

Report on an outbreak of scarlet fever during the summer of 1888, in a dairy custom / [Henry E. Armstrong].

Contributors

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REPORT

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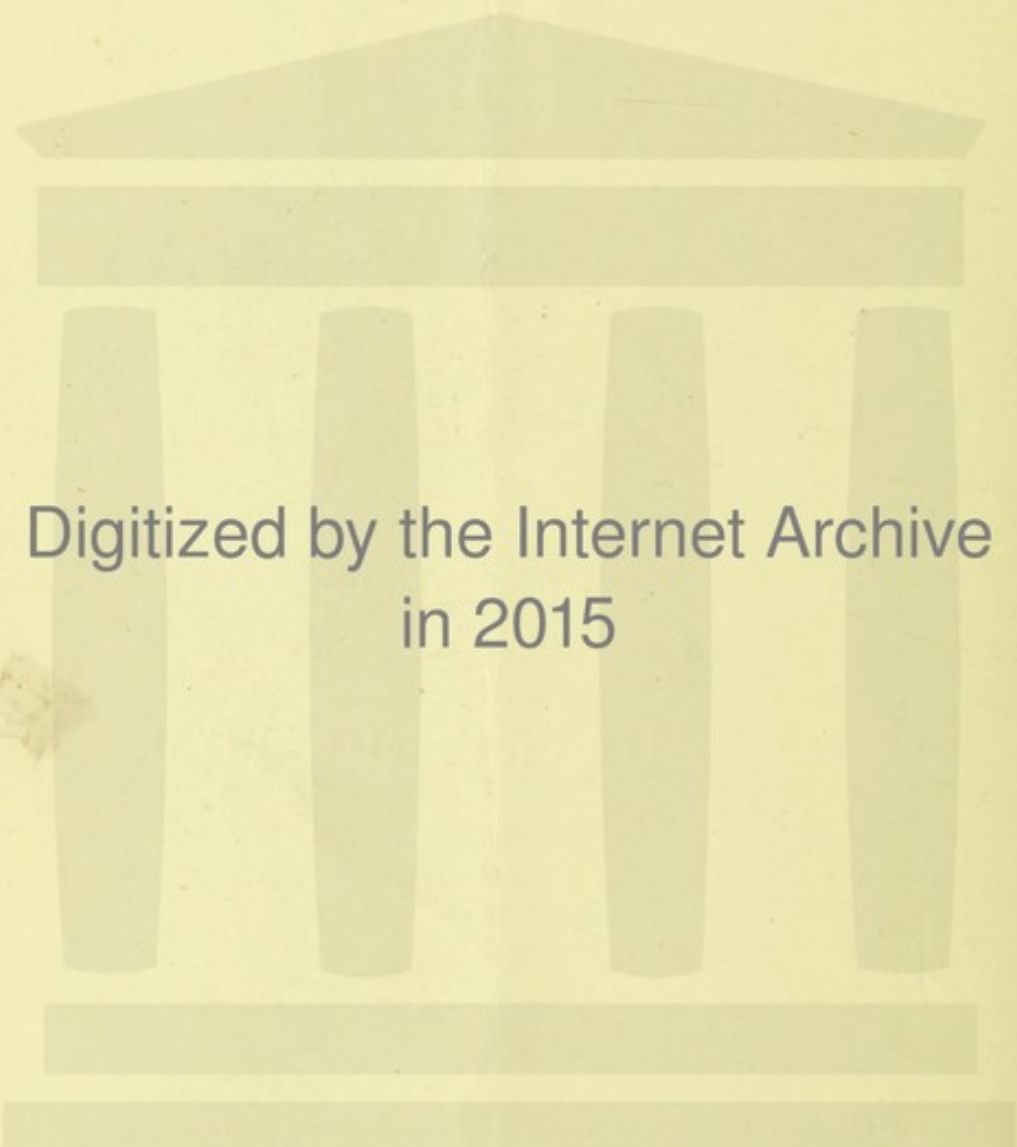
OUTBREAK OF SCARLET FEVER

DURING THE SUMMER OF 1888,

IN A DAIRY CUSTOM.

