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Dear Sir

Enclosed is draft for £10  
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post I send to Mr. Sinclair, certifi-  
cates to be checked. The reason  
of my delay in not having this  
done before is, that I had my  
French prelim. to get thro' and the  
results were only out the day before  
yesterday.

Yours truly

Jameson McKillop

M.B. 5

J. Gilbert Esq

The diagnosis of Typhoid fever is always  
difficult and more so here, especially in  
countries where it is not so common.  
In a few days you can not

# Thesis for M.D.

## The diagnosis of Typhoid Fever.

Alexander Jamieson Meikle  
Inveraray  
Argyllshire.



W

1.  
The diagnosis of Typhoid Fever is always fraught with more or less difficulty and uncertainty especially in its early stage. For the first four or five days you can not be certain of your diagnosis.

What value do the symptoms of invasion give as an aid to the diagnosis of typhoid?

In most cases the early symptoms have a greater tendency to mislead than to help a diagnosis. The two following cases illustrate this point very well:— Mrs. M. L. Main Street Wishaw had been married six months ago - she was seized suddenly with pains all over, backache and headache being the most prominent symptoms - the former was increased on movement, her joints - ankles and knees - were also painful, and tho' slightly tender were not swollen - her skin was moist with a tendency to perspiration. Temperature 101.5° F.; pulse 98 per minute; respiration 20 per min. Bowels quite regular. From the backache, patient's mother thought that Mrs. M. L. was going to have a miscarriage - after making myself sure that that was not so, my own idea of the case was that it was one of rheumatism, so I had her put on salicylate of soda (seven and a half grains every 4 hrs) and Tincture of Nuc. Vomica (3 minims), 9 milk and

potash to drink. The pains yielded to the salicylate but still the temperature kept up, oscillating one degree or a degree and a half in the twenty four hours; the skin still moist: urine normal, bowels quite regular - this state of matters continued till my visit on the sixth day, when there appeared three rose coloured spots on the abdomen, & the spleen found to be slightly enlarged by percussion - Two days after the appearance of the rash, the urine gave Ehrlich's reaction for typhoid - The rash in this case was very abundant, all over the body, three or four spots being noticed on the face. In four weeks this patient was convalescent, and three months after was delivered of a fine healthy child. The onset of another case which I saw in Inverness last summer threw me off my guard in exactly the same way - This patient was a strong young man, nineteen years of age - who complained of great pains all over his joints - which, in this case, were slightly swollen - headache was present as well - & he was perspiring freely - onset was sudden. Temperature when taken was  $102.2^{\circ}\text{F}$ ; pulse 110 beats per minute; respirations 26 per minute - bowels confined for 3 days - After one week's antirheumatic treatment, typical typhoid spots came out on his abdomen, and spleen was found to be enlarged and distinctly palpable on 10<sup>th</sup> day from first

visit. Ehrlich's reaction was not tried in this case as I had not the test solutions. This case also ran a favourable course and was by no means a severe one. I think the salicylate had a beneficial effect in both of these cases - it was continued all through till patients were convalescent - It was noticed here that there was very little oscillation in the temperature during the pyæmic stage of the disease, probably due to the antiseptic property of the salicylate.

Pains, all over, at the onset of typhoid, is a not uncommon symptom - but when the joints are affected and there be perspiration, one does not always think of typhoid - in both of these cases the onset was sudden - rheumatism usually comes on insidiously. I've never before heard of typhoid fever and rheumatism being mistaken for one another even at their onset. Pneumonia, meningitis, & the other exanthemata are more apt to be confounded with enterica.

The invasion of typhoid fever is, in most cases, insidious. Headache, often severe, is nearly always present - in the twenty cases of typhoid which I specially noted - that symptom was well marked and present in them all without exception - headache was chiefly frontal, and more marked in adults. Continued fever with headache, should make you, in every case, suspicious of typhoid, especially too

if there be no chest physical signs - a very rare occurrence.

The onset may, however, be sudden, and the disease ushered in by a rigor, with high temperature, quick pulse and respiration, like the invasion of acute croupous pneumonia - in three of my cases [out of the 20] this happened.

In none of my cases, did I see epistaxis at the onset - tho' in two this symptom was present in the second week.

Headache, sickness, heat, thirst, loss of appetite, and general out-of-sorts, are the symptoms of the onset of many other diseases besides typhoid fever, and not necessarily, ~~of themselves~~, would make us suspicious of typhoid unless it be in district where case has occurred.

