

**[First] Statistical report on the Edinburgh epidemic fever of 1843-44 /
[Andrew Halliday Douglas].**

Contributors

Douglas, A. Halliday 1819-1908.

Publication/Creation

Edinburgh : [publisher not identified], 1844]

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*With Dr Douglas's kind regards
J. Thomsen Esq*

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EXTRACTED FROM THE
NORTHERN JOURNAL OF MEDICINE
FOR NOVEMBER 1844.

STATISTICAL REPORT

ON THE

EDINBURGH EPIDEMIC FEVER OF 1843-44.

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Edinburgh.

SOME apology seems necessary for this essay appearing, as it does, so long after the cessation of the epidemic which it proposes to investigate, and after so much has been already written on the subject. I have been anxious, however, to bring it forward, even at this late date, as the relative value of the symptoms and the essential characters of the disease are, in my opinion, to be best demonstrated by numerical analysis—the plan on which the present report has been framed—and I am not aware that it has been adopted by any one of the many writers on the fever who have preceded me.

The cases upon which the following calculations have been founded amount to 220 in number. It is from a careful analysis of the reports of these 220 cases that the deductions to be



recorded have been derived. To the phenomena presented by these I propose strictly to confine my observations.

Before proceeding to the detail of the cases, I may state, that the investigation has been conducted strictly according to the "Numerical System," except in one or two instances, where, from the universality of the symptom or morbid condition, I have been satisfied with the mere statement of the circumstance. The results of the analysis are arranged in two principal divisions; the first showing the influence of the general circumstances of the individual upon the disease—the second demonstrating the features of the disease itself. This second division is again subdivided, and the characters are considered under two heads: *1st*, Those constituting the general features of the malady; *2d*, Those constituting the special symptoms, or derangement in the functions of the several systems. In the concluding part, the complications, the sequelæ, the effect of treatment, &c., will be considered.

DETAIL OF THE CASES.

I.—THE CIRCUMSTANCES OF INDIVIDUAL PATIENTS INFLUENCING THE ATTACK AND PROGRESS OF THE DISEASE.

Under this section are considered—*1st*, *The Sex and Age of the Patients*; *2d*, *Their Circumstances in Life*; *3d*, *Habits*; *4th*, *Previous Health*; *5th*, *Previous Attacks of Fever*; *6th*, *The Source of the Disease*; *7th*, *The Stage of it when the first Reports of the Case were taken*.

1st, Age and Sex.—In 215 cases the age of the patient was noted. In these 215 cases there were under ten years of age 14 males and 4 females; above 10 and under 20, 36 males and 23 females; above 20 and under 30, 32 males and 26 females; above 30 and under 40, 11 males and 21 females; above 40 and under 50, 12 males and 8 females; above 50 and under 60, 9 males and 10 females; above 60 and under 70, 7 males and 1 female; above 70, 1 male. This return gives a proportion of 122 males to 93 females. According to these data, the periods of life at which the disease most frequently occurs is from 10 to 20, and from 20 to 30, and at these two periods with nearly equal frequency. It is, however, impossible to infer the precise influence of age in predisposing to the disease from such materials as we are here making use of. An hospital report cannot enable us to determine this question, as large numbers of patients in the early periods of life are never admitted into our hospitals.

2d, Circumstances in Life.—Of 186 patients, 83 reported themselves in good circumstances; 80 in indifferent circumstances—that is, their employment was precarious, earning from three to five shillings a-week, many of them with large families, and living in over-crowded rooms. Of these 80 cases, 37 were males, 43 were females; 23 reported themselves perfectly des-

titute, 13 men and 10 women. With regard to the terms "indifferent" and "destitute," I may explain, that though the former presented a less degree of wretchedness than the latter, yet assuredly they were to be classed together as being equally, so far as their circumstances in life were concerned, predisposed to the effects of contagion. Accordingly, from this return it appears, that of 186 persons in fever, 103 were in a state of poverty amounting to destitution, while 30, or 1-6th of the whole number, were in a state of utter wretchedness.* Of these 103 destitute cases, 53 were women; 30 of whom were married.