NEWCASTLE-UPON-TYNE:
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CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

R E P O R T

ON AN

OUTBREAK OF SCARLET FEVER

DURING THE SUMMER OF 1888,

IN A DAIRY CUSTOM.

THE subject of the present Report is the fifth outbreak of Scarlet Fever in Newcastle-upon-Tyne during the past ten years and the third during the past ten months, in connection with the Supply of Milk from particular dairies—a different dairy being implicated in each case.

The first of these outbreaks occurred in 1879 and was one of small numbers but remarkable fatality. The second in 1883* was larger but less virulent. The third, which appeared toward the close of 1887, and the fourth which took place in January last, were small and mild in type. That now under consideration, both in point of numbers and in other respects, presents features of special interest.

Beginning of the Outbreak.—On the afternoon of Monday, July 2nd, 4 cases of Scarlet Fever were notified in 4 different households in the City—all of which were reported to me by the Special Inspector of the district as being supplied with milk by Mr. Edward Dodgson, dairyman, Gosforth. For some time prior to this there had been very little Scarlet Fever in the City. In the fortnight ended June 30th 13 cases only were reported. One only of these was within the area presently to be referred to, and no two of the 13 households got their milk from the same dairy. The cases notified on July 2nd had no other feature in common than

* See Special Report on the Increased Death Rate of Newcastle in 1883, page 45. The 1883 outbreak of Scarlet Fever was intimately associated with milk supplied at a farm where some of the children had *Sore Throats without eruption*.

that named. Next morning I received notification of several other cases, including five from Dr. Samuel Macaulay, who wrote drawing attention to the fact that they also had consumed milk from the same place.

The Dairy.—On the afternoon of the same day, along with Inspector Hedley, I called on Dr. Galbraith, Medical Officer of Health, Gosforth, who is also private medical adviser to Mr. Dodgson, and we visited the dairy together. In the absence of the dairyman, Miss Dodgson, his daughter, stated that none of the residents in the house had had any ailment whatever for at least six months, and have never suffered from infectious disease since they came there several years ago, which statement was confirmed by Dr. Galbraith.

The household consists of Mr. Dodgson, his two sons, two daughters, and two domestic servants.

We examined the cattle, 18 in number, and found them to be unquestionably healthy. They have all smooth, clean coats, bright eyes, and natural teats. They were attended to by the dairyman, his son, and a helper named Christopher Rutter, and by no one else. Miss Dodgson and her two house servants handle the milk in the dairy, and it is delivered to customers in Newcastle and Gosforth by Mr. Dodgson and his son.

The cowhouses are roomy and in very fair sanitary condition. The dairy is clean, airy, and wholesome. The water both for dairy and cowhouses is that of the Newcastle and Gateshead Water Company. Except a small quantity from a single cow, for babies, the entire yield of each "meal" of milk is put altogether into a large vessel and mixed before being emptied into the delivery cans.

A list of customers was asked for and in due time was furnished.

Disease in relation with a Dairy Worker.—The helper Rutter, who was interrogated at the dairy, lives with his wife and four children at No. 12, Garden Street, Gosforth. He said they were "all well and had never had Scarlet Fever or Sore Throats."

With Dr. Galbraith I then went to Rutter's house and examined the children. Two of them were pale and delicate looking. The following are my notes of the cases :—

"Catherine, æt. 5 years, has a little enlargement (perceptible externally) of each tonsil, with redness of the fauces.

"Robert, æt. $3\frac{3}{4}$ years, has tonsils considerably enlarged, with redness of palate and fauces.

"John, aged $8\frac{1}{2}$ years, has enlargement of tonsils, perceptible externally, and reddish fauces.

"The fourth child has very little apparent ailment.

"None of the children have any sign of desquamation."

The mother stated that they had not been laid up, or shown signs of skin eruption or ailment.

On leaving the house we returned at once to the dairy, and prohibited Rutter from coming near the premises or taking any part in the business, which Miss Dodgson promised should be carried out forthwith, and which Mr. Dodgson afterwards told me had been done.

