typhoid fever must be confined to the antiseptic treatment or the Brandt treatment. I should not like to say that the successful treatment of typhoid fever depends upon any particular treatment. I plead for less dogmatism. (Applause.)

DR. J. A. WORK, Elkhart, Ind.—I am not prepared to accept any one course of treatment, without medicine or with medicine. I am very much pleased with what was said by the gentleman just preceding me, in reference to his liberality in treating typhoid fever. I believe that we made a mistake in former years in the treatment by not beginning in the very earliest stages to eliminate it, as I believe that the early effort at elimination is the keynote of treatment in typhoid fever, or in the treatment of any zymotic disease. I advocated this at Milwaukee two years ago. I had experience before I advocated that treatment, and have had experience since. It is a fact that we are too often called too late in the disease, and consequently too late to apply effective eliminating remedies. Eliminate first, and then neutralize at the same time by antiseptic remedies, reduce the fever by sponge bath or by the Brandt treatment. We must realize that we have a human being to treat, and not a disease alone.

DR. GEO. N. ACKER, of Washington—I think the true diagnosis in these cases is often made when the case is over. In Washington we have a great many cases of typhoid fever in the Children's Hospital. Dr. Adams and myself have had a number; he lost one and I lost two under treatment by different methods. One of my cases was complicated by pneumonia and died, and the other suffered from perforating ulcer. The Doctor and myself are connected with the same hospital, and treat about the same class of cases. He sees a better class of cases than I do, because he has more patients

than I have. I give more medicine than Dr. Adams, and always have done so. If I see a case early enough, I give calomel in small doses and then I give sulphuric or muriatic acid in small doses. I always apply the sponge treatment, when the temperature goes over 103, but I rarely ever resort to the Brandt method of treatment, for the reason that I have found that it depresses the heart action; I have had poor success with it, and I have charts to show it. I maintain that this great change in temperature is more injurious than beneficial. Dr. Adams proves by his charts that the temperature has fallen from 105 to 97 degrees. I do not believe that is good. Dr. Adams says he always wants the resident physician present. So do I, because I would not trust any nurse with a case where the change in temperature is so great. The Brandt method does not shorten the course of the disease, and I have discontinued it.

In regard to Dr. Woodbridge's paper, I do not understand his cases of typhoid fever. We do not have such cases in Washington, where every patient gets well. I have had in my hospital practice forty cases, without a death, but then I have had deaths after that, and I think that, in the long run, the Doctor will find that he will have the same experience.

DR. ATKINSON, of Baltimore—The discussion seems to hinge upon two points—the question of diagnosis and the question of treatment. A great deal of the confusion which exists in regard to the diagnosis of typhoid fever in children grows out of the expectation so often held that typhoid fever runs a typical course in children, when it does not. In most cases of typhoid fever in children they are typical. It has been agreed generally here that typhoid fever nearly always runs a typical course—a favorable course. My experience is that typhoid fever in children runs a favorable course; but I think our results will be more satisfactory if we disabuse our minds of the idea that certain characteristics invariably must be present. As soon as we are able to exclude the tangible affections that we can attribute to other causes, to spinal meningitis, for instance; as soon as we are able to definitely exclude those agents that are capable of recognition, and have a fever that is continuous, day in and day out for ten days or two weeks, that we are unable to control by the ordinary remedies; we are then almost certain that we have a case of typhoid fever to treat. In adults, errors of diagnosis of this kind often result disastrously, but in a child it is not so disastrous if we are not too zealous in the activity of our treatment. Most cases of typhoid fever recover and the question of treatment, I think, becomes quite a small one. Mild cases of typhoid fever are best treated if left alone.

In my experience, constipation is the rule in typhoid fever in children, and not diarrhea. If we supply nourishment and treat the symptoms by the usual efficacious methods, we find that mild typhoid fever will terminate in the usual time. When the temperature rises, I have no hesitation in giving my testimony in support of the statements of Dr. Adams and others, to the effect that the Brandt treatment is the proper treatment. As for the injury inflicted by it, as referred to by Dr. Acker, I think that is for the most part imaginary. After the bath is administered, the temperature will soon rise to the same degree as prior to the bath, and even when we give forty or fifty or sixty or seventy baths, we find that within a few hours the temperature has again reached the point at which it was prior to each of these baths. Nevertheless, the benefits arising from the bath are apparent. Previous to the bath we find the tongue hard and dry; after the bath it has a soft coating. When the child protrudes the tongue, it comes out readily and goes back with a jerk, showing the activity with which the child responds to the order. The use of the bath when administered in an unprejudiced way, will give us the best management of typhoid fever, whether in adults or children. I think the administration of medicine to be carried along the intestinal canal is commendable. The administration of an agent that will lessen the offensiveness of the stools is desirable, but as for conducing to the recovery of the patient, I think it is not worthy of consideration.

