

Dr. Page's report to the Local Government Board on recent prevalences of scarlatina at Donington and Moulton, in the Spalding rural sanitary district, in relation to school attendance / [David Page].

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Dr. Page's Report to the Local Government Board on recent prevalences of Scarlatina at Donington and Moulton, in the Spalding Rural Sanitary District, in relation to School attendance.

GEORGE BUCHANAN,
Medical Department,
April 9, 1883.

1. The following report relates in the first instance to a recent and exceptional prevalence of scarlatina, accompanied by a considerable mortality, and involving protracted closure of the schools, in the parish of Donington, of which the Board had information from the Medical Officer of Health on the 6th of January 1883.

2. In accordance with the instructions of the Board to make inquiry into the circumstances of the outbreak, more especially in connexion with the question of the influence of schools on the spread of infectious diseases, I visited Spalding on January 18th, when I had an interview with Mr. Stiles, Medical Officer of Health for the Donington division of the district. From him I learnt that between 6th July last and the date of my visit, 79 cases of scarlatina, with 16 deaths, occurring in 38 families, had altogether come under his notice. Inasmuch, however, as his only means of information are quarterly returns of deaths from the registrars and the returns of pauper sickness, supplemented by the results of personal inquiry, Mr. Stiles expressed his belief that besides mild cases, for which no medical aid may have been sought, other well-marked cases had come under treatment, of which he had not had intimation.

The more complete list afterwards furnished me by Dr. Jollye, of Donington, the only practitioner residing in the parish, confirmed this view, as it embraced 99 cases occurring in 50 households under his care. Next day I made my inspection of the localities concerned in the outbreak, accompanied by Mr. Stiles and the inspector of nuisances, Mr. Bollon.

3. The parish of Donington is the most northerly of the parishes of Spalding union, and comprises portion of the flat alluvial area of the Fenland. The soil is for the most part silt or sandy loam overlying clay, but in some places the latter is at the surface.

A network of dykes intersects the district for the purposes of land drainage, two main channels, the South Forty Foot Cut and Hammond Beck, traversing it from south to north, and ultimately discharging their waters into the River Witham, near Boston.

The population of the entire parish is about 1,665, and is wholly engaged in agriculture. The market town of Donington, with some 1,000 inhabitants, is situated nearly in the centre of the parish, and is 10 miles N.N.W. of Spalding. It consists of three principal streets, from which branch off one or two short cross streets and yards, converging upon the market place. Fairly compact, a few houses detached from the rest occupy the immediate outskirts; also the aggregated blocks of buildings of Cowley's Endowed Schools, to a description of which I shall presently return.

4. Regarding the sanitary arrangements of the town, the water supply is obtained partly from underground cisterns or other less perfect means of storing rain water caught on the roof, and partly from wells. The latter are shallow, exposed to contamination by surface soakage, which is known to penetrate for remarkable distances through the silt, and are not commonly resorted to for drinking purposes.

The only two public pumps, one of which was sunk so recently as 1876, are also from the same cause now polluted and unfit for use. In one locality a pit forms the source of supply to some five households.

5. There is no system of sewerage; slops are got rid of either upon gardens when available, or into porous cesspools in the back yards. Formerly, I am

told, open drains, wide and offensive, traversed the main street of the town, but were replaced several years since by 18-inch brick culverts. These are, however, intended for highway purposes only.

The privy in common use is provided with a vault beneath the seat, some four feet in depth, allowing large accumulation of excrement, which is removed, perhaps, once a year.

A large weekly market for cattle, sheep, and pigs, is held in the market place, and in the absence of any system of scavenging and of a properly paved surface, is a perpetual source of nuisance to the neighbourhood.

6. The dwelling-houses of the labouring class are mostly four-roomed, well built and ventilated, and not overcrowded.

For the rest, although the village as a whole presents an appearance of neatness and good order, a result, doubtless, of the frequent supervision of the sanitary officers and the abatement of ordinary nuisances of the obtrusive kind, the sanitary condition of Donington cannot be pronounced satisfactory, owing mainly to the need for a proper system of sewage disposal.

7. Cowley's Endowed Schools constitute a distinctive feature of Donington, and comprise five separate institutions for the free education of children resident within the parish. The buildings occupy a fine and open site just outside the town, and are in three blocks, forming two sides of a square. Two of the blocks, containing one the Upper Girls' and Elementary Girls' Schools and the other the Infant School, are modern buildings, with the class-rooms open to the roof. The third block contains the Grammar School, on the ground floor, and above an Elementary Boys' School, and is of older date, having been erected in 1719.

