

Facts relating to scarlet fever / by Benjamin W. Richardson.

Contributors

Richardson, Sir Benjamin Ward, (1828-1897)
Royal College of Surgeons of England

Publication/Creation

London : Printed by T. Richards, 1853.

Persistent URL

<https://wellcomecollection.org/works/rwmf6ner>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>





Notes from the writer -
FACTS RELATING

TO

SCARLET FEVER.

BY

BENJAMIN W. RICHARDSON.

*(Read before the Epidemiological Society,
on Monday, March 7th, 1853.)*

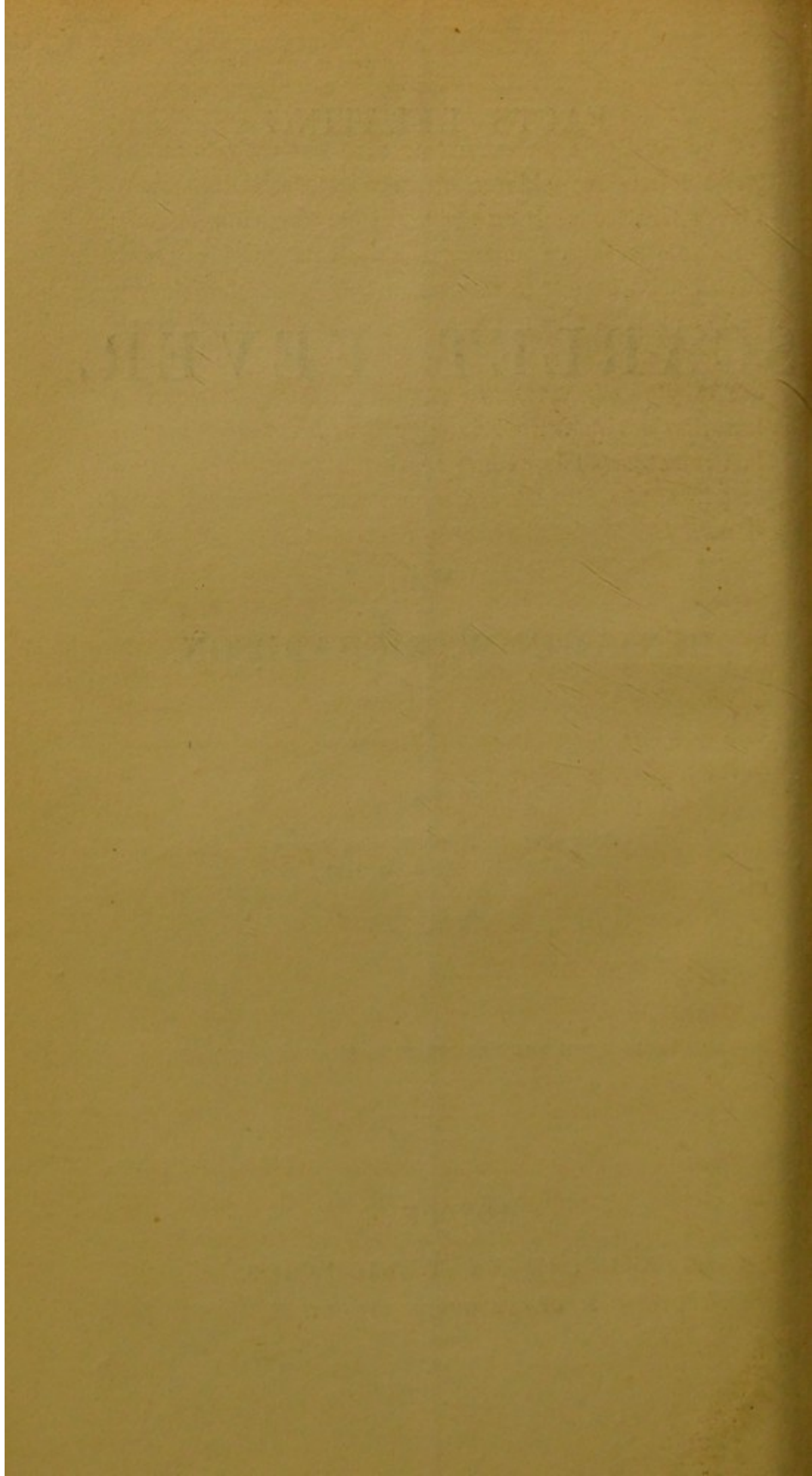
REPRINTED FROM THE "ASSOCIATION MEDICAL JOURNAL."