What value does the temperature give as an aid to the diagnosis of typhoid?

The onset of typhoid fever is, as has been already mentioned, in most cases insidious, so that, very often, for the first two or three days no temperatures are taken, or is the case seen even by a doctor. If, however, the onset be sudden, and temperatures taken regularly from the start, then we can learn a little from our charts even during the first

week of typhoid.

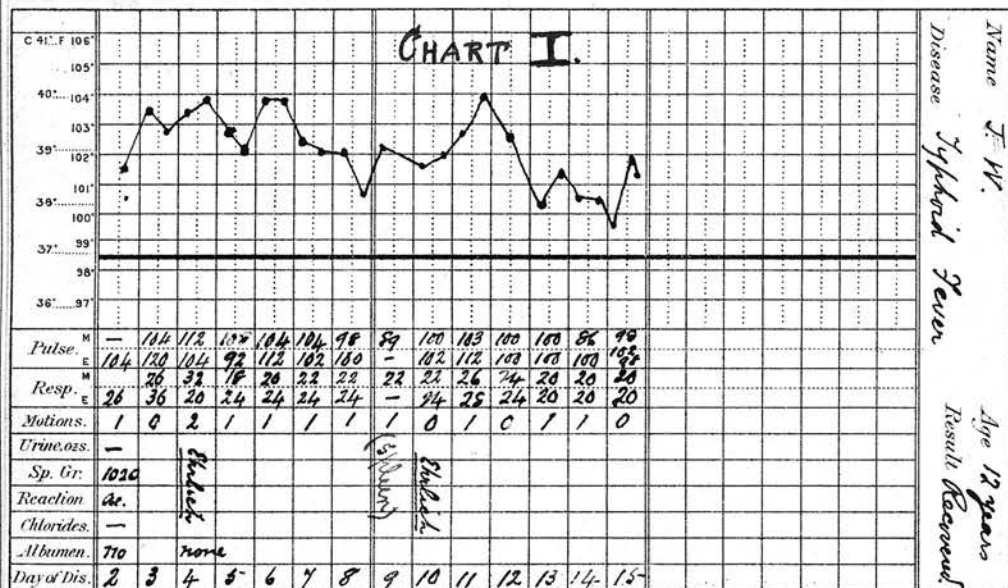
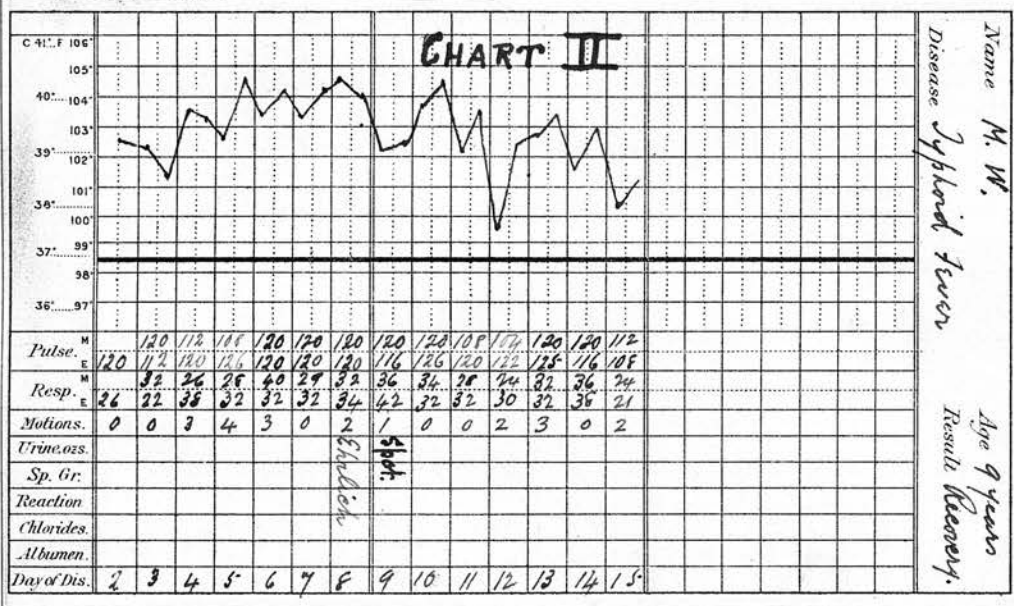


Chart I - In this case the onset was sudden, and the temperatures taken night and morning from the second day of illness. If we compare this temperature sheet with one of acute croupous pneumonia, we find that in typhoid the temperature does not stay at one high level as it does in pneumonia, but oscillates about irregularly - there being sometimes a difference of one degree or even a degree and a half in the day. The same variation is seen in Chart II that of M. W. brother of J. W. (Chart I) - Such a variation of temperature in the second week of typhoid is what one expects to find, but when the onset is sudden, and ushered in by a rigor, pneumonia is most likely to be thought of - Therefore this oscillation of temperature is of value as a diagnostic agent.