3d, Habits.—The habits of the patients, as regards temperance, were reported intemperate in 18, and drunken in 9,—27 cases in all, of which 5 died. These facts are in the mean time merely stated; the influence of irregular habits on the progress and result of the disease will be noticed more in detail hereafter.

4th, Previous Health.—The health of the patients appears to have been impaired for a longer or shorter period in about 34 of the cases. The disorder of the health was in many of these cases trivial, and of only a few days' standing—consisting in an attack of cynanche or catarrh. In about 12 cases the disordered health was chronic, and the majority of these suffered from bronchitis, which became troublesome during the progress of the attack, with cough and expectoration. Of the 34 cases, 2 proved fatal, the one being affected with chronic disease of the liver; the other was, after death, reported to have been long subject to attacks of violent diarrhœa, a recurrence of which was the immediate cause of the fatal event.

5th, Former attacks of Fever.—Of the 220 cases, 71 were stated to have suffered from former attacks of fever, exclusive of 4 who were affected with both the epidemic relapsing fever and typhus during their stay in the hospital. Hence, rather more than a third of the cases were suffering from fever for the second time. These former attacks of fever had occurred within five years in 30 cases, of which 12 were within two years and 6 within one year.†

6th, Source.—Among 213 cases in which this question was carefully investigated, 45 were unable to ascribe their attack to any cause; 18 attributed their illness to exposure, fatigue, &c.; and 150 were satisfactorily proved to have been exposed to sources of contagion.

7th, Stage when first reported.—This is stated in our returns

* These facts corroborate, on extended data, the statement of Dr Alison, made on my authority, at p. 8 of his pamphlet.

† Of 25 cases of typhus which came under my charge, during the same period as the above cases, 5 reported former attacks of fever, that is, a fifth of the whole number,—one only of these was satisfactorily made out to have occurred within two years.

to be as follows. Of 207 cases, 121 were admitted during the primary attacks, 56 during the remission, 30 in the relapse.—In some of these last cases admission was so late as the crisis of the relapse.

II.—THE FEATURES OF THE DISEASE.

1st, *The General Features*.—Under this section we shall consider—1st, *The Mode of Access of the Disease*; 2d, *The First Crisis*; 3d, *The Remission*; 4th, *The Relapse*; 5th, *The Second Crisis*; 6th, *Repeated Relapse*.

1st, *The Access of the Disease*.—This appeared to have been in almost every case sudden, generally with a rigor, followed quickly by those symptoms which usher in the attack of febrile diseases. My opportunities of observing this early stage of the attack were very limited, but, in the cases which I did see, vomiting occurred within a few hours of the attack in most instances; and sweating also was frequent. The suddenness of the invasion did not prevent many persons going about for several days,—this was particularly remarkable in one of my patients, who continued moving about with a pulse of 120 in the minute. In a very large proportion, however, of the cases, the febrile symptoms attained their greatest intensity within the first three days. With reference to the suddenness of the attack, there were 5 of the cases which appeared to justify the opinion that, however frequent the sudden access of the symptoms may be, it is not invariable, and that a premonitory stage of some duration occasionally exists. These cases were not under observation at the period alluded to; therefore what is now stated must be received on the authority of the patients themselves.

These 5 cases were 3 males and 2 females. For a period, varying from 3 to 10 days, they suffered from general debility and uneasiness, pain of the back or general pains, and anorexia. This stage was succeeded by a rigor, and the symptoms which usually usher in the attack. Dating from the rigor, the first crisis occurred on the fourth, sixth, and ninth days in three, and on the seventh in two. The relapse occurred on the twelfth, fifteenth, and twenty-second days in three, and on the thirteenth day in two. One of the females miscarried in the primary attack; the other had a second relapse. It is probable that, in many other cases this premonitory stage may have existed without being noted in the reports.

2d, *The First Crisis*.—This crisis is considered under the following divisions:—1st, *Its Date*; 2d, *Its Phenomena*; 3d, *Its Date in relation to Sex*; 4th, *Its Date in relation to Age*.

The Date of the First Crisis.—Of the cases (121) admitted in the primary attack, the date of the first crisis is reported in 83. It must not be supposed that the remaining 38 cases did not present the usual well-marked crisis, though a small number, not

exceeding 6, appear to have recovered by a gradual and not the abrupt crisis. In many instances the impossibility of ascertaining precisely the day of attack rendered it impossible to determine the date of the crisis.