LONDON :

PRINTED BY T. RICHARDS,

37 GREAT QUEEN STREET.

1853.



FACTS RELATING TO SCARLET FEVER.

It would be, on my part, a waste of time and of words to offer any introductory observations on the importance of the disease "Scarlet Fever", or to expatiate on the propriety of investigating the laws by which it is governed. Premising, therefore, that in this essay all theoretical questions in relation to the disease will be let alone, and that matters of fact only will be introduced, I proceed to direct attention to the following subjects :—

- I. Types of Scarlet Fever ;
- II. Occurrence of Scarlet Fever at different Periods of Life ;
- III. Prevalence of Scarlet Fever in the Sexes ;
- IV. Influence of the Seasons over Scarlet Fever ;
- V. Recurrence of Scarlet Fever in the same Person ;
- VI. Mortality of Scarlet Fever.

I. TYPES OF SCARLET FEVER.

There is perhaps some excuse for the practice that has sprung up and engrafted itself on the professional mind, of recognising three shades or types of scarlet fever ; but there is no reason why these shades or types should receive distinct names ; and I would strongly re-

commend what has been recommended, I believe, by Dr. Watson, that medical men, in speaking of scarlet fever, whether amongst themselves or with their patients, should drop the terms *scarlatina*, *scarlatina anginosa*, etc., altogether, and should call every case of the affection *scarlet fever*; for the disease is a unit, and should be spoken of as one. If indeed a multitude of cases are brought together, and are closely watched by one observer, the unity of the disease cannot fail to become evident, from the universal presence of several important and special symptoms; and from the non-recurrence, as a general rule, of the disease under any type in a person who has once suffered from it in one or other of its forms.

I must remark, however, that, in practice, certain cases are occasionally met with, resembling scarlet fever in many points, in which it is highly difficult, perhaps impossible as yet, to determine whether or not they are true cases of that disease. Let me, in illustration, give a brief description of two such cases, which have within these last six months fallen under my notice.

A young woman, a servant at an inn, was seized with slight shiverings, sensations of chilliness, weight in the head, and thirst. These symptoms lasted about twelve hours, when the body became covered with a bright red rash, the throat sore, and the tongue loaded and white. She was kept in bed, and ordered a simple effervescing medicine. Twelve hours after the first appearance of the eruption, it had entirely disappeared, and the patient expressed herself as feeling quite well. Three weeks afterwards, the same symptoms returned, and passed off as favourably as before, leaving no secondary disease, and giving disease to no one else.

In the second case, the patient, a young married woman, was placed in less favourable circumstances; her room was

imperfectly lighted and ventilated, her dwelling was situated in a dirty locality, and her attendants were indifferent nurses. A class of symptoms appeared, precisely analogous at first to those described above; but in this case, as the sore throat and eruption faded, great bodily prostration succeeded, attended with griping pains in the bowels and copious diarrhœa. This patient recovered very slowly, but communicated disease to none, although two children slept in the same bed with her, and an infant was at her breast.

There were no cases of scarlet fever in the neighbourhood of these patients; and it is difficult, I repeat, to say whether the cases really were cases of scarlet fever. The symptoms certainly resembled the symptoms of that disease; while the evanescent character of those symptoms, the sporadic nature of the cases, and the fact that no extension of disease took place from them, would afford ground for supposing that they could not have been true cases of scarlet fever. I leave the question for future consideration.*

II. OCCURRENCE OF SCARLET FEVER AT DIFFERENT PERIODS OF LIFE.

It has long been known, that scarlet fever is a disease to which the young are peculiarly liable. There are many causes for this; but the most important causes are to be found in the following three facts:

1st. That the second occurrence of the disease in the same person is contrary to the general rule.