The whole of the class-rooms are well ventilated and afford ample cubic space to each pupil. Earth closets are in use, save at the Grammar School block, where there are common vault privies. Otherwise the premises are in excellent sanitary order. Children remain in the Infant School up to the age of seven, when they are drafted to the elementary schools.

8. Prior to this most recent outbreak, Donington had for three or four years past been free from scarlatina. The last outbreak was in the summer of 1878, about a dozen families being then attacked between July and October, including altogether 20 cases without deaths. There was no extension on this occasion beyond the town itself; the schools were not closed, and do not appear to have been implicated. Dr. Jollye, who gave intimation of the cases in every instance to the sanitary officers, attributed its origin to convalescent children sent from Boston on a visit to friends in the town.

9. On 6th July last, Mr. Stiles was asked by Dr. Jollye to see with him a case of scarlatina of so mild a character as to admit of doubt. The child, five years old, named Gurney, had been attending the Infant School up to date of illness. About this case it may be stated that it was the earliest and only one concerning which Dr. Jollye found himself in a position to give any direct intimation. The circumstances under which he was materially hindered from so doing are best indicated in the following extract from a subsequent report by the health officer to his Authority on the subject of the outbreak:—

"Had the inhabitants," he goes on to say, "shown half the disposition to help us in our efforts as to complain that we caused the schools to be so long closed their children might have been sent to the schools some weeks earlier. We were not surprised at the reticence of the medical attendant, nor are we disposed to censure him, well remembering the obloquy he encountered on the occasion of a previous outbreak of fever in the place, for kindly affording us information which was essential to our success in checking the disease."

Meanwhile, in the same week ending July 8th, a second child going to the Infant School, but from a different family in the town, and a boy of 10, who attended the Grammar School, were attacked. This boy, with two brothers who were not attacked, lived at Donington Wykes, about $1\frac{1}{2}$ miles distant from Donington. They were accompanied to and from school by their governess, merely passing through the main street on their way. Beyond the school precincts there was no probable exposure to infection. This case was the only one to occur among the boys at the Grammar School.



In the following week a third household in the village was invaded, the first case being a child attending the Infant School, and in the week ending July 22nd, in six households, of which five were in the town, 11 cases came under medical treatment, nine being of children attending the Infant School; one of a girl at the Elementary Girls' School, and lastly the mistress of the upper Girls' School, whose attack proved to be the only occurrence in connexion with that school.

None of these cases came to the immediate knowledge of the sanitary officers, who had, however, been energetically engaged in a most determined effort to ascertain the extent of scarlatinal prevalence by means of a thorough house to house inspection of the town. As a result, many infected households were discovered, in several of which children were found in various stages of the disease without medical treatment, and whose illness indeed had apparently not been recognised as scarlatina. In one such family, two children, who had up to illness been going to the infants' school, were said to be suffering from "red rash." I visited this house with Mr. Stiles and was told the same story, but the symptoms described were those of typical scarlatina. And in another family living outside the village four children, who had all been attending the infants' school, were found on July 22nd in a state of convalescence from mild attacks, for which no medical aid had been called in. In consequence of this state of things, and the obvious impossibility of guarding against the entrance under one or another guise of scarlatinal infection, Mr. Stiles recommended that the schools should be closed.

The Trustees promptly responded to his recommendation by closing the whole of the schools on July 25th. The Church Sunday School was likewise closed at the same time.

Mr. Stiles had several times made a personal scrutiny of the children when present in school without in a single instance finding a child exhibiting rash or desquamation, or the sore-throat, and symptoms of the slighter and less developed forms of scarlatina. But he rightly concluded that, in the absence of due knowledge of the whereabouts of the fever in the parish and about the town, neither the probability of such misadventures, nor the almost certain presence of children belonging to infected households, could be effectually dealt with by a less decisive step.

On reference to the school registers I noticed that during July a progressive decline in the average weekly attendance had taken place at each of the schools, save the Grammar School; markedly so in the case of the Infant School. In the week ending July 29th three households in different parts of the town were invaded, the first case in each being a child attending the Infant School. For the next three weeks during which the day schools were closed, two Chapel Sunday schools still assembled, and eight families, of which seven were in Donington, became attacked, all the cases being of children who had opportunities of infection at those schools, thus giving pretty conclusive proof of the reality of those risks as to uncontrollable channels of dissemination which had led this experienced and veteran health officer to urge the closure of the schools.