I learnt that "bad throats" had been prevalent in Gosforth for some time before my visit.

Progress of the Outbreak in Newcastle.—By next day (4th July) the cases of Scarlet Fever in the custom of this dairy had increased to 22, out of a total of 24 notified in the entire city during the first four days of the month. It then became a question whether I was justified in allowing this milk supply to be continued to the inhabitants of Newcastle on the evidence and after the action taken as above described. The case stood thus—Here is a sudden outbreak of Scarlet Fever in a large and well-to-do district of the city, confined to the customers of a cleanly dairy of healthy cattle. The children of a non-resident servant of the dairy have Sore Throats. It is promised that the servant shall not come near the dairy or milk until authorised by me to do so. If infection came from these children, is not the action taken sufficient to protect subsequent yields of milk? What *proof* is there that the milk is now infected? and what justification for prohibiting it at this present stage?

After consultation with Mr. T. B. Winter, Chairman of the Sanitary Committee, and the Town Clerk, I decided, on their advice, to wait until the following day.

Remarkable Cases proving connection with the Milk.—Next morning's post (5th inst.) brought several notifications of Scarlet Fever in fresh households supplied from the same dairy, and, among others, five cases in the practice of Dr. Scotland, who supplied the following information, showing a remarkable association between the disease and the milk. Three of the five patients (two of whom live together, and the third, a girl, lives in a different locality) regularly take the milk in question. The other two (boys), with their sister, on Saturday, June 30th, visited at the house of the girl above-named, who was then quite well, and stayed to the afternoon meal, at which the girl and the two boys drank milk. They all sickened, and on Tuesday, July 3rd, developed the eruption of Scarlet Fever. The boys' sister, who at that meal took tea, remained well.

In each of the infected households above referred to the servants had also Sore Throats. On the same day another instance, in the practice of

Dr. P. H. Watson, was reported, in which a gentleman had taken milk at the house of a friend who was supplied by Mr. Dodgson. The gentleman fell ill of Scarlet Fever on or about July 1st. One of the children and two of the servants of the friend at whose house he partook of the milk, sickened with the same disease on July 2nd.*

A further noteworthy example, showing the connexion between the milk supply and the illness of its consumers, which came to my knowledge at a later date, may be mentioned here. Dr. Galbraith, writing to me on the 9th July, says:—

“On making fuller inquiries into a case of Scarlatina, who was not supposed to be getting Dodgson’s milk, I find that they got a little from Dodgson, but the most from And what seems interesting is that the little girl who has the fever partook mostly of Dodgson’s milk, whilst the other two of the family who drank little of the milk have escaped. It is only fair to state that the mother called at a house where Scarlatina was, and talked with the lady at the door.”

The Milk Supply stopped.—On becoming aware of the facts on the morning of the 5th inst., I at once called on the Chairman of the Sanitary Committee and the Town Clerk, and directly afterwards sent a cab and messenger to Gosforth for the dairyman, who came to the Town Hall, and in the presence of the gentlemen before named and myself, was informed of the particulars. During the interview the mid-day notifications arrived by post, and showed on comparison with the milk list a further increase of cases of Scarlet Fever among the dairy customers. On the very serious nature of the matter being put before Mr. Dodgson, he, on our advice, agreed forthwith to discontinue the sale of his milk until he had my authority to resume it. He was also advised not to give the milk away, but to empty it down the drains for the present.

Second visit to the Dairy.—On the 6th inst. the Chairman of the Sanitary Committee, Inspector Hedley, and myself met, by appointment, Dr. Galbraith and Mr. Dodgson, at the house of the latter, who stated that he had discontinued the supply of milk to his Newcastle customers, as promised,† and that the milk had been emptied down the drain. He said also that he had bought a recently-calved cow on Saturday last, and that her milk was mixed with the rest on the afternoon of that day and afterwards.‡ He has not had any other calvers for some months. He

* The two servants were removed to the Fever Hospital, where one developed a severe attack of Scarlet Fever; the other (who states she passed through Scarlet Fever when a child) suffered from ulceration of the tonsils without skin rash, but followed by desquamation.