* At the same meeting of the Epidemiological Society at which this paper was read, another paper on "Scarlet Fever", from Mr. Bower Harrison, was also read. Curiously enough, Mr. Harrison alluded to several cases very similar to those described above, and seemed, like myself, to be in doubt as to their true nature.

2nd. That all persons who have not had the disease are, as a general rule, subject to it.

3rd. That the influences which give rise to scarlet fever are always present in a greater or in a lesser degree.

To answer fully, and from statistical data, the question, At what periods of life is scarlet fever most prevalent? it would be requisite to collect an immense number of cases of scarlet fever, of all kinds, wherever occurring, and however terminating; to obtain the age of every patient included in those cases; and then to ascertain the numbers affected in the different years of life.

Owing to the slight degree of attention that has been paid to such investigations, it is at the present time impossible for the most earnest epidemiological inquirer to construct a table of cases so occurring, extensive enough to set the question now under consideration at rest; but, from my own report book, from the weekly return books of three medical gentlemen holding parochial appointments,* and from the printed returns of two other gentlemen† who made statistics from cases of scarlet fever observed by themselves in Birmingham, in the years 1832 and 1835, I have been able to collect accurate records of 431 cases of scarlet fever, which supply the following information:—That, from the first year of life to the tenth, the liability to scarlet fever is very great; and that, after the tenth year, the liability decreases remarkably, and continues to decrease in proportion to the advance of life. Thus, out of the 431 cases referred to, no fewer than 329 occurred in children under ten, and 102 only at ages past that point.

These results were, however, so small, and, as a matter of course, so unsatisfactory, that I was led to search for

* Mr. Browne, of Saffron Walden; Mr. Palmer, of Sheen; and Mr. Beresford, of Narborough, Leicestershire.

† Messrs. Ryland and Parsons.

information in another direction. The mortality-tables of the Registrar-General were, it appeared to me, worthy of considerable regard; for, although it might be objected, that, in a few cases, the mortality of a disease was no sure indication of the number of persons attacked, the objection would be modified, and perhaps removed altogether, if multitudes of cases were consulted, as they might be in the reports alluded to. The subjoined tabular statement shows, in mean results, the proportion of deaths from 31,744 cases of scarlet fever, occurring in Manchester in the year 1839, in Liverpool in 1839, in Birmingham in 1839, in twenty-four town districts in 1840, in London in 1842, 1843, 1844, 1845, 1846, 1848, and in England in 1847.*

Total number of deaths.	Under 5.	5 and under 10.	10 and under 20.	20 and under 40.	40 and upwards.
31,744	21,469	7756	1755	552	212
Per cent.	67.63	24.43	5.52	1.73	0.66

These results are very striking, and afford, I imagine, a near approximation to truth, on the question of the occurrence of scarlet fever at different ages. They corroborate, too, the inferences drawn from the 431 cases before described.

In reading over many of the valuable treatises on scarlet fever which enrich so much the medical literature of this and of other countries, I found more than one eminent author making the assertion, that children under two years of age, and babes at the breast, were not subject to attacks of the disease. The illustrious Withering spoke positively on this subject; and Dr. Nieuwenhuys, an Amsterdam physician, and the author of an admirable paper on

* At the meeting of the Epidemiological Society, the above and all the following tables were exhibited in detail. For the most valuable aid in the calculations required for the construction of these tables, the writer is deeply indebted to his friend Mr. Adolph Leipner.

small-pox and scarlet fever, expresses, in an indirect manner, a similar opinion; and intimates that, on two occasions, he saw "infants escape, whose mothers were suffering heavily under the disease, and who suckled them from time to time".

Now, if the opinion, that infants are not subject to scarlet fever, were correct, it would embody matters of great interest and importance, physiologically and practically. I have therefore conceived that it would be no lost labour to settle the question by reference to facts.

The following particulars have been obtained, and are amply sufficient to disprove the assertions of Withering, and of the other writers who have either accepted his views, or offered similar ones independently of his labours:— In 242 cases, occurring, some under my own observation, and others under the observation of the gentlemen to whom I before referred, cases the majority of which recovered, and in which all ages are included, not less than fifteen were in infants under two years of age. The reports of the Registrar-General also afford good evidence on the question now in hand, inasmuch as these reports may be positively relied on for the present inquiry, and include great numbers of cases. The results derived from these returns are as follow.