Of these 83 cases, the crisis occurred on the fourth day in 2, on the fifth day in 12, on the sixth day in 25, on the seventh day in 27, on the eighth day in 9, on the ninth day in 4, on the tenth day in 4. Hence the average date of this crisis was at the sixth day.

The Phenomena of the First Crisis.—The crisis occurred at all periods of the day. In most instances it was preceded by a rigor, frequently, however, by a mere chilliness which did not amount to shivering. It was in every instance, with the exceptions to be presently mentioned, accompanied by a sweat more or less profuse, which lasted generally for a few hours, in a few cases for two and even three days. During the continuance of the sweat, the pulse in many instances rose in frequency; but this was by no means invariable.

The exceptions above alluded to were two in number,—*1st*, A young man who, at the forenoon visit, was found convalescent, and was stated not to have sweated, but to have been much disturbed during the night by frequent calls to pass urine. The urine was not preserved, but on the second day after the crisis it amounted to 30 oz., of density 1020. His attack presented no remarkable symptom, he had slight bronchitis, jaundice, and pain and tenderness in the region of the spleen.—*2d*, The case of a young robust man, who, on the day after his relapse, was attacked by frequent diarrhœa, without pain. On the second day the report states “the improvement to be going on, no sweating, much annoyance from pains of the limbs.” The evidence of these two cases is quite insufficient to prove that any other discharge than sweating ever proved critical. In the section on the complications, a detailed account will be given of cases in which diarrhœa accompanied a crisis. The crisis was, in many cases, attended by a degree of mental languor and general lassitude—amounting in some instances to prostration, which continued for several days, and only gradually disappeared.

The Date of the First Crisis in relation to Sex.—Of these 83 cases, in which the date of the first crisis has been ascertained, 51 were males and 32 were females.

1st, On the fourth day this crisis occurred in two instances, both male. This gives a rate per cent. of nearly 4 as the frequency with which the first crisis occurred in males on this day.

2d, On the fifth day this crisis occurred in 12 cases. Of these, 9 were males and 3 females. This gives, as the frequency with which this crisis occurred amongst males on the fifth day, 17.64 per cent.; amongst females 9 per cent.

3d, On the sixth day this crisis occurred in 25 cases. Of these 12 were males and 13 females. This gives, as the frequency with which this crisis occurred on the sixth day, amongst males, 23·27 per cent.; amongst females, 40·2 per cent.

4th, On the seventh day this crisis occurred in 27 cases; 18 of these were males, 9 females. This gives, as the frequency with which this crisis occurred on this day, amongst males 35 per cent.; and females 28 per cent.

5th, On the eighth day this crisis occurred in 9 instances; of these, 3 were males and 6 females. Nearly 6 per cent. for males, and 18 per cent. for females, is therefore the frequency with which this crisis occurred on this day.

6th, On the ninth day the crisis occurred in 4 cases; of these 3 were males and 1 female.

7th, On the tenth day this crisis occurred in 4 instances; all of which were males. This gives as the average frequency on this day, amongst men, 7·8 per cent.

The average date of this crisis in the total of these cases is, amongst the males, nearly the seventh day; and amongst the females, the sixth.

From these returns, it is apparent that the days (6th and 7th) on which this crisis occurs most frequently were observed in a larger proportion amongst the female cases than amongst the male—the proportion amongst the former being 68 per cent., and the latter 58 per cent.

The Date of the First Crisis in the different Periods of Life.

—1st, There were under 10 years of age 4 cases. Of these one had this crisis on the fourth day; 3 had it on the sixth day. This number is too limited to enable us to strike what may be depended upon as a just average of the date of this crisis, corresponding to this period of life. According, however, to the data, the average date is the fifth day.

2d, There were above 10 and under 20, 29 cases. In these the crisis occurred in one on the fourth day; in 5 on the fifth day; in 13 on the sixth day; in 7 on the seventh day; in 2 on the eighth day; and in one on the tenth day. The average of the dates in these 29 cases is the sixth day.