[Charts No. I & II only represent temp. for 1<sup>st</sup> fortnight]



In only one case could the incubation period of typhoid be approximately estimated - that of J.W. Chart No. I. J.W.'s mother, sister and two brothers were removed to the Wislaw Fever Hospital on the 24<sup>th</sup> October 1892. J.W. was sent away to stay with a friend, never going home or near it after the 24<sup>th</sup> inst.; on the 17<sup>th</sup> November he turned suddenly ill - i.e. 24 days after leaving the infected house - so that in this case, the incubation period was probably 24 days at least.

During the second and third weeks of typhoid fever, the temperature might be called "regularly remittent" - the evening reading usually being one or two degrees above the morning one - this type is characteristic of the pyæmic stage of typhoid - a similar type of temperature is seen in septicæmia, where there is septic absorption from an abraded



distinctly palpable the first day he was examined and his urine gave Shrilch's reaction, so that in all probability he was in his second week - No spots on abdomen, nor diarrhoea. Still from the fact that three of the same family at the same time were suffering from typhoid, together with the condition of the spleen and urine, I think we may say that he was suffering from a mild attack of enterica.

The temperature is not that of a typical case of typhoid, instead of the evening rise and the morning fall we have here exactly the reverse viz. a morning rise and evening fall, and this condition thro out the whole illness. Can this in any way be accounted for? The only suggestion I can make regarding this is as follows:- Normally the evening temperature is higher than the morning temperature, and this is usually adhered to in disease - when the blood is slightly heated during the evening rise, whether in health or disease, absorption into it - septic or otherwise - will take place quicker - This may account in some way to a certain degree, for the variations of temperature in typhoid, septicæmia & so on, namely an evening rise and morning fall. Is it not possible that the normal evening rise - this slight - & adhered to in disease - when added to the pyrexia present, allows septic absorption to go on more readily, and consequently raises the temperature. In W. W.'s case, may not



on the 31<sup>st</sup> December, the child looked very ill, there was a distinct malar flush on the left cheek, no herpes - mouth dry, tongue furred but red along the edges and tip - Diarrhoea severe, stools typhoid looking. On examining chest, breathing very fast, and over left apex were elicited all the physical signs of acute pneumonia. On examining abdomen the spleen was found enlarged and palpable - no tenderness over abdomen; no spots seen - no gurgling in right iliac fossa. The urine was examined the same day and gave Ehrlich's reaction for typhoid. It is probable - indeed very likely - that this patient, seen for the first time on the 31<sup>st</sup> Dec. - had been nine or ten days ill with typhoid, certainly not many days more because the spleen was distinctly palpable and the urine gave Ehrlich's test; thus we had typhoid complicated with pneumonia, the latter condition coming on probably during the second week of the typhoid. According to the mother's statement, the child had a shiver all over on the 30<sup>th</sup> Dec. - i.e. the day before I saw the child, this would indicate the onset of the pneumonia.

Pneumonia most frequently comes on during convalescence from typhoid - in the fourth week or so - by that time however the spleen should not be so enlarged as to be palpable, then again the urine would not give Ehrlich - on summing up, from the mother's history, from the condition of the spleen, urine, bowels, tongue - the pneumonia

in this case very probably set in during the second week.

What I venture to say here is that the pneumonia had a beneficial effect on the typhoid. The temperature is not typical of acute pneumonia, except that on the ninth day from the date of the shiver, we have the crisis - this chart more resembles Charts I and II where the onset of typhoid was sudden and the first week's temperatures recorded. What beneficial effect should this lung complication have on the typhoid lesion? Could it not act as a sort of counter-irritant, drawing the blood away from the intestinal typhoid lesions into the lungs? The diarrhoea seemed to stop during the pneumonia, and the spleen, at the time of crisis, had very greatly diminished in size - The bowels were loose and typhoid looking on the evening of the 7th January - i.e. the evening before the crisis, but thereafter there was no diarrhoea - After the crisis, convalescence was rapid - typhoid usually terminates by lysis and convalescence is slow. H. H. was a very healthy and strong boy, and the pneumonia set in before he was reduced and enfeebled.