Out of a total of 12,962 deaths from scarlet fever in children under five years of age, occurring in the county of Kent in 1843, in London in 1845, 1846, and 1848, and in England in 1847, there were—

Age.	No.	Age.	No.
Under 1 year .	1289	Over 2 and under 3 .	3338
Over 1 and under 2 .	2874	Over 3 and under 4 .	3063
	—	Over 4 and under 5 .	2398
	—		—
Total under 2 years .	4163	Tot. from 3rd to 5th yrs.	8799
	—		—

Total from 1 to 5 years, 12,962.

Thus, out of these 12,962 deaths in children under five years, there were, in the first two years, no fewer than 4,163 deaths from scarlet fever.

I have one other calculation (No. III) bearing on this subject. In a total of 3,795 deaths in patients under five years, occurring in the London hospitals, in Manchester, and in Birmingham, in the year 1839, in 24 towns in 1840, and in London in 1842, there were—

Age.	No.	Total.
Under the second year	410	3795
Over the second, and under the third	1797	
Over the third, and under the fifth	1588	

I need not comment on this table. The results are similar to the previous one, and both indicate plainly that infants are highly susceptible of scarlet fever.

III. OCCURRENCE OF SCARLET FEVER IN THE SEXES.

Up to the present time, almost all writers on scarlet fever have expressed an opinion, that it is a disease most apt to attack the female sex. Dr. Tweedie says, arguing on his own general experience, and on the results of an imperfect table, "that females are more subject to the disease than males": with great candour, however, he repeats the opinion of Withering, viz., "that, in children, the number of sufferers are equal in both sexes; but, amongst adults, females suffer most". Fothergill, in writing of the malignant attack of scarlet fever which visited London in 1749, says, a greater number of girls have it than boys, more women than men; Rayer affords similar testimony; but Dr. Binns, in describing an epidemical scarlet fever which occurred in the Ackworth school, tries to show, by reference to a small, but, as far as it goes, fair table of cases, that girls are less liable to the disease than boys.

The 431 cases in my own possession, and to which I have before drawn attention, are not sufficient in number to

afford anything like satisfactory evidence on the subject. As far as they do extend, however, they show an equality, in the matter of liability to the disease, between the sexes, subject to certain laws, which will be better understood when the subjoined figures have been consulted.

I find, from the Registrar-General's reports, that, out of 102,382 deaths from scarlet fever, occurring in England in the years 1838, 1839, 1840, 1841, 1842, in London in 1842, 1843, 1844, 1845, 1846, and in England in 1847 and 1848 there were—

Amongst males, 51,660 }
 „ females, 50,722 } = 102,382 (938 males in excess.)

This calculation takes in sufferers of every age, and leaves, at first sight, a fair inference on the mind, that males are, on the whole, more subject than females to scarlet fever. To understand the question fairly, however, we must analyse a large number of cases, and find at what ages the deaths occurred.

Below, 31,744 cases of death from the disease, occurring in Manchester, Liverpool, and Birmingham, in the year 1849, in 24 towns in 1840, in London in 1842, 1843, 1844, 1845, 1846, and 1848, and in England in 1847, have been analysed; the relative number of deaths in both sexes, and in certain specified periods of life, being given. (Table No. v).

Age.	M.	F.	Total.	Predominance.	
				M.	F.
Under 5 years .	11097	10372	21469	725	—
From 5 to 10 .	3927	3829	7756	98	—
„ 10 to 20 .	844	911	1755	—	67
„ 20 to 40 .	261	291	552	—	30
„ 40 & upwds.	97	115	212	—	18
Total . . .	16226	15518	31744		

From this statement, we derive the general fact that, under the age of ten, more males die from scarlet fever than females; but that, above ten, the contrary obtains.

In the next statement, the relative mortality in the sexes, in a given number of deaths from scarlet fever, is stated, together with a reference to the population of the districts in which those deaths occurred.

