OBSERVATIONS on

ONE HUNDRED CONSECUTIVE CASES

of

ENTERIC FEVER

by

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Observations on One Hundred Consecutive Cases of Enteric Fever, treated in Ruchill Hospital, Glasgow, during the Winter of 1900-01.

Great attention has of late been given to the study of enteric fever, both at the bedside, and in the laboratory; and the reality of this fell disease has been kept before the mind of the public during the last eighteen months through the death of so many of our countrymen from it in South Africa. It is little wonder that such interest should still be exhibited in the study of enteric fever, its geographical distribution is so wide, it picks out so many victims in the prime of life, and it is so protean in its aspect and so treacherous in its course. In recording the following cases I do not claim for them any special merit, nor do I claim, that in them, I have achieved any brilliant results but simply seek to offer a true record of them, and draw attention to their more interesting features. The study of these cases at the bedside has been to me a most interesting one, and most helpful, and I trust that they may afford some interest to others. In reviewing the cases I do not intend to lay so much stress on the more ordinary run of cases, but more especially to draw attention to, and discuss in detail, cases showing irregularities and complications.

I would just say at the outset, that although offering statistics on the various points discussed as they are of much interest, still I would not have it forgotten that statistics taken from a small number of cases are apt to be misleading owing to the element of chance always present.

My cases consisted of 63 males and 37 females. They were distributed as to age thus:-

1 - 10 years.	25 cases.	20 - 30 years.	30 cases.
10 - 15 years.	10 cases.	30 - 40 "	19 cases.
15 - 20 "	12 cases.	Above 40 "	4 cases.

It will be noted that I had 35 cases under 15 years.

The mortality was as follows:-

Deaths from,	Males.	Females.	Total.
The Severity of the disease,	9	3	12
Perforation of the Intestine,	4	1	5
Intestinal Haemorrhage	1	1	2
	14	5	19

Giving thus a mortality of 19%, certainly a high death rate for the present time. What can be said for such a death rate? Well, in the autumn months of last year we received in hospital, I believe, an exceptional run of very bad cases. For instance, of the first 20 cases received into my male ward from Oct. 19th. to Dec. 18th., 9 cases were fatal, an extremely high mortality. Necessarily therefore when a run/

run of such cases is included the death rate could not but be high.

The mortality in males works out at 22.2%, and in females at 13.5%. It is very striking how many strong, healthy men succumb to this disease, and it is very difficult to understand why it should be so. Of the three females who died without the occurrence of any complications, two were fat, flabby, fullblooded women, one being 34, and the other 43 years of age. The deaths in the various age periods were:-

1 - 10 years	no deaths.	20 - 30 years	10 deaths
10 - 20 "	2 deaths	30 - 40 "	5 "
	40 years & over - 2		

I would specially draw attention to the fact, that there was no fatal case amongst the children (15 years and under), although there were 35 and some of them were extremely ill. Children seem to have a wonderful power of resistance to the enteric fever poison, and they stand prolonged high temperatures during the course of the disease much better than adults do. Before proceeding further, I should like to refer shortly to the course of illness previous to admission to hospital. In regard to the histories of illness obtained, I may say that the patients' friends did not come up to hospital in the ambulance with them, and therefore, the histories - which were got by the nurse at the patient's house - may not be absolutely accurate, but still are sufficiently/

sufficiently so, to give a fair idea of the early course of illness, especially when supplemented, as they were, by enquiries of the patients on admission when possible.

In practically all the cases there had been a gradual onset of symptoms. So constantly is this so that a sudden onset should arouse in one's mind at once a strong presumption against enteric fever.

Diarrhoea was present before admission in 45 cases; headache more or less had been present in 44; pain in the back and limbs had been complained of in 34; in 25 there had been a "shivering" or feeling of coldness; 26 cases had vomited; sore-throat had been present in 11; epistaxis had occurred in 6; and in 6 cases the patients had only suffered from general malaise. Of course a considerable number of these symptoms as a rule were present in each case, such as vomiting, diarrhoea, and headache.

It was quite common to receive strong young men, who had continued doggedly at their work for days after they began to feel ill, and these patients as a rule were very ill on admission.

The early diagnosis of enteric fever offering as it does great difficulties, it is inevitable that the great majority of the cases should be sent into hospital after the first week of illness. I have carefully gone over all the cases to note the day of illness on which they were admitted, with the/

the following results:- 13 cases were admitted before the end of the 1st. week, 56 cases in the 2nd. week, 13 cases in the 3rd. week, 12 cases in the 4th., 2 in the 5th. week, and in 2 the duration of illness was indefinite. In view of the difficulty of early diagnosis it is interesting to note, that of the 13 patients admitted during the 1st. week, two were nurses in the enteric fever wards, and 5 others had been directly associated with previous cases.

Turning now to the signs and symptoms of the disease.

Physiognomy.

An expression of apathy and listlessness was that characteristic of the great majority of the cases, or, as expressed by Murchison, very aptly "an expression of languor, ennui, and sadness". The face was usually pale, and this pallor commonly steadily became more marked as the cases progressed. The mucous membranesdid not participate in the pallor to the same degree as the skin of the face.

A few cases, in fullblooded healthy persons, shewed at the onset a markedly flushed, florid colour, very much like what is seen in typhus fever, but unassociated with mental clouding and injected conjunctivae.

Eruption, etc.-

I think no description of the enteric fever eruption could excel that of Murchison's[1] - "The eruption of enteric fever/

1. Murchison on Continued Fevers, 3rd. Ed. p.510.

fever consists of isolated lenticular spots - the "taches roses lenticularis" of Louis. Their colour is rose or pink, but varies slightly in tint, according to that of the patient's skin. Their form is rounded and regular; their margin is well defined; and they measure from a half to two lines in diameter. When the point of the finger is gently passed along the skin, each spot can in most cases be felt slightly elevated above the surface. Their outline is rounded and convex, but not acuminated. They are never indurated; but in rare cases a minute vesicle may be discovered at their apex".

I have noticed that the spots always shew up best in fair people.

Murchison, speaking of the spots, says that "they are never indurated", now I have seen two cases in which they were distinctly indurated; these were both cases in which the eruption was extremely profuse and will be referred to later. Moderately frequently I have seen "a minute vesicle" at the apex.

I have made the following division of the cases, as to the presence, or absence of the eruption.

I.	Profuse Eruption	9 cases.
II.	Eruption sparse to considerable	43 "
III.	No eruption	31 "
IV.	?	17 "
		100

Groups I & II explain themselves. Group III includes all cases which came in moderately early, and were thus under observation for a considerable portion of the febrile period, and yet showed no eruption. Group IV includes all cases which came in rather late in the disease, so that although no eruption was present during their residence in hospital, it might quite well have been present previously.

The eruptions of relapses are not included in the above list being referred to later.

It is generally held, I think, that the copiousness of the eruption bears no definite relation to the severity of the disease. Murchison[1] says "There is no relation, as in typhus, between the abundance or absence of the eruption, and the severity of the disease". I think it is quite certain that there is no constant relation, in that one frequently sees moderately severe cases with an absence of eruption, on the other hand however in none of my cases was the disease mild, when a profuse eruption was present. Of the 9 cases which had profuse eruptions every one of them were severe, and 3 of them were fatal.

I have in more than one case seen a considerable eruption of fresh spots appear coincidently with an exacerbation of temperature and general symptoms.

In connection with the above points the following remarks on/

1. Murchison on Continued Fevers, p.471.

on the eruption from Trousseau[1], are worthy of note - "Its profusion and prolonged duration generally coincide with an exceptional severity, or, to express it more correctly, with a greater prolongation of the disease. ..... The coincidence which I am pointing out, in the confluence of the spots and the severity of the disease, is never more evident than when the eruption after having disappeared comes out again once or several times. Simultaneously with the appearance of new spots, which are often more numerous than their predecessors, the general symptoms acquire new intensity", /When the eruption was sparse the spots were constantly confined to the skin of the trunk, more especially that of the abdomen and back. In many cases only some half dozen spots were seen.

With a profuse eruption the rose-spots were almost always noted on the limbs in addition to the ordinary situations.

In one of my cases, a very severe one, there was an extraordinarily profuse eruption. In it the chest and abdomen were covered with spots closely set; and a most unusual feature was the presence of a few spots on the face. This eruption showed other peculiarities; the individual spots were more raised than usual and harder; they were darker in colour and persisted a long time; this copious eruption all appeared within 24 hours. I have seen one other/

1. Trousseau's Clinical Medecine, Vol. II, p.344.

other case with an eruption similar to the above in most features but it was not under my own care. In all cases with a profuse eruption there seems to be a tendency for the spots to persist long and to leave a brownish staining.

The "Tache Blenatre" which was at one time supposed to occur more frequently in enteric fever than in other diseases, I think was only seen in one case.

Not having the opportunity of seeing the cases at the onset I never saw an initial scarlatinal rash, as related later however, I had three cases of enteric fever sent in certified "Scarlet Fever", presumably on account, in part at least, of this rash having been present previous to admission. In one relapse case during the first two days there was a general erythema of the skin scarcely amounting, however, to a scarlatinal rash.

Two beautiful scarlatinal rashes which persisted in each case for over 24 hrs. were seen after enemata; these rashes were identical with the rash of scarlet fever. Again one of my cases on two occasions after enemata showed a sparse measly rash. In the wards of one of my colleagueshowever I saw a brilliant morbilliform rash which was supposed to be due to an enema. Quite commonly marked desquamation, especially of the skin of the trunk, was seen in the later stages of the disease. Exactly the cause of it I do not know, possibly it has/

has some connection with constant sponging. Whether it is more profuse in cases which have perspired freely my memory does not serve me well enough to state.

Sudaminal rashes were present in a considerable number of the cases. I have seen some of the best developed sudaminal rashes in enteric fever patients that I have ever seen. As a rule diaphoresis was not seen in the early stages of the disease, but was more common as the temperature was beginning to give way. Some of the cases perspired very profusely, others again never perspired throughout the course of the disease.

In none of my cases did typical bedsores develop in the wards, but in two or three bedsores were present on admission. In one case over the sacrum there developed what appeared to be a carbuncle, whether caused by pressure or not I do not know, but the skin over it did not slough and it healed up well. Another case I remember in which the skin over the sacrum became blackish but was saved from sloughing. This immunity to bedsores is wholly attributable to the excellence of the nursing, as many of the cases were very helpless and passing urine and faeces in bed.

PUPILS.-

Murchison says[1] "Dr. Jenner was the first to point out the/

1. Murchison on Continued Fevers, p.542.

the dilated condition of the pupil as contrasted with the small pupil of typhus". I certainly was taught that the pupils were usually rather dilated. My notes do not confirm this, of 77 cases in which a definite note of the pupillary condition was made on admission, 18 shewed dilated pupils, 18 contracted pupils, in 40 the pupils were moderate in size, and in 1 they were unequal. I cannot speak of the pupils in the later stages as regular notes were not made of their condition.

PULSE.-

The pulse varies very much with the character of the cases. My own impressions gained in the wards shape themselves thus as regards the pulse rate:- if a case has a pulse constantly under 100 in all probability it will be mild and run a favourable course, with a rate of 100-110 cases as a rule progress favourably, but when the pulse gets above 110 things assume a more grave aspect, and with a pulse constantly above 120 in an adult the patient's condition is almost always grave. I have observed that the pulse may be higher in women than in men without the condition being proportionately grave.

The charts seem to bear out the above impressions pretty well but they show some interesting exceptions. One case, which was certainly severe lasting 29 days with a temperature varying/

● = 6.a.m.

🔴 = 6.p.m.

Chart - I.

: = 1 loose motion

: = 1 formed "

Chart - II.

varying from 101° - 104.8°, had a pulse of 70 - 90 beats per min. with scarcely an exception (Chart I). Another case lasting 32 days, severe and showing delusions in convalescence had a pulse of 70 - 100, being 70 - 90 up to the 21st. day. Other two severe cases both lasting 33 days had pulses constantly under 100.

From these facts it is seen that some of the severe cases ran their course with a comparatively low pulse frequency. Although, however, the pulse may be infrequent, it may at the same time be extremely shabby; such was the condition in the first of the above cases and the cardiac first sound was almost inaudible. So that, although on the whole favourable, too much stress must not be laid on a low pulse rate taken apart from the general quality of the pulse.

All the fatal cases showed latterly at least pulses of 130; in one of them for days before death it varied between 140 and 150 (Chart II).

During each day there is more or less variation in the rate of the pulse, in some the variation is excessive, in others it is very slight. A difference of 10 - 20 beats during the day was quite common and as much as 40 was seen in a few cases. The pulse varies on the whole regularly with the temperature, the maximum pulse rate coinciding with the maximum temperature.

The pulse rate in children was of course higher than in adults/

adults and the diurnal variations, I think, were more extensive.

One interesting case in a child showed during 16hours a fall in temperature of 7^{o} with a fall of pulse from 160 to 100 in the same period.

The chief characteristic quality of the "Enteric" pulse is its softness, it is a low tension pulse with relaxed arteries. In the greater number of the cases as the fever progresses it becomes dicrotic, in the milder cases only slightly so, but in the severe cases very markedly so. Irregularity in the pulse either in force or rhythm, is not common except towards the end in fatal cases.

During the lysis the pulse gradually falls with the temperature, and coincident with this, its tension gradually improves.

A fall in the pulse rate is always of good prognostic significance and a marked rise, especially if sustained, is always bad even though the temperature may be decreasing.

In regard to the cardiac condition the only thing that I would specially refer to is the progressive feebleness of the first sound, with complete absence in some cases. The comparative softness and feebleness of the first sound was a very marked feature in the majority of my cases, even on admission.

In this connection an observation of Dr. Stokes[1] attracted my/

1. Dr. Stokes, Continued Fevers, p.216.

my attention, he says,- "As the impulse is lessened, it may be to extinction, so it is as to the sounds. The change appearing first at least in the majority of the cases in the arterial side of heart, the sound of the contraction of the left ventricle becomes feebler and feebler, while that of the right, though it may be lessened, continues".

Since reading the above I have on more than one occasion satisfied myself of the truth of the fact that the first sound persists longer over the right ventricle than over the left.

TEMPERATURE.-

In describing the temperatures of a series of cases it is somewhat difficult to group them well, but on considering it it seems to me most reasonable to divide the cases according to their severity, and to discuss the temperatures in these groups separately.

I. Cases lasting only a fortnight or less than a fortnight.
II. Mild cases, but longer than those in group I.
III. Severe cases - including all except the fatal cases.
IV. Fatal cases - excluding cases dying from complications as they will be referred to later.

I. First of all in regard to this group of cases the question might be put,- Are you sure that they were all cases of enteric fever? I am fairly certain in my own mind that they were, but I give below shortly my chief reasons for considering/

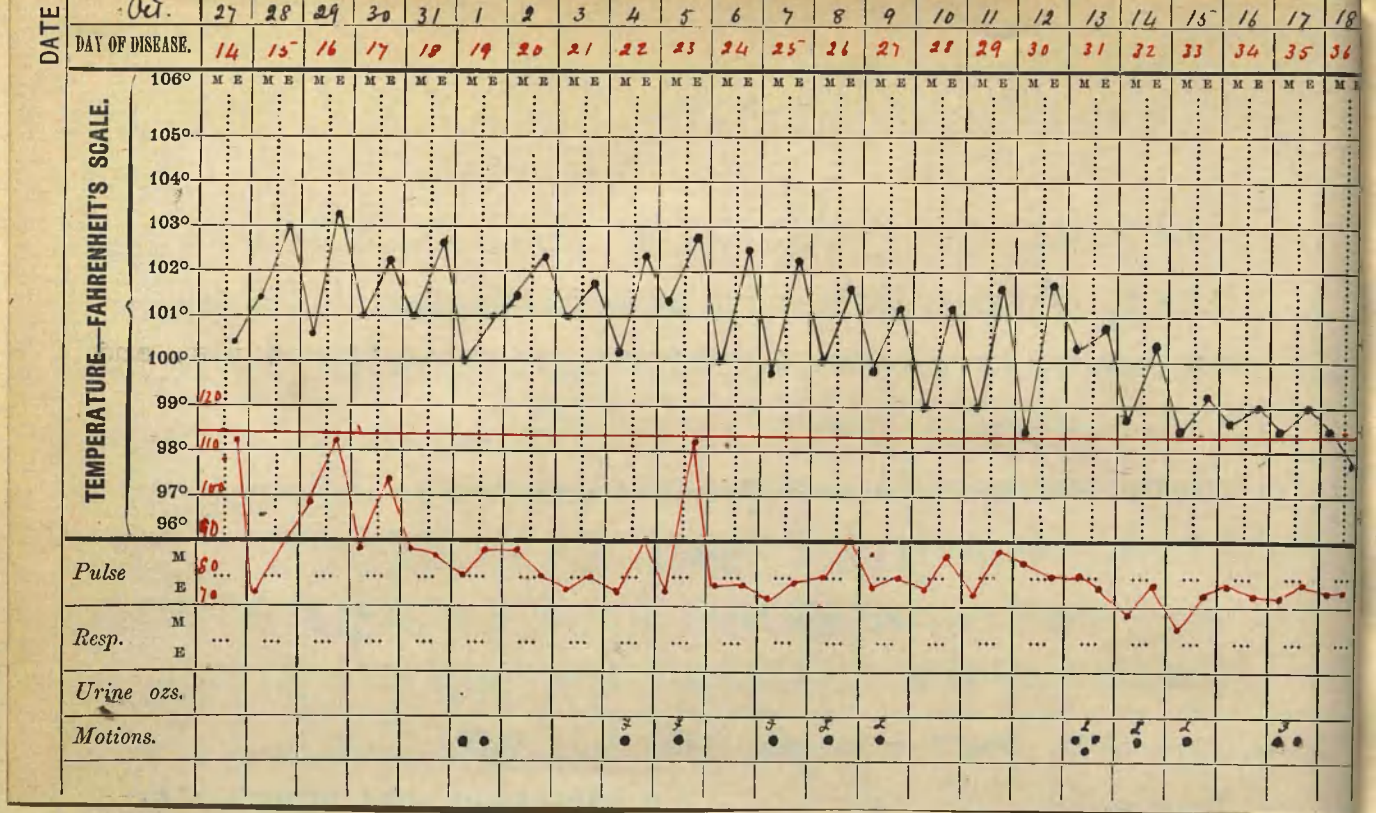


Chart - III

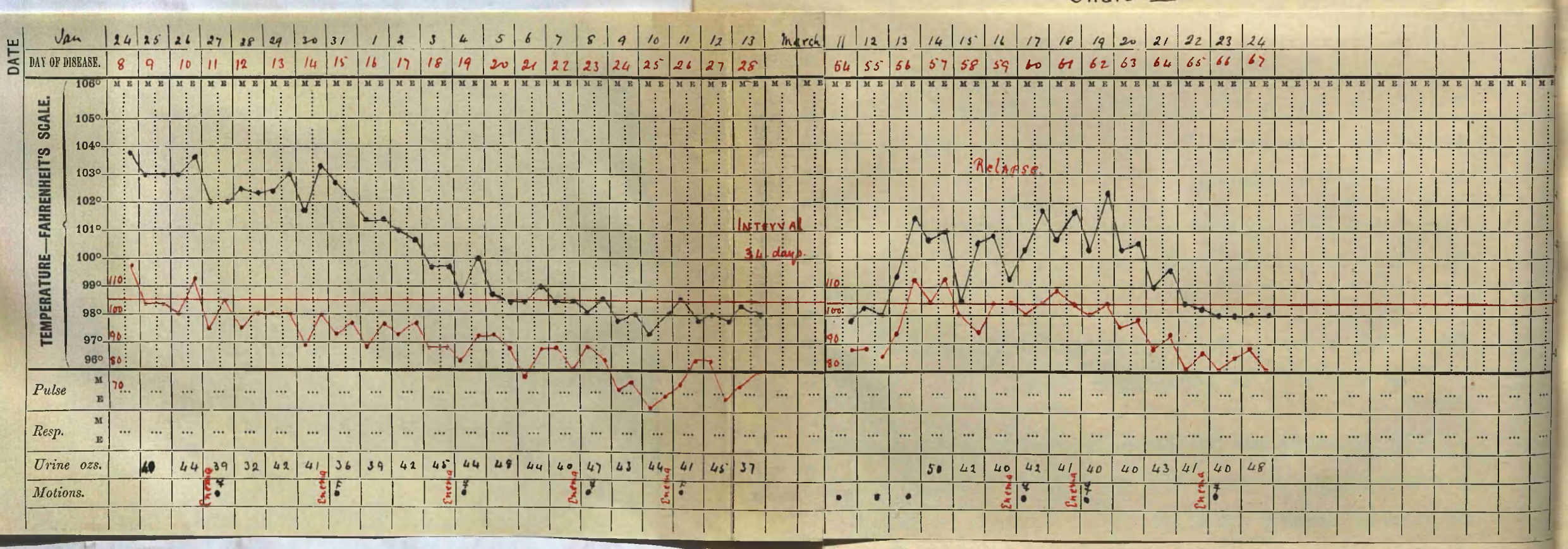


Chart - IV

considering them so.