† The supply to the Gosforth customers was also discontinued.

‡ It was afterwards ascertained that this cow had calved on June 22nd. There is no suspicion of any ailment of this animal.

bought two other fresh cows about six weeks ago. All have kept well. The daily yield of milk at the dairy is from 50 to 60 gallons. Small quantities of milk have occasionally been bought from, and sold to, other dealers during the past fortnight.*

Mr. Dodgson also made a statement with reference to a report that one of the cases of Scarlet Fever on his milk list had received infection through a visitor from an infected house, which I afterwards inquired into and found to be incorrect.

We then visited the field in which the cows were kept during the day and found the Company's water laid on to troughs. On the side of the road between the field and the dairy is a pool of stagnant water, to which the cattle have access, and from which we advised the dairyman to see that they were kept, which he promised should be done.

Health of the Milk Consumers in Gosforth.—At the above interview Dr. Galbraith stated that he had visited all of the customers of the dairy living in Gosforth, except four, two of whom are from home. In one house a little girl "looked suspicious of having had Scarlatina last week," but had not been under medical advice. A young man in the same family has Tonsillitis, with a red rash on the throat. In another house "a child has a slight reddish patch on the left tonsil, which is enlarged." Up to date there was no other case of Scarlet Fever or questionable ailment among the customers visited by Dr. Galbraith.

In a letter dated 12th inst., Dr. Galbraith reported the total cases in the particular dairy custom observed by him as being 1 of Scarlet Fever and 4 of Sore Throat, each case being in a different family or house. The total number of households in Gosforth supplied with the milk in question is 26.

Concurrent Sore Throat in the Dairy Custom in Newcastle.—Up to this date (6th), in the course of the investigation, a considerable number of cases of Sore Throat, etc., in the households of persons affected with Scarlet Fever, had come under notice. Three such under the care of Dr. Lownds were notified by him as Diphtheria, as were two others in a different family, in which Scarlet Fever was not reported, and who had used this particular milk.

Desirous of ascertaining the extent of this prevalence of affections of the throat, I addressed a circular to the medical practitioners who had notified cases of Scarlet Fever among the consumers of this particular milk supply, asking for particulars in their practice of such cases as regards:—

* No case of Scarlet Fever reported during the fortnight was supplied with milk by any of these.

1.—The number of cases of Sore Throat or other throat ailment, without skin eruption, occurring in houses along with cases of Scarlet Fever.

2.—The same as regards households in which there has been no Scarlet Fever recently.

3.—The name, age, and address of each case of the foregoing.

4.—The date of the first appearance of ailment.

5.—Observations on the appearance of the throat, tonsils, etc.

6.—Whether the persons affected had drunk milk alone (either cooked or uncooked), or merely took it with tea or coffee.

In response to this circular and otherwise I received replies from Drs. Scotland, Lownds, H. W. Newton, Gibb, Oliver, Hawthorn, Hume, Farquharson, J. Brown, P. H. Watson, Kennedy, and Beatley, respecting the cases under their care. Several of the cases, both of Scarlet Fever and Sore Throat, came under my own observation in the Newcastle Fever Hospital. Believing that there would probably be other persons with Sore Throat in the dairy custom who, on account of the mildness of their attacks, might not have taken medical advice, I caused inquiry to be made by the Inspectors at the houses of the customers in Newcastle where Scarlet Fever had not already been notified, 114 in number, with the result of ascertaining that in a large proportion of these one or more of the residents had recently developed Sore Throat.

In one of the families reported as having Sore Throats, I found three children suffering from unmistakeable Scarlet Fever. Two of them were desquamating, and the third had acute rheumatism of the large joints. The first case dated from July 1st, and a scarlet rash appeared next day. The others fell ill on the 3rd. All had enlarged tonsils.

Feeling the importance of having the other cases of reported Sore Throat inquired fully into, and being myself unable to find time for this purpose, I asked Dr. G. W. Ridley, Resident Medical Officer of the Newcastle Dispensary, to undertake this duty, and he kindly did so.