In the districts of Kent, in the year 1843, there were—

Deaths at all ages, 413 $\left\{ \begin{array}{l} 205 \text{ males} \\ 208 \text{ females} \end{array} \right\}$ 3 females in excess.

The population of these districts, as obtained by the census taken rather more than a year before, was—

Pop. in 1841, 469,113 $\left\{ \begin{array}{l} 232,228 \text{ males} \\ 236,885 \text{ fem.} \end{array} \right\}$ 4,657 fem. in excess.

This last table is, it will be seen, quite contrary to the first in its results; and separate writers, inclined to controversy, might, by referring to only one of these tables, baffle an adversary considerably. Considered, indeed, in their singleness, the tables might and would be made to convey the most incorrect ideas. But when the three tables given are viewed carefully, and with an unbiassed eye, their very differences are found to be of the highest value, inasmuch as these differences place before the mind the true state of matters. Collectively, then, the calculations indicate, I believe, that scarlet fever makes no selection as regards sex, but attacks more males, or more females, according to the relative number of males or females who are resident in any district where it is epidemical.

The last table illustrates this fact exceedingly well. There are more deaths from scarlet fever amongst females in a given portion of country than amongst males; and there are in the same portion of country, previous to the scarlet fever epidemic, a larger number of females than of males in the population.

The table in which ages are specified conveys a similar lesson, when the general laws of population are understood. In the child part of our population—using the word population in its general sense—males number most; but in the youth and adult population, there are more females than males, owing to the fact, that youths and men are exposed to more causes of mortality, and are drafted into other countries in larger numbers, than girls and women. Now, the mortality of scarlet fever, as the results given above illustrate, seems to follow this law of number; for our tables show, that whilst more males die under ten years from the disease than females, that after the age of ten the mortality begins to take the lead on the female side, and to continue steadily to do so as life advances.

Still more our calculations from the Registrar-General's Report show the same fact; for what can the larger proportion in the deaths of males arise from, except from the circumstance, that at the period of life when the body is most susceptible of the disease (the first ten years), the male population is larger than the female?

I cannot fail to remark, also, that the calculations on which these last conclusions are based, illustrate, although made from mortality returns, the *prevalence* of the disease in the sexes in all classes of cases; for one cannot but suppose that if females were more subject to the disease than males, the results of the mortality tables would be widely different to what they are, seeing that females are naturally less able than males to bear up against so dangerous an affection.

The discrepancies and contradictions of general writers on the subject of sex and scarlet fever are also removed by the views I have ventured to throw out; for as such writers have written of the disease as they saw it in individual cases,

without any regard to the relative number of each sex who were subject to its attacks at a given time and place, or to the ages of the sufferers, it is quite certain that their several statements must differ. Withering, however, seems to have had pretty correct notions on the subject, when he said, that in children the number of boys and girls that suffered from scarlet fever was nearly equal, but that in adults the number of female patients considerably exceeded that of the male.

IV. INFLUENCE OF THE SEASONS OVER SCARLET FEVER.

I think that, in collating the facts which may be obtained on the subject of scarlet fever, it is possible to show that the disease is influenced by the seasons. The concurrent testimony, in fact, of almost all writers on the disorder, teaches that it is most common in autumn, next so in the summer, next so in the winter, and least so in the spring. In three epidemics which I have witnessed in different parts of this country, the disease has always commenced in the summer, become most violent in the last months of the year, has continued into the new year, and died away with the spring. I believe, too, that sporadic cases are most common in autumn, although I have seen such instances in the month of April. Cases, however, occurring in the spring, even though of malignant character, are more likely to recover than at the other seasons.

I could bring forward several authors, whose testimony is valuable on the question of season in relation to scarlet fever. As the subject is important for numerous reasons, it may not be wrong to refer to some of these authorities.

Sydenham remarks that scarlet fever, though it may occur at other seasons, is most common in the end of summer, when it attacks whole families, and children especially. Fothergill, in describing the malignant form of scarlet fever,

observes, "that although it survives different seasons, and all varieties of weather to which we are exposed, yet it seems to show itself most frequently in the autumn, and in the beginning of the winter ; at least I have met with more cases from September to December inclusive, than in all the other months together."