1. Mrs. B. 28 yrs. Illness lasted 16 days.
   She had severe diarrhoea, temperatures, some bronchitis, and her blood gave a positive"Widal."
2. Jean S. 14 months - Illness lasted 11 days.
   She had a large spleen, temperatures; "Widal" negative; but her sister was under treatment at the same time with enteric fever.
3. Mrs. S. 40 years - Illness lasted 12 days.
   This patient was sharply ill on admission, had bronchitis, temperatures and a large spleen; "Widal" negative; associated with the same case as (2).
4. John S. 40 years - Illness lasted 15 days.
   He had temperatures, large spleen, and blood gave a positive "Widal."
5. Mrs. K. 30 years - Illness lasted 16 days.
   She had a typical relapse.
6. Dan W. 5 years - Illness lasted 15 days.
   He had an eruption of rose-spots, large spleen, temperatures; "Widal" positive.
7. James G. 27 years - Illness lasted 15 days.
   He had typical temperatures. "Widal" positive.
   His wife had enteric fever at the same time.
8. Robt. W. 7 years - Illness lasted 15 days.
   He had an eruption of rose-spots, temperatures. "Widal" positive/

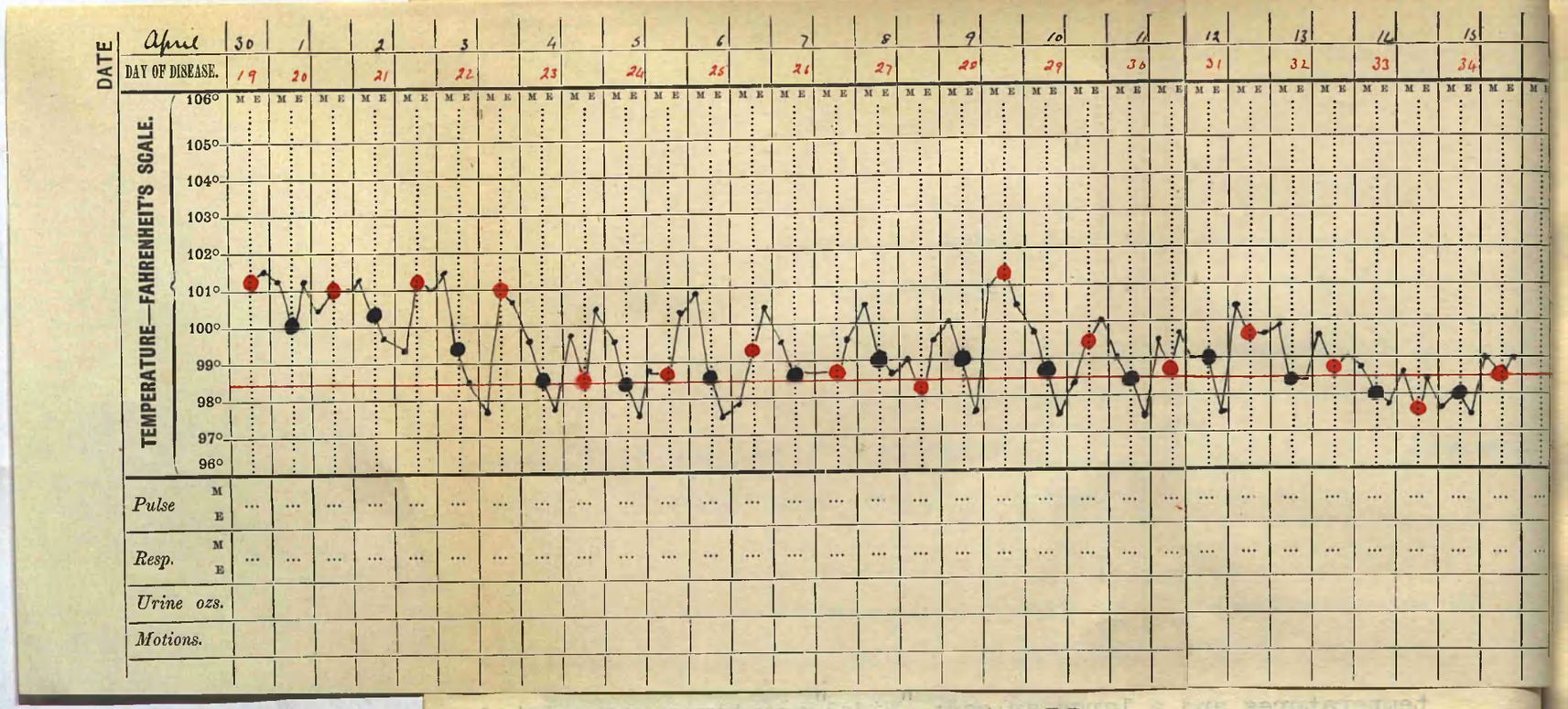


Chart-V

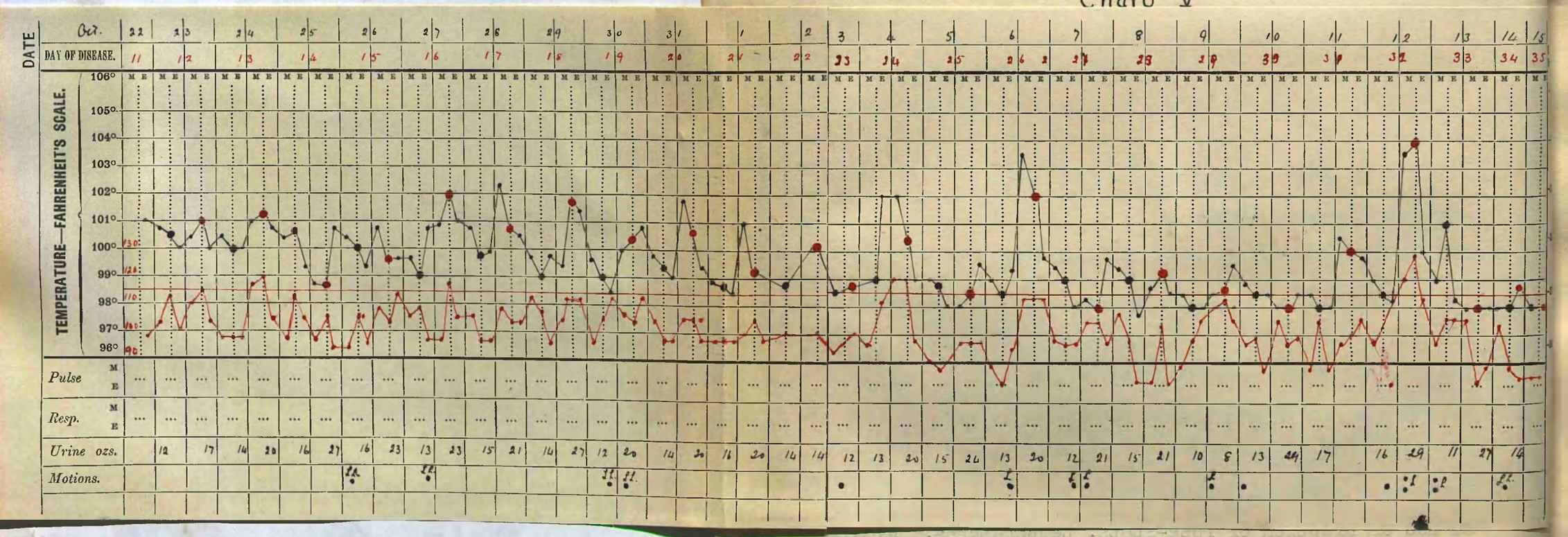


Chart-VI

positive.

9. Jessie McF. 15 yrs. - Illness lasted 13 days.
Temperature was fairly typical; "Widal"positive.

These cases came under observation from the third to the tenth days of illness. The temperatures of the majority showed a fairly typical lysis. In none of the cases were the temperatures severe while under observation, the majority showing temperatures of 102° - 103°, the maximum temperature shown by any being 103.8°.

II.- The temperatures of the cases in this group varied very much both as to character and duration. First, as to the duration of these cases, the majority lasted 20 - 24 days, a few 27 - 29 days, that is 4 weeks, and some five lasted 32 - 35 days; these latter, although prolonged, had comparatively low temperatures and showed good remissions (Chart III). Regarding the character of the fastigium it usually showed good remissions of temperature, and if the remissions were slight, the temperature was on the whole low (Chart IV).

Some of these cases towards the end took a curious course; after having settled considerably, and in fact in some cases touching normal daily, they seemed to hang at this stage, and for days - in some as long as 7 to 11 days - shewed a daily range from 98.4° to 100°. (Chart V).

Some/

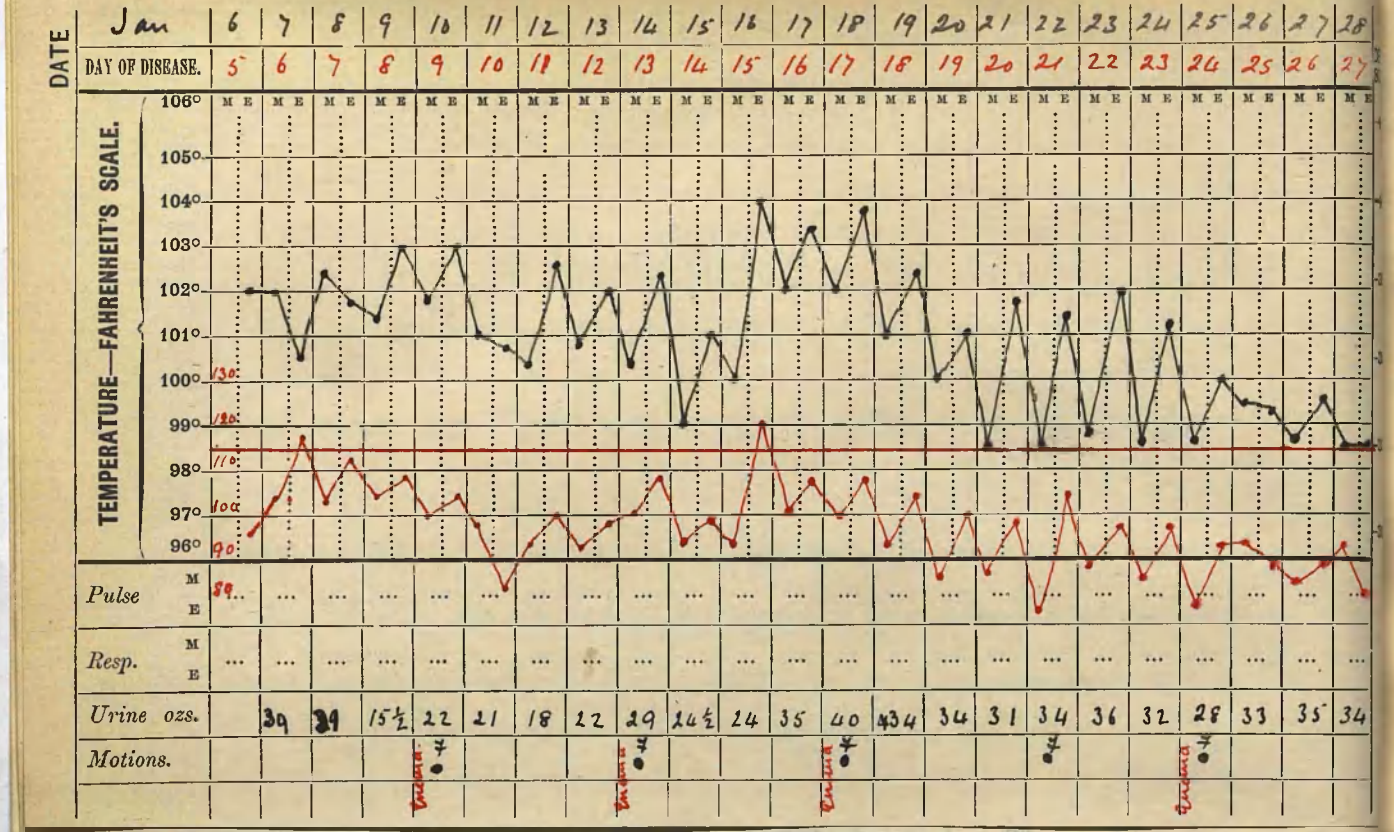


Chart - VII

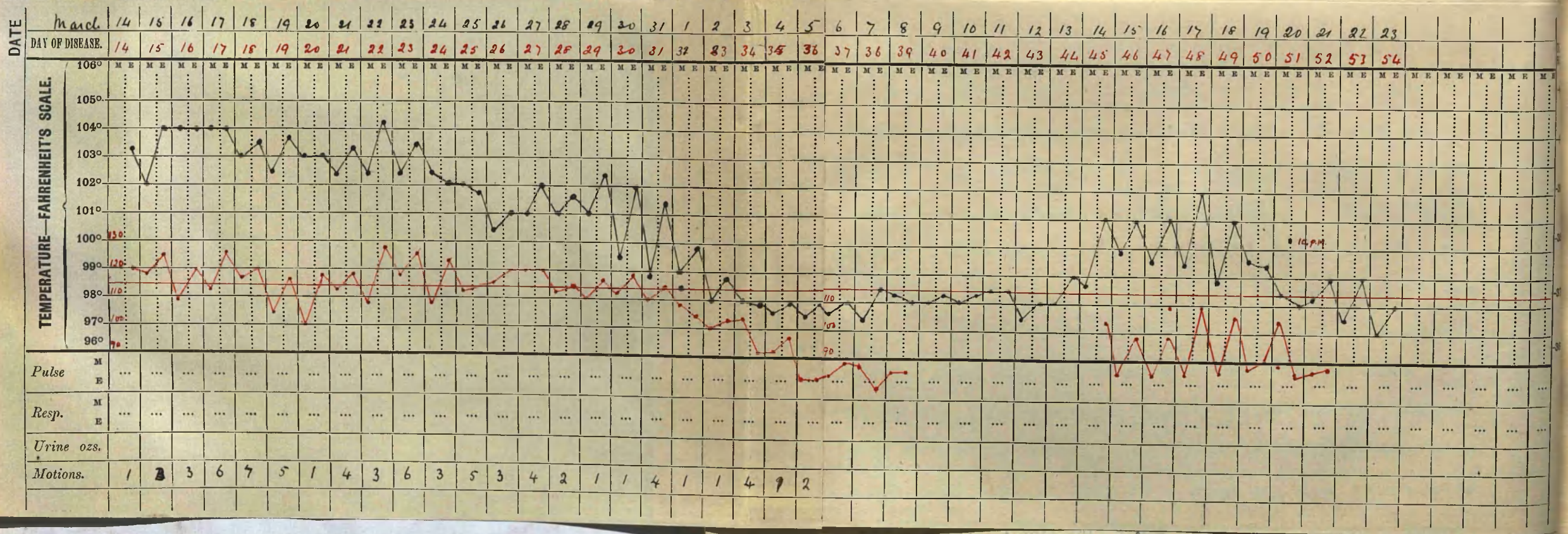
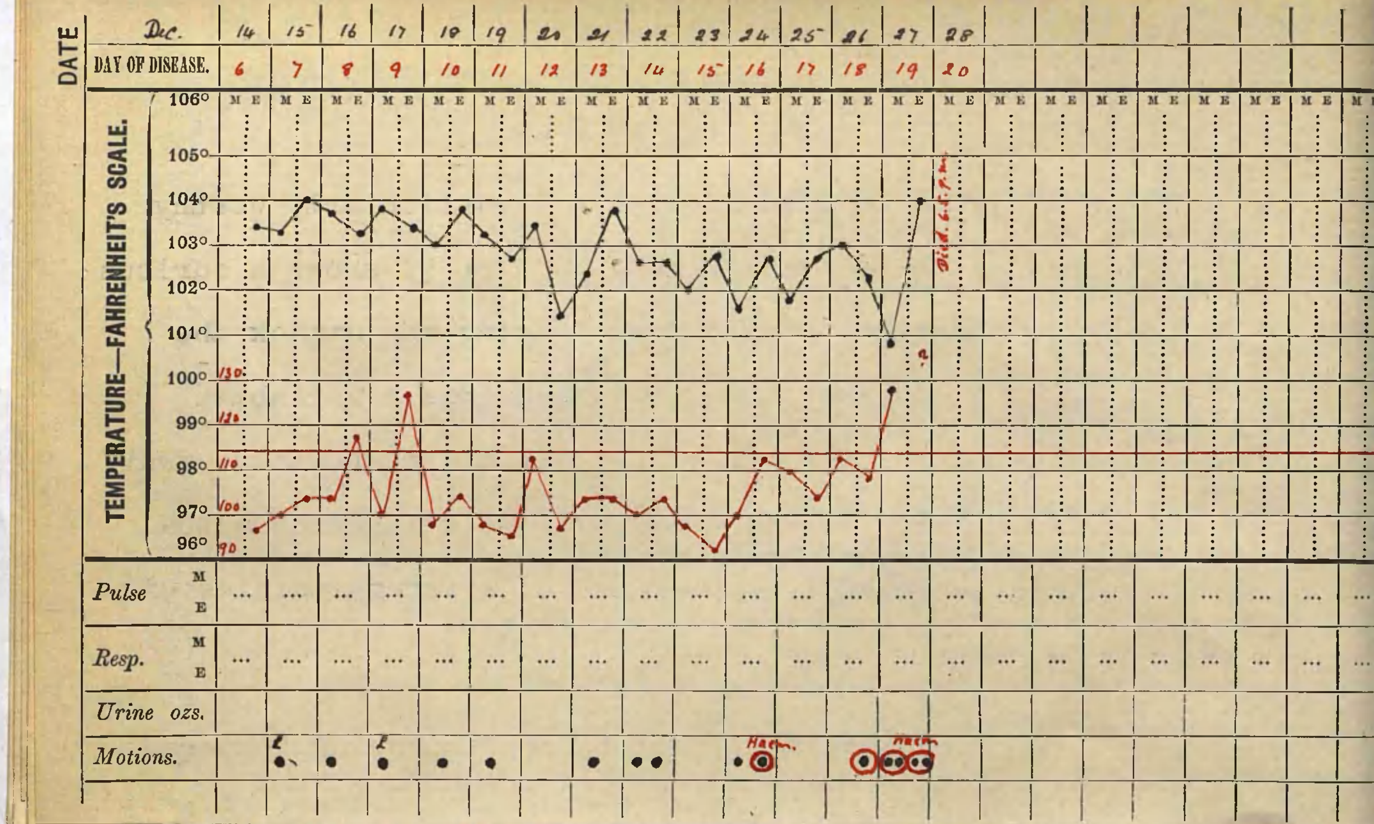


Chart - VIII



Although this was a fatal case, still as the patient died from Haemorrhage & not from the general severity of the disease, it is taken

Chart - IX

⊙ = Haemorrhage.

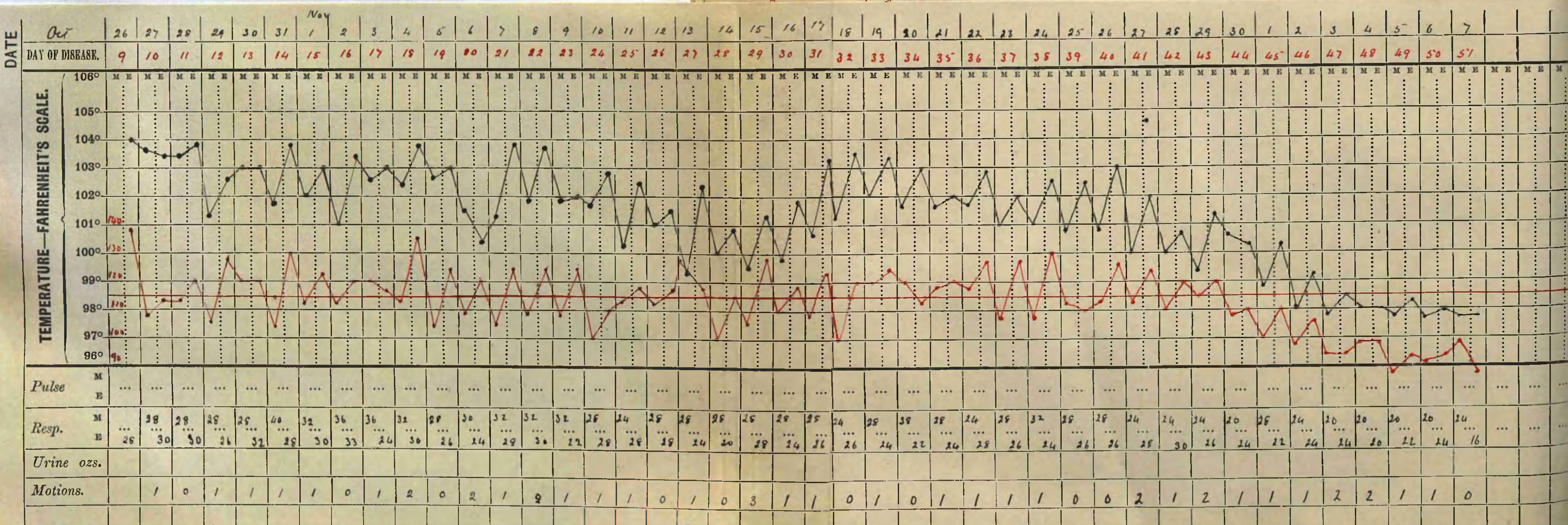


Chart - X

Some irregular types of cases are particularly worthy of note, I give the charts of two. Chart VI shows a curious course of temperature, almost daily during the attack the temperature fell to about 99° then there was a variable evening rise of 1° - 4°; on 12th. Nov. his temperature went up abruptly to 104°, he was cold and blue but had no actual rigor. The other case, Chart VII, shows irregularities of a different type.

III.- These cases in respect to the course of temperature show the following chief differences from the preceding groups. First, during the fastigium the temperature maintained a higher register usually 102° - 104°, and during this stage remissions were slight or absent (Charts VIII & IX); secondly, the fastigium was more prolonged; thirdly, the whole febrile period was in the majority of the cases longer than in the mild cases, very few of them being as short as 3 weeks' duration, the great majority lasting 4 weeks, but many 5 weeks, and a few longer. (Charts X & XI). The period of markedly remittant temperature in some cases was very prolonged, good examples of this are seen in Charts XI & XII.

Exacerbations or recrudescences of temperature occurring after a slight fall were fairly common. A good example of this is seen in Chart XIII, where after a considerable decrease in temperature a considerable increase occurred.