On remonstrance by the Medical Officer of Health those Sunday schools were accordingly closed at the end of August, between which time and October 2nd, the date of re-opening of all the schools, four families only were attacked. Three of these were in the town and one in the country district, the person attacked in the latter having, it was ascertained, visited an infected household just before. The breaking up of all school assemblage had therefore been undoubtedly effectual in curtailing the spread of infection over the town, and in preventing its extension beyond it.

As regards the cleansing of the schools in the interval, the measures consisted in sweeping down the walls, washing thoroughly the floors, and all woodwork, and lime washing the premises. For the whole 10 weeks the windows were left constantly open, and air allowed to blow freely through the rooms.

10. Upon re-opening, Mr. Stiles, aided by Mr. Bollon, made an examination of every child returning to school, sending home several in whose cases doubt as to the existence of illness in their respective families arose.

11. No fresh outbreak was heard of until the middle of October, when two children, sisters, attending the Elementary Girls' School were attacked. At the end of October a child attending the Infant School was taken ill of scarlatina, followed in the next few days by two others in the same family who had also been going to the same school. The latter cases may, however, have caught the infection at home from the earlier case.

12. Hitherto the fever prevalence had been marked by an absence of mortality.

On November 15th, a child of six years, named Armstrong, daughter of a labourer living in a single cottage a short way out of the town, died of scarlatina. The mother told me that her child had come home ill from the Infant School on November 9th; a second and only remaining child of two years was afterwards attacked on November 17.

The next attacked in point of time was a family named Barnsdale, living about $1\frac{1}{4}$ miles from Donington, the first case being a girl of seven years, who up to her illness, November 18, had been going to the Elementary Girls' School. She died on November 25. Another child, aged four years, not at school, had meanwhile been seized and died on the 29th. Two other children were attacked.

Then on November 26th, a boy of 11, at the Elementary Boys' School, was seized with scarlatina. The family live at Wykes Manor House, a detached farm about $1\frac{1}{2}$ miles from the town. This case was followed within the next 10 days by four others, of which one, a child of five years, died on December 3rd.

During the same week ending December 2nd, altogether six households were freshly attacked, five being situated in distant and widely separate localities from one to three miles out of Donington. In each the earliest case was a child attending one or other of the elementary schools. In one of them, a family named Rawson, living on the Forty Foot Bank, three miles from Donington, a boy of eight, who had been attending the Elementary Boys' School, suffered from sore-throat. Two younger children, who had never been from home, were next attacked with scarlatina, and died on December 2nd and 3rd.

At a farmhouse, three-quarters of a mile from the town, on the Spalding Road, occupied by a family named Green, a boy of seven, who had been going to the Elementary Boys' School, sickened and died December 9th. Three others were attacked almost immediately after him, and two, aged four and six, died on December 6th and 9th.

In another of this group of invaded households, Thomson, living two miles from Donington, three of the children attending the schools had suffered from sore-throat, when a daughter, aged 12, returning after a visit to Boston on December 6th, began to be ill of scarlatina, December 9th, and died on the 19th.

The household in the town itself consisted of a travelling hawker named Wilson, and his family, who occupied a caravan. None of the children were at school, but one, aged three years, was attacked with scarlatina, and died on December 2nd. It was ascertained that this family was in constant intercourse with one of the infected families in the town.

Within the following week, ending December 9, six households became newly invaded, three in Donington and the others in outlying places in the parish, in each of which the first to be attacked was a school-going child.

In two of those families where the earliest cases were of infant school children other members were successively attacked, and still lay ill at the time of my visit, January 19th. One family, Knowles, had lost two children from the disease.

In view of the very unfavourable turn which had now been taken (Nov. 15—Dec. 2) by the outbreak, and of evidence plainly showing the schools to have again become instrumental in its spread, in spite of most indefatigable efforts and continuous surveillance by the sanitary officers, the whole of the schools were closed, at the instance of Mr. Stiles, on December 2nd, a few days antecedent to the above-mentioned group of invaded households.

Thereafter, until the close of the year, seven newly invaded families only came under notice, four being in the town. The prevalence had subsided completely until the week of my visit, when two fresh households had become

attacked, both in the immediate vicinity of previously infected households; in one of which the mother had first begun with sore-throat, and in the other a child of two years was the only member ill.

13. I made inquiry also as to other possible modes of scarlatinal spread besides that of personal communication, which might at one or another time have become concerned in the cause of the outbreak, but I could find none.

Particular inquiry was made about the milk supply, but this had nothing to do with it.