3d, There were above 20 and under 30, 27 cases. In these the crisis occurred in one on the fourth day; in 5 on the fifth day; in 6 on the sixth day; in 10 on the seventh day; in 2 on the eighth day; in 2 on the ninth day; and in one on the tenth day. The average of the dates in these 27 cases is the sixth day.

4th, There were above 30 and under 40, 8 cases. In these the crisis occurred in 2 on the sixth day; in 3 on the seventh day; in 1 on the eighth day; and in 2 on the tenth day. The average of the dates in these 8 cases is the seventh day.

5th, There were above 40 and under 50, 8 cases. In these the crisis occurred in 4 on the seventh day; in 2 on the eighth day; and in 2 on the ninth day. The average of the dates in these 8 cases is the seventh day.

6th, There were above 50 and under 60, 5 cases. In these the crisis occurred in one on the fifth day; in one on the sixth day; in 2 on the seventh day; and in one on the eighth day. The average of the dates in these 5 cases is the sixth day.

There was one case above 60, in which the crisis occurred on the eighth day. In one case the age is not reported.

These results, with the exception of the second and the third, are deduced from too limited data to admit of any positive general inference on the influence of age on the date of the first crisis. It would appear from them, however, that the crisis occurs rather earlier in the young than in those more advanced in life. There is, on the average, a difference between the second and third decennial periods of life of 4-10ths of a day,—the latter being the later. The fourth period gives as its average date of crisis one day later than the third, and one-tenth of a day earlier than the fifth. In the cases belonging to the sixth decennial period of life, the date of the crisis is on the average one day earlier than in those of the fourth and fifth periods; but as the data consist only of five cases, it is probable that this average for the sixth period is not a just one.

I may state that, in the course of these remarks, it frequently happens, that the data on which averages are founded are too limited to justify decided inferences; I have, however, thought it right to state these averages on almost every occasion.

3d, *The Intermission.*—The term Intermission appears to me much more expressive of the state of the disease during the period between the first crisis and the relapse, than that which has been generally adopted,—Remission. The latter term expresses mere abatement of the symptoms; whereas, during this stage, the febrile state entirely disappears, and a progressive convalescence occurs, “during which,” as stated by Dr Cormack, “a great deal of lost strength is regained.” This complete intermission was not, however, invariable, though the exceptions were few in number. In about 10 cases the tongue continued more or less dry, and in some it was moist, but foul; in two of these latter cases I was enabled to predict the return of febrile symptoms during a prolonged intermission from the persistent grey fur which the tongue presented. In one case, during this stage, the pulse continued to range from 80 to 108 in the minute, in another from 60 to 96, and in several it continued as high as 80 throughout. Headache, vertigo, heat of the surface, sweating, anorexia, restlessness, and lassitude, were severally, in a very few instances, observed. The association of these symptoms with one another presented no regularity, and the

cases were not remarkable for severity. It will be borne in mind that the whole number of these cases, with imperfect intermission, did not exceed 15 in number.

The Duration of the Intermission.—This was various; in some cases as short as three days, most frequently it lasted for five or seven days, but in some instances for a much longer period. The average duration was 7·15 days, calculated from 59 cases; in 10 of which the first crisis occurred on the fifth day; in 23 on the seventh day; and in 16 on the eighth, ninth, and tenth days.

The Relation of the Duration of the Intermission to the date of the First Crisis.—Dr O'Brien, in describing a fever which closely resembled that we are at present investigating, states that the "remission appeared to be longer in the seven-day fevers than in the five-day cases." The following averages, ascertained from 53 of our cases, express the result of three calculations on this question:—

1st, In 10 cases, in which the crisis occurred on the fifth day, 6·6 days is the average duration of the intermission.

2d, In 23 cases, in which the crisis occurred on the seventh day, 7·65 days is its average duration.

3d, In 16 cases, in which the crisis occurred 8 times on the eighth day, 4 times on the ninth day, and 4 times on the tenth day, 7·12 days is the average duration of this stage.

Some authors are of opinion, that they have observed a remission in the symptoms on the third day of the disease. In the few cases admitted at this early stage, I have been quite unable to discover any thing of the kind; and I believe, if such a remission ever occurs, that it does so with no regularity, and that it forms no part of the general features of the disease.

