

RECORD OF CASES TREATED IN HOSPITAL  
DURING THE SMALL-POX EPIDEMIC IN  
WEST HAM IN 1884 AND 1885.

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ABSTRACT.

IN bringing before the notice of the Society a statistical account of the cases of small-pox treated by me in the West Ham Hospitals in 1884-1885, I may say that I had hoped, through the co-operation of the other medical practitioners in West Ham, to have been able to have given a practically complete account of the epidemic; and, with that object, I issued seventy-four printed circulars asking for information as to cases not treated in hospital, but as I only received three replies which were available for statistical purposes, I have been obliged to confine myself to the hospital records.

These, however, it will be found are in accord with the statistics of other small-pox hospitals, notably those published by Dr. Gayton. For this reason they have an undoubted value. I have followed as far as possible the lines laid down by Dr. Gayton in his statistical table, so that my cases may be an additional record to the large number, over 10,000, adduced by him.

Of 1,211 cases treated in the West Ham Board of Guardians' Hospital at Plaistow, twenty-six of the cases were said to have been revaccinated, and one of them died, but the death was owing to pneumonia, from which he was suffering on admission to the hospital, and not to small-pox, and only seven of the twenty-six bore marks of revaccination. Of those not revaccinated but with three or more good primary vaccination marks about 4 per cent. died; with from one to two marks 15 per cent., in the case of the imperfectly vaccinated 29 per cent., of those said to be vaccinated but without evidence 44.6 per cent., and of the unvaccinated 56.22 per cent. died; 132 unvaccinated males were admitted with 76 deaths, and 101 unvaccinated females with 55 deaths, a total of 233 unvaccinated cases with 131 deaths; the total number of cases being 1,211, with 237 deaths=19.6 per cent.

I have no hesitation in saying that the protection against

death by small-pox afforded by vaccination is in exact ratio with the efficiency of the operation, and that revaccination confers practical immunity from confluent small-pox, or from death by small-pox.

The statistics of 303 cases of small-pox treated by me in the Plaistow Cottage Hospital of the West Ham Local Board of Health in 1885, agree with those obtained in the Guardians' Hospital during the two years 1884-85, and give altogether a total of 1,511 cases, with a mortality of 18.4 per cent.

Of the 1,511 cases, fifty-seven were hæmorrhagic; five were complicated with phthisis; three with peritonitis; seven with pneumonia; one with diphtheria; two with convulsions; one with ophthalmia and loss of sight of both eyes (unvaccinated), and five with loss of sight of one eye. Two cases occurred of children born alive in the hospital, vaccinated, and escaping the disease, being discharged well on the mothers leaving the hospital; and one where the child was discharged from the hospital unvaccinated, developed small-pox some four or five weeks later, and then died of this disease. Several women were confined of dead children, and recovered. Three, however, suffering from hæmorrhagic small-pox, died. Two cases of hæmorrhagic small-pox recovered, but one of them died of cancer of the breast nine months afterwards. The death-rate was increased by the compulsory overcrowding of the hospital in December 1884 and January 1885, and fell again when the overfull state of the hospital was put a stop to by the opening of the Local Board Hospital in March 1885.

Another question has arisen in connection with small-pox hospital treatment, that of the occurrence of an exceptional number of cases in the immediate proximity of the hospitals. A record of the cases occurring in the neighbourhood of the Plaistow hospitals shows that Mr. Power's conclusions as to small-pox hospital influence are correct; and in the case of the Boleyn Roman Catholic Reformatory, which was invaded by small-pox on two different and widely separated occasions, it appears most probable that the outbreak arose from aerial infection from the West Ham Guardians' Hospital, which was situated near to it. A site which was at one time thought by the Local Board to be suitable for a small-pox hospital, was, therefore, given up on account of its proximity to one of the West Ham Board Schools. The new Town Council of the Borough of West Ham have at present under their consideration the advisability of building a permanent hospital for infectious diseases, and have instructed the Sanitary Committee to look out for suitable sites, bearing in mind

the Report of Mr. Power presented to the West Ham Board of Guardians last year. (This Report is appended.)

The condition of the West Ham community as to vaccination has been recently ascertained by a house to house inquiry under the superintendence of Dr. Kennedy, from whose report I extract the following particulars:—

“The Visitation extended over a time dating from the 30th day of March until the 14th day of May 1885, and during that time 25,267 houses were visited, and the statistics of 142,220 persons were obtained.

“Of the above persons, 140,186 were found to have been vaccinated, or 98.6 per cent. of the whole. 25,102, or 17.7 per cent., were found to have been revaccinated. 2,034, or 1.4 per cent., were found to be unvaccinated. Of the last, 817 were over the age at which the Vaccination Act requires children to be vaccinated.