Chart No. V is one of Typhus fever - here too we have an oscillating temperature as in the pyramic stage of typhoid - Temperature in this case was normal on the

fourteenth day - typhus being usually a 14 days fever.

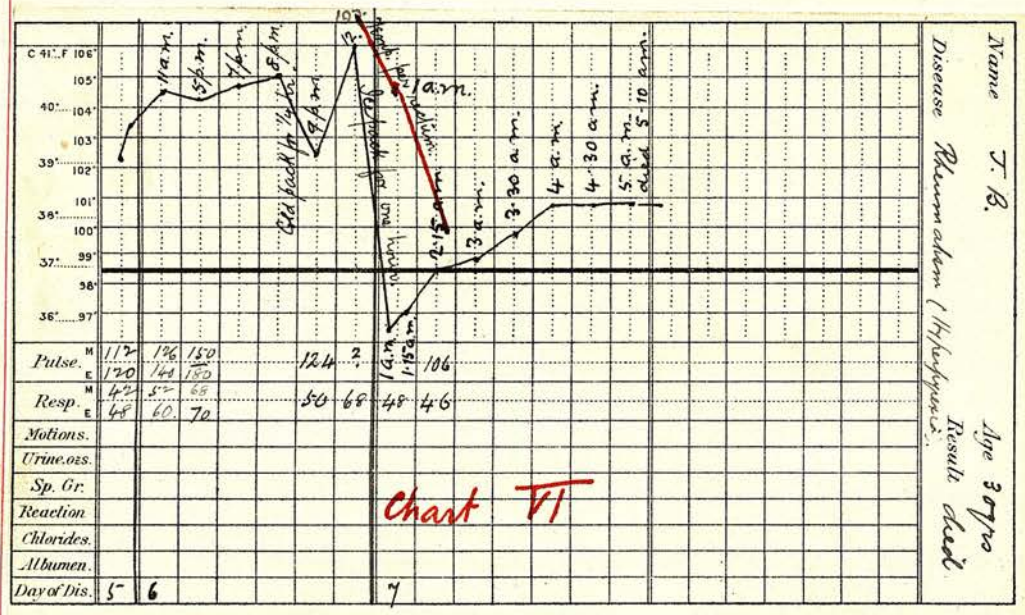


A sudden rise of temperature in the third and fourth week is often due to constipation.

The antipyretic which I give is Antipyrine - three grain doses in a little whiskey for an adult, 1 1/2 grains for child. Antipyrine was given in all my cases, and in none of them had I hyperpyrexia. Some advocate the use of the cold bath or cold pack in typhoid so as to have the temperature kept systematically down - this I've never tried, should however hyperpyrexia occur in any of my cases, whether typhoid, rheumatism, or anything else, certainly I'll resort to the cold pack. Chart No. VI is one of hyperpyrexia in rheumatism treated by the cold pack. The Modus Operandi was as follows:-

Patient was stripped, a macintosh was put under him, and wrapped in a sheet - ice bags

applied to head and along spine, and the rest of him rubbed all over with pieces of ice - brandy and digitalis given frequently - temperature in axilla and rectum taken at short intervals.



Name T. B.  
 Disease Rheumatism (Hypopyrus)  
 Age 30 yrs  
 Result dead

Value of Ehrlich's Reaction as an aid to the diagnosis of Typhoid fever.

The Test Solutions are :-

- A. A saturated solution of sulphamic acid in dilute hydrochloric acid.
- B. A .05 per cent solution of sodic nitrite in distilled water.
- C. Strong Ammonia.

Reaction :-

Take 25 parts A, add one part B, mix with an equal bulk of urine, shake, then add one or two drops of C to render alkaline - red with pink froth

got in typhoid.

Limitations:-

1. This reaction is not often got before the end of the first week, and very seldom after the morning temperature has reached normal in the pyramic stage, that is, during the fourth week of the disease.