Chart/

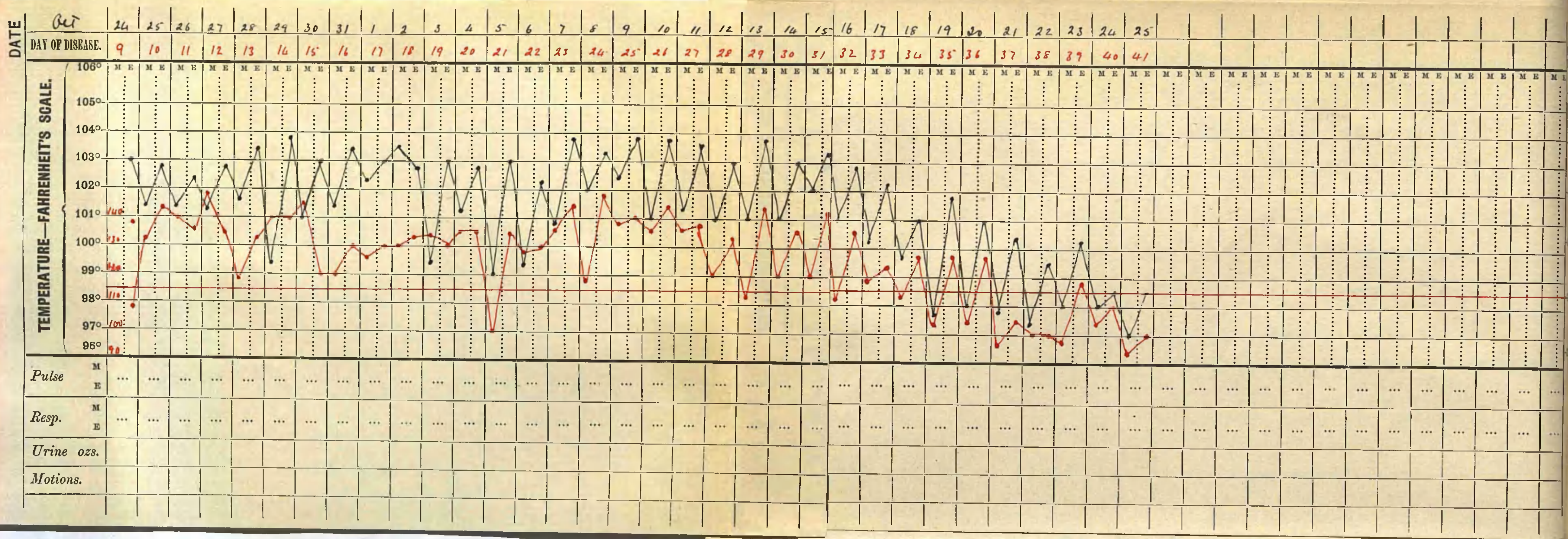


Chart-XI

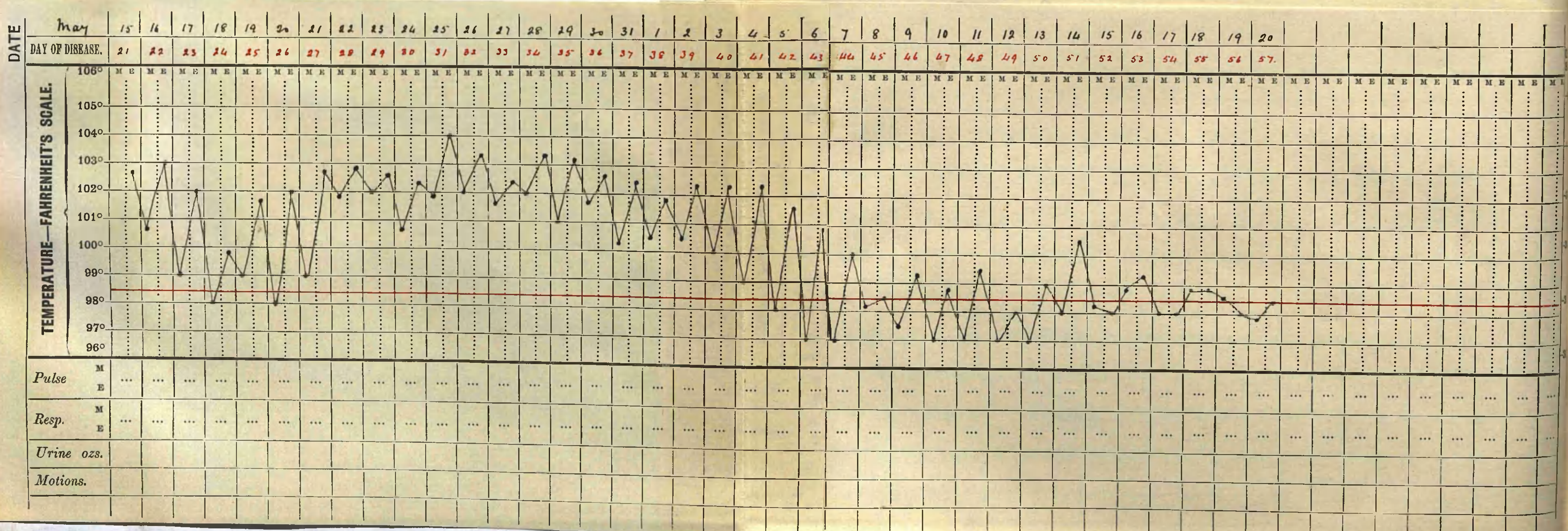


Chart-XII

Chart - XIII

DATE — Dec. — DAY OF DISEASE.

TEMPERATURE—FAHRENHEIT'S SCALE.

Interval 18 days

Pulse M / E	
Resp. M / E	
Urine ozs.	27 29 30 30 29 27 28 34 29 30 31 31 31 31 27 36 34 32 42 29 31 33 33 37 32 35 31 29 30 32 31 32 32 26 33 32 33 33 35 35 26 28
Motions.	2/1 2/1 1 Enema 1 2/1 Enema 2/1 1 2/3 2/2 2/1 2/1 2/1 1 Enema 1 1 Enema 1 1

Chart - XIV

DATE — Feb. — DAY OF DISEASE.

TEMPERATURE—FAHRENHEIT'S SCALE.

Pulse M / E	
Resp. M / E	
Urine ozs.	
Motions.	4 1 4 5 4 2 2 2 1 1 3 2 1 2 2 1 1 1 3 1 2 3 1 0 1 1 0 1 0 0 1 1 0 0 0

Chart XII also shows the same although to a less marked degree, during the 4th. week the temperatures were markedly remittent, but at the beginning of the 5th. week there was a rise of temperature with loss of remission; this was coincident with an increase in symptoms.

I would draw attention to the comparative frequency of a morning register being above the evening; it is certainly an irregularity, but it occurredin a considerable number of cases, and in a few it was the rule for days on end.

Sudden unexpected rises of temperature are always to be looked on with suspicion as suggesting complications, still they do occasionally occur without such a cause (Chart XIV).

In only one case apart from complications did a sudden unexpected fall of temperature occur and that was probably accounted for by the onset of diarrhoea.

It is perhaps worth remarking, because in my experience it is an undoubted fact, that a steady continued temperature of 102.5° to 103° is very much more exhausting to the patient than a remittent one, say, with morning temperature 101° and evening 104°.

As a rule the temperature showed a steady fall during the night, the minimum being in the early morning, then a steady rise was seen with a maximum between 6 p.m. and midnight, thus presenting on a four-hourly chart only one peak. A few cases presented more than one rise during the day as seen/

DATE

Feb | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

DAY OF DISEASE. | 7 | 8 | 9 | 10 | 17 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

TEMPERATURE—FAHRENHEIT'S SCALE.

106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°

Pulse M / E

Resp. M / E

Motions

~~Urine ozs.~~

~~Motions.~~ Urine

Chart-XV

DATE

June | 12 | 13 | 14 | 15 | 16 | 17 | 18

DAY OF DISEASE.

TEMPERATURE—FAHRENHEIT'S SCALE.

106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°

Pulse M / E

Resp. M / E

Urine ozs.

Motions.

Chart-XVI

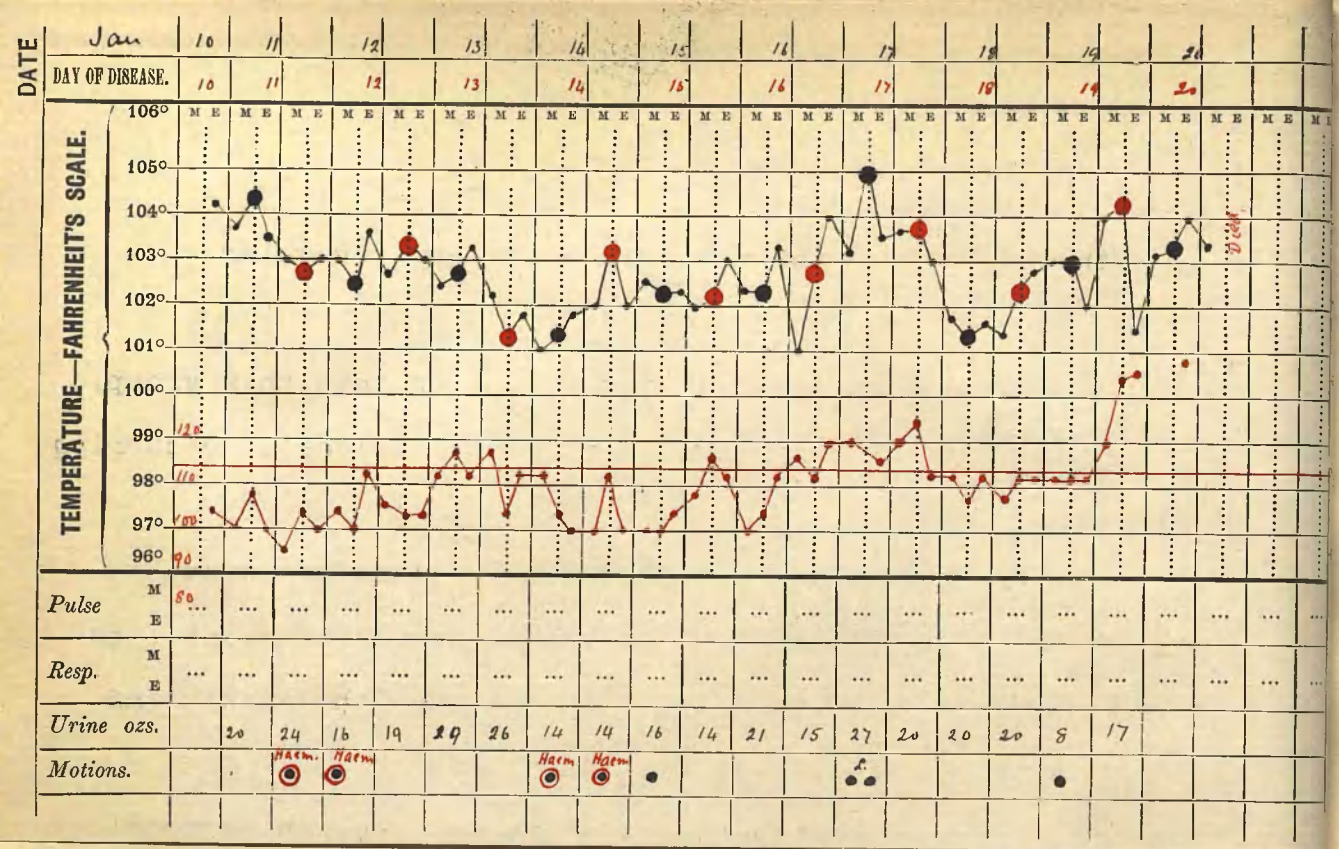


Chart - XVIII

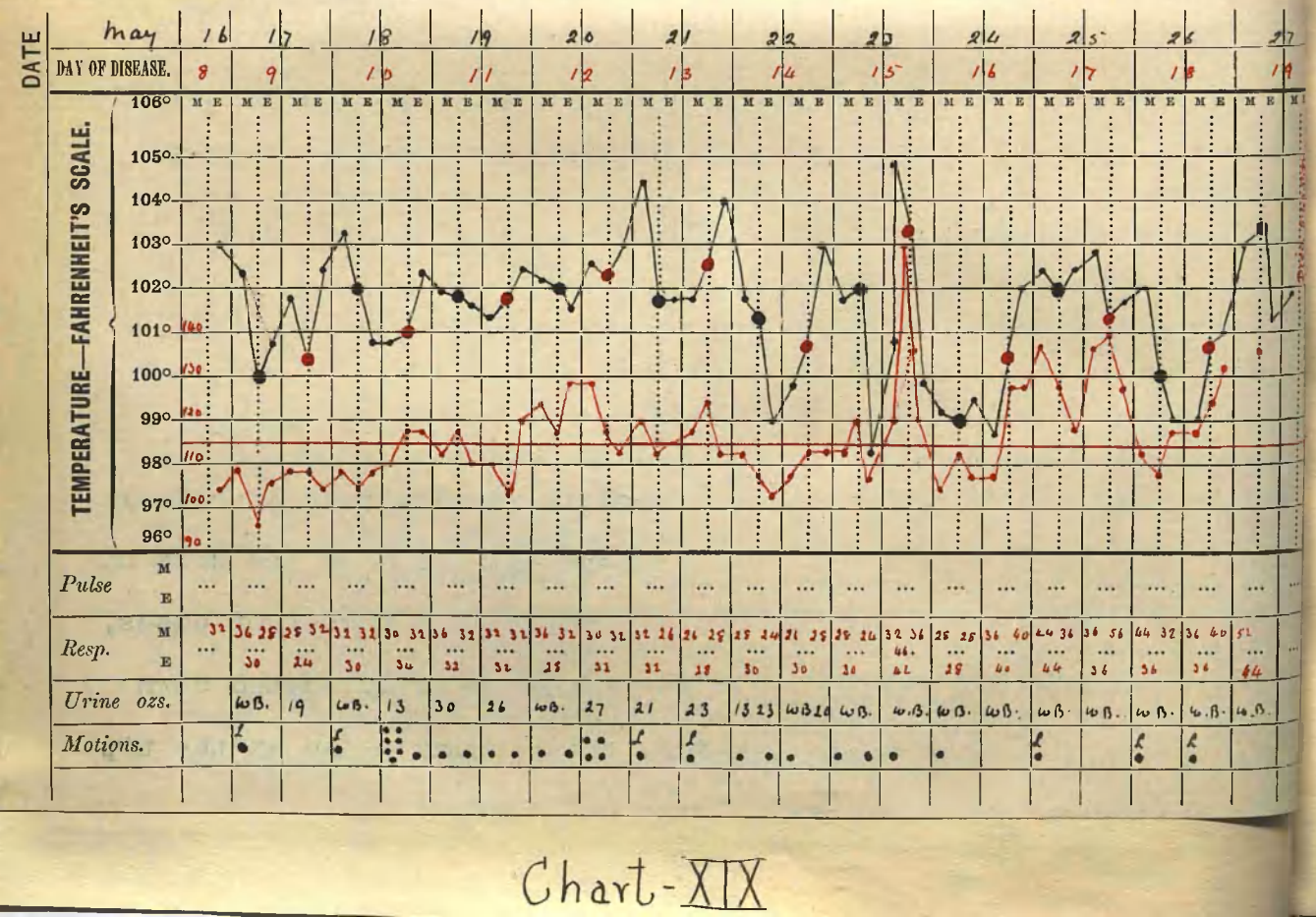


Chart - XIX

seen in Chart XV. Chart XIV shows a very irregular course of temperature in a child.

IV.- There are just 10 cases falling into this group, the other fatal cases being due to complications or occurring in relapses.

The day of disease on which these deaths occurred approximately were; one on the 14th., one on the 19th., two on the 20th., one on the 31st., one in the 8th. week; and in two duration of illness was indefinite.

On looking over the charts of these cases the special points observed are - First, that the temperatures on the whole in the early stages showed a higher average than was seen in the cases of the previous group, and a good number touched 105° in the 3rd. week (Chart II & XVI); secondly, that irregularities of temperature were very common as seen in Charts XVIII, XIX & XX.

DIGESTIVE SYSTEM.-

A good deal of stress has been laid on the "Typhoid Tongue". In mild cases I found it usually pale in colour and moist, in some having a slight white fur on the dorsum, in others quite clean. In a considerable number of cases, especially in children, it was rather heavily coated down the middle with a whitish fur, but red and clean at the tip and edges, like an early "Scarlet" tongue.

In/

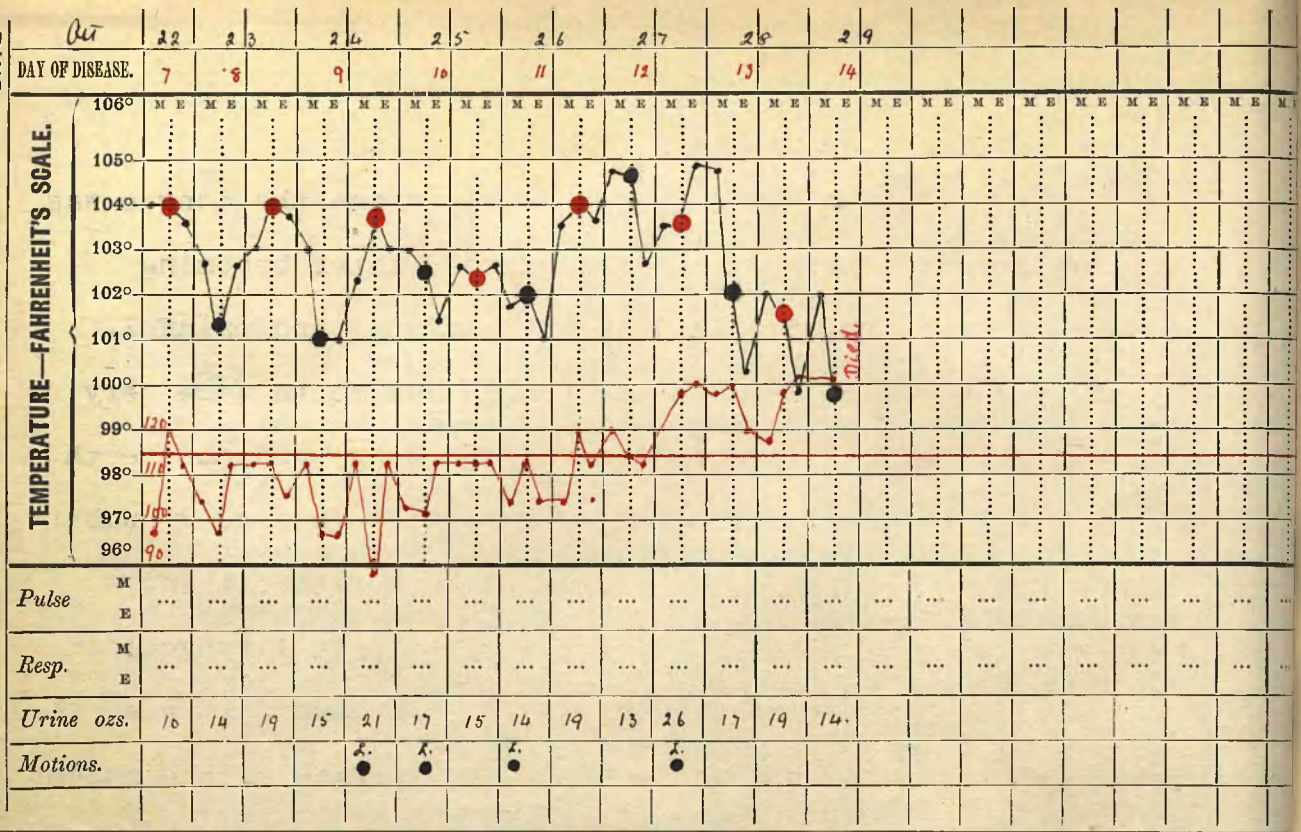

DATE
Oct
22
23
24
25
26
27
28
29
DAY OF DISEASE.
7
8
9
10
11
12
13
14
TEMPERATURE—FAHRENHEIT'S SCALE.
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
96°
M E
died
Pulse
Resp.
Urine ozs.
10
14
19
15
21
17
15
14
19
13
26
17
19
14
Motions.

Chart - XX

In the severer cases from an early stage the tongue was dry, at first perhaps smooth and glazed, later becoming transversely fissured, caked on the surface, and painful. In the worst class of cases the tongue and mouth were very dry and dirty, the lips cracked and bleeding, and the teeth covered with sordes. The latter condition in a good number of cases was accompanied by complaint of sorethroat and a very great degree of hoarseness (in great part laryngeal in origin). On examining the throat in such cases, it was usually found to be much congested, the surface of the mucous membrane very dry, and masses of sticky mucopurulent material were seen adhering to the walls of the fauces.

A dry tongue is seldom seen except in the severe cases. When a foul dry tongue begins to clean and moisten it points to a general improvement in the patient's condition, and usually is coincident with a receding temperature and falling pulse. The greater number of the patients complained of thirst, not only those who had dry tongues, as occasionally great thirst was complained of when the tongue was quite moist.

As regards appetite in all except the very mildest cases it was very greatly diminished; in the milder cases however, especially towards the end of the febrile period, the patients complained much of hunger if they had been confined to milk.

VOMITING/

VOMITING.- Vomiting occurred in a considerable number of cases but was seldom troublesome, in some cases only occurring once, in others more frequently. It was usually, I thought, attributable to the patients getting rather more nourishment than they could digest, and as a rule ceased when food was stopped for a time, and the stomach thus got a rest.

In two cases during relapses there was very troublesome vomiting, in the one it was associated with very severe diarrhoea, but not so in the other; both were very severe cases, one ending fatally. Both these patients were very excitable and nervous, and probably the nervous element in them was an important factor.

BOWELS.- The popular mind associates enteric fever with bad diarrhoea, but as is now well known, many cases run their course without any diarrhoea, and frequently the bowels are sluggish. I find it rather difficult to sub-divide the cases as regards the bowel condition but have made the following distinctions:- (The history of the cases previous to admission is not taken account of here).

I. Cases in which there was diarrhoea during some portion of the febrile period - diarrhoea being taken to mean over 4 motions in the 24 hours - 18 cases.

II. Cases in which the bowels were rather loose but the motions less than four in the 24 hours - 22 cases.

III. Cases in which on the whole the bowels moved regularly - 18 cases.

IV. Cases in which the bowels tended to be constipated in the great majority of which enemata were used, in some regularly, in others occasionally - 39 cases.

(The condition of the bowels unrecorded - 3 "

It is interesting to note that out of the 18 cases in group I, 8 were fatal, 8 were severe, and only two were mild; only 6 of these cases were males, 12 being females although the total male cases were more numerous than the female cases.

Murchison says[1], "Diarrhoea is the rule in enteric fever; and constipation is the exception. I have noted diarrhoea in 93 cases out of 100 cases, and Mon. Barth observed it in 96 out of 101 cases in Paris. Its intensity varies. In 23 out of 84 cases, I found that the motions never exceeded three in the day; in 51 they numbered four or upwards; and in 19 they exceeded six". / The character of the stools with diarrhoea varied greatly, in many cases they were ordinary loose yellow stools; in others again, and this usually in the worst cases, they were greenish with a very offensive odour. It was a common thing to receive patients who were passing green stools containing abundant milk curd.