Cullen names the beginning of winter as the time when scarlet fever is most prevalent. Withering speaks of the winter and summer months as favourable seasons, and records the particulars of an epidemic which, commencing in summer, was temporarily checked in October, but recommenced, with extreme virulence, in November. The epidemic of malignant scarlet fever that raged in St. Albans, in 1748, is described by Dr. Cotton as occurring in the latter end of the year. The epidemic recorded by Dr. Peart in 1802, did not become violent and extensive until the latter part of August and in September. Willan remarks that the disease, scarlet fever, is most virulent during October and November. Haygarth entertained a similar opinion. Rayer observes that the disease is most common about the equinoxes. An epidemic of malignant scarlet fever, described by Chomel under the title of gangrenous sore throat, and which raged in Paris a hundred years ago, was most violent in the months of October and November. Dr. Nieuwenhuys, in his paper on "the scarlet fever in Amsterdam, in the year 1834", remarks, "the disease first showed itself, in the epidemic form, in the month of June 1834, and its victims were—in June 22, in July 32, in August 50, in September 78, in October 136, in November 106, and in December 61."

Mr. Ryland, in describing the cases of scarlet fever which occurred under his care amongst the out-patients of the Birmingham Infirmary, in the year 1835, states that in the first quarter of the year ending March 25th, he had 5

patients, in the second quarter 7, in the third quarter 35, and in the three last months 59, making 106 cases in all.

Finally, Dr. Tweedie, in his essay on Scarlet Fever (many other authors being omitted), states that the disease is most common in autumn, least so in spring.

Such are some of the conclusions to which general observers have come with reference to the prevalence of scarlet fever at the various seasons of the year ; and when these conclusions are tried by statistical facts, their correctness is strikingly established.

In 46,077 deaths from scarlet fever in London in the years 1838, 1839, and 1840 ; in England in 1841 and 1842 ; and in London in 1843, 1844, 1845, 1846, 1847, and 1848, the proportions of deaths in the seasons of those years run as follows :

	1st quarter. Jan. Feb. Mar.	2nd qr. April, May, June.	3rd qr. July, Aug. Sept.	4th qr. Oct. Nov. Dec.	Total.
No. of deaths .	10465	9068	11914	14630	46077
Per centage .	22·711	19·679	25·856	31·751	

The above table requires no comment. Derived from an immense number of cases, the inference to which it leads, viz., that scarlet fever is most prevalent in this country in the three last months of the year, least so in the months of April, May, and June, is obvious. One word I must add. If the reader could see an analysis of the above tabular statement, he would find that the rate of mortality is not always the same in the special quarters of the years specified. So that a calculation made from one or two, or even three, of those years, would be likely to lead into a grievous error. When, however, the trouble is taken to reduce the returns of a great number of years to a single calculation, one approaches at least to the truth.

I do not apologise for this digression, because nothing is more important to the epidemiological inquirer than the possession of accurate and extensive statistics. An indolent or an unconscientious statician is a literary *ignus fatuus*. The indolent statician will give loose and insufficient statements; the unconscientious one can and will prove anything to suit his own purpose. Both would be much more usefully and worthily employed in picking oakum than in penning figures.

V. RECURRENCE OF SCARLET FEVER IN THE SAME PERSON.

In the history of diseases, there is scarcely a more interesting or striking fact than that there should be a certain class of diseases which, as a general rule, do not occur a second time in the same individual. Physiologically, pathologically, and practically, the fact is interesting, and deserves to be made a subject for special study. On the possibility of the recurrence of scarlet fever in the same person, opinion has been divided. The well-known assertion of Willan, that out of two thousand cases of the disease, he had never met with one in which it had happened for the second time in the same person, has been transcribed by almost all writers, and has led many to entertain a belief that the disease could never occur twice in one individual. This belief, however, is quite erroneous. Rayer saw one well-marked instance of recurrence; Bateman and Withering saw several; Blackburne saw two such cases; and Dr. Tweedie observes—"We certainly have met with several well-authenticated instances of a second attack of scarlatina in the same person. Speaking generally, I may say that I have seen second attacks of scarlet fever in the same person on three or four occasions. For particular evidence, the following cases may suffice. A little girl whom I attended in 1850, took scarlet fever. The disease was very decided

in character, but passed over favourably. A month afterwards, the little patient complained of feeling sick and cold, and it was feared that the symptoms of dropsy were about to present themselves. Instead of this, to the great surprise of every one, the skin a second time became universally red, and the throat sore; and the patient passed again through a most marked attack of scarlet fever."