Regarding modes of personal communication, school assemblage appears to have been the effective means in disseminating infection. During the period covered by school attendance, leaving entirely out of consideration the three weeks in which the Sunday schools alone continued to meet, in 30 invaded families the first attacks were, with but one exception (the hawker, Wilson's child, mentioned in paragraph 12), of children attending school. Eighteen of the families lived in Donington itself, and the remainder elsewhere in the parish. The average attendance at this time was 118 at the Infant School and 50 at the Elementary Girls'; and at the remaining schools, Elementary Boys', Upper Girls', and Grammar School, 63, 24, and 25 respectively.

During seven weeks, when day and Sunday schools were closed, four families were invaded, and the only instance of extension to the parish was of a person who had visited an infected household in the town.

In the later period of school closure, to which the December cases belong, there were obviously many possibilities of infection.

14. The chief incidence of the outbreak was, as might be expected, upon the elementary schools. The Infant School was worst hit (21 cases), then the Elementary Girls' School (six cases), and the Elementary Boys' (three cases); the Upper Girls' and the Grammar School having almost complete exemption, and similarly of the mortality, this in 15 of the 16 recorded deaths has fallen upon ages from two to seven years.

15. There is some evidence of the probable mode of introduction into the schools of scarlatinal infection. Mr. Stiles had alluded to cases of scarlatina not identified, but set down to *roseola* by the medical attendant, and commonly spoken of as "red rash." I now learnt from Dr. Jollye that occurrences of this kind had indeed taken place in his practice some time before the recognised outbreak on July 6th, in two families living about a mile from Donington, on the Spalding road. By further inquiry I was able to ascertain that these were cases, although mild, of regular scarlatina. The two households are about 200 yards apart. In one a girl, named Headland, aged 10, had been attacked on April 17th, and would seem to have had abundant desquamation. She returned to the Elementary Girls' School on May 15th. In the other case (Green's, where three deaths have been mentioned to have taken place in the later outbreak) a little girl of seven, attending the Infant School, began on June 12th and returned to school on July 4th. During her illness three other children went regularly to this school. In both instances the parents stated that they had no suspicion at the time of the real nature of the illness, and had therefore not adopted any sort of precautions as to disinfection.

16. The origin of the recent prevalence in Donington thus shown to have been continuous with earlier occurrences of unrecognised scarlatina may, with all probability, be referred to an extension from adjoining districts, for I gather from Mr. Stiles' reports that since 1880 scarlatina has, at intervals, kept cropping up in one after another of the villages lying on the main road from Spalding; Quadring, a village two miles south of Donington, being the latest in this series.

Between these villages there is frequent inter-communication.

17. At the second closing of the schools these were subjected to thorough disinfection and cleansing by means of sulphur fumigation, scouring of all woodwork and school furniture with carbolic acid solution, and limewashing. The appearance presented by the class-rooms on the occasion of my visit certified to the thoroughness of the work.

18. On leaving Spalding I left the following memorandum with the Medical Officer of Health:—

"In regard to the question you have asked me of re-opening Donington schools, I should coincide with your view as to the desirability of re-opening at an early date, provided that the following conditions are observed:—

- "1. That, prior to re-opening, earth-closets replace the common vault privies at the Grammar and Elementary Boys' Schools. The caretaker informed me that the vaults are emptied only at long intervals, not once a year: hence a possibility of retained infection.
- "2. That notice be given throughout the parish for every family from which children come to school, to be required to present a certificate (not necessarily in first instance a medical one) on morning of re-opening, stating whether any member, young or old, has had illness of any kind during the outbreak. Such certificate might specify kinds of illness from such apparently trifling causes as mumps, sore-throat, or so-called 'red rash.'
- "3. Children belonging to families having had illness to be then excluded until you and Mr. Bollon have visited the house.
- "4. In all cases where sore throat, 'red rash,' *roseola*, or scarlatina are known to have occurred, no child to be admitted without your certificate as to freedom from infection. Dr. Jollye may now help you in this matter by furnishing names of families, heretofore unknown to you, and which have been private cases as distinct from the poor law district sickness. From what you tell me, and from what I have had opportunity of seeing during my inspection, I should hope that the outbreak as such has subsided."

[I have since had a communication from Mr. Stiles informing me that the needful sanitary improvements have been carried out, and that the re-opening of the schools would take place in accordance with these suggestions on February 27th.]

I have to thank Mr. Stiles and Dr. Jollye for their kind and indispensable aid during my inquiry, and Mr. Bollon for a plan drawn to scale and other detailed information relating to the schools.

MOULTON.