DR. PARKER, of Massachusetts—Typhoid fever in children is like typhoid fever anywhere else. It is a serious disease and demands our most careful consideration. In the hospitals of Vienna and Munich I found that very great concern was given to every detail, and more particularly to the details of the hygiene of the bed. There is one point here which has not been touched, and that is the stimulation of the patient. To use brandy or whisky, or the various preparations which we have administered for that purpose, I think is a mistake. I believe strong stimulants act injuri-

ously, are not easily controlled, and are not advisable. Therefore, it seems to me that the Munich treatment of red wine is altogether the safest and best stimulant in typhoid fever. In regard to the intestinal antiseptic, I think this of great importance. I have seen patients show great improvement when attention was given to the administration of intestinal antiseptics.

DR. BURNS—If one attends the local society, then the county medical society, then the convention of the State society, and finally attends the convention of the National society, with a view to acquiring some practical knowledge of the etiology or diagnosis of yellow fever, or of cerebro-spinal meningitis, he finds himself sadly disappointed. I live in a malarious country, and am constantly beset with the difficulties that appeal to all medical men who live in similar countries. I am convinced that in cerebro-spinal meningitis, its relation to typhoid fever and some other diseases is such that the more one studies either typhoid fever or cerebro-spinal meningitis, the more he is confused by the similarity that exists between these diseases. As has been said here to-day, in different ages it was thought that the solution of the problem had been made, but time proved the fallacy of the hope, and now the solution of the problem of diagnosis seems to be as far off as ever. The bacteriologists have deluded themselves as others have in the past. We find the different masses constantly opposing each other, and thereby impeding progress.

DR. LARRABEE, of Louisville—We find all sorts of opinions on the subject of typhoid fever. Sanitary conditions have much to do with typhoid fever. Typhoid fever will prevail anywhere that the child gets the poison, whether it be one year or any number of years old. The point of greatest advancement in regard to the diagnosis of typhoid fever has been the elimination from practice of the several diseases that were supposed to conflict. That is the elimination of so-called remittent fever. This remittent fever has been determined in most instances, if not in all, to be the fever under consideration, and then the withdrawal by the famous author himself of another disease renders it still easier to diagnose typhoid fever. So that the disease in childhood is made plainer by the elimination of these other diseases. I agree perfectly with the first gentleman, who said that these cases are to be diagnosed by exclusion. We are dealing with a fever that is interrupted by quinin, and particularly when there is the symptom which has not been alluded to, but which I think makes a bedside diagnosis as soon as any other, and that is the thing from which it takes its name—the typhoid, the smoky hue.

The gentleman spoke of a child protruding and pulling back the tongue quickly. But there is more in the condition that originally named the disease. Unless that condition be present, I should suspect something else. The next question was the headache manifested in the child. It does not continue to be a symptom after the second or third day, and the continuation of the fever is a good symptom of typhoid fever. As to the duration of infantile cases, it is usually observed that in the common cases there is a cut-off. That is the time we have the most decided symptoms of poison. When we reach the limit of 14 or 15 years, I think there is no distinction in the two cases. There is a crisis about the fourteenth day.

Another point is that we do not shoot any worse by having a mark to shoot at; that is, having a definite object in view. The claim is made that in the Brandt method, if it be very carefully guarded, as Dr. Adams says, and giving a drink of whisky and a little opiate, the mortality is greatly reduced. The Doctor says it also makes a patient comfortable. Is that the only object we have in view in typhoid fever? We have a chart here, presented by the Doctor, which, stretched across the room like a Chinese scroll, gives the temperature covering a period of six or seven weeks. This patient recovered. Now the question is, whether that treatment was better than if an attempt had been made to thwart the disease, as spoken of by Dr. Woodbridge. Whether it is better navigation for the sailor to pay attention to only one course, and cast the lead to see where the safety lies, or whether it is better to take a certain observation and ascertain the true position. In other words, whether the thermometer is the only thing to go by, or whether it would be better to take into consideration other symptoms; whether it is curing a case to suppress the temperature for a given length of time, admitting that it again returns to the point it had previously attained. Is not the patient under that treatment more liable to be worn out than under the other treatment? I am not prepared to indorse one method any more than another. It does seem to me that having a chart

and knowing where we are going, is a great deal better than throwing the lead to see where you are, at one time, as compared with another. The only comment I have to make, is that we are about where the sailor was when he tried the lead over on Nantucket. We have not progressed as much as we thought we had.