I am able, too, to speak from experience in my own persons on this subject. When a child, I suffered, as I well remember, from scarlet fever, during a time when it was occurring epidemically in my native village. The rash was universal, and intensely red; the throat sore; the recovery slow. In the spring of 1850, whilst attending cases of scarlet fever, I sickened, became ill, and passed through a very severe second attack of the disease. The skin was again red, the throat sore and ulcerated, and the recovery gradual. Still more curious, whilst attending a boy, in the month of April 1852, who had a severe attack of scarlet fever, I became exceedingly unwell, suffered from shivering, and sore throat, and had a faint red blush on the chest and neck. I am minute in these particulars, because it is important to settle satisfactorily all points that admit of being settled in epidemiological inquiries; for by such means difficulties are exhausted, and fewer questions are left for investigation. I have not been able to collect statistical information on this subject of recurrence, so that it is impossible to state the frequency of recurrences. That they are rare is evident, for I have not, in reading or conversation, met with a single author or practitioner who has seen a second attack of scarlet fever prove fatal.

VI. MORTALITY OF SCARLET FEVER.

The most important subject in connexion with scarlet fever is its mortality. Every writer on the disease, since

its full recognition as a disease, has described, in mournful terms, its frightful ravages. Mr. Kearsley, of Philadelphia, writing about a hundred years since of the disease, as it appeared in America, says, "it baffled every effort to stop its progress, and seemed, by its dire effects, to be more like the sword of vengeance to stop the growth of the colonies, than the natural progress of a disease". And to this day the yearly victims of the disorder are exceedingly numerous in many parts of the world.

In considering the mortality of scarlet fever, several questions force themselves on our notice, some of which have been answered already incidentally. I allude to the subjects of age, of sex, and of season, as influencing the mortality of the malady.

Two questions still remain : first, the influence of locality on the fatality of scarlet fever ; second, the relative mortality of scarlet fever in connexion with other epidemical diseases.

To answer these questions, I have merely had recourse to the pages of the Registrar General, and have referred, therefore, only to the disease as it occurs in our own country. The next table shows the comparative mortality from scarlet fever, in towns and rural districts. To insure correctness, each statement of deaths has been obtained from a population of a million.

Year.	District.	Towns.	Country.
1838.	London, 24 towns, and 12 counties	517	202
1838-9.	London and 5 counties	2522	454
"	24 towns and 7 counties	1654	737
1841.	London, 24 towns, and 12 counties	683	684
	Mean from 1838 to 1841	988	478

The mortality from scarlet fever in a million of people is, therefore, rather more than twice greater in towns than it is in rural districts.

The following table (No. ix) indicates the different rates of mortality *per million* from scarlet fever, in eleven districts of England, during the years 1838, 1839, 1840, 1841, 1842, 1847, 1848. The last column will supply at a glance the comparative rate of mortality.

District.	Deaths in seven years per million.	Relative order.
North Western Counties	10328	1
Metropolis	7838	2
Yorkshire	7018	3
Monmouth and Wales	6609	4
Northern Counties	6428	5
North Midland Counties . . .	6244	6
Western Counties	5013	7
Eastern Counties	4708	8
South Midland Counties . . .	4694	9
South Eastern Counties . . .	4609	10
South Western Counties . . .	4122	11

The above table needs but few observations. It indicates an extraordinary mortality in the north-western counties. The complete table showed that scarlet fever does not fall on the whole country at the same time, but is, at similar periods, absent to a great extent in one locality, and extensively present in another.