19. Learning while in Spalding that scarlatina had quite recently prevailed at Moulton, a village five miles east of Spalding, I communicated with the Medical Officer of Health for this division, Dr. England, and went there on January 20th. I found that the prevalence had then subsided, and that the whole of the attendant circumstances had been well investigated by Dr. England, which his somewhat exceptional advantages as the only resident medical practitioner, as well as District Medical Officer and Registrar of Births and Deaths, enabled him the more thoroughly to do.

Dr. England was good enough to furnish me with a complete list of the affected families, from which it appears that the outbreak had been confined to 14 households, in which 44 cases of scarlatina and scarlatinal sore-throat had occurred. There were no deaths. Many of these cases were of mild character and unattended during illness.

20. The village of Moulton is situated about the centre of a peculiarly long and narrow parish of this name, and extends for some distance on both sides of a road crossing from Moulton railway station to the Spalding and Holbeach turnpike. The population is nearly 800. The schools are three in number; the Grammar School, an Endowed Lower School for Boys, and a Board School. The daily average attendance at this latter is 86. Owing to facilities of school attendance in closely adjoining localities, children do not come from any great distance beyond the village.

21. Moulton had, so far as is known, been free from scarlatina for two years until the 11th November last, when a young man named Hitchcock came from Terrington, in the neighbouring Wisbech union, with ulcerated throat, for which he consulted Dr. England. During the fortnight he remained in Moulton he lodged at his mother's house.

On November 25th a boy of seven, named Simpson, son of the groom at the Vicarage, attending the Board School, began in scarlatina.

Inquiry there showed that a child named Hayes had been previously ill for about a week with mild but regular scarlatina, three other children of the same family meanwhile going to the Board School. Hitchcock was uncle to these children, and had habitually visited the house when recovering from his throat illness.

During the week ending November 28th, a third family, Thorpe, was attacked, the earliest case being a child of six years attending the Board School. Other members of this family were successively attacked. Then a fourth family, named King, became affected, the first case in this instance being a boy of five, also attending the Board School. Four other persons in this family were successively attacked within the next 10 days, including the father, two children, aged $1\frac{1}{2}$ and 3 years, and a servant girl. These three families, Hayes, Thorpe, and King, live near to each other, and the children might possibly have caught infection in play.

On December 4th, Dr. England, hearing of illness in other households, visited the school, and, obtaining a list of absent children, made inquiry regarding each case.

Between that date and December 15th five fresh households were affected in different parts of the village, in each of which the first attack was of a child going to the Board School.

The school was closed on December 15th at Dr. England's recommendation. Within the next day or two two other households were attacked, the first case in each being a child who had been going up to day of closure to the Board School.

During the interval of closure two families, having no relation with the schools, were invaded, to one of which special interest attaches. The Assistant Mistress of the Board School went, upon the breaking up, to her brother's house, five miles from Moulton; within the same week two of his children, aged two and four years, were laid up with scarlatina. The farmhouse is perfectly isolated, and the inmates had been exposed to no other risks of infection. The Assistant Mistress had not herself suffered from any slight attack. Had she brought infection in her clothes?

In the other instance two of the inhabitants of the Vicarage were attacked; first, a maid-servant on January 12th, and, after an interval of some days, a little daughter of the Vicar. There were possibilities of entrance of infection into the house through the groom, who by this time had three children convalescent from the fever.

In this outbreak none of the Grammar School boys were attacked, and only three boys belonging to the Lower Endowed School (Thorpe, Simpson, and another) in each of whose families earlier attacks had occurred.

22. Evidence of other modes of dissemination than that of school assemblage, consequent upon introduction of infection by the Hayes' children, there was none. Milk-supply was not implicated.

23. The school was re-opened on January 8th under precautions for the exclusion of children from infected households. No fresh outbreak has since occurred.

SUMMARY.

24. Reviewing the results arrived at in the course of the above inquiries into scarlatinal prevalence in rural districts, the following conclusions, illustrative of, and confirming previous experience, may be submitted:—

First. That in relation to the customary means of scarlatinal spread by personal intercourse, elementary schools constitute a frequent and most effective agency.

Secondly. That the opportunities of school attendance of infected children, or of children belonging to infected families, are not, in large measure, efficiently controlled by existing local sanitary administration.

Thirdly. That a system of notification of diseases occurring in connexion with children attending such schools alone offers a hopeful solution of this difficulty, provided also that the Local Authority has made provision of those other measures which are peculiarly the essentials of effective action against the spread of infection, *i.e.*, means of isolation and of efficient disinfection.

February 26th, 1883.

DAVID PAGE.