The information obtained from the various sources above named may be summarised as follows:—

Dr. Hume reports 3 cases of Scarlet Fever and 4 of Sore Throat without skin eruption, in the same family. In the cases of Sore Throat only, the appearances were—scarlet flush over the fauces, swelling of the tonsils, and small aphthous ulcers. In other households using the same milk Dr. Hume noticed cases of Sore Throat of precisely the same character. Several of the cases under other medical care had the appear-

ance of simple Sore Throat, Tonsillitis, Ulceration of Tonsils, Palate, etc. Some of these, including three admitted to the Fever Hospital, were followed by peeling of the skin.

Dr. Farquharson reports a family of three persons, the first of whom began to feel ill with Sore Throat on July 2nd, the tonsils became highly inflamed, and the glands of the neck were enlarged. There was no eruption on the skin, but desquamation appeared afterwards. A second case of Sore Throat with implication of the glands of the neck in this family began on the 3rd inst., and recovered in a few days. The third case in the family was a typical one of Scarlet Fever.

Dr. Scotland, who notified 6 cases of Scarlet Fever in four households, in each of which there were cases of Sore Throat, reported also 6 cases of Sore Throat in other households, in which *ordinary* Scarlet Féver did not appear. He describes the symptoms of the throat cases as ranging from slight to moderate, smart, and severe.

Dr. Oliver, writing of 2 cases of Sore Throat under his observation, says, "In my own mind both of these have been Scarlet Fever, but what proof have I?"*

Dr. Lownds notified 3 cases of Scarlet Fever and 2 cases of Diphtheria in the same family, patchy deposits being observed in all of the cases—the principal point of difference between one set of cases and the other being the presence or otherwise of scarlet rash on the skin. The same observer also reported similar cases of throat ailment in another family, which he regarded as Diphtheritic. All of these are considered as in connexion with the Scarlet Fever outbreak.

Dr. Ridley furnishes detailed information respecting a large number of cases of Sore Throat. Of 19 in which the date of first ailment was fixed—8 began on July 2nd. Some of the cases were slight and of short duration. In 9 there was redness of fauces, uvula, or palate; in two instances there were 2 cases, and in two others 3 cases, in the same family. In one of the latter families, one of the cases was said to be chronic; another was attributed to a wetting; and the third was regarded as "very suspicious." In 8 cases examined by Dr. Ridley the tonsils were enlarged, inflamed, or ulcerated; in 3 the lymphatic glands at the angle of the jaw were implicated. In 1 there was distinct history of a rash, and in 1 there was desquamation.

The milk was consumed uncooked in a large proportion of the cases about which information on this point was obtained.

* These cases were afterwards pronounced to be Scarlet Fever.

The Nature of the Sore Throats.—On considering the foregoing descriptions by the different observers, it is apparent that there was a considerable range in degree of severity of attacks. The accounts of the several cases, including those under my own notice, correspond exactly with the throat appearances of the children of the dairy-helper Rutter, at Gosforth. Every one of the signs and appearances of the throat without skin-rash above mentioned are such as are commonly met with in typical cases of Scarlet Fever. There are numbers of instances of this in the outbreak under report. Different members of a family have also had the same form of Sore Throat—some with rash and some without. From all I have seen and gathered from the medical practitioners concerned, I have no hesitation in stating that the disease from which the children of the dairyman Rutter have been suffering is the same as that from which the consumers of the milk have suffered. The strictest inquiry has failed to elicit that there was any appearance of eruption on the skin of Rutter's children. If it was possible for these children to undergo, unknown to their parents, the Sore Throats from which they suffered, it might well happen that the additional sign of a faint skin-rash may have passed unobserved. But the absence of the rash in these cases only makes them correspond more closely to a large proportion of the cases in the dairy custom, which are directly allied to others of undoubted Scarlet Fever.