“Out of 140,186 who had been vaccinated, 6,232, or 4.4 per cent., had had small-pox at some time during their lifetime, and out of 25,102 who had been revaccinated, only 25, or .09 per cent., had had small-pox at some time during their lifetime, showing that proper revaccination is an almost certain preventative against small-pox. On the other hand, out of 817 unvaccinated persons, no less than 427, or 52.2 per cent., had had small-pox at some time of their lifetime.

“Information was only refused in 175 cases.”

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## APPENDIX.

### COPY OF MR. POWER'S REPORT ON SMALL-POX AT WEST HAM.\*

As directed by your Minute of 10th December, I have inspected the hospital at Plaistow, which, in 1884, was hired by the Asylums Board of the Poplar District Board of Works for use as a Metropolitan small-pox hospital. And I have inquired respecting the behaviour of small-pox in the West Ham Urban District during the epidemic of 1884-5, with special reference to the concern that this and the other two Plaistow Small-pox Hospitals may have had in the small-pox incidences witnessed.

For a general description of the Poplar Hospital, I refer to a letter dated 20th January 1881, from the clerk to the Poplar District Board of Works, addressed to the Asylums

\* Obtained from the Board of Guardians of West Ham.

Board, a copy of which letter is appended to this Report. Attached to this letter you will find a block plan of the site, and I annex a map of West Ham (six inches to the mile) showing the relations of this and two other Plaistow Small-pox Hospitals to the Urban Sanitary District.

You will note that the Poplar Hospital, the West Ham Guardians' Hospital, and the Cottage Small-pox hospital of the West Ham Urban Sanitary Authority are situated near together, on the extreme eastern border of West Ham parish (the Urban Sanitary District), about 100 yards or so north and north-west of the Barking high-road. The Poplar Hospital is bounded on three sides by roads, two of which have become built upon on their sides furthest from the hospital. South of the hospital, and within 30 feet of it, is a cottage in a triangular garden, which is on one of its sides coterminous with the hospital boundary. The site of the hospital is only about  $\frac{3}{4}$  of an acre, and barely suffices for the hospital buildings crowded upon it. Thus the external wall of the northern pavilion is only 20 feet from southern roads, while the western extremities of both pavilions are not 10 feet from Short Street. North-east of the hospital certain "receiving-rooms" are less than 20 feet from Western road; on the south the external wall of the administrative block is on the extreme boundary of the hospital site.

The Poplar Hospital, though consisting of two separate pavilions, each of two storeys, has only single administrative offices, and so far has never been made to accommodate at one and the same time patients suffering from different infectious diseases. Indeed, it has, since its erection in 1879, only been utilised on three separate occasions. As the Poplar District Hospital, it received, between May 1881 and May 1882, 165 small-pox cases; and between October 1882 and May 1883, 22 cases of scarlet-fever. As a Metropolitan Small-pox Hospital, under the Asylums Board, it had (according to Metropolitan Asylums Board Returns) under treatment between 31st May 1884 and May 1885, 645 small-pox cases.

The small-pox epidemic of 1884-5 has fallen on the West Ham Urban Sanitary District with very peculiar severity. In a population estimated in 1885 at 160,000, it caused in the two years above 650 deaths, a rate annually of two in every thousand of the inhabitants. Small-pox in West Ham, as in the Metropolis, began to be abundant about March 1884, and during April, May, and early June attained epidemic prevalence. Then for a while, as, indeed, is usual in London during the summer season, the disease abated

somewhat in this district; but with autumn it acquired renewed activity, and during winter and ensuing spring attained epidemicity not often witnessed at the present day in this country. In six consecutive months, November 1884 to end of May 1885, small-pox caused above 400 deaths in West Ham, a rate of mortality equal to 5 per 1,000 annually of the population.

The small-pox epidemic in question has not equally affected all parts of the West Ham Urban Sanitary District. It has fallen with exceptional severity on Plaistow, especially on that part of it in the neighbourhood of the three small-pox hospitals. On the annexed map, the circle of  $\frac{3}{4}$  mile radius,\* with its centre at the small-pox hospitals, comprises 5,051 houses in West Ham, with a population (estimated at six persons per house) of 30,306. The remainder of the Urban Sanitary District includes 21,959 houses, with (at a like estimate) 131,754 inhabitants. In the former area, which may be termed the hospital area, the small-pox death-rate during 1884-5 amounted to 6.4, and, in the latter, to not more than 3.4 per 1,000 of the population. There were not, so far as I can ascertain, any differences in the populations of the two areas of a sort to account for the exceptional small-pox mortality witnessed in the neighbourhood of the hospitals.

In reference to the concern of the Metropolitan Asylums Board (Poplar) Hospital and of other Plaistow Small-pox Hospitals in this excessive small-pox mortality in their neighbourhood, I append a table, showing, fortnight by fortnight, the relations in time between use of the hospitals in question and incidences of small-pox mortality on the hospital area, and on the remainder of the West Ham Urban Sanitary District.