In a number of cases although the bowels moved infrequently and irregularly, yet when they did move, the motions were/

1. Murchison on Continued Fever, p.524.

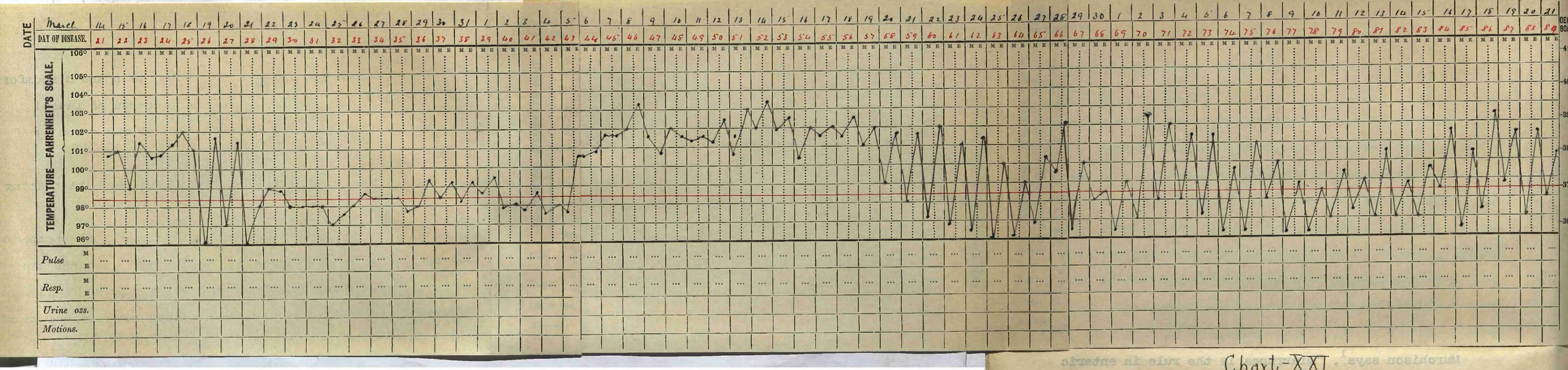

DATE
March
DAY OF DISEASE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
96°
Pulse
Resp.
Urine ozs.
Motions.
CENT SCALE
41°
40°
39°
38°
37°
36°

Chart-XXI

were loose. In one or two cases rectal pain and discomfort were complained of, being due to the presence of faecal masses in the rectum, and immediate relief was given by enemata.

One of the prolonged severe cases was very interesting as regards the bowel condition:-

Annie W. 18 yrs. - When admitted on March 14th. the temperature was falling as seen in the chart (Chart XXI), but she was extremely ill, being delirious and having a pulse of 130. By March 23rd. her temperature was normal and remained so till April 4th., when a relapse set in. The relapse was not very severe at the onset, but was unusually prolonged. By April 15th. the temperature had begun to touch normal in the morning; however, once it reached this stage it remained there, and by May 24th. it was much the same, being normal in the morning and reaching 99° to 101° nightly. During the whole of this period she had been constipated and enemata had been used frequently. From May 6th. she had complained of pain about the left iliac region which at times was sufficiently severe to keep her from sleeping. She was also troubled with vomiting, which at first was occasional, but latterly occurred regularly each evening. Examination of the chest revealed nothing to account for the temperature and general condition. About May 25th. I noticed that there was undue resistance in the right iliac region on palpation and quite distinct/

distinct fulness. With the knowledge that she had been constipated, I thought that in all probability there was here some faecal accumulation. I accordingly ordered large simple enemata to be given till constipated matter ceased to come away. For nine days she had enemata, and at first large quantities of hard faecal matter came away but this gradually lessened. The last two enemata however brought away considerable quantities, of what I was satisfied, were mucous casts of the bowel, probably from the colon, produced by the irritation mechanical, and chemical, of the scybala.

With the clearing out of the bowel the vomiting and pain immediately ceased. She was then put on a mixture containing Cascara Sagrada, Nux Vomica and Glycerine which caused a daily motion.

Although the subjective symptoms and general condition improved the temperature, although becoming less, still continued to rise in the evening.

I certainly erred in this case in notgiving in the earlier stages something to cause daily evacuation of the bowels. If this had been done possibly the prolongation of the case might have been averted.

ABDOMINAL PAIN:-

Pain in the abdomen, I should say, was absent in the great majority of the cases throughout their course. On the/

the other hand, there were a considerable number of cases in which pain was present off and on, but rarely persistent; most of these were cases with slight distension and a tendency to diarrhoea.

Severe abdominal pain was very rare apart from complications such as perforation, pleurisy, etc. The pain in perforation is described elsewhere; it was always severe, usually sudden in onset, and accompanied by abdominal rigidity In one case in which there was severe pain in the right flank it was due to a right sided pleurisy, but previous to the appearance of physical signs was rather puzzling. Again I had at least 3 cases of pneumonia sent in certified as enteric fever in which in the early stages the pain had been referred to the abdomen.

Pain from retention of urine was present in more than one case but this should give rise to no difficulty, except in delirious patients, and not even then to the watchful physician.

I have seen no case of pain from gall-bladder complications, in one case of relapse however pain which set in suddenly was referred to this region.

DISTENSION of the ABDOMEN.-

My clinical notes regarding this condition, I think, are reliable; certain it is that distension was never present/

present to any degree without a note being made ofit.

I have carefully looked over all my records and find as follows:- 63 cases shewed no distension, in 13 cases at some period it is noted that the abdomen was "full" in appearance; in 16 cases there was moderate distension and only in 8 was the distension severe.

Severe distension is a very bad sign, out of the 8 cases showing this 6 were fatal. It is worthy of note that of these 8 only one had marked diarrhoea, on the other hand three required enemata at some period. It was usually noted that the distension was most marked in the upper abdomen, as one would expect, from the fact that it is usually the colon that is most involved.

In Watson's Practice of Physic (p.810) it is stated that Dr. Jenner says, speaking of the appearance of the abdomen in enteric fever,"Its shape is invariably the same, and somewhat peculiar. Its convexity is from side to side, and not from above downwards. The patient is never pot-bellied but tub-shaped: the cause being that the flatus occupies the colon ascending, descending, and transverse".

In one of my cases at the postem-mortem examination the colon was so much distended that on opening the abdomen almost nothing but distended colon was seen (see Appendix p.86).

From the point of view of treatment the question arises as to what causes the distension as a rule. Is it chiefly

due/

due to undue development of gases in the bowel, or, is paresis of the bowel the chief element? In my experience severe meteorism is usually seen when there is intense intoxication, this probably pointing to paresis playing a prominent part, but again in such cases the digestive power is poor.

SPLEEN.-

The splenic condition was always carefully observed on admission, in 59 cases the organ was enlarged, in 38 the dulness was not increased and the organ could not be felt, in 3 no note was made.

NERVOUS SYMPTOMS.-

Towards the end of the third week or even earlier, apart from delirium, the severe cases were frequently restless and did not sleep well; about this time also muscular tremor frequently developed.

During the first week few if any of the patients were delirious; it was usually towards the end of the second week, or in the third, that delirium set in. It was a rule first became evident during the night, and in some cases was only really present then, but in all cases was most marked at night. In all, a very considerable number of the severe cases presented delirium in some degree. In character the delirium varied, some patients throughout it were quiet, others/

others again were very excited, noisy, never at rest, and frequently obstreperous and trying to get out of bed. In some of the fatal cases low muttering delirium was present, in fact the "typhoid state".

In children, short of delirium, a condition was frequently observed in which the patient was extremely irritable, always lying with the eyes shut, and resenting very much any disturbance.

URINE.-

The urine as a rule was high-coloured and rather scanty, 30 - 45 oz. in the day. Of the 58 cases in the male ward, in 28 the urine was free from albumen, in 25 it showed albumen more or less in amount and in 5 the records are doubtful. So that of these cases nearly half showed albuminous urines; in the great majority however the urine on being boiled only showed a haze of albumen, some 6 cases showed $\frac{1}{4}$ to 1 inch of albumen in a test-tube full boiled. There was no marked diminution in the excretion of urine even in those cases which showed heavy deposits.

Retention of urine requiring the use of the catheter was present in about nine cases, the majority of these being in the male ward.

RESPIRATORY SYSTEM.-

A large number of the cases had some cough; it was an extremely/

extremely common symptom and in a few it was very troublesome. This cough was due in the majority of cases to bronchial catarrh. I notice that 43 of the cases to a greater or less degree showed physical signs of bronchitis, usually slight however.

A few cases had very severe bronchitis. I remember two cases especially which had abundant moist rales all over both lungs, and at the apices the rales were so large and liquid in character, that they raised suspicions of Phthisis, but both cleared up gradually as the fever subsided.

Bronchial catarrh is so common that its presence must be looked upon as a helpful point in diagnosis in doubtful cases. / The respiratory rate I find as a rule only showed slight acceleration, the respirations numbering usually 20 - 30 per min., occasionally rising as high as 35 but only at odd times. When the respirations were constantly 30 - 40 the cases were always severe, and only in the very worst cases were the respirations maintained at over 40.

I think rapid respirations in enteric fever always point, that is apart from pulmonary complications, to a failing heart.

In one case on admission, a fatal one, the respirations were so rapid that Pneumonia was at first strongly suspected (Chart XVI).

CONVALESCENCE.-

The convalescent period is an interesting one although as a rule uneventful; in it the patient gradually regains his normal vigour and strength. The period after the fall of temperature at which the patients began to put on flesh and improve in general condition seemed to me to vary greatly. In some instances the improvement seemed to start at once, but as a rule there was an interval of some days - frequently a week to ten days - before there was any visible increase in flesh. Once however the improvement began it rapidly progressed; and the face, which had been gaunt and sunken, became fat and full; the skin, previously harsh and dry, became moist and natural; and the limbs, which had been thin and angular, began to show a healthy rotundity.

On dismissal the great majority of the patients were extremely well-nourished and many of them quite fat.

In some few cases it was a long time before the patients seemed to assimilate their food well. This I noticed especially in patients who had been mentally injured by the fever. In these cases it is difficult to say, whether it is the mental condition which deters the digestive processes, or the faulty assimilation which starves the brain.

During convalescence most of the cases showed a distinct tendency to constipation. In the early stages while still on milk and "sloppy" food this was most marked, once however they/

they were put on fairly full diet the bowels moved more satisfactorily. When there was any difficulty I found Burroughs & Welcome's preparation of Malt and Cascara very efficient in stimulating the bowels.

Diarrhoea only occurred in one case during convalescence but in that one was very severe and intractable. There was no death from asthenia in convalescence.

In most cases during convalescence as in health, the patients were bright and cheery, but a few cases showed marked mental change. One child for at least a month into convalescence suffered from melancholia with delusions; she was during the fever very sharply ill and delirious. A woman who also had been very delirious during the fever was left in a similar condition but the melancholia was more intense and prolonged.

Amongst the men three , none of whom had been delirious during the fever, showed delusions of a melancholic turn. In two of them this only lasted for a few days but in the third the melancholia persisted and he, when dismissed after two months of convalescence, was still melancholic.

During convalescence the temperature as a rule keeps strictly about the normal and any rise of temperature, especially in the early stages, should be looked on with suspicion. On the other hand however, apart from any discoverable/

discoverable cause, many of the cases showed slight rises of temperature. On looking over the charts it is seen that registers of 99°, 99.2° were pretty common. A single rise to 99.4° - 100.2° is noted in some six or seven cases; in some it may have been due to constipation, in others it occurred the first or second time the patient was allowed up.

Two cases after a normal temperature for a week showed frequent irregular rises, 99.4° - 100°, over some seven days and then settled. There were, however, a few instances of more continued febrile attacks without any apparent cause. In one case, a small boy, the temperature went up to 101° and remained about that for 24 hrs.; he made no complaint and physical examination was negative. There was another similar attack in a girl which lasted three days; she had slight headache but made no further complaint.

The pulse in convalescence showed some interesting features. Its rate varied, in some cases it was slightly above the normal 80 - 100; in others it was very slow, 40 - 60; but as a rule it ranged between 60 and 80.

In severe cases it was frequently some days after the temperature had fallen before the pulse settled. Amongst those who had slow pulses I remember especially two men - both of whom had been sharply ill - who had for days a pulse of 40 - 50, the pulse at the same time being small; each of them showed a tendency to have cold extremities.

The/

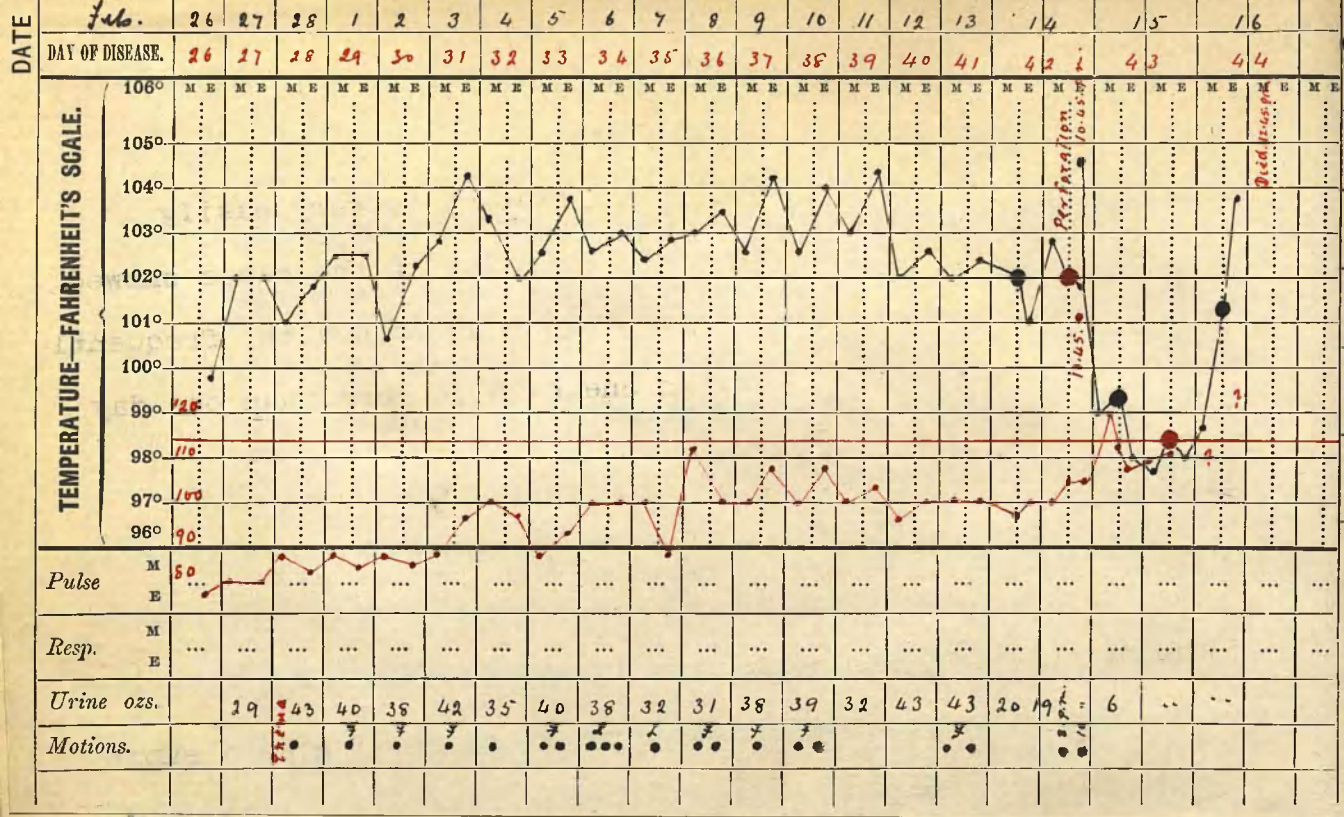

DATE
Feb.
DAY OF DISEASE.
CENT SCALE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
96°
-41°
-40°
-39°
-38°
-37°
-36°
Pulse
Resp.
Urine ozs.
Motions.

Chart - XXIII

The pulse of a convalescent patient is very easily disturbed and I notice that the majority of the cases showed daily variations greatly exceeding those of health, frequently 20 beats, in many 30, and in one case on more than one day 40 beats.

COMPLICATIONS.

PERFORATION OF THE INTESTINE.-

This complication occurred in 5 cases; I give a short note of each case:-

Case I - Peter McF. 26 yrs. - Admitted 26th. Feb. 1901 (Chart XXIII). This patient passed through a severe attack of fever with maintained high temperature. Latterly he had marked muscular tremor and other nervous symptoms, the tongue was dry and baked, and his pulse was very poor. From the 40th. to the 42nd. day however a marked change for the better took place, the temperature falling and the pulse improving and decreasing in rate. He was quite in his usual during the 14th. and till 10 p.m. of that day, when he had a slight "shiver" during which the bowels moved once; he went to sleep after this however, and was sleeping when I paid my visit at 10.30 p.m. On getting the history from the nurse of the slight "shiver" I was suspicious; and on feeling his pulse I found it to be 140 (a rise of 40 from what it had been), and on having the temperature taken it was found to be/

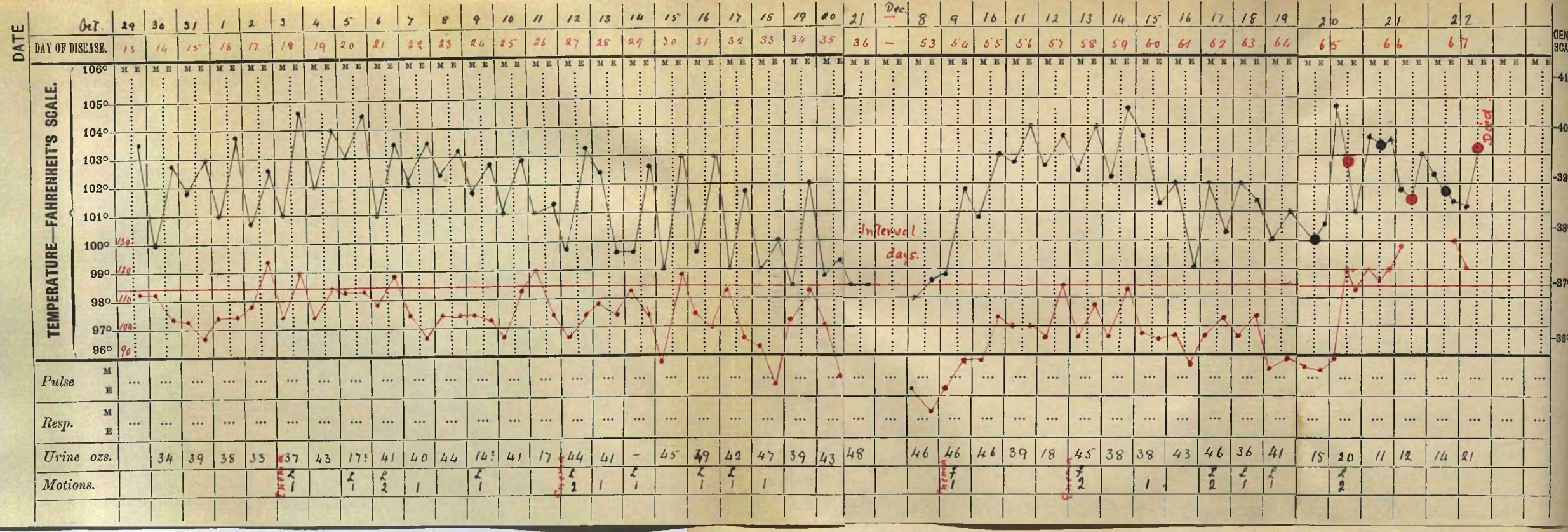
be 104.6°. The abdomen was rigid, like a board, and when he awoke during the examination he complained of severe abdominal pain and there was very marked tenderness. His expression was changed showing a degree of the "facies abdominalis". The liver dulness was almost gone except for a small patch on the axillary line.

He was seen by Dr. T. K. Dalziel (the Consulting Surgeon to the hospital) and wasoperated on at 1 a.m., three hours after perforation.

The peritoneal cavity was opened by a small median incision. There was a good deal of serous fluid, with a little flaky material floating in it, present in the general peritoneal cavity and the surface of the bowel was very acutely congested in places. A small round perforation was easily found some distance above the ileo-caecal valve; there was considerable difficulty in stitching it up owing to the friability of the tissue. The operation was performed rapidly. The patient however never rallied thoroughly, dying, I think from shock, 36 hours later.

The course of temperature and pulse after operation is displayed in the chart; for twelve hours subsequent to operation the temperature kept down, then rose rapidly; the pulse kept under 120 till the evening 15th., when it became very frequent.

The post-mortem report is recorded elsewhere (Appendix p. 86) it need only be said here that there was no sign


DATE
Oct. 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 Dec. 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
DAY OF DISEASE. 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 — 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67
TEMPERATURE—FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
CENT SCALE. 41° 40° 39° 38° 37° 36°
M E
Interval days.
Died.
Pulse
Resp.
Urine ozs. 34 39 38 33 37 43 17½ 41 40 44 14½ 41 17 44 41 — 45 49 42 47 39 43 48 46 46 46 39 18 45 38 38 43 46 36 41 15 20 11 12 14 21
Motions.
Catheter
Chart-XXIV

of general peritonitis and the stitches were holding well.

Remarks.- This case offered no difficulty in diagnosis, the slight rigor with rise of temperature and pulse, accompanied by typical abdominal signs, and the sudden onset, put it beyond question.

The treatment by laporotomy was the patient's only chance although his case was not a favourable one for operation, having been so long ill. He would however certainly have died if he had not been operated on and I do not think that his death was hastened by operation.

Case II - John S. 24 years. - Admitted 29th. Oct. 1900, (Chart XXIV). This patient"perforated"during a relapse. He passed through a severe primary attack during which he was extremely ill, having a dirty, dry, fissured tongue and a poor pulse; and when it was over he was left much emaciated and in a very low condition. His temperature had remained normal for 18 days, and he was beginning to pick up, when the relapse set in with a sudden onset. The relapse proved to be a very sharp one, as the chart shows, and tried his strength and staying powers to the very utmost. He was beginning to show marked signs of improvement when he suddenly became worse on Dec. 20th. On the morning of that date (12th. day of relapse) he began to complain of severe abdominal pain. At 2 p.m. he became collapsed, cold, and blue/

blue, and the temperature rose to 104.8°. He then gradually became warmer, recovering from the collapse; but the pain, although easing at times, continued all night and he had in addition occasional vomiting. On the following morning his pulse had risen to 120 - 130 and wasvery poor in quality, the abdomen was not distended but was very tender in the lower part; he had by this time developed a very typical "facies abdominalis".

He had a fairly quiet night on the 21st. sleeping a good deal. On the morning of the 22nd. however, he was looking much worse. His pulse was poorer and the respirations were high. The abdominal pain continued, being at times very severe and requiring the use of Morphia; the vomiting also persisted. He died at 11.20 p.m. on the 22nd. To the end there was no abdominal distension.