There is nothing new in the idea of Scarlet Fever without eruption. It is one of the acknowledged varieties of this disease. It may easily be recognised when occurring in families along with ordinary cases. The difficulty is to distinguish it from Sore Throats of entirely different character, when occurring by itself, and unassociated with the normal form.

There can be no doubt of the importance of excluding from every possibility of infection all milk intended for sale. Hence, in relation to dairy management, every case of Sore Throat, no matter how simple it may appear, should be *regarded as suspicious and treated as infectious*.

EXTENT OF THE OUTBREAK IN NEWCASTLE.

Time.—Special attention was first called to the cases of Scarlet Fever notified, as already stated, on Monday, July 2nd. The date of the first appearance of ailment in the last of the houses in the milk custom that were invaded is July 8th. Fresh cases in households previously affected have been notified up to the 14th inst. Altogether the cases that have come under notice to the last-named date (14th) among the consumers of Mr. Dodgson's milk, are as follows :—

	Cases.	Households.
Scarlet Fever notified	61	34
Diphtheria notified	5	2
Sore Throat in households notified as being infected with Scarlet Fever or Diphtheria }	11	—
Sore Throat among the Consumers of Milk in question, in households not notified as being infected with Scarlet Fever }	39	27
Total	116	63

As showing the relation between the outbreak and its cause, the condition of matters is as follows :—

*Scarlet Fever notified to date (14th July) among the consumers of Mr. Dodgson's milk						61
Diphtheria	do.	do.	...	...	...	5
						— 66
<i>Other cases of Scarlet Fever and Diphtheria notified in the City, week ended 7th July</i>						13
Do.	do.	do.	14th July	...	...	19
						— 32
						— 98
						<u>98</u>

Resumption of the Dairy Business.—On the 12th inst. Mr. Dodgson called to know if he might resume the supply of milk in the City. As already stated, the date of the last invasion of a fresh household in his custom is July 8th. Being fully of opinion that in cutting off all connexion between the household of the cowman Rutter and the dairy a week ago, (which I was given to understand had been done), the spread of infection to the milk was then stopped, I saw no reason why the supply should not now be begun again. As this view was shared by the Chairman and the Town Clerk, no objection was made to Mr. Dodgson returning to his business, on the express stipulation that on no account was there to be any communication between the dairy business and Rutter or his household until my sanction was obtained.

Area of Incidence of Disease.—The map submitted herewith shows the area over which the cases were spread to have been extended—on the west, to St. Thomas' Square, Lax's Gardens, and Clayton Park Square; on the north, to Sanderson Road and Moor View; on the east, to Osborne Avenue (east end), Portland Road, Sarah and Union Streets (Shieldfield);

* Prior to the 2nd inst. no case had been notified in the custom of the dairy.

and on the south, to New Bridge Street, the upper part of Pilgrim Street and Hood Street. Roughly speaking, there are as many cases south of Jesmond Road as north of it. *This is the Area of the Milk Supply.* 10 cases of Scarlet Fever and 3 of Diphtheria in this area, in households supplied with milk from other dairies, have been notified during the fortnight ended 14th inst.

Details of the Dairy Custom in relation to the Outbreak.—The dairyman supplies 147 households in the area. Of 86 of the houses to which the milk is delivered by himself, 15 have been notified as infected with Scarlet Fever or Diphtheria; and of 61 houses served by his son, 18 have been similarly invaded. In addition to the foregoing, the dairyman partly supplies a small retailer, one of whose customers has had Scarlet Fever. Counting the diseases above-named, and Sore Throat, altogether 63 households, or nearly 43 per cent. of the entire number supplied with this particular milk, have been invaded in this outbreak of disease.

Type of the Cases, etc.—Hitherto there has been no mortality in connexion with the outbreak.* Several of the cases have been severe. 10 of the patients were removed to Hospital, of which 5 were suffering from Scarlet Fever with distinct rash, 1 having the disease in a severe form; the remaining 5 had Sore Throats without any visible eruption. 3 of these desquamated freely. One of the last mentioned, a domestic servant from a house where there were cases of Scarlet Fever, had had that disease in her infancy. She had a rather severely ulcerated throat, and her skin is now peeling freely.