4th, *The Relapse.*—This term has been objected to. Now, though there is something indefinite in the signification of the word, I do not think that one more suitable could easily have been adopted. The confusion is altogether owing to our overlooking the state under which the relapse takes place, and to the fact of many physicians speaking and writing of a "relapse in fevers," when a mere accidental febricula has occurred, and by no means "the relapse of the fever, properly speaking, or repetition of it within a short period." The relapse is considered under the following subdivisions:—1st, *Its Frequency*; 2d, *Its Date*; 3d, *Its Date in relation to Sex*; 4th, *Its Date in relation to Age*; 5th, *Its Date in relation to the Date of the First Crisis*; 6th, *Its Phenomena.*

The Frequency of the Relapse.—There exists a difference of opinion as to whether the relapse occurs in every case or not. From all I have been able to observe of the disease, I am disposed to believe that no case escaped without relapsing; though the severity of the accompanying symptoms and its date are very various. In this report, it is impossible to calculate this

question, as many of our cases were dismissed before the usual date of the relapse. The only cases countenancing the idea that the disease may pass off without relapsing were 2, which, up to the twenty-first and twenty-fourth days respectively, presented no relapse. According to our return on the date of the relapse, it appears that 1 case in every 24 relapsed even later than the twenty-first day, and that 1 in 28 relapsed on or after the twenty-sixth day. It is quite possible then that both these cases might relapse after dismissal.

The Date of the Relapse.—This is indicated in 140 cases. It occurred on the ninth day in 1 case; on the tenth day in 4 cases; on the eleventh day in 5 cases; on the twelfth day in 7 cases; on the thirteenth day in 21 cases; on the fourteenth day in 39 cases; on the fifteenth day in 21 cases; on the sixteenth day in 15 cases; on the seventeenth day in 9 cases; on the eighteenth day in 4 cases; on the nineteenth day in 5 cases; on the twentieth day in 1 case; on the twenty-first day in 1 case; on the twenty-second day in 2 cases; on the twenty-sixth day in 1 case; on the twenty-seventh day in 1 case; on the twenty-eighth day in 2 cases; on the forty-eighth day in 1 case. The average of these dates is the fifteenth day. A point worthy of remark in the preceding return is the progressive increase in the frequency of the relapse from the earliest day (the ninth), on which it occurred, to the fourteenth day, on which it happened most frequently; and from this day, the progressive decline to the eighteenth; after which there is some irregularity in the frequency of its occurrence on each day. Relapse occurred previous to the thirteenth day in 17 cases; on the thirteenth, fourteenth, and fifteenth days in 81; and subsequent to the fifteenth day in 42.

The Date of the Relapse, in relation to the Sex.—These (140) cases, in which the date of the relapse has been ascertained, were males 80, and females 60.

1. It has been shown above, that the relapse occurred, in 17 of these cases, previous to the thirteenth day; of these there were 9 males, and 8 females. This gives as the per centage of relapses at this early date of the attack, 11·25 of the male cases; and 13·22 of the female cases.

2. On the thirteenth day the relapse occurred in 21 of these (140) cases; 10 were males, and 11 females. The number per cent. of relapses on this date, therefore, is 12·5 of male cases, 19 of female cases.

3. On the fourteenth day the relapse occurred in 39 of these cases; 17 were males, and 22 females. The number per cent. of relapses on this date, therefore, is 21·25 of male cases, 36 of female cases.

4. On the fifteenth day the relapse occurred in 21 instances; 14 were males, and 7 females. The number per cent. of re-

lapses on this date, therefore, is 17.5 for males, 11.6 for females.

5. Subsequent to the fifteenth day the relapse occurred in 42 instances; of these 30 were males, 12 were females, which is equivalent to 37.5 per cent. of male cases, and 20 per cent. of female cases. The inference from this calculation is threefold.

1st, That females relapse, mostly, at an earlier date than males. 2d, That males relapse, at a late date, nearly twice as often as females. 3d, That the most usual date of the relapse, the thirteenth, fourteenth, and fifteenth days, is much more frequently observed in females than in males—the proportion being, of males 51.25 per cent., of females 66.6 per cent.