Remarks.- This wasone of the first cases of perforation that occurred in my wards and if the truth be told I was very doubtful at first as to what had occurred. I fear the absence of distension misled me, but I have since learned that distension is not a symptom of perforation, but of peritonitis, and is therefore no help in the early diagnosis of perforation. In any case, however, I had made up my mind that this patient was in too low a condition to attempt laparotomy. Possibly, if I had such another case now I might suggest laparotomy, but I question very much if the result/

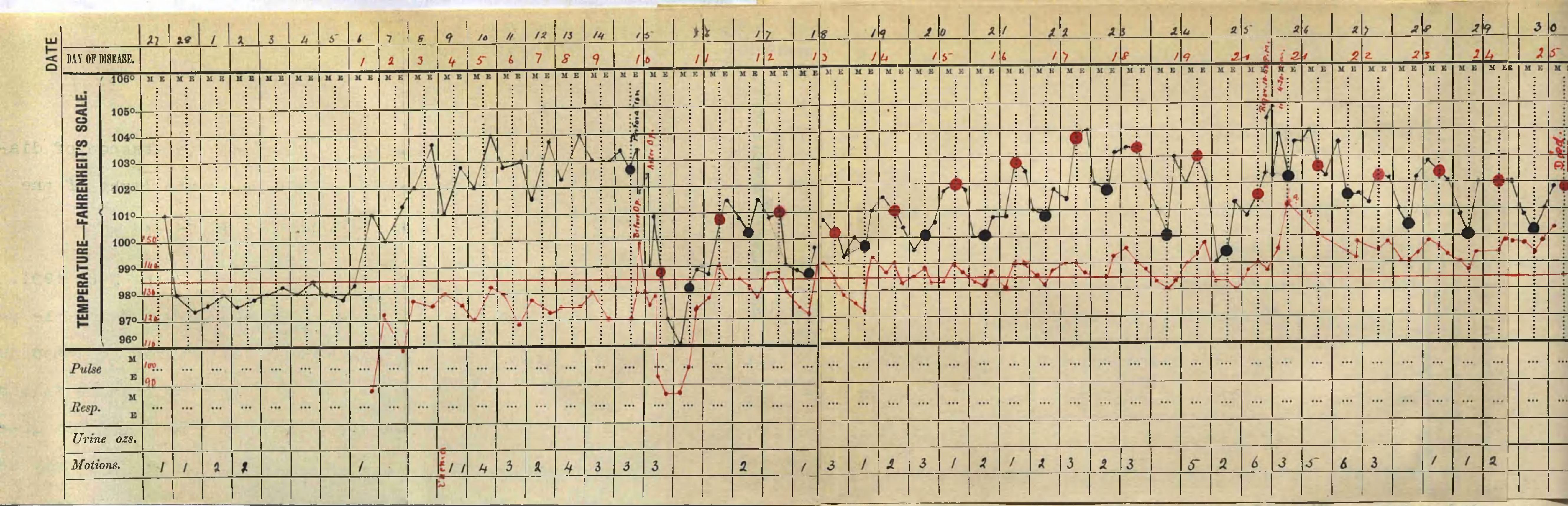

DATE
DAY OF DISEASE.
TEMPERATURE—FAHRENHEIT'S SCALE.
CENT SCALE
Pulse
Resp.
Urine ozs.
Motions.
Died.

Chart-XXV

result would be different. The complete absence of distension I would specially remark on in the light of the post-mortem appearances. (Appendix p. 82).

Case III.- Maggie M. 21 years - Admitted 27th. Feb. 1901. (Chart XXV). In this case as in the previous one the perforation occurred during a relapse. She was admitted just at the end of the original attack, the temperature falling to normal the day after admission. It was at first questionable whether she had had enteric fever as she had only been ill about 14 days and Widal's test on first trial gave a negative result; she had however a large spleen.

After 6 days normal temperature she entered upon a very severe relapse, one very marked feature of it being the frequency of the pulse, 120 - 130. Although very ill, she was holding out well till March 15th. (10th. day of relapse) when she "perforated."

In the early morning of the 15th. she had been as usual but shortly after 9 a.m. the nurse noticed a sudden change in her appearance, and on enquiry she complained of severe abdominal pain. When seen by me at 9.40 a.m. she wore an anxious pained expression, was pale and cyanosed, and was perspiring profusely - a cold clammy sweat. Her pulse had very much increased in rate being 140 and was small and "wiry" in character. She complained of severe abdominal pain which she/

she said had come on quite suddenly. The abdomen was very tender and markedly rigid; percussion revealed nothing of note, the liver dulness being easily defined and not unduly small. The bowels moved once between 10 & 11 a.m. She was seen by Dr. T. K. Dalziel who operated at 12 noon, within 3 hours of the time of perforation.

A median incision was made below the umbilicus. There was little difficulty in finding the perforation in the ileum; it was small and comparatively easily drawn together, covered with peritoneum, and stitched up. In addition to this at another point where the bowel appeared about to perforate stitches were put in and the bowel wall and peritoneum puckered to prevent its occurrence. The general peritoneal cavity was washed out with saline solution. Two rubber drainage tubes were led into the flanks and a glass one into the pelvis. The operation was rapidly performed and the patient stood it well. Chloroform was the anaesthetic employed.

Both the temperature and pulse fell after the operation, the temperature keeping sub-normal for 24 hrs. On the 16th. as seen in the chart the temperature and pulse rose again, the pulse going as high as 140. Following this the temperature showed a gradual increase like that seen at the onset of a relapse; this lasted for six days, during which time she was extremely ill, and had the poorest of pulses with a rate usually/

usually exceeding 130; during these days diarrhoea was troublesome. She was so ill at this time that Strychnine was in constant use hypodermically. During the 23rd. and 24th. she was rather better and the temperature decreasing, so much so, that I was beginning to think she was going to weather the storm. On the night of the 25th. however my hopes were blasted; during that night she had two very severe rigors in each of which she looked as though she were going to slip away. She rallied somewhat on the 26th. but after that gradually got weaker and died on the 30th., 16 days after operation.

The abdomen remained to the end undistended and free from pain or tenderness.

On the 22nd. March the left leg had become uniformly swollen and remained so till death. This was supposed to be due to a thrombosis in the pelvis and it turned out to be so post-mortem (Appendix p. 88).

The two flank drainage tubes were removed about 48 hours after operation but the pelvic tube was left in till a few days before death. For some days after operation the wound was dressed every five hours in order to aspirate the fluid from the pelvis.

(Report of post-mortem examination, Appendix p. 88).

Remarks.- This case, like the first, was very easily diagnosed, the symptoms pointing unmistakably to a perforation.

It/

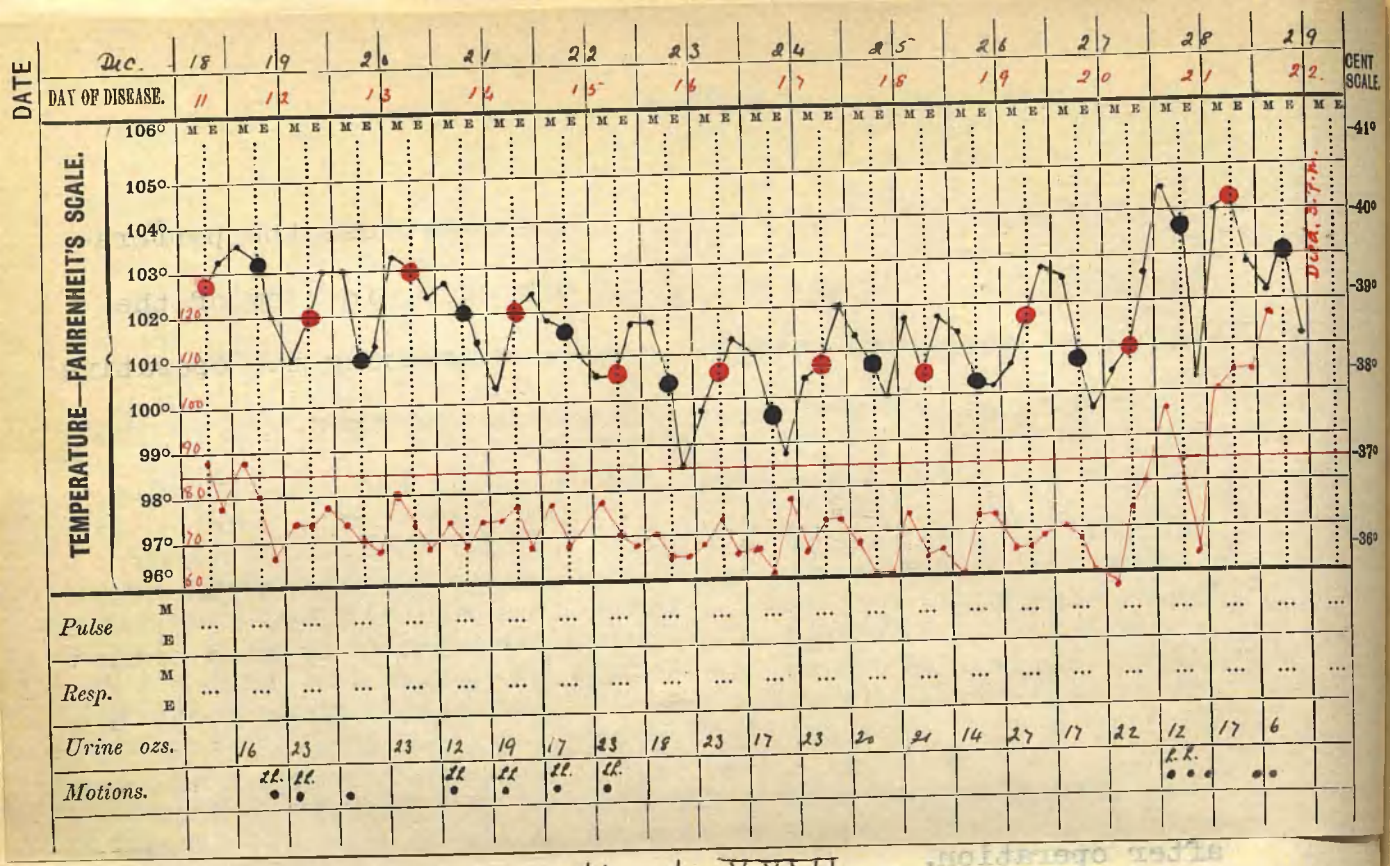

DATE
Dec. 18 19 20 21 22 23 24 25 26 27 28 29
DAY OF DISEASE. 11 12 13 14 15 16 17 18 19 20 21 22
CENT SCALE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
41° 40° 39° 38° 37° 36°
Dec. 3 T.T.
Pulse
Resp.
Urine ozs.
16 23 23 12 19 17 23 18 23 17 23 20 21 14 27 17 22 12 17 6
Motions.

Chart-XXVI

It is an interesting case, first, because the perforation occurred during a relapse; secondly, in view of the operative treatment. As I purpose discussing the operative treatment later I postpone my remarks till then.

Case IV - Donald C. 23 years - Admitted Dec. 18th. 1900.- (Chart XXVI). This patient was a strong healthy highlander, and was passing through what was a comparatively mild attack of enteric fever when the bowel perforated. When I saw him on the evening of the 27th. Dec. he was in his usual and feeling comfortable. At 11 p.m. that night, however, he had a rigor which lasted fifteen minutes during which his temperature was 103.6°; two stools were passed immediately after the rigor. At 2 a.m. his temperature was 104.4° and the pulse 96, he was not collapsed or cold. He remained quiet, although not sleeping till 7 a.m., when he began to complain of severe abdominal pain.

When seen by me at 9 a.m. (unfortunately I was not called sooner) his face was rather drawn, pale and anxious; and he was lying with his legs drawn up and complaining of severe pain in the abdomen. His pulse was moderately good and only 70, and the temperature had fallen considerably. The abdomen was flat, but extremely rigid and very tender in the lower part; no abnormal dulness was present. At this time I felt very suspicious that a perforation had occurred, but/

but there were two points which at the time appeared to me strongly against a perforation, the fall of both pulse and temperature. I could not reconcile a pulse of 70 with a perforation eight hours previously.

In view of a possible perforation I asked Dr. Alex. Johnstone, the Superintendent, to see the patient. Just before the patient was seen by Dr. Johnstone, however, he passed a very large loose stool which contained large masses of milk curd. Dr. Johnstone was of opinion, and I agreed with him, that possibly the whole disturbance might be due to the presence of so much undigested material in the bowel, (the rapid fall in pulse seemed to support this view); so we agreed to watch developments. By 11.30 a.m. his colour was better and he made little complaint of pain. He passed a very quiet day, and in the afternoon expressed himself as feeling a great deal better; the abdomen was not tender and he seemed comfortable, both the temperature and pulse however were rising, the temperature being 104° but the pulse 100.

Between 6 and 8 p.m., however, he had another attack of severe abdominal pain, and during it the bowels moved twice, both stools showing a good deal of curd. At this time the pulse still kept good. When I saw the patient again at 11.30 p.m. I could no longer doubt that he had "perforated", he was then looking very much worse and presented a very marked "abdominal" look and his pulse was getting poor; but considering/

considering that he had probably "perforated" 24 hrs. previously I thought that laparotomy, so late, held out little hope, so did not call in the surgeon.

He gradually got worse dying at 3 p.m. next day, 36 hours after the first appearance of symptoms.

Up to the end the abdomen was quite undistended; latterly there was some dulness in the right iliac region.

Remarks.- This case was to me a most disappointing one in that I feel that if we had recognised the perforation promptly, and operated, it would have been a most favourable case and the patient would have had every chance of recovery.

I would remark that previous to the day on which the perforation occurred, he appeared to be digesting milk well, having had no pain, no distension, and no diarrhoea. It is worthy of note that the bowels had not moved for five days before the date of perforation, previously they had inclined to be loose so that an enema had not been given on the fourth day after the last motion, which was my usual custom.

To me the most interesting point of the whole case was the low pulse rate - 70 - nine hours after the initial rigor; it is most unusual to get such a low pulse after a perforation.

Looking back on the case I must say that the severity of the pain in itself was strongly in favour of perforation; I have never seen pain, so severe, occur apart from a complication. The almost complete absence of pain and the disappearance/

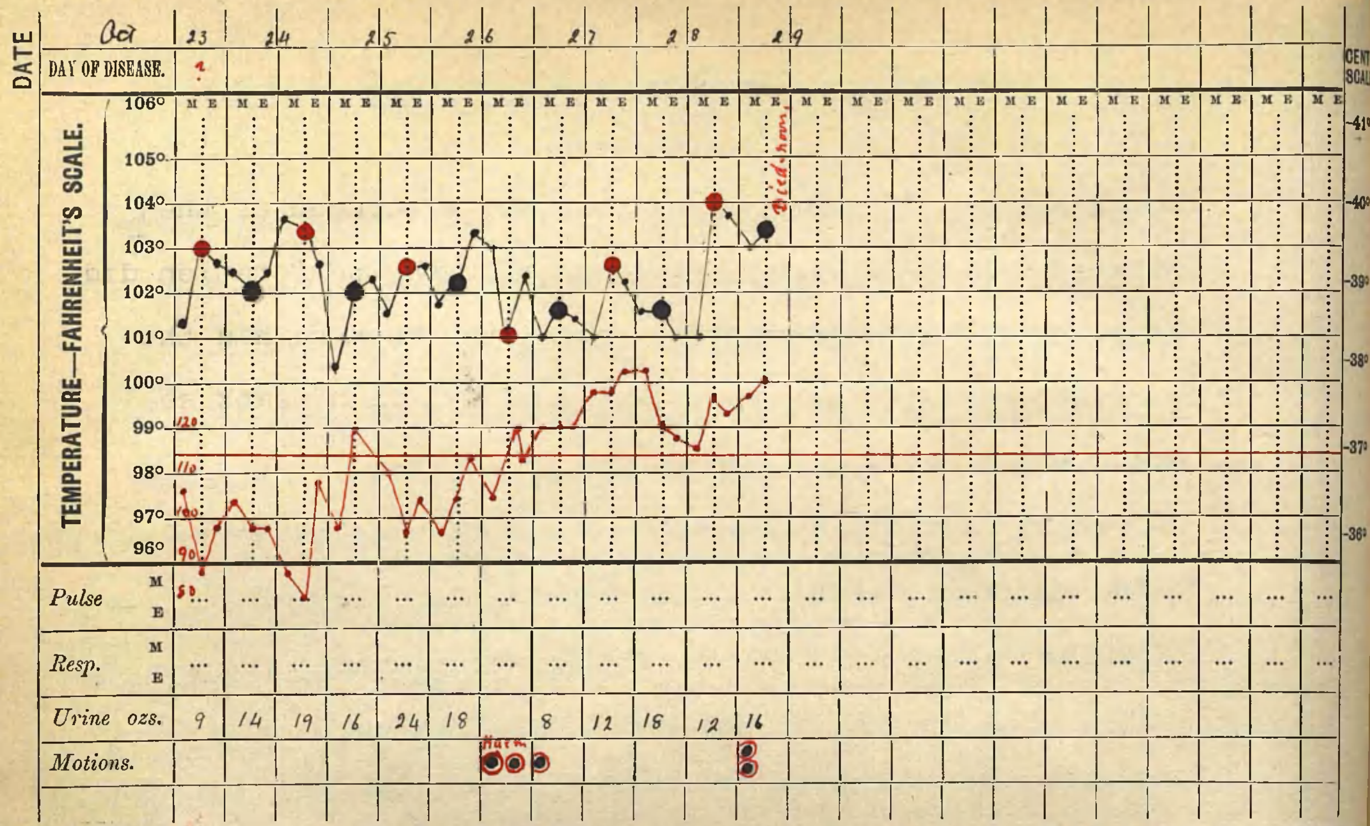

DATE
Oct 23 24 25 26 27 28 29
DAY OF DISEASE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
Died
CENT SCALE
41° 40° 39° 38° 37° 36°
120 110 100 90 80
Pulse
Resp.
Urine ozs.
9 14 19 16 24 18 8 12 18 12 16
Motions.
Haem

Chart-XXVII

disappearance of tenderness during the afternoon of the 28th. was a curious feature. Possibly the perforation did not occur till about 7 p.m. on the 28th. when he had the second severe attack of pain and after which he sank so rapidly.

(Unfortunately permission for a post-mortem examination could not be obtained in this case).

Case V.- Wm. C. 20 years - Admitted Oct. 23rd. 1900. (Chart XXVII). The date of onset of this patient's illness could not be ascertained, but I thought he was probably in his third week when admitted. On admission he was moderately ill having fairly high temperatures and being mildly delirious, but having a good pulse.

Unfortunately on the morning of the 26th. Oct. he had one large haemorrhage amounting to over one pint, after which he was considerably blanched, had sighing respirations and a soft pulse about 120 per min. He gradually improved however during the 27th. and 28th. although he remained extremely restless and still delirious.

On the evening of the 28th. his temperature rose to 104°, he looked much paler and he had even a slight "abdominal" aspect, the pulse was increasing in frequency and becoming smaller, and he began to complain of slight abdominal pain. Examination of the abdomen revealed nothing but a slight degree/

degree of tenderness. I thought at this time that there probably was some fresh haemorrhage occurring. He however got extremely rapidly worse, the pain becoming more severe and vomiting supervening, and he died about noon on the 29th. Towards the end vomiting was constant, the vomited material being dark brownish in colour. Just before death the bowels moved twice, each motion showed some blood but not sufficient to account for his death.

Remarks.- This is a case in which the diagnosis of perforation might be doubted but the more I think of it the more convinced I feel that there was a perforation.

The patient was certainly very ill after the haemorrhage, but he then improved markedly and the amount of blood in the stools latterly certainly was not sufficient to have caused his death, and it is scarcely likely there was much blood retained in the bowel else it would have been passed in greater quantity per rectum.

On the other hand there certainly was some cause for the rapid change for the worse; and the pain (although not intense), slight tenderness, abdominal facies and vomiting strongly pointed to the presence of a perforation. It might be urged that he died too quickly after the onset of the grave symptoms for perforation to have been the cause of it, that however I think was due to the weak state of the heart resulting from the haemorrhage.

Before/

Before leaving the subject of perforations I would draw attention briefly to a few points in these five cases especially referring to the early symptoms.

In all the cases there was a considerable rise in the pulse rate, three of them showing a rise of 20 - 30/per min. beats The temperature, in all but one, showed a sudden increase, touching 104° to 104.8°; it fell as a rule shortly afterwards remaining down for some time, to rise again however later.

Sudden, severe, abdominal pain occurred in three cases; in the other two its onset was more gradual. When fully developed the pain varied greatly in intensity at different times, showing a distinct tendency to be paroxysmal, in one case a painless interval of hours duration occurred.

An interesting point which I have not seen mentioned in print not even in Dr. Osler's recent article[1], is well brought out in these cases; I refer to the frequency with which there is a movement of the bowels coincident with the pain and other symptoms of onset. In three of my five cases the bowels moved once or twice immediately after the initial symptoms appeared. I claim no merit in noting this as it was a Belvidere assistant, Dr. Watt, who first brought the matter under my notice. I am inclined to think that some importance may be attached to the occurrence.

As regards the absence of liver dulness only in one case was/

1. Lancet, Feb. 9th. 1901, p.386.

was it much diminished, but in it, it was gone except for a small patch in the lateral region.

Symptoms of collapse presented themselves in three cases. A definite rigor occurred in two cases.

Some change of facial expression was quite evident, even in the early stages, in three of the cases, and I am inclined to lay considerable stress on this sign.

It is worthy of note that in none of the cases previous to the perforation was there bad diarrhoea, in one however there was some; in none had there been abdominal distension.

I regret that I am unable to present a report on the condition of the blood in these cases as a considerable amount of attention is being directed to the occurrence of a sudden leucocytosis following perforation.

INTESTINAL HAEMORRHAGE.-

A small quantity of blood in the stools was seen in a considerable number of cases, as a rule it was only noticed on one occasion, usually appearing in streaks through the stools, or slightly colouring the fluid part; blood in this quantity is not of much account, except when appearing in, or after, the third week when it should be taken as a danger signal, and a careful watch made in case ofmore profuse haemorrhage.

Haemorrhage as a complication occurred in 6 of my cases

(6%)/

(6%). The accompanying table gives interesting points regarding each:-

Cases of Intestinal Haemorrhage.