DR. BURR, of Chicago—I make two pleas: a plea for the earlier employment of hydropathy in typhoid fever, and a plea for the treatment of the temperature in the disease. If there is anything in any plan for the cure or control of any disease, it should have its physiologic basis. I have not heard a word said to-day for any of those remedies, except the so-called intestinal antiseptic remedies. If it is worth while, as Dr. Pepper has said, to institute your method of treatment six or eight or ten days after the disease has begun, when the temperature has reached 104 or 105, it is certainly worth while to have that treatment in the beginning of the disease, and if it is of any avail whatever in the control of it, it has the additional merit of being resorted to at once. Do not wait for the diagnosis. There is no treatment so harmless and so easy. I want to say that in my own experience, and from what I have read of the statistics of the most eminent practitioners, there is no method so appropriate and so safe. Until we get the all-powerful specific, we must use controlling methods.

I want to say one more thing in regard to temperature. It seems as though we have been fighting fever on the score of temperature. Temperature is a symptom, not a disease. It is not high temperature that ails your patient, it is poison, and if you have not the direct specific for the poison, or for the control of it, and if you can stimulate the nerve cells and stimulate the alimentary cell itself, whether it is in the muscle or nerve, or in the protoplasm of the blood itself, you are going to help your patient that much in weathering a severe disease. I will also say that in the carrying out of this hydropathic proceeding, it can be done without harshness by following plans which I hope to place before you to-morrow, in the use of the portable bath tub, and without disturbing the patient, by lifting out of bed to place in the tub. You can very soon educate the most delicate person to take the bath by this mode.

DR. S. SOLIS-COHEN, Philadelphia—The great mistake that is made by those who criticise the Brandt method of treatment, and indeed by some of those who use it, is in reference to the reduction of temperature. A reduction of temperature is an incident in the treatment of typhoid fever. It is an index of the severity of the process that is going on in the organism. It is due, I believe, to poisoning by two things—by metabolic products and by poisons degenerating within the individual attacked by the typho bacillus, and not directly due to it.

The treatment by cold bathing instituted early in the course of the disease, carried out systematically and with judgment, by trained nurses, under the supervision of the physician, does two things: first, it soothes the excited nervous system of the individual. This excitement of the nervous system is one of the most serious features of the disease, and gives rise sometimes, as stated here, to the most puzzling symptoms. I remember very well an experience in my own house—fortunately the child recovered—in which the nervous symptoms predominated over everything else in the case, and were obscuring to the diagnosis, and prohibitive of the treatment by the cold bath, and led to the prolongation of the case. Cases are rare where the nervous dread of the bath prevents continuous application. In some cases I have seen a pronounced nervous excitement calmed and the delirium allayed by the use of the bath, and the instance cited by my friend, Dr. Larrabee, of the child quickly drawing back its tongue is an argument in favor of this method of treatment, because that is what it was due to.

The Brandt treatment is not an anti-thermic, but an anti-typhic treatment. It allays nervous excitement. Secondly, it stimulates metabolism, the kidneys and bowels are all set at work, and there is an increased throwing off of the poison to which typhoid fever is due. I indorse the words of Dr. Pepper, when he says that the physician who fails to give the patient the chance that is afforded by the cold bath is guilty of neglect. I do not advocate applying the bath indiscriminately. I believe there are cases which show in the beginning that they are going to run so mild a course that the bath treatment is unnecessary, but, on the other hand, I do not believe that it is doing any harm to steer a safe course and resort to the use of the Brandt treatment as the safest course. There are toxins produced in the intestines under the unhealthy condition, poisons independent of typhus bacillus. I believe that by the early use of some

antiseptic drug this might be prevented. What that shall be, I will not take the time to discuss.

Another point I wish to call attention to is this: it is absolutely necessary, in order that the Brandt treatment may be properly carried out, that the patient after the bath shall be put into a warm bed and dried, warm applications applied to the feet, and a little alcohol should be given, just as before the patient is put in the bath. They should not be allowed to remain in the bath until the temperature falls so much as 7 degrees. I think a fall of a degree or two is the safer course. I am satisfied that the use of the Brandt treatment, with proper safeguards, will materially reduce the mortality in typhoid fever cases.

DR. WOODBRIDGE, Youngstown, Ohio—I feel a little embarrassed. My peculiar theories have not been quite so severely criticised as I have been accustomed to have them criticised. Consequently I have not very much to answer. One criticism I revert to, made by the distinguished gentleman, Dr. Pepper. Does he mean that I would be derelict in failing to give my patient the benefit of the Brandt treatment, when after nineteen years of experience in treating hundreds of cases of typhoid fever, I have had no death for thirteen years, when my brother practitioners had as many deaths as in former years, not to follow the Brandt treatment? Would it be wise for me to abandon the method I have pursued with such success? I am just as certain as can be, that Dr. Pepper will within five years be a better advocate of what I have outlined than he is now of the Brandt treatment. A treatment that will take hundreds of cases of typhoid fever safely through an attack, with no delirium, with no headache after the first two or three days, with the tympanitis disappearing within forty-eight hours of beginning of treatment, with an average duration of disease of less than ten days, is better than the Brandt method.