The Date of the Relapse at the different Periods of Life.—

1. Under 10 years old there were 8 cases; namely, on the eleventh day, 1 case; on the thirteenth day, 1; on the fourteenth day, 4; on the fifteenth day, 1; on the sixteenth day, 1. The average of these dates is the thirteenth day.

2. Above 10 and under 20, there were 44 cases; namely, on the ninth day, 1 case; on the tenth day, 2; on the eleventh day, 3; on the twelfth day, 4; on the thirteenth day, 8; on the fourteenth day, 10; on the fifteenth day, 8; on the sixteenth day, 4; on the seventeenth day, 4; on the twentieth day, 1; on the twenty-first day, 1. The average of these dates is the fourteenth day.

3. Above 20 and under 30, there were 40 cases; namely, on the eleventh day, 1 case; on the twelfth day, 5; on the thirteenth day, 6; on the fourteenth day, 10; on the fifteenth day, 5; on the sixteenth day, 5; on the seventeenth day, 2; on the eighteenth day, 1; on the nineteenth day, 2; on the twenty-second day, 1; on the forty-eighth day, 1. The average of these dates is the fifteenth day.

4. Above 30 and under 40, there were 21 cases; namely, on the thirteenth day, 3 cases; on the fourteenth day, 10; on the fifteenth day, 4; on the sixteenth day, 1; on the eighteenth day, 1; on the nineteenth day, 1; on the twenty-seventh day, 1. The average of these dates is the fifteenth day.

5. Above 40 and under 50, there were 14 cases; namely, on the tenth day, 1 case; on the thirteenth day, 3; on the fifteenth day, 2; on the sixteenth day, 2; on the seventeenth day, 1; on the eighteenth day, 1; on the twenty-sixth day, 1. The average of these dates is the twelfth day.

6. Above 50 and under 60, there were 9 cases; namely, on the fourteenth day, 2 cases; on the fifteenth day, 1; on the sixteenth day, 1; on the eighteenth day, 1; on the nineteenth day, 2; on the twenty-second day, 1; on the twenty-eighth day, 1. The average of these dates is the eighteenth day.

7. Above 60 and under 70, there was 1 case, which relapsed on the seventeenth day. From these averages, there appears to

be a very marked difference in the date of the relapse in the early and in the late periods of life. Between the ages of 20 and 40, on the other hand, the same average date of relapse exists; and that, as near as may be, is equidistant from the date in the early and that in the later periods of life.

The Date of the Relapse in relation to that of the First Crisis.—This calculation is the same as that already stated at p. 15, showing the duration of the intermission. I shall merely state the averages and a few of the special dates.

1. 10 cases, presenting the first crisis on the fifth day, give as the average date of the relapse the twelfth;—2 of these cases relapsed after the fourteenth day.

2. 23 cases, presenting the first crisis on the seventh day, give as the average date of the relapse the fourteenth day; 3 only of these cases relapsed later than the fourteenth day.

3. 16 cases, having had the first crisis, 8 on the eighth, 4 on the ninth, and 4 on the tenth day, give as the average date of the relapse the fifteenth day. 5 of the cases which had the first crisis on the eighth day relapsed on the fourteenth day. 2 of the cases having the first crisis on the ninth day relapsed,—1 on the twelfth day, and 1 on the twenty-second day. The cases having the first crisis on the tenth day relapsed on the fifteenth day in 1 instance; on the sixteenth in 2; and on the nineteenth in 1. It appears, then, from these data, that the observation is well founded that the relapse is apt to occur at an earlier date in cases with the earlier crisis. Increased duration of the primary attack, however, though it may delay, does not appear ever to prevent the relapse.

The Phenomena of the Relapse.—In a few instances the relapse came on with the gradual accession of the febrile state. In by far the greatest proportion of the cases, as has been already stated of the primary attack, which the relapse closely resembled in all its features, its access was sudden; it was very generally ushered in by a rigor, which was quickly followed by the train of symptoms common to febrile diseases, and which will be particularly investigated hereafter. The symptoms were, on the whole, decidedly less urgent in the relapse than in the primary attack, and the duration much shorter. This will be investigated in the next section on the crisis of the relapse.