	Case I Wm.C.	Case II John M.	Case III Wm. T.	Case IV Mag. B.	Case V Jessie A.	Case VI. James M.
Age	20	26	37	11	17	34
Severity of fever etc.	Moderate	Severe	Severe	Moderate	Severe	Severe
Diarrhoea	None	None	None	Slight	Present	None
Distension	None	None	Great	Slight	None	None
Day of disease on which Haem. occurred,	?	16th.	11th.(?)	13th.	22nd.	28th.
Number of haem's.	1	4	2	2	Frequent	3
Total amt:	1 Pint	4/5 Pints	2 Pints	12 ounces	3 Pints	3 Pints
Result	Fatal fr. Perforation.	Fatal fr. Haem.	Fatal fr. Asthenia	Recovery	Fatal fr. Haem.	Recovery

Although there were 35 patients under 15 years, only one had haemorrhage, and that only to the extent of 12 ounces. It will be seen that none of the cases were mild but all moderate to severe; this is of course the rule as it is usually only with deep ulceration that haemorrhage occurs.

Only one case had bad diarrhoea and only in one was distension marked.

Four/

Four out of the six died, but only in two was death due directly to haemorrhage; of the other two, one died in the ordinary course of the disease six days after haemorrhage had ceased, the other from perforation.

I had a post-mortem examination in Case II. (Appendix p. 83). This man had extremely severe haemorrhage and when he died looked as though he had lost all the blood in his body. At the post-mortem examination I searched very carefully for an open blood-vessel but found none; possibly there was one, but I was inclined to think from the appearances present that there had been bleeding from more than one ulcer.

My experience with haemorrhage has been such as to make me look with grave anxiety on any case which loses more than 10 ounces ofblood, but there has been considerable discussion as to the influence of haemorrhage on the further course of cases.

Trousseau[1] says "You will read, and you will hear said by everybody that haemorrhages are formidable complications, and increase the danger of the disease. This is the opinion of the most reliable physicians; but nevertheless, when thus expressed, it is far too absolute; and for myself I confess, that after holding that opinion for a long time I now profess the opposite doctrine, believing that haemorrhages in/

1. Trousseau's Clinical Medecine, Vol. II, p.327.

in typhoid fever, so far from possessing the character of danger imputed to them, are usually of favourable augury". But Murchison says[1] "When haemorrhage is scanty, it has probably little effect on the result; or, before the twelfth day, it may do good by relieving the congestion. But when profuse (and after the twelfth day, it is impossible to say that it will not be so) it is a most formidable symptom. Although I have known patients recover after a profuse haemorrhage I have never observed the slightest benefit from it. On the contrary I have repeatedly seen patients die unexpectedly by syncope a few hours after its occurrence who had previously done well".

My treatment of these haemorrhage cases I will shortly outline here. In all immediately after the haemorrhage iced cloths were applied to the abdomen, and kept constantly changed: this was continued till it was thought the danger of further haemorrhage was gone. Nourishment by the mouth was stopped completely for at least six hours and then begun gradually, if there was no tendency to sickness. The patients were kept as quiet and comfortable as possible.

Opium and acetate of lead were used in combination in three cases. My most satisfactory case, Case V., - who had three successive haemorrhages of a pint each within 24 hours - was treated consistently with lead and opium; immediately/

1. Murchison on Continued Fevers, p.528.

immediately after the first haemorrhage he got Pulv. opii gr.1, two hours later Pulv. Opii gr. ½ and Plumb. Acetat. grs. III were started three hourly; and this was kept up for six days, latterly however, the powders were given every four hours instead of every three. On the first day in addition to the Opium he had one or two doses of Tinct. Hamamelis & Extract Ergot. Liq: In Case III, in which severe distension was present, I thought opium tended to increase it so substituted Tinct. Hamamelis m.40. and Extract Ergot Liq: m. 20, every four hours; this was taken well and seemed to be helpful.

In Case II, (Chart IX) on the day following the first haemorrhage, as the patient was very quiet and comfortable, and as the bowels had not moved, opium was stopped. In the light of future events undoubtedly this was a mistake, and I would now continue, as I did in Case V., the use of opium for days after a haemorrhage, even though all seemed quiet.

Case IV was treated by Ergot and Hamamelis in addition to the local measures.

In Case II, the man John M., when he became very exhausted towards the end from rapid loss of blood, I tried the effect of subcutaneous injection of saline solution, giving him in all about 2 pints; it seemed to slightly improve the pulse for a time.

I think the injection of saline solution, either intravenously,/

venously, or subcutaneously, is a correct measure in those very bad cases where blood is lost rapidly and the patient's pulse almost gone as it may give sufficient stimulus to the heart to support it for a time; but in the less sudden cases I think it will be found worse than useless.

PULMONARY COMPLICATIONS.-

The frequency with which bronchitis was present has been referred to in an earlier page, here I desire to draw attention to other pulmonary conditions observed. Apart from one or two severe cases which developed some oedema of the lungs only five others present:ed definite changes in the lung. Pleurisy with effusion occurred in one case, just as the temperature was falling; the inflammation of the pleura appeared to delay the final fall of temperature. At the onset in this case the pain was referred to the abdomen, and as it was severe, it gave rise to anxiety till physical signs were definite.

Pneumonic consolidation of the left base with definite physical signs developed in two cases during the febrile period. With its onset in both cases there was increased cough, in one the temperature was not at all affected, in the other a slight rise took place; the pulse was little affected in either.

Pneumonic consolidation occurred at the right apex in one/

one case towards the end of the febrile period; it did not cause much increase in symptoms but delayed the fall of temperature. In another case there was quite definite consolidation at either base, but the symptoms were not aggravated with its onset.

I have not met any case in which, at the onset, there was a typical pheumonia as described by Osler.[1] All the cases which came in with pneumonia turned out to be simple pneumonias.

KIDNEY COMPLICATIONS.-

The albuminuria of the febrile period has previously been discussed. The complications here referred to occurred later; three setting in during convalescence and the other two presenting themselves during the course of relapses. I give a short resume of each case.

Case I - This patient had, during convalescence, a condition which I took to be Pyelitis. Pus was present in the urine for 14 days, small in quantity, but still showing a distinct deposit on settling; at the onset in addition a little blood was present. There was little or no diminution in the quantity of urine. The temperature was irregular but kept below 100°. Pain at the point of the penis was the only subjective symptom and this only lasted a few days. Urotropine given in 5 gr. doses thrice daily seemed to benefit this case/

1. Osler, Principles & Practice of Medecine, 2nd.Ed. p.25

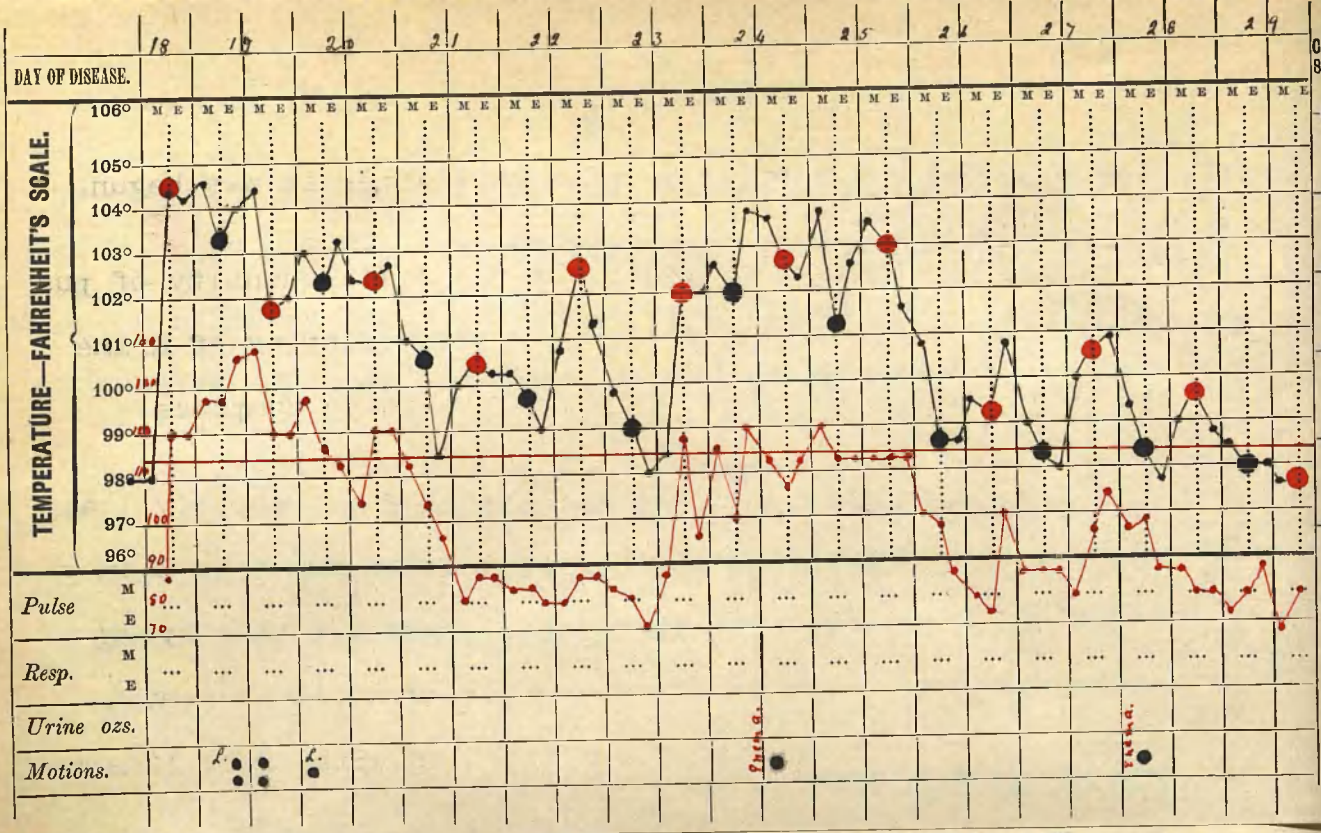


Chart- XXVIII

case as the pus disappeared a few days after it was begun.

Case II.- This patient's urine showed a small quantity of pus for 10 days during a mild relapse. The quantity of urine was undiminished and there were no subjective symptoms.

Case III.- This was a most interesting case. Possibly I am wrong in considering that the symptoms were due to a kidney condition, but I will record the facts and let them speak for themselves. The patient was well advanced in convalescence, and had been out of bed, when on 18th. Dec. (Chart XXVIII) his temperature rose abruptly to 104.6° and the pulse to 140. The further course of temperature and pulse which was peculiar will be seen in the chart. At the onset he complained of pain in the limbs and behind the ear, which suggested an acute inflammatory condition, but nowhere were there signs of local mischief. He vomited once or twice during the first two days and had some diarrhoea. The chest and abdomen although carefully examined revealed nothing to account for his condition. The urine unfortunately was not carefully examined at the onset owing to pressure of work, but it showed no gross change and no diminution in quantity. From the 21st. Dec. it showed a haze of albumen on boiling; latterly, it presented a greenish opalescent appearance, contained a small quantity of pus, and under the microscope, even when fresh, showed large numbers of bacilli

(Presumably/

(Presumably these were the bacilli of Eberth but they were not isolated).

I am of opinion that some kidney change was at the bottom of the mischief in this case, and regret exceedingly, that I was so busy as to be unable to make an accurate bacteriological examination of the urine.

Case IV.- This patient was well advanced in convalescence when the urinary change was noted. The urine during the febrile period and during convalescence had been quite free from albumen.

The change appeared abruptly when one day he passed a considerable quantity of muco-purulent material, in a form, which suggested a cast of some part of the urinary tract; I thought probably the pelvis of the kidney. The following day a smaller quantity of similar material was passed, then it disappeared; but for two subsequent days pus was present in the urine, it afterwards became clear and remained so. The quantity of urine was never diminished and there was no rise of temperature.

Case V.- This was a peculiar case. At the onset of a relapse quite suddenly one night blood appeared in the urine, sufficient in quantity to make it quite red in colour; there was only a small quantity of albumen; there was no diminution/

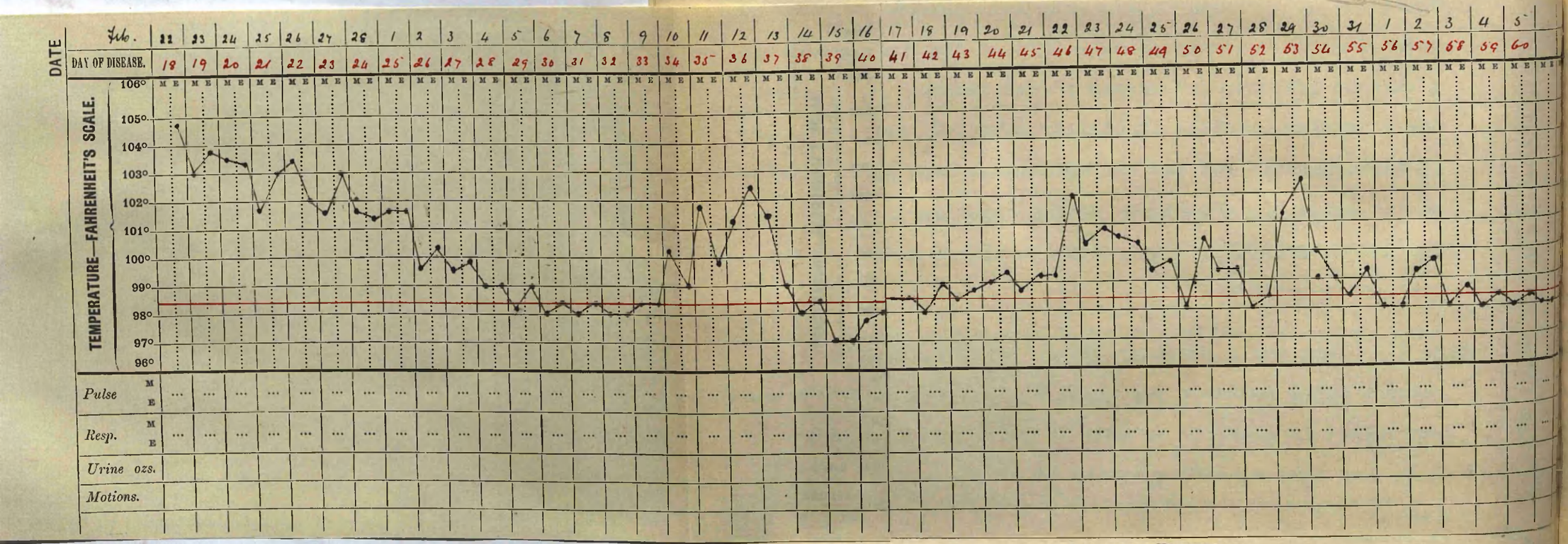

DATE
DAY OF DISEASE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
96°
Pulse
Resp.
Urine ozs.
Motions.

Chart - XXIX

diminution in the quantity of urine; and no casts were seen on microscopic examination. Within two days the urine was perfectly clear again.

I may say that there was no bleeding from any other mucous surface.

VENOUS THROMBOSIS.-

This only occurred in one case of which I give a few details.

James W.- aet. 24. Admitted Feb. 22nd. 1901 (Chart XXIX). This patient passed through a severe attack of enteric fever lasting 27 days. He had previously been a healthy man, but had a mitral regurgitant murmur. The thrombosis of the femoral vein developed after he had been convalescent twelve days, and when he had a very soft small pulse. About four days after the temperature first dropped (see Chart XXIX) there was an irregular rise lasting three days; the cause of this I do not know unless it was connected with the subsequent thrombosis, but at this time no local signs were present. About 19th. March he began to complain of pain in the left groin, but no swelling or thickening was present. About this time also the temperature began to rise reaching 102° on the 23rd. but, as he had a vaccinia vesicle at its height, little was thought of this. The temperature however kept up irregularly for thirteen days. On the 28th. he had

great/

great pain in the groin, and on the 29th. a distinct cord-like swelling which was very tender, was felt along the line of the femoral vessels. By this time the left leg had begun to swell and in a few days was greatly swollen throughout its length. The pain gradually passed off, but the swelling remained, and was still present when he was allowed to get out of bed on April 20th.

After he had been up a few days it was observed that he walked peculiarly, and on examination it was found that he had a degree of "drop foot", quite evidently due to a neuritis of the peroneal nerves. He could not flex the foot on the leg, or the toes on the dorsum of the foot. There was no anaesthesia or analgesia present.

When dismissed on 10th. June the leg was still rather swollen and the paretic condition little changed.

RELAPSES.-

Of these most interesting complications I have unfortunately had, I think, more than my fair share. Out of the 100 cases 19 presented relapses of varied durations; this is certainly a very high percentage. Possibly I have included amongst these cases a few cases of attacks of pyrexia which might not by many be looked upon as relapses, and in this way made the incidence of relapse appear, comparatively, higher than it ought to be.

Fagge[1] says referring to relapses "The frequency of such an occurrence seems to differ in different places: at Basle Liebermeister met with it in 8.6% in 1743 cases, Murchison says that in the London Fever Hospital it was observed in 3% of 2591 cases; the figures given by other writers vary from 11% to 1.4%". Naturally, in the face of these statistics I must ask myself why I had so many relapses. Had it anything to do with the feeding of the cases or their general treatment? Personally I do not think that their treatment was responsible. Indiscretion in diet and overfeeding have been held to cause relapse and therefore I purpose giving a table of the feeding of these 19 patients during convalescence.

(During the febrile period my patients usually were kept on strict milk diet, with the addition of eggs and beef tea, when thought fit).

1. Principles & Practice of Medecine, Fagge & Pye-Smith, 3rd. Ed. p.149.

TABLE showing the dieting of the 19 Relapse Cases.

	First day of normal temp:	Benger's Food	Oatflour	Cornflour	Milk Puddings	Relapse began.
Case 1.	only milk					
2.	36th. day	38th. day	45th. day.	50th. day		54th. day
3.	43rd. "			55th. "	61st. day	61st. "
4.	40th. "			43rd. "	46th. "	47th. "
5.	only milk.					
6.	up & on full diet.					
7.	32nd. "	36th. day	38th. day			43rd. "
8.	33rd. "		35th.	40th. "		46th. "
9.	only milk					
10.	27th. Feb.		1st. March	1st. March		6th. March
11.	?	?				
12.	27th.	31st.	31st.			35th.
13.	29th.	35th.	35th.			42nd.
14.	33rd.	30th.		34th.		44th.
15.	37th.	36th.	40th.			44th.
16.	30th.	32nd.	37th.			45th.
17.	23rd.		?	34th.		44th.
18.	27th.	29th.	31st.			32nd.
19.	never normal. only milk.					

(Cases are in the same order as in the later table).

Now I know that even the above dieting is full, judged by the standard of the older school of physicians, but still,

I submit that it was not excessive. Looking over the above list it will be seen, that many cases had been on Benger's Food and oatflour for days before the relapses began; and had been apparently digesting them well, with complete absence of any discomfort, and with no distension or diarrhoea; now I do not see any reason for suggesting that in such cases the dieting could be held responsible for the relapses.

For example note Case 13, she had been on Benger's Food and Oat-flour for seven days before the relapse set in, and was digesting them well and putting on flesh. Again Case 7, he had been very ill during the original attack and was thin; he had been on Benger's Food and Oatflour for five days and was improving in flesh when the relapse began.

Personally I cannot see how any form of soft food can be doing harm, as long as the patient has a moist tongue, no sickness nor discomfort, and there is an absence of distension and diarrhoea.

What was Murchison's line of dieting? He says, speaking of convalescence[1] "Notwithstanding the cravings of the patient's appetite, the diet must at first be restricted to such articles as milk, eggs, farinacea, custards, light puddings, beef tea or calf's foot jelly". Now, I do not think the above dieting is any lighter than my patients got, and/

1. Murchison, Continued Fevers, p.676.

and yet as above noted, of his 2591 cases only 3% showed relapse, or 80 in all.

No, possibly occasionally excessive feeding may induce a relapse, but I fear as a rule relapses will occur irrespective even of strict milk diet.

At one time I wondered whether any of my cases could have been reinfected in the wards, but after making enquiries regarding cleansing of feeding utensils, enema syringes etc. I thought not.

It is interesting to note the character of the original attacks in these relapse cases; in 10 they were severe, and in 9 they were mild. Four cases died during relapses two of perforation, as previously noted, and two succumbed to the severity of the fever and toxaemia. No definite relation between the severity of the relapses and of the original attacks can be traced; while on the one hand, one case was fatal in which the original attack was mild and only lasted ten days; on the other hand, one of the mildest relapses seen occurred in a woman who passed through originally what I think was the worst attack I have seen survived. (Chart VIII).

The interval between the end of the primary attack and the onset of the relapse, varied from 12 hours to 34 days; in two cases there was no interval. The accompanying table gives interesting details.

Name.		Age.	Dur. Prim. Attack.	Interval.	Relapse.	Total.	Result.
Case 1.	Thos. R.	34	25	12 hrs.	21	46	Recovery.
2.	John S.	24	36	18	13	67	Death. Perforation
3.	Wm. B.	7	42	18	13	74	Recovery
4.	Wm. R.	28	40	6	13	59	"
5.	Alfred P.	20	21	0	21	42	"
6.	Mat. G.	32	21	34	10	65	"
7.	Wm. M.	31	31	10	19	60	"
8.	Michael McG.	21	30	14	14	58	"
9.	Mrs. K.	30	16	8	26	50	"
10.	Mag. M.	21	10	6	25	41	Death. Perforation
11.	Francis F.	29	19	9	10	38	Death. Asthenia.
12.	Annie S.	16	27	9	11	47	Recovery
13.	Annie W.	18	29	13	Indefinite		"
14.	Mrs. McE.	32	13	11	8	52	"
15.	Peter L.	34	37	6	19	62	"
16.	John L.	24	29	15	12	56	"
17.	John McI.	22	22	22	10	54	"
18.	John P.	24	26	5	23	54	Death. Asthenia
19.	Wm. Aitken	27	40(?)	0	20	60	Recovery.