In J.W.'s case, Chart N<sup>o</sup>. I Shrilich's reaction was given on the fourth day - In eight cases I tried Shrilich's reaction in the fourth week but got no reaction (these were typhoid cases)

2. If Shrilich's reaction be present very probably the case is one of typhoid, in all my typhoid cases it was present.

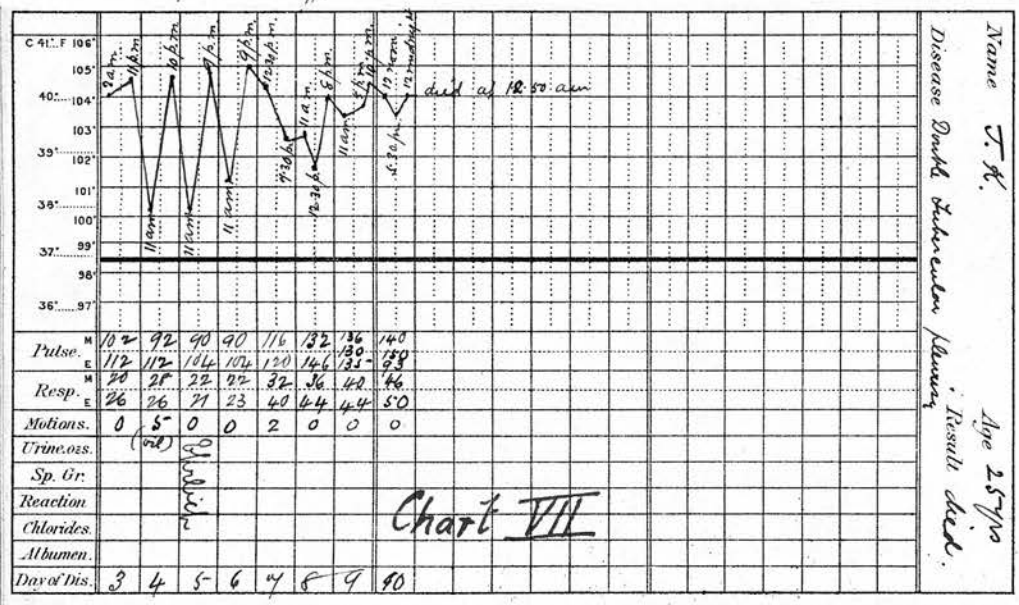
In other maladies besides typhoid, however, we get this colour test -

Sometimes it is given in measles - I examined the urine in thirty cases of measles and got it quite distinct in one.

In Phthisis too this reaction is said occasionally to be got - the urine of the seven phthisical cases I tried the reaction did not give the colour test.

Occasionally Shrilich's reaction has been got in rheumatism - I found it well marked in one of the six cases I examined.

Chart No VII is one of double acute tubercular pleurisy



The urine in this case gave Shrilch's reaction on the fifth day, but not on the eighth - from the fact that the reaction was given it was at first thought that this was the pleurisy of rheumatism - post mortem examination however showed the pleura to be covered over with tubercle, and fluid in the pleura, but no pus. (the lungs were the only organs allowed to be examined.)

In two cases of Typhus fever I got Shrilch's reaction - in both of these cases too there was marked diarrhoea

3. Rarely do you get this reaction if the temperature is normal, unless the urine be albuminous, and not always then.

4. Never yet got in Acute Tuberculosis



the very early diagnosis of typhoid fever - By the time the reaction is given, other symptoms and signs have developed which, of themselves, often make a diagnosis pretty certain - If however you don't get this reaction, then the case is not one of typhoid - negative evidence being strongest.

In all the cases in which Ehrlich's test was given, I noticed this, that the temperature oscillated very markedly - At first, when I used this test, I thought there was some connection between diarrhoea and it - but after further observation I found Ehrlich given in cases of typhoid where there was constipation.

Condition of the Bowels as an aid to the diagnosis of Typhoid fever.

I found constipation just as common as diarrhoea in the twenty cases which I specially noted. The cases in which there is constipation are always the milder and better. Diarrhoea sometimes, however, is very profuse and must be checked. Two or three loose motions in the twenty four hours do not indicate the administration of an astringent.

The pea-soup character of the stools occasionally helps to assist in forming a

diagnosis, by itself however this is a sign of no value whatever, as stools of a similar character are found in other diseases - thus in typhus fever typhoid stools are not uncommon.