5th, *The Second Crisis, or Crisis of the First Relapse.*—This I propose to investigate under the three following heads—1st, *Its Date*; 2d, *Its Date in relation to Sex*; 3d, *Its Date in relation to Age*.

The Date of the Second Crisis.—This must be investigated in a twofold point of view: 1st, To show the duration of the first relapse; 2d, To show at what date of the attack this crisis occurs, or, what relation the date of this crisis bears to the date of the relapse. These two points will be best and most shortly demonstrated in the following table:—

Table, showing the Relation of the Duration of the Relapse to the Date of its Accession.

	Second Crisis occurred on day after relapse							Total Cases relapsing on particular days after attack.
	1st	2d	3d	4th	5th	6th	7th	
Relapse occurred on 9th day after attack				1				1
... 10th ...		1	1	1				3
... 11th ...		2		1				3
... 12th ...				1	3		1	5
... 13th ...		2	3	5	6	2	1	19
... 14th ...		3	10	8	8			29
... 15th ...		3	3	6	1	1		14
... 16th ...	1	2	2	3	3	1		12
... 17th ...		2	2	2				6
... 18th ...		1		2				3
... 19th ...		1	1	2				4
... 20th ...					1			1
... 21st ...	1							1
... 26th ...		1						1
... 27th ...	1							1
... 28th ...			1		1			2
Total	3	18	23	32	23	4	2	105

In addition to the 105 cases from which the preceding table has been constructed, there are, of the 140 in which the relapse is reported, 7 cases in which this crisis occurred—on the third day of the relapse, 2; on the fourth day, 2; on the fifth day, 2; on the eighth or ninth day, 1. These cases cannot be entered in the table, in consequence of my being unable to determine the precise day of the attack on which the relapse occurred. The duration of this relapse, or the date of its crisis in relation to that of its accession, is shown in 112 cases; the average date of the crisis on the whole of these cases is the third day, reckoned from the day of relapse. In 105 of these 112 cases, the day of the attack on which the second crisis occurred can be easily reckoned from the preceding table. I shall not therefore state this calculation, but proceed at once to the second head,

The Date of the Second Crisis in relation to Sex.—It must be distinctly understood that the term *date* throughout this section is applied to the *day of the second crisis* reckoned from the *day of the relapse*.

Of the 112 cases in which the date of this crisis is ascertained, there are 67 males, 45 females.

1. The 3 cases which presented the second crisis on the first day of the relapse are all males. This gives, as the frequency of this second crisis on the first day, 4.3 per cent. for males.

2. Of the 18 cases which presented the second crisis on the second day, 13 are males, 5 females. This gives as the frequency on this day, 19.4 per cent. for males, 11 for females.

3. Of the 25 cases which presented this crisis on the third day, 19 are males, 6 females. This gives as the frequency of this crisis on this day, 28.3 per cent. for males, 13.2 for females.

4. Of the 34 cases which presented this crisis on the fourth

day, 19 were males, 15 females. This gives a frequency on this day of 28·3 per cent. for males, 33 for females.

5. Of the 25 cases which presented this crisis on the fifth day, 11 were males, 14 females. This gives, as the frequency on this day, 16·4 per cent. for males, 31 for females.

6. Of the 4 cases presenting this crisis on the sixth day, 1 was male, 3 were females. This gives, as the frequency on this day, 1·49 per cent. for males, 6 per cent. for females.

7. On the seventh day, 2 cases had their crisis; both females.

8. On the eighth (or ninth) day one male case presented this crisis.

From these returns it is apparent that the average of the dates of this crisis in male cases was the third day, in females the fourth. Male cases presented the crisis on one of the early days—that is, previous to the fourth day, in a much larger proportion than females; the rate per cent. for males at these earlier dates being 52, for females 24. On and after the fourth day, on the other hand, there is a preponderance on every day, except the eighth, of females; the rate per cent. for these later dates being for males 47, for females 75.

The Date of the Second Crisis at the different Periods of Life.—1. There were of these 112 cases, 8 under 10 years of age. In these, the second crisis occurred in 2 on the second day; in 2 on the third day; in 3 on the fourth day; and in 1 on the sixth day. The average on these 8 cases is the third day.