The case noted as having an interval of only 12 hours was one which showed what I consider to be an intercurrent relapse/

Chart - XXX

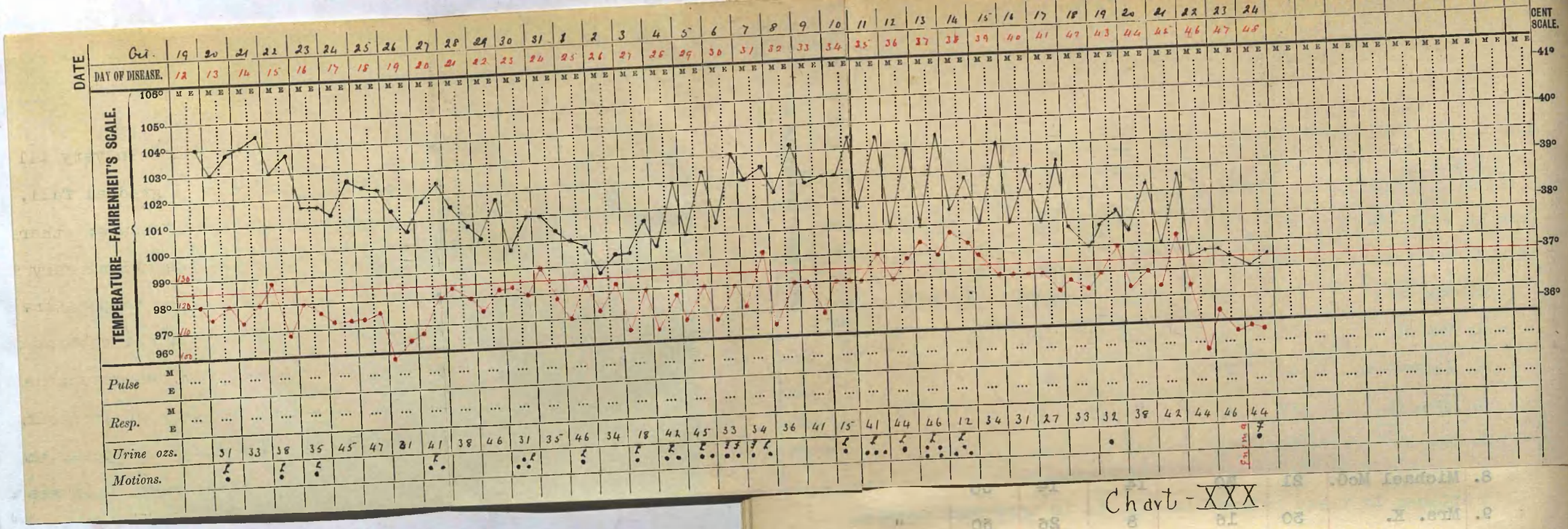
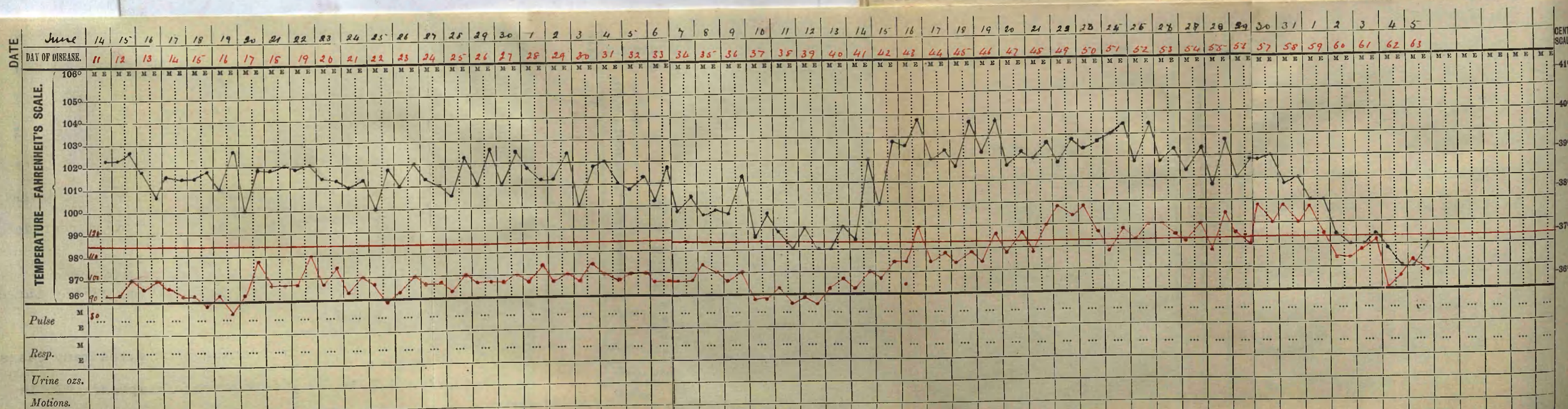


Chart - XXXI



relapse. (Chart XXX). This patient had been very ill for 25 days, but the temperature had shown a gradual fall, and on the 25th. day it kept below 99° for 12 hours; thereafter for days it showed a gradual increase resembling very much the initial temperature of a relapse, the temperature then remained up and came down in a fairly typical fashion reaching normal on the 46th. day. Chart XXXI shews another similar and perhaps more striking instance of intercurrent relapse. Although the daily chart makes it appear that there was an apyretic interval of three days, this was not so, as there was a rise each day to 100°.

The other case with no interval is another which I think might be taken as an intercurrent relapse. This patient came in on the 21st. day of illness with a falling temperature, it was 101.8° on admission; then for 36 hours kept below 99.6°, after this there was a gradual but steady increase, then a gradual subsidence reaching normal on the 42nd. day (21st. of relapse). It is the division of the latter case into two halves of 21 days which leads me to call the latter half a relapse; it might perhaps be classed as a recrudescence however.

I dare say many would not consider any of the three above cases as relapses.

Dr. Irvine in his interesting book gives many cases of what he considers to be intercurrent relapses. It is certainly/

Chart-XXXII

DATE
March
1 2 3 4 5 6 7 15 16 17 18 19 20 21 22 23 24 25
DAY OF DISEASE.
14 15 16 17 18 19 20 28 29 30 31 32 33 34 35 36 37 38
TEMPERATURE—FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
130 120 110 100 90
CENT SCALE.
41° 40° 39° 38° 37° 36°
M E
Interval
Died
Pulse
Resp.
Urine ozs.
Motions.
5 2 5 0 2 1 1 1 1 1 2 2 2 1 2 2 2 2 2 2 3 2 2 2 3 2 2 3 1 2 3 2 1 0 0

certainly a rather fine point to distinguish between recrudescences and intercurrent relapses and he says[1] "the more perfect our knowledge becomes the more shall we be convinced that 'recrudescence' is but an abortion, so to speak, of a relapse". The case with an interval of 34 days offers a marked contrast to the above. This man had passed through a moderate primary attack, had convalesced well, and had been up for twelve days feeling fit and taking food well, when the relapse set in. Curiously enough at the same time an exactly similar case occurred in the wards of one of my colleagues. Possibly some might question the reality of the relapses of 10 and 11 days duration (Chart IV) but I would simply state that two of these cases presented a characteristic eruption of rose-spots, thus putting aside any doubts; the other case of 10 days' duration was fatal on that day. (Chart XXXII).

Eight of the relapses were sharp or severe, and ten were mild. Naturally in their mode of onset they varied considerably. In the milder cases the onset was quite insidious, so much so, that if the patients' temperatures had not been taken regularly, in some, the relapses might have been missed. In four of the severe cases the onset was abrupt and accompanied by marked constitutional disturbance, the temperature rising rapidly to 102° - 104° and in one case 103.2/

1. Irvine - Relapse of Typhoid Fever, p.76.

103.2° even on the first evening, the pulse showing a proportionately marked change reaching 120 - 130 on the second day, (examples XXIV and XXXIV). In two of these cases there was vomiting and it is noted that in these the pulse was higher than in any of the others.

Dr. Irvine in his book points out that the maximum temperature in relapse is usually reached on the fifth day; on the whole the Charts of my severe cases bear this out.

Of the four fatal cases as above noted two died of perforation and have previously been described, the other two I would specially refer to here. The first of these is a very interesting case (Case II, Chart XXXII); she had a mild attack of twenty days duration followed by an interval of nine days before the relapse began. The relapse set in abruptly with marked constitutional disturbance, the most prominent features being however, vomiting, and a very rapid pulse. Diarrhoea began on the second or third day and continued to the end as did also the vomiting. The temperature never rose high and latterly kept between 100° and 101.5°. The weak cardiac condition from the first was the prominent feature of this case, the pulse all along being 120 - 130 soft and small. The patient was undoubtedly killed by the toxaemia and not by the fever.

The other fatal case, case 18, offers a contrast to the last. This relapse in its onset was not sharp and there was/

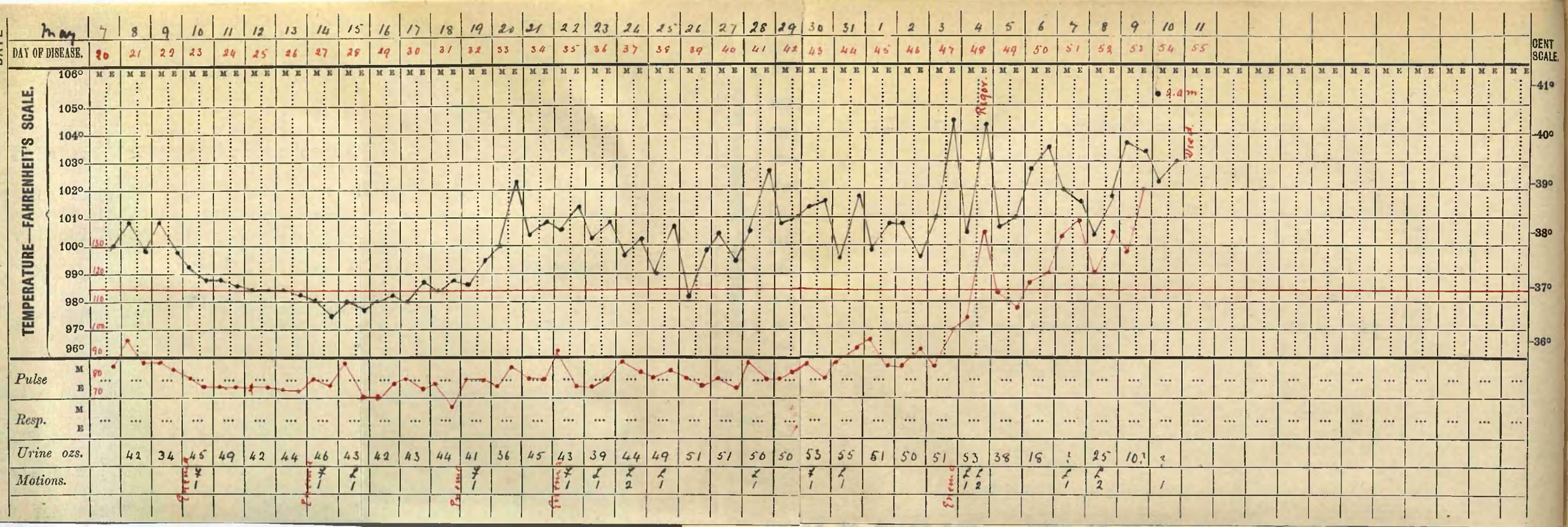


Chart - XXXIII

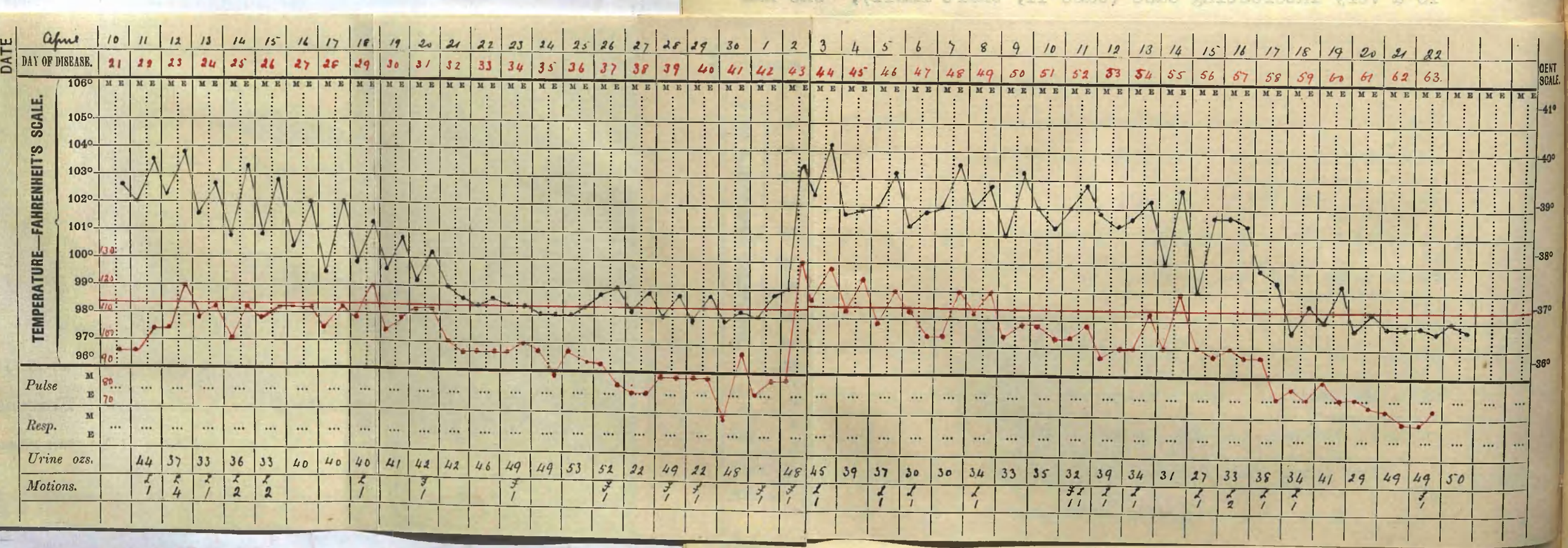


Chart - XXXIV

was little constitutional disturbance, it will be observed that at first the pulse rose very slightly in rate (Chart XXXIII). This case progressed satisfactorily till the 16th. day when a marked exacerbation of temperature and general symptoms occurred. The chart from this time onwards is interesting, further than to point out however the abrupt rise in pulse, and to mention that a rigor - unaccompanied by any complication - occurred on the 17th. day I will not dwell on it. Case 7 (Chart XXXIV) was another instructive case as it rather simulated scarlet fever at first, in that the temperature rose suddenly, the pulse was rapid, the patient was flushed and he vomited; about the third day he complained of sore throat, had a very red clean tongue and began to desquamate profusely on the fourth day. He had no scarlatinal rash however, and the appearance of rose-spots, and the later course of the temperature showed beyond doubt that it was a relapse.

In the mild cases the temperature kept below 102° throughout and showed in most cases good daily remissions; the pulse showed very little rise in rate.

Except in two of the fatal cases in which diarrhoea was troublesome, constipation was the rule. Distension of the abdomen was only seen in two cases and haemorrhage occurred in none.

An/

An eruption of rose-spots was seen in 8 of the cases: in 3 it is specifically noted that it was absent; in the other 8 no note is made, but I think it was probably absent in all these, otherwise a note of its presence would have been made.

DIAGNOSIS.-

In discussing diagnosis I purpose only touching upon special points brought out by cases received into the wards as enteric fever, which turned out not to be so. During the period in which my 100 cases were admitted there were 34 such cases, I may say that all the cases certified as enteric fever went straight to the ward, and were not seen by me on admission, unless the nurse saw anything suspicious about them.

The 34 cases divide themselves thus:-

Pneumonia	9	Appendicitis	1
Typhus Fever	7	Sup. Peritonitis	1
Influenza	3	Cystitis with Pyelitis	1
Pleurisy	3	Erysipelas	1
Smallpox	1	Indefinite	4
Simple Enteritis	3		

Of the 9 cases of pneumonia, 6 were in children and only 3 in adults. In six of these cases on admission there was no difficulty in diagnosis, the general symptoms and physical signs/

signs being quite distinctive. Of the remaining three; one on admission strongly suggested pneumonia, but it was not till three days later that the physical signs became definite; one came in late with a falling temperature, the history and physical signs however suggested pneumonia; and the third had the physical signs of pneumonia, but the temperature had fallen before admission. The general aspect of these cases of pneumonia was different from that of enteric fever patients, their expression as a rule being anxious and somewhat excited, contrasting with the apathetic and languid look of enteric fever patients; they were rather dusky, enteric fever patients usually are pale, except in the very worst cases.

Herpes Labialis was seen in some of the cases. I have never seen it in enteric fever.

Again, rapid respirations are constant in pneumonia whereas, except with complications, or in fatal cases, this is seldom seen in enteric fever.

The pulse is usually very high during the first few days in pneumonia, this is exceptional in enteric fever.

It is important to remember that pain referred to the abdomen and diarrhoea are common in pneumonia and should not be allowed to mislead; two or three of my cases of pneumonia presented these symptoms.

In mentioning the above points, however, it is well to keep/

keep in mind that in rare cases enteric fever sets in with a typical pneumonia. I have not so far seen this.

There is not much difficulty in diagnosing a typical case of typhus fever with a good eruption when washed, and in a hospital bed; but it must be far otherwise in a dark house with a dirty patient. Again cases of typhus with illdefined eruptions, or previous to the developement of the eruption, may be very difficult to distinguish from enteric fever. It is not therefore to be wondered at that many cases of typhus are sent into hospital certified "Enteric Fever".

However when one is constantly working with enteric fever the general aspect of the cases seems to be impressed on ~~me~~ one; and I must say, that in most of the typhus patients their general aspect at once struck me as strange to an enteric fever ward.

The typhus patient has usually a somewhat dusky hue, has injected conjunctivae, and even in the early stage may be delirious and have a very frequent pulse; while in the early stage of enteric fever the patient is usually pale, has clear conjunctivae, is not usually delirious, and the pulse as a rule is not very frequent.

While noting the above points I would add that I treated at least one case of typhus to a conclusion in an enteric fever ward under the belief that it was enteric fever.

Of/

Of the 3 cases of influenza, two were acutely ill having temperatures of 103° - 104°, suffering from prostration and headache, and both having had diarrhoea. They came in on the third day of illness (an extremely rare occurrence in enteric fever) and the temperature fell on the fifth day with rapid subsidence of symptoms. The other case was of a milder nature, and rather indefinite. /Of the cases of pleurisy, two showed considerable effusion and the physical signs were typical on admission. The other case was admitted with a falling temperature, but having had symptoms very suggestive of pleurisy.

The cases classed as simple enteritis had diarrhoea with gastric disturbance and fever of short duration.

The smallpox case, needless to say, was sent in before the appearance of the eruption and of it I would just say that the history was not suggestive of enteric fever.

The case of appendicitis was interesting. The patient, a man of 20 years, had - 4 months previous to admission - an illness which his doctor considered to be appendicitis. The attack during which he was admitted began on Jan. 2nd. with symptoms similar to the previous one, and signs of thickening in the right iliac region. The medical man's suspicions were aroused, however, by the continuance of high temperature, and by the general symptoms; he accordingly sent the blood to the Sanitary Chambers, a positive "Widal" was got, and he

was therefore certified as "enteric". In the light of a previous attack, as there was thickening in the region of the appendix, and as I got a negative "Widal" on two separate occasions, I saw no reason for holding to the diagnosis of enteric fever, though doubtless the case was puzzling at first.

The case of suppurative peritonitis was that of a boy of 10 years. There was a distinct history of sudden onset, with vomiting and abdominal pain, 10 days previous to admission. On admission, in addition to a high temperature and frequent pulse, he showed a distended and tender abdomen with dulness in either flank. He was operated on 24 hrs. after admission and a great deal of pus evacuated from the abdomen; he died 7 hours later. Post-mortem there was found to be a general suppurative peritonitis the cause of which could not be found although the appendix was suspected.

The case of Cystitis with Pyelitis was an interesting one as the temperature curve at the onset was more like that of an enteric fever patient, but negative "Widals" and subsequent events, proved it to be otherwise.

The case of Erysipelas was quite a straight-forward facial one.

There is another interesting mistake which sometimes occurs namely that of mistaking enteric fever in its early stages for scarlet fever. I have had 3 cases sent in as

scarlet/

scarlet fever which really were enteric fever, two of them I saw on admission, one being sent straight to an enteric fever ward, the other to an observation ward. I presume that what probably misled was the scarlatinal rash so frequently seen in the early stages of enteric fever. In this connection also it is well to remember that sorethroat is moderately frequently present in enteric fever.

WIDAL'S REACTION.-

Widal's test was applied in 86 cases, and the results are very interesting and instructive. With the exception of some half dozen all the observations were made by myself.

The dilution used was 1 in 40, but in many a dilution of 1-20 was used in addition at the same time. The time allowed for the completion of the reaction was two hours, occasionally three. Out of the 86 cases 72 gave a typical positive reaction on first trial, 2, on the 13th. and 15th. days respectively, gave partial reactions but later positive.

Three of the cases at first gave negative reactions, but positive later as follows:-

Case 1 -	In 3rd. week.	Negative reaction.
	9th. day of relapse	Positive "
Case 2 -	8th. day	Negative "
	11th. day.	Negative "
	28th. day.	Positive "

Case 3 - 36th. day (?) Negative reaction.

56th. day. Positive "

Two cases gave partial reactions at first and later negative.

Case 1 - 49th. day. Partial reaction.

52nd. day. Partial "

74th. day. Negative "

Case 2 - 29th. day. Partial reaction.

46th. day. Negative "

Most interesting of all however are the following cases:-

Case 1 - 52nd. day. Negative reaction.

53rd. day. Negative "

Death. Post-mortem typical Enteric lesions.

Case 2 - 22nd. day. Negative reaction.

28th. day. Negative "

Second observation was during a relapse.

Case 3 - 20th. day. Negative reaction.