Repeated Attacks of Scarlet Fever.—In addition to the last mentioned, 4 of the cases of Scarlet Fever are reported in patients who are stated to have previously passed through the disease. Dr. Scotland reports 2 of these cases, one being that of a patient who had Scarlet Fever 24 years ago. The other is that of a boy whom he himself attended for Scarlet Fever only about half a year ago. I was afforded the opportunity of seeing this patient and his brother, who each had a somewhat mild attack of Scarlet Fever, attended with a copious red rash and other symptoms as to the identity of which there could be no mistake.

Dr. Farquharson reported a case of Scarlet Fever, which was stated to be the third attack in four years.

Dr. Lownds also reported a case of Sore Throat in a household infected with Scarlet Fever, the patient having passed through Scarlet Fever two years ago.

* Since the above was written, one of the patients has died.

Date of Attack.—With the view of throwing light on the origin of the outbreak, as much information as possible has been collected as to the dates on which the patients first began to feel unwell. The following is a summary of the particulars of 70 cases about which we have been able to gather definite information :—

SUMMARY OF DATES OF FIRST FEELING OF ILLNESS.

Disease.	June 29th.	June 30th.	July 1st.	July 2nd.	July 3rd.	July 4th.	July 5th.	July 6th.	July 7th.	July 8th.	July 9th.	Total.
SCARLET FEVER ...	3	4	8	13	8	1	2	...	...	2	...	41
SORE THROATS ...	3	2	6	6	5	1	1	1	...	...	2	27
DIPHThERIA ...	...	...	2	...	...	...	...	...	...	...	...	2
Total ...	6	6	16	19	13	2	3	1	...	2	2	70

From this Table it appears that 48, or 68 per cent., of the cases referred to began to feel unwell on one or other of the first three days of the present month. Above 70 per cent. of the Scarlet Fever cases date their first ailment from the same time.

In the case reported by Dr. Scotland, as already stated, there is reason to believe that three children who fell ill on July 3rd were infected by milk from the same delivery which they consumed on June 30th. Whether this milk was consumed on the date of delivery in this and other instances cannot be ascertained. It is not probable, however, that in any instance it would be kept more than a day at this time of year. It may be that only one yield of milk was infected, and that its effect on the various consumers began to show on different dates, according to the quantity taken of that particular yield, or the circumstance of its being raw or cooked, fresh or old, etc. In one household where there were 3 cases of ailment (1 of Scarlet Fever and 2 of Sore Throat), beginning respectively on the 2nd, 3rd, and 6th inst., Dr. Farquharson states that "on June 27th the first of these patients had taken about half a pint of soured milk, that is, milk which had been standing since the previous day." The case was one of severe Tonsillitis, the gravity of which may, he suggests, be accounted for by the multiplication of the virus in milk undergoing acid fermentation. Personal idiosyncrasy, *e.g.*, a previous

attack (as in the last of the three cases just mentioned), or special susceptibility, might protract the period of incubation in one instance or shorten it in another.

Hence we are unable to come to any definite conclusion as to whether the mischief was done by one delivery of the milk or by several. Rutter states that his children have sometimes come about the cowhouses, but does not admit that they have ever done so lately.

THE CAUSE OF THE OUTBREAK.

There is no doubt whatever in my mind that the outbreak of disease under report was disseminated by means of milk. I am also of opinion that the milk in question received infection after leaving the cow, and that such infection came, directly or indirectly, from the children of the cowman Rutter.

It is, therefore, unnecessary for me to state that the occurrence of the disease was in no instance to my knowledge due to structural sanitary defect.

In weighing evidence relating to outbreaks of disease such as that under consideration, it must be remembered that proof absolute of the cause is never possible. In the case of a murderous assault a witness may testify to the deed; or the bullet found in the body may correspond with those in the possession of the assassin; and so the fact may be established beyond question. But in the case of an attack of Scarlet Fever the bullets are invisible. The milkman's cans may be loaded with them, but no man is able to say he saw them put in; and though discharged with fatal havoc among the customers, their presence cannot, except by inference, be proved either at the dairy or in the dead.