2. There were above 10 and under 20, 38 cases. In these, this crisis occurred in 1 on the first day; in 9 on the second day; in 10 on the third day; in 8 on the fourth day; in 7 on the fifth day; in 2 on the sixth day; and in 1 on the ninth day. The average date for this period of life on these 38 cases is the fourth day.

3. There were above 20 and under 30, 33 cases. In these, this crisis occurred in 1 on the first day; in 4 on the second day; in 9 on the third day; in 11 on the fourth day; in 7 on the fifth day; in 1 on the seventh day. The average date for this period of life on the 33 cases is the third day.

4. There were above 30 and under 40, 16 cases. In these, this crisis occurred in 1 on the first day; in 1 on the third day; in 4 on the fourth day; in 9 on the fifth day; and in 1 on the seventh day. The average for this period of life on these 16 cases is the fourth day.

5. There were above 40 and under 50, 11 cases. In these, this crisis occurred in 3 on the second day; in 1 on the third day; in 5 on the fourth day; in 2 on the fifth day. The average for this period of life on these 11 cases is the fifth day.

6. There were above 50 and under 60, 5 cases. In these, this crisis occurred in 2 on the third day; in two on the fourth

day; and in 1 on the sixth day. The average for this period of life in these 5 cases is the fourth day.

7. There was above 60, 1 case in which this crisis occurred on the fourth day.

In consequence of the smallness of the number in the majority of these returns, it does not seem advisable to institute any comparison between the different periods of life, with reference to any influence which age may exercise on this crisis.

Repeated Relapse.—Relapse has been observed to occur as often as four and, I believe, five times. In none of my cases was it observed oftener than the second time, and this occurred in 11 cases. The sex of these was male in 4 cases, female in 7. The age was under 30 in 7; above 30 and under 60 in 4.

The Date of the Second Relapse.—This was on the eighteenth day in 2 cases; between the twenty-second and thirtieth days in 6; on the thirty-fourth and thirty-sixth days in 3. These dates do not appear to differ in the sexes.

The Duration of the Second Relapse. In 10 of these cases the duration of this relapse varied from one to five days. It was limited to one day in 3 cases; to thirty hours in 3; to two days in 1; to three days in 1; to five days in 2. The remaining case—a female aged 38 of irregular habits—which relapsed for the 2d time on the twenty-ninth day, continued for ten days, with varying degrees of heat of the skin, dryness of the tongue, rapidity of the pulse, sleeplessness, and occasional general pains, without a distinct crisis, but a gradual decline of the symptoms, which were severe only during the first days of the relapse. No uniform and consistent relation between the direction of this second relapse and the date of its occurrence can be traced.

The Crisis of the Second Relapse.—In this second relapse, as in the primary attack and first relapse, the crisis was for the most part abrupt and by perspiration. In three instances this form of crisis was not observed, the symptoms slowly and gradually declining.

The Phenomena of the Second Relapse.—No symptom of importance occurred in the course of any of these 11 second relapses. Had it not been that the mode of access and crisis was, for the most part, precisely as in the previous attacks, and that it was observed to occur more frequently than accidental feverish attacks are met with in the convalescence from the fevers we are in the habit of seeing, this second relapse might, in many cases, have been overlooked as a mere febricula.

The data afforded by these 11 cases are quite insufficient for calculating with precision whether there existed any determinate relation between the second relapse and the date of the first crisis, the date of the first relapse, or its duration. I may state, however, that in 3 of these 11 cases the date of the first crisis is reported to have been as late as the eighth day in 2, and the

ninth day in 1. In 7 the relapse is ascertained to have occurred on or before the fourteenth day; and in five of these seven cases the duration of the first relapse was 3 or 4 days.

This concludes the first subdivision of the second principal division of this analysis—on the general features of the disease. The second subdivision—on the special symptoms of the disease—next claims attention, and will be entered upon in the continuation of this report.

with the first. In the paper is mentioned in fact, as well as on the left the following ways and in view of the above cases the situation of the last volume was B or 4 days.

The number of the first division of the second period of the first volume was the general part of the first division of the second volume and the general part of the second division of the second volume and will be printed in the second part of the report.

11/11/12