38th. day. Negative "

54th. day. Negative "

Case 4 - 23rd. day. Negative "

39th. day. Partial "

Case 5 - 21st. day. Partial "

28th. day. Negative "

38th. day. Negative "

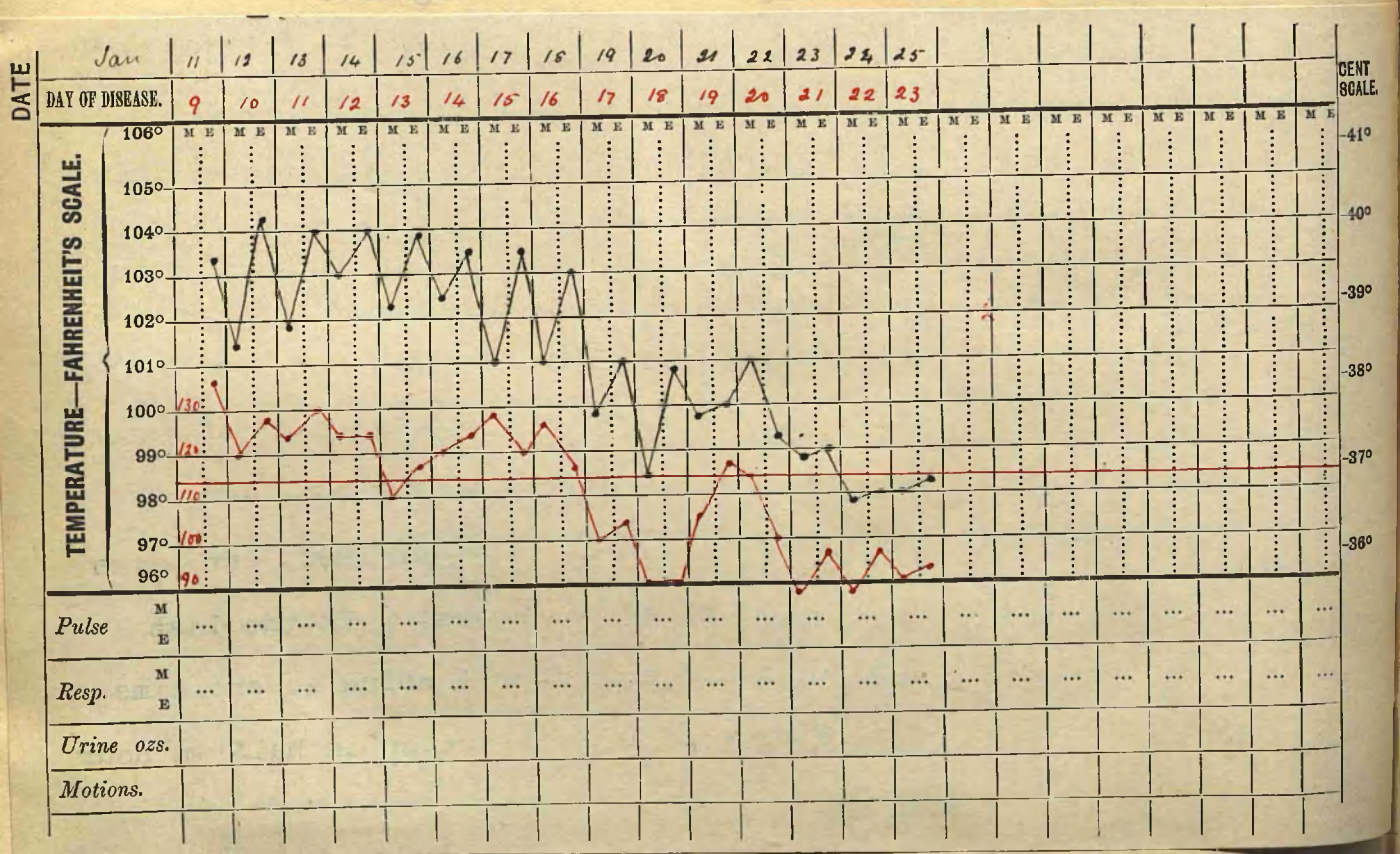
Case 6 - 14th. day. Negative "

Case 7 - 14th. day. Negative "

Later. Negative "

In cases 1 and 2 the question of enteric fever was beyond doubt:/

Chart - XXXV


DATE
Jan 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
DAY OF DISEASE. 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
CENT SCALE.
TEMPERATURE—FAHRENHEIT'S SCALE.
106° 105° 104° 103° 102° 101° 100° 99° 98° 97° 96°
41° 40° 39° 38° 37° 36°
M E
Pulse
Resp.
Urine ozs.
Motions.

doubt; cases 3 & 4 were clinically enteric fever.

The remaining 3 cases are very interesting, they were all of one family a mother and two daughters. The elder daughter was a typical case of enteric fever except that there was no eruption (Chart XXXV), the mother and younger daughter were short cases and not absolutely typical. I however felt strongly that they were "enteric" infectious. It is very curious that they all should have given negative "Widals."

In connection with the above results the follow extract from an article in the British Medical Journal is interesting[1] "The discovery of the paralysis of motion and the agglutination of typhoid bacilli by the blood of typhoid patients has done much to facilitate the diagnosis of enteric fever. It is not generally recognised, however, that all cases do not give this reaction, or that the agglutinating property may not present itself until late in the disease, or that it may be present at one period of the disease and absent at another. Widal himself was one of the first to record a case of enteric fever in which the reaction was absent throughout, and Horton-Smith, in the Goulstonian Lectures of 1900, estimates that it is absent in about 3% of all cases. In the last 200 cases which I have examined I find 7 which at one time or another failed to give a positive reaction in half an hour with/

1. Brit. Med.J. Feb. 23rd. 1901. "The Margin of error in Bacteriological Diagnosis" J. Odery Syme, M.D.,D.P.H.

with a dilution of 1 in 20".

TREATMENT.-

I do not purpose here attempting to discuss treatment in detail but simply to describe in general the treatment of the cases. So much has been written of recent years on the treatment of enteric fever that to discuss it in detail would occupy unlimited space.

Diet.- On admission unless there were contra-indications all my cases were put on milk and soda water (3 - 4 pints of milk in 24 hrs.); this diet was usually continued throughout the febrile period with the addition in many cases of beef-tea and frequently of one or two beaten up eggs (white only). When it was found that curd was present in the stools milk was either completely stopped or much diminished in quantity; if it was stopped albumen water (made with white of egg and whey) was substituted at least for a time. Frequently peptonised milk was used but usually only for a short period. Latterly in a good many cases I have given Benger's Food or arrowroot before the fall of temperature and have been very pleased with the result.

At first carrying out pretty much the ideas of my teachers I did not increase the diet for at least 10 days after the temperature fell, but latterly, I have begun to feed much earlier; now on the 2nd. to the 6th. day of normal temperature/

temperature, according to the case, I begin with oatflour then in about two days add cornflour, followed in another few days by soft milk puddings; fish is started between 12th. and 16th. days.

Looking back on the dieting of my cases, I feel that I erred on the side of giving too little nourishment, especially in the milder cases, but I did so following out the dieting which has been so long in vogue. There is no doubt, I think, that there is at present taking place a gradual reversion from the old dietetic plan for enteric fever, that is, strict milk diet. What I feel in regard to the matter is, that the patient ought to get as much nourishment as he can digest, as the more nutriment he assimilates, the better able he will be to resist the specific poison and to fight against the deleterious effects of prolonged high temperatures. So that it really comes to be a question of what each individual patient can digest, if a patient has a brown dry tongue and no appetite, it is useless, nay worse than useless, to load his stomach with food which it will not make use of; but when, as is frequently the condition in milder cases, the tongue is moist, the abdomen flat, and the patient rather hungry, then I think it is perfectly safe to increase the diet.

Dr. Tooth in an article in the Lancet speaking of enteric/

enteric fever diet says[1] "It seems to me that one should be guided in this matter by the state of the tongue, the evacuations, and the appetite of the patient. If the tongue is moist and fairly clean, if there is no diarrhoea - that is, if the evacuations are no more in number than, say, two a day and fairly consistent - and if there be no tympanites and the patient has a strong craving for food, it is probable that his digestion will be good and that a liberal diet, including, for instance finely minced meat, and even thin bread and butter, will not only be safe but beneficial. On the other hand, the dry brown tongue, frequent curdy stools, and especially if there be tympanites and a disinclination for food indicate a condition of stomach that makes careful dieting imperative".

Again Dr. S. F. Smith in a very suggestive article[2] lays stress on the appetite of the patient as a guide to the giving of food, for mild cases he advocates a very full diet, on the other hand for patients in the typhoid state he recommends the giving of nothing but water for a time.

Diarrhoea.- First in treatment of diarrhoea the diet has to be considered; in some cases a diminution in the quantity of nourishment is sufficient to improve matters, in others a complete change is required. When milk curd is seen in/

1. Lancet, March 16th. 1901, p.769.
2. Lancet, Feb. 2nd., 1901, p.312.

in the stools milk must either be stopped or greatly diminished in quantity; the addition of Benger's food or arrowroot to the diet is sometimes helpful.

As regards drug treatment, when necessary, I have found Opium the most efficient drug, preferably given by the rectum in the form of an enema with starch (10 - 20 m. Tinct. Opii). In the worst cases with distension I usually employed in addition Salol (grs. V - 10) alone or with Sod. Bicarb. or a Bismuth salt; and certainly in some cases found it helpful, especially when the stools were foul in odour and green in colour. In one case after trying most remedies unsuccessfully Acid. Carbolici, in 3 m. dose, with Liq. Opii Sed. every four hours was very helpful.

Constipation.- This is certainly rather a difficult condition to treat. My routine was to give a simple enema every fourth day if required. This however I have come to look upon as unsatisfactory and feel that it would be more satisfactory to see the bowels moving every second day and that if possible without an enema. I see calomel in small repeated doses recommended also Sod. Sulph. So far I have not tried them but purpose doing so.

Tympanites.- Here again diet is all-important and should be carefully looked to and modified as required. In some cases it is perhaps well to stop all nourishment for a time/

time. In cases where tympanites is slight I have found attention to diet sufficient to improve matters but consider Salol a helpful adjunct. In the more marked cases I applied hot fomentations to the abdomen. In more than one case I have seen an enema - either simple or with Ol. Terebinth - extremely helpful in reducing the distension.

Antipyretic Treatment.- In the majority of my cases the antipyretic treatment used consisted solely in regular cold-sponging. This was carried out 4 hourly as long as the temperature was 103° or higher, in cases that were very ill 102.5° was the standard. Cold sponging when done slowly and thoroughly undoubtedly brings down the temperature although it may be only temporarily. I always had the temperature taken after sponging so as to be able to gauge its effect, and on looking over the charts I find that, although a fall of temperature did not always occur, still it was the rule; it varied from 1° - 3°. The beneficial effect of sponging however does not solely exist in the decrease of temperature as in addition it has a soothing and sedative effect on the patient and frequently aids sleep. In the worst cases I used cold packs fairly frequently in all I have given 40 to 50 packs; the majority of these I have seen given myself. The pack was given as follows - the patient's arms were put by his side and he was enveloped

from/

from the neck to the buttocks in a sheet (four ply) wrung out of cold water. As a rule their duration was ten minutes. Some patients objected strongly to the packs, others enjoyed them. I find that the fall of temperature obtained by these packs did not exceed that got by sponging; on the other hand however I think they had a more satisfactory tonic effect on the patients, and more sedative effect when marked nervous symptoms were present.

I had no opportunity of carrying out the cold-bath treatment as no facilities were offered for doing so, and regret that such was the case as I am confident that many of the cases would have benefited by it.

As regards antipyretic drugs I have used them but sparingly. Quinine however I have employed moderately frequently. In giving Quinine I usually started with a 5 gr. dose and have never given more than 10 grs. at a time. In some cases I found it helpful in causing a fall of temperature but in others it had little effect. Very frequently in the above doses it caused profuse sweating but I have never seen collapse occur from its use. I never ventured on the large doses(20 to 30 grs.) used by Liebermiester.

In two cases I used Quinine Sulph. in combination with Phenacetin ($\frac{1}{2}$ - 1 gr.) in both cases towards the end of relapses./

relapses. In each case I had marked results, on one occasion in each case after the powder the temperature fell 5^{o} and kept down for 4 hours: although there was no actual collapse the patients sweated profusely and were rather cold, it was notable however that the pulse fell with the temperature; on the whole I thought the effect was beneficial.

Alcohol.- I used alcohol in a good number of the cases. As a rule it was in the form of brandy or whisky; in a few cases, usually when there was vomiting, champagne was used. I seldom gave more than six ounces of whisky in the day.

Perforation of the intestine.- This is a condition which is very serious and which, if not interfered with surgically, is almost always fatal. True it is that some few cases do recover without operation, but these are exceptional. Then the question arises, are all cases to be operated on? I do not think so. Perforation of the intestine as a rule occurs in severe cases, in patients who have been battling for life for weeks and who are at the time of perforation in a very low condition. I do not think it can be expected that under such circumstances patients will stand well the shock of a surgical operation; for example look at my first laparotomy case (p. 33), he died from the shock of the operation. Again in such cases

it/

it must not be forgotten, that as a rule at the time of perforation the "Enteric" poison has not exhausted itself, and therefore a period of pyrexia, more or less prolonged, will usually occur after operation. Therefore, I feel that laparotomy must remain in many cases a hopeless measure and it is due from us to our patients to see that they are not needlessly subjected in their dying hours to the worry and annoyance of a surgical operation.

Perforation occasionally occurs however during the course of mild cases, and in all such undoubtedly an abdominal section should be done, as it offers very good hopes of recovery. If an operation is to be performed the most important point is that it be done early, as soon after the perforation as possible. In view of this the early diagnosis of perforation is very important.

A P P E N D I X.

Report of 6 Post-mortem Examinations. -
(All these examinations were made by myself with the exception of Case IV.)

Case 1. John S. aet. 24 (p. 35 Chart XXIV.)
Duration of illness, 67 days.
Examination, 25th. Dec. 1900.

The pericardium was quite healthy; the sac contained about 1 oz. of clear fluid. The cavities of the heart were of normal size and the endocardium and valves shewed no pathological change; the muscular substance on section, however, was rather "cloudy" in appearance.

A few recent adhesions were present in the right pleural cavity and the right lung on section was found to be very dark in colour and oedematous; the left lung was slightly emphysematous.

On opening the abdomen it presented a picture of general peritonitis. The peritoneal cavity contained about a pint of greenish yellow, almost purulent, fluid. The coils of bowel and omentum were all glued together by fresh adhesions which were easily broken down. The peritoneal surface of the small intestine was acutely congested in parts, and here and there towards the caecum was covered with a thick yellowish exudate which was very adherent. On opening the bowel/

bowel the last 65 c.m. of the small intestine wereseen to be acutely congested. Within 5 c.m. of the ileo-caecal valve, there were five ulcers of varied sizes, the largest being 1½ x 1 c.m. 37 c.m. above the valve were other two ulcers, comparatively small, but deep. The ulcer which had perforated was found 57 c.m. above the valve, it was oval in shape measuring 1 x 2 c.m.; at one end it showed a pinhole perforation, at the other a yellowish slough. The bowel above the seat of perforation appeared healthy. The caecum and appendix showed no change but the ascending colon for some distance beyond the valve was much congested. In both iliac fossae there was a great amount of yellow exudate.

The stomach was much distended; the spleen was large soft and diffluent, weighing 11 ounces; the substance of the liver was very pale suggesting fatty degeneration; the kidneys were normal in size and on section only showed slight congestion.

Case II, John M. aet. 26. (p. 17. Chart IX).

Duration of illness 19 days.

Examination, 28th. Dec., 1900.

The pericardium was healthy; the sac contained about 1 oz. of clear serous fluid. The heart was of normal size, the endocardium healthy, and the valves were competent; the organ was somewhat displaced towards the left.

The/

The left pleural cavity was completely obliterated and it was with great difficulty that the lung was detached. The left lung was congested but otherwise healthy. At the apex of the right lung there was a hard calcareous mass, evidently the remains of a tubercular lesion.

The peritoneum was healthy and its cavity free from fluid. There was marked enlargement of the mesenteric glands some being as large as a walnut. The peritoneal surface of the small bowel in its lower part towards the caecum was intensely congested. The stomach was much dilated.

On opening the bowel there was found extensive ulceration in the lower part of the ileum and also some ulcers in the large intestine. The small intestine presented in all about 28 ulcers of varied sizes. The mucous membrane in the ulcerated portion of the bowel was acutely inflamed. The highest ulcer was 68 c.m. above the ileocaecal valve. The largest ulcer was just above the valve and measured 3 x 1½ c.m. Nearly all the ulcers showed a dirty greyish-black, ragged surface with irregular edges; a few had smooth edges as though they had been healing. Large sloughs were seen on the surface of three of the ulcers. One of the large ulcers looked as though it were just about to perforate; it was very deep, and on the peritoneal surface there was a small black sloughing patch which gave

way/

way during manipulation. The whole of the ascending colon was acutely congested, it showed 8 ulcers; and three were present in the caecum. These ulcers were very much smaller than those in the ileum and they did not present the same sloughing ragged appearance; the large ulcers here had their axis transverse to the bowel: the last ulcer was 30 c.m. below the valve.

The liver was normal in size, on section was rather pale. The spleen weighed 1 lb. 1 oz.; its substance was very friable and much congested. The kidneys were rather large but otherwise normal in appearance.

Case III. Wm. T. aet. 37. (p. 19. Chart XVIII).

Duration of illness 20 days.

Examination, 22nd. Jan., 1901.

The pericardium was healthy and the sac contained only a few drachms of serous fluid. The heart was rather large weighing 13.5 oz.; the right ventricle was rather dilated; the endocardium was healthy in appearance; the aortic and pulmonic valves were competent: the tricuspid valve admitted the points of three fingers and the mitral two.

Both lungs were deeply congested but otherwise seemed normal.

The abdomen was extremely distended being quite tense and/

and drum-like. On opening the abdomen the colon was found to be tremendously distended throughout its whole extent, so much so, that almost nothing but colon was seen before the parts were disturbed. On section the upper part of the small intestine, except that its coat was very thin, appeared healthy but immediately above the ileo-caecal valve there were numerous large and deep ulcers: above this area of ulceration there were just some 3 or 4 small superficial ulcers. Very few of the Peyerian patches were enlarged. There was considerable congestion of the lower part of the ascending colon. The mesenteric glands were slightly enlarged.

Nothing special was noted regarding the liver or kidneys. The splenic substance was very friable, the organ weighed 7 oz.

Case IV. Peter McF. aet. 26. (p. 33 Chart XXIII).

Duration of illness 44 days.

Examination 18th. March, 1901.

(Only a partial examination was made in this case).

There was a linear abdominal wound some 3 in. in length beginning just below the umbilicus. There was no fluid in the general peritoneal cavity and there were no signs of suppurative peritonitis, but in either flank the peritoneum was rather congested.

In/

In the bowel 27 c.m. above the ileocaecal valve was found the ulcer which had perforated and been stitched up. The bowel was completely closed and the stitches were holding well. In the coils of bowel near the seat of perforation there were some recent adhesions and a little exudation, but no pus.

The bowel was so far decomposed that details of changes could not be seen but there was extensive ulceration immediately above the valve and from there ulcers at intervals up the seat of perforation.

The left kidney occupied a peculiar situation lying on and over the left brim of the pelvis; the renal artery joined the aorta at the bifurcation. This kidney was small weighing only 4 oz. 8 dr., as against the right, which weighed 6 oz. 8 dr.

The rectum also showed an abnormality in situation, instead of passing down the left side of the pelvis as is usual the bowel crossed over to right side at the brim of the pelvis above the left kidney and the rectum passed down on that side.

Spleen weighed 10 oz.

I was not aware that a right-sided rectum was so rare till I noticed in a letter by Dr. Arthur W. Collins in the British/

British Medical Journal[1] in which he states that he believes only two examples of such a condition have been recorded, one by himself, and another recently by Dr. Bingham.

He does not mention any abnormality in situation of the kidney so that possibly the above condition is unique.

Case V. Maggie M., aet. 21 (p. 37 Chart XXV).

Duration of illness, 44 days.

Examination 31st. March, 1901.

There was a linear abdominal wound some 3 in. in length extending downwards from 2 in. below the umbilicus.

The pericardium was quite healthy and the sac contained only a few drachms of clear fluid. The heart was of normal size; the endocardium was healthy: the valves were competent: the muscular substance was rather pale.

The left lung was adherent to the parietal pleura all over the lower lobe, but the adhesions were recent and easily broken down. On section this lung at the apex showed a patch of consolidation. The apex of the right lung was very adherent to the parietal pleura but these adhesions were much firmer than those on the left side; this lung showed a degree of hypostatic pneumonia.

On examining the operation wound it was found to be completely shut off from the general peritoneal cavity. The floor/

1. British Med. Jour., May 11th. 1901. 1188.

floor of the wound was formed by the great omentum to which were adherent all round the recti-muscles. At the lower end of the wound the fingers could be passed into a sinus (formed by the drainage tube) which led into the pelvis, this was formed by adherent coils of bowel and thus shut off from the peritoneal cavity: no pus was seen in the sinus. The general peritoneal cavity was perfectly free from inflammatory change, except that the great omentum was slightly adherent to the parietal peritoneum, and just to the right of the wound, on separating them a few drops of pus were seen. (It was thought that this pus was localised in a gland). The coils of bowel in the pelvis were all closely adherent but easily separated. When pulling out the coil which was opposite the internal abdominal ring there was here found a small quantity of pus, apparently lying between the bowel and parietal peritoneum; there was, however, a distinct break in the parietal peritoneum which suggested that a broken down lymphatic gland might be the cause of the pus. There was no pus lying free in the pelvis.

The greater part of the left external iliac vein was filled with a thrombus which towards the middle was slightly organised.

In the small intestine immediately above the ileo-caecal valve were a few large irregular ulcers occupying in part the mucous membrane covering the valve. Above this there were/

were a number of large ulcers: the highest ulcer was 60 c.m. above the valve.

The two ulcers which were stitched at the operation were easily found, and in both cases the stitches were holding well: the first of these ulcers was 23 c.m., and the second 42 c.m. above the valve.

A few small ulcers were present in the ascending colon.

The spleen which was congested weighed 5 oz., the liver and kidneys showed nothing worthy of note.

Case VI - Archd. H. aet. 22. (p. 19 Chart XIX).

Duration of illness, 19 days.

Examination 28th. May, 1901.

The pericardium was healthy and the sac contained only a few ounces of clear serous fluid. The heart weighed 8 oz. the valves were healthy and the endocardium was free from pathological change.

The right pleural cavity was obliterated in great part by the presence of fresh adhesions between the two layers of pleurae: the sac contained a few ounces of clear fluid. The left lung was also slightly adherent. Both lungs on section showed intense congestion with some oedema, but there was no consolidation.

On opening the abdomen the general peritoneum was seen

to/

to be perfectly healthy but that covering the last few feet of the ileum was much congested. The transverse and descending colons were much distended.

There was extreme congestion of the mucous membrane of the last 75 c.m. of the ileum, but it was most intense just above the ileo-caecal valve where the mucous membrane was swollen and infiltrated to a marked degree. Immediately above the valve there were numerous small irregular ulcers: they were very superficial and mostly showed signs of healing.

The first two Peyerian patches above the valve were greatly swollen, intensely congested, and showed a good deal of superficial ulceration. Above this there were a number of small irregular ulcers mostly having thickish rolled over edges and from their distribution apparently situated in the solitary follicles. The largest ulcer of all was 75 c.m. above the valve: its floor was formed by the muscular coat: its edges were smooth and it measured 10 x 7 m.m. Here and there above this were seen a few small ulcers.

No ulcers were present in the caecum or large intestine: the first foot of the large intestine was much congested.

The spleen was enlarged weighing 9 oz. Its colour was rather dark and its substance unusually firm.

The capsule of both kidneys was adherent and their surface decidedly granular. On section they were somewhat congested: there was no diminution of the cortical substance.