Only in one case did I see blood in the feces - this case proved fatal from perforation. Intestinal hemorrhage is always a sign of anxious import and generally indicates ulceration in a greater or lesser degree. Slight hemorrhage gives rise to no constitutional symptoms. When severe, on the other hand, depression, sometimes amounting to collapse with a sudden drop in the temperature, comes on. "There has been a remarkable difference of opinion with regard to the influence of intestinal hemorrhage upon the course of the disease. Graves, and after him Trousseau, declared that it was not unfavourable, but probably the real basis of their opinion was the fact that a good many patients recover from it, or in other words, that it is not so often directly fatal as might have been anticipated. For the statistics of Murchison and Liebermeister show conclusively that the death rate among cases in which this complication occurs is far higher than the average death rate of the disease -

For the constipation in typhoid I always give the liquid extract of Cascara Sagrada, in teaspoonful doses for adults, half the amount to children - I find this drug always beneficial and safe in the treating of such cases.

To check the diarrhoea when it is excessive I give the following powder:-

R<sub>y</sub>

Pulv Kino Co gr  $\overline{\text{viii}}$

Bism Subnit<sup>o</sup> gr  $\overline{\text{v}}$

Half the powder to children.

Condition of the Spleen as an aid to the diagnosis of Typhoid Fever.

Enlarged spleen is the rule in children. It begins with the fever, and is generally well marked by the beginning of the second week. The organ may enlarge two or three times its natural size. It generally diminishes during the fourth week, or on the subsidence of the fever. In all my typhoid cases, the spleen was distinctly enlarged and palpable in eleven - towards the ninth day, thereafter diminishing gradually.

The spleen undergoes enlargement in many acute general diseases, particularly fevers of various kinds and syphilis - The name of

Acute splenic tumour is sometimes applied to this condition; and no doubt the irritating state of the blood in fevers is an exciting cause of the inflammation. In this country we see it most marked in cases of typhus fever. Suppose we examine the spleen in a case of fatal typhus. It is found much enlarged - causing stretching of the capsule - softened (perhaps diffident) and very vascular. On section, the colour is dark red & greasy-looking from fatty changes. Now if we examine the spleen in a case of typhoid, scarlet fever, small pox or diphtheria, we should find somewhat different appearances. In these diseases, the organ, while it may be considerably enlarged, is firm, instead of being soft; and on section the Malpighian bodies are seen to be swollen and prominent. The only endemic fever in which the spleen does not become enlarged is yellow fever, and this is probably accounted for by the hemorrhage from the stomach (Greenfield.)

According to some writers, this enlargement of the spleen is a symptom of far less clinical value than most state.

In three typhus cases which I saw, the spleen was distinctly palpable - in all my typhoid cases it was enlarged tho' not always palpable.

Value of gurgling in the right iliac fossa as an aid to the diagnosis of typhoid fever.

This I never found in any of my cases - tho' once or twice I've noticed tenderness in this region.

Value of Rose coloured spots on abdomen as an aid to the diagnosis of typhoid.

The presence of this eruption is said to be pathognomonic of typhoid - In children, however, it is not always present - The amount of the eruption or the non-existence of it in typhoid seems to have no relation to the severity of the case.

Out of 14 cases of typhoid in children spots were seen on 2.

Of 6 adult cases, the eruption was seen on 4.

Taking an average, the ninth day was the day the spots were first noticed - in only one case was the eruption anything like general, in that of Mrs. M.L.

This rose-rash is not always the earliest cutaneous affection observed in typhoid, in two of my cases it was preceded by a diffused scarlatinaid eruption, which is apt to mislead you.

Rose coloured spots may be seen in at

least one other disease, miliary tuberculosis of the lungs, still, I think, one is justified in regarding them, when well marked, as practically conclusive of the presence of typhoid fever.

Sometimes it is difficult to distinguish these spots from "ordinary pimples".

In Typhoid the respiratory system is always more or less affected - Bronchial catarrh is a constant accompaniment. It generally involves only the larger or medium tubes, and gives rise to little disturbance - There is always a tendency to hypostasis at the pulmonary basis - unless however it is extensive it requires no special treatment. Lobar pneumonia comes on most frequently at the commencement of convalescence, but may occur as early as the second or third week. The presence of respiratory mischief is apt to make you overlook the possibility of typhoid.

These observations which I have made on Typhoid fever are based on a series of cases which came under my notice the winter before last when in Woburn - and most of them were treated in the Fever Hospital of that town. From this paper

it will be seen how difficult and un-  
certain the diagnosis of typhoid often is.

Jamieson Weir M.B. Ch. Ed.  
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