It seems to me that the position of the medical profession, to say that in typhoid fever it is impossible for the medicine to abort the disease, while saying that nature can abort it, is an inconsistency.

DR. OSLER, of Baltimore—Tell us about the drainage of Youngstown.

DR. WOODBRIDGE—We empty our sewers into the river and let the lower portion of the city have the benefit. (Laughter.) Seriously speaking, there is a large portion of our town above the waterworks, where there are no sewers and the drainage all washes into the river.

DR. ADAMS, of Washington—I believe I have been misunderstood here. Dr. Cohen has manifested a disposition to help me out. In speaking of the nurse administering the bath, I meant that it should be done under competent supervision. The doctors do not do anything so far as the handling of the patient is concerned, but help the nurse to put the child, if a large one, into the bath. Almost a mutiny, so to speak, occurred in the hospital a couple of years ago. The doctors said that they did not care about being disturbed at 2 o'clock in the morning for the purpose of supervising the bath, and I decided with the nurses that they had a right to supervise the baths. As Dr. Cohen says, there are cases of typhoid fever in which there need be no treatment of this kind. If the temperature does not rise, I do not see the necessity of employing the Brandt treatment. I have tried the intestinal antiseptic, but have not seen any especially beneficial results from it. I have not tried the remedy advocated by Dr. Woodbridge.

## HEMORRHAGIC PLEURISY.

BY FRED. W. D. EVELYN, (EDIN. UNIV.)  
PRESIDENT SAN FRANCISCO POLYCLINIC.

A. B., age 45; miner: family and personal history good; no specific disease; moderately alcoholic; general nutrition good. Stated that two weeks ago he had felt a sharp pain in right side; did not last long; experienced no unpleasant sensations, no fever, he thought, although face was flushed. Saw a doctor, but was not examined. Just before presenting himself for examination at the clinic had been a little short of wind but no other trouble. Slight cough; no spit; appetite poor; bowels constipated; urine scanty and high colored. On admission face was flushed, slightly anxious; no dyspnea; tongue moist; white fur; lips, slight cyanosis at angles;

temperature 100 degrees, respiration 32, pulse 80. Tension marked, regular. Physical examination: chest regular and uniform in outline; apex beat normal in position; no abnormal pulsations on chest wall; veins not varicose; movement free on left; retarded on right inframammary and lower axillary region; no vocal or friction fremitus; percussion: left side normal; right, area of inaction referred to above gave a dull toneless note accompanied by sense of resistance; other areas, note somewhat tympanic. Auscultation; left side, harsh breathing over all; right, dull area; general absence of normal breath sounds, but in certain areas large bubbling râles, simulating redux crepitations could be heard. Voice sounds absent, except at points where they seemed to be conducted to chest wall. Effusion into pleura was concluded to be present and probably of a non-homogenous nature. Notwithstanding the relatively high level reached (fifth rib) there were no signs of visceral displacement or positive intrathoracic pressure. Aspiration gave a fluid of a dark pink color, containing a large proportion of blood.

Patient complaining of great pain and distress. The aspiration was stopped, only five ounces being removed; patient was seen daily. Bowels and kidneys were kept somewhat active. No rise in temperature, no symptoms, save slight pain and very slight shortness of breath were complained of. In the absence of all indications of urgency, I did not aspirate for one week, then drew off eighteen ounces of a similar fluid; later on abstracted twenty ounces; no symptoms whatever supervened; the temperature became normal; the lung gradually filled out to its normal extent, but at the end of five weeks physical examination failed to detect any indications of fluid and the auscultatory phenomena were perfectly normal. Three months later, lung was perfectly resilient and the patient in good health. No heart or other lesions were present.

Some points of interest in this case may be suggested. The most complete and perfect return of the lung to its normal condition; the extensive effusion and the almost negative constitutional and mechanical symptoms; the sudden onset sufficiently pronounced to admit of it being considered acute.

Stasis: a mechanical congestion resulting from pulmonary congestion, pneumonia, etc; the absence of secondary causes of hemorrhage, cancer, miliary tuberculosis, renal, hepatic or splenic lesions must not be overlooked. Their absence would almost exclude the possibility of the case being one of hemorrhagic pleurisy following hemothorax. The effusion was not simply a solution of hematin crystals but contained blood discs and admitted the conclusion that the case was one of rapidly forming effusion; friction and accordingly pain, being of a correspondingly short duration; active congestion and either an excessive diapedesis of the red corpuscles through the vessels, or the rupture of a vessel with a free hemorrhage into the cavity.

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