The subject of the relative mortality of scarlet fever in reference to other epidemical diseases, possesses peculiar interest; and I have, therefore, taken some pains to illustrate it by several tables. The following (No. x) shows the relative mortality of seven epidemical diseases. The returns are, for England in the years 1838, 1839, 1840, 1841, and 1842, and for London in 1843. The calculations are based on the numbers of deaths in a population of a million, as in a previous table.

Diseases.	No. deaths.	Rel. order.
Typhus . . .	6442	1
Scarlet Fever . . .	4015	2
Hooping Cough . . .	3540	3
Measles . . .	3486	4
Small Pox . . .	3183	5
Erysipelas . . .	488	6
Influenza . . .	395	7
Total . . .	21549	

In special years, the relative position of these mortality figures is somewhat changed.

In the next table, the relative mortality in a total of 79,256 deaths from six epidemical diseases, occurring in London during the period of twelve years, from 1840 to 1851, is exhibited:

Diseases.	No. deaths.	Rel. order.
Typhus . . .	23964	1.
Scarlet Fever . . .	21551	2
Measles . . .	15460	3
Small Pox . . .	10710	4
Erysipelas . . .	4276	5
Influenza . . .	3295	6
Total . . .	79256	

In the following and final table the subject of relative mortality is carried further, by a calculation based on 462,227 deaths from seven epidemical diseases, occurring during a period of eleven years, viz., in England in 1838, 1839, 1840, 1841, 1842, in London in 1843, Kent in 1843, in London in 1844, 1845, and 1846, and in England in 1847 and 1848:—

Diseases.	No. deaths.	Rel. order.
Typhus . . .	141,517	1
Scarlet Fever . . .	105,250	2
Measles . . .	63,793	3
Hooping Cough . . .	62,867	4
Small Pox . . .	59,460	5
Influenza . . .	18,553	6
Erysipelas . . .	10,787	7
Total . . .	462,227	

Thus, the three tables I have given all prove that scarlet fever, in its rate of mortality, is second only to typhus fever.*

Before I conclude, I shall devote a few moments to a re-statement of the conclusions at which I have arrived. These conclusions are six in number, viz.:

1st. That scarlet fever, in whatever form or type appearing in individual cases, is a single disease in its universal character, and should have only one name.

2nd. That, after the first ten years of life, the liability of an individual to an attack of scarlet fever lessens in proportion to his increase of years.

3rd. That scarlet fever pays no respect to either sex, but attacks more or fewer of males or of females in a district or country, according to the relative differences in the number of the sexes in those districts or countries.

4th. That the seasons influence the spread of scarlet fever; the disease being most prevalent in the three last months of the year; least so in the months of April, May, and June.

5th. That scarlet fever may occur twice in the same person; that such recurrences are very rare, and never, as far as can yet be ascertained, fatal.

6th. That the mortality of scarlet fever is greatest in children under ten years of age—is equal in the sexes—is highest in the three last months of the year—is, as a general rule, twice as great in towns as in rural districts; and is second in extent only to typhus fever of all the ordinary epidemic diseases.

* In the discussion that followed the reading of this paper at the Epidemiological Society, I stated, in answer to a question by the president, that scarlet fever was in all probability a more fatal disease than even typhus fever; inasmuch as the word typhus was often unjustly returned, in cases of death from pneumonia and other diseases, which assume in their last stages what is absurdly called the "typhoid type". In this opinion, Drs. Snow, Sibson, and many other fellows of the Society concurred.

On this occasion, it has been my earnest endeavour to gather from every trustworthy source to which access could be obtained, such particulars concerning scarlet fever as admit of being styled *matters of fact*; to place these particulars side by side; to compare the one with the other; and, in the end, to draw those inferences from them which are to my unbiassed judgment the nearest to the truth. If anything has been written that may be considered as differing from received opinion or dogma, I can only observe, that such differences have arisen out of the mode of inquiry that has been pursued, and that they are not differences made for the sake of difference; while, on the contrary, if it should occur to any one that certain subjects, already well known, have been restated with too much emphasis of thought, I remark that such restatements, as they have now been made, prove, on *particular evidence*, facts which had before been recorded only from general observation; and that

"Truth can never be confirmed enough,
Though doubts did ever sleep."

Mortlake, London, April 2nd, 1853.