It is not unfrequently urged that because all, or at least the majority, of the drinkers of the indicted milk in an epidemic are not infected, therefore that fluid cannot be to blame. It is about as logical to argue that because a sportsman does not bring down the greater part of a covey at a shot, he did not hit the bird that falls to his gun. If there is one thing more probable than another about the contagium of such diseases as this under report, it is that such contagium is *particulate*—i.e., that it consists of particles, invisible though they may be. Such particles may be few in number, and during the quiescence of the medium in which they are suspended, they probably settle downwards. Consequently in the case of milk, it is natural to suppose that if there are only one or two

of such particles in a canful, a large part of the contents will be quite free from them and fit to drink.

On the present occasion it is scarcely probable that any line of defence like the above will be attempted. The fallacy of the argument is here exposed because it was set up on a recent occasion, and will doubtless be so again.

Lessons.—A serious outbreak of disease, such as Newcastle has just now experienced, should not be without its teachings to everyone concerned. It shows how much the health of the most careful and steady-living families may be literally in the hands of their milkman, and how important it is to be able, on the slightest suspicion of danger, to stop him from going his rounds. In matters of this kind *promptitude of action is everything*. To wait for proof may mean death. But to prohibit promptly the sale of infected milk, without incurring liability to action for damages may be, and in ninety-nine cases out of a hundred, perhaps *is*, beyond our power, because we cannot prove infection by any known means, other than that of its effect on the consumer. In the case of infected articles of clothing,—which at the worst are only likely to be dangerous to a small number of persons coming in contact with them,—although there can be no absolute proof of their condition, yet in a court of law the infection is frequently sworn to and held as proved. Is it not much more important in cases like the present, whenever there is good reason to suspect that disease is being, and may be, spread broadcast by milk, that the Sanitary Authority, on the opinion of their Medical Officer of Health, should have power to prevent danger by stopping the milk supply summarily, until it is known that there is no danger?

There should also be power to compensate for loss incurred by stoppage of business.

On the present occasion Mr. Dodgson very properly discontinued his business as soon as the danger was pointed out to him. But suppose that, instead of the children ailing, one of the milkers had had a Scarletinal Sore Throat, rendering her a source of continued infection of the milk; and that the dairyman had declined to admit that there was any risk, and would not have his business interfered with. What could I have done? There is certainly power to demand a list of customers, and these might have been put on their guard, but not till much mischief might have happened.

It is of great importance to the public health to have power to deal thoroughly with these matters. It is also desirable that the general

sanitary condition of dairies situated outside of the city, but supplying milk to the citizens, should be in some degree under civic control. At least the citizens should have some guarantee of security, *e.g.*, against the risk of contamination or infection of the milk at all times. Dairy-workers should be compelled to report to their employers all infectious and suspicious ailments in their households; and dairymen should be compelled to take proper precautions. But how can they, without special education in such matters, be expected to appreciate the many delicate points relating to contagium and its communicability, which are but imperfectly grasped even by scientific experts? They should therefore be made aware of the great hygienic importance of every detail of their business.

For my own part, the experience of the recent outbreak has taught me to be more suspicious than before of what appear to be trivial ailments in persons connected with dairies. In a report on an outbreak of Scarlet Fever at the beginning of the present year, I stated that one of the household servants at the dairy, but who was understood not to be in any way engaged in the dairy business, had Tonsillitis, which I fully believed to be non-specific. Were that case to decide now, I doubt whether I should express the same opinion. Under any circumstances I should advise her removal from the dairy premises.

I have to express my belief that Mr. Dodgson is not in any way to blame in this matter. To the best of my knowledge he has been straightforward and open throughout. He at once discontinued the supply of the milk when advised to do so, and did not begin it again until authorised.

My acknowledgments are due to the different medical practitioners concerned for the valuable aid they have courteously rendered in the inquiry.

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MEDICAL OFFICER OF HEALTH.

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Town Hall,
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