From this table it would appear that:—

(1.) In the six months—December 1883, to 21st June 1884—corresponding to the rise and culmination of the first part of the epidemic in the metropolis—West Ham became notably affected by small-pox, especially, and earliest in that portion of it situated within  $\frac{3}{4}$  of a mile of the Plaistow Small-pox Hospitals. During the period this hospital area suffered a rate of small-pox mortality ten times greater than that of the remainder of the district. The excessive incidence on the hospital area was in no way attributable to the

\* A circle of  $\frac{3}{4}$  mile radius is here used for the reason that it includes the whole of the built-upon area of Plaistow, and that while excluding the populous parts of Stratford, West Ham, and Canning Town, it leaves between these places and Plaistow a zone that is comparatively sparsely populated.

Metropolitan Asylums Board (Poplar) Hospital or to the West Ham Urban Sanitary Authority's Cottage Small-pox Hospital.

The former did not come into use until 31st May, and cannot, therefore, have operated to produce death from small-pox until quite the end of the period in question, and the latter had not yet been established. In so far, then, as the small-pox mortality of West Ham in this period was attributable to hospital-treated cases of the disease, it was due to the Guardians' Small-pox Hospital that had come into use before Christmas, 1883, and which, until March 1884, had mainly served for reception of small-pox cases from parts of West Ham Union other than the Urban Sanitary District of the same name which actually contained the hospital. From December 1883, to 21st June 1884, the Guardians' Small-pox Hospital at Plaistow admitted above 100 small-pox cases.

(2.) In the two-and-a-half months, 22nd June to 30th Aug. 1884, a period corresponding to the normal seasonal decline of epidemic small-pox in the metropolis, West Ham suffered about the same amount of fatal small-pox as in the preceding six months. But in this period the small-pox mortality in the hospital area was smaller, whereas in the remainder of West Ham Urban Sanitary District it was greater than in the antecedent period. Nevertheless, the actual rate of small-pox mortality in the hospital area in the period was nearly twice greater than in the remainder of the district. In this period the Metropolitan Asylum Board (Poplar) Hospital and the Guardians' Small-pox Hospital together received (in nearly equal numbers) about three times as many small-pox patients as were in the whole of the previous six months admitted to the Guardians' hospital. Temporary abatement, therefore, at this season of small-pox mortality in the neighbourhood of these hospitals was in no way connected with disuse of them for small-pox; the circumstance, however, is of especial interest, as being altogether confirmatory of the experience of Fulham, where, in the corresponding period of 1884, small-pox declined, and, for a while, even died out in the hospital area, notwithstanding that admissions to the Fulham Hospital in the period had increased threefold.

(3.) In the succeeding six months, end of August 1884 to end of February 1885, a period corresponding to that of renewed autumn and winter activity of small-pox in the metropolis, small-pox fastened with peculiar severity on West Ham, and especially on that portion of it situated within three-quarters of a mile of the small-pox hospitals. In this period the rate of small-pox mortality in this Urban

Sanitary District was nearly four-and-half times greater than in the whole of the preceding eight-and-a-half months. Meanwhile the rate in the hospital area increased again to more than three times that of the rest of the district. Throughout this six months the Metropolitan Asylums Board (Poplar) Hospital and the Guardians' Hospital were in active use for small-pox, each receiving 400 or more cases. The Cottage Small-pox Hospital of the West Ham Urban Sanitary Authority was not yet in use, but toward the end of the period it was prepared for small-pox and began to receive cases early in March.

(4.) In the next six months, March to September 1885, a period corresponding to that of spring exacerbation, followed by rapid decline and practical cessation of small-pox in the metropolis generally, the epidemic attained its *acmé* in West Ham, and then quickly declined and died out. In this period the rate of small-pox mortality for the Urban Sanitary District was  $1\frac{3}{4}$  times that of the preceding six months, and nearly  $1\frac{1}{2}$  times that of the whole of the previous epidemic. Meanwhile the small-pox death-rate in the hospital area, and that in the remainder of the district, became more closely alike than at any previous period of the epidemic, the rate in the hospital area was only one-tenth greater than in the remainder of the Urban Sanitary District. This approximation of the rates of the two divisions of the Urban Sanitary District was due, not so much to diminution of small-pox in the hospital area as to a very serious growth of the disease beyond, viz., in and about the Canning Town and Victoria Dock district, situated one or two miles south-west of the Plaistow Hospitals. At the very beginning of this period the Cottage Small-pox Hospital of the Urban Sanitary Authority began to receive patients, and thus for a while there were three small-pox hospitals at one and the same time in use at Plaistow. But this state of affairs did not continue beyond the middle of May; the operations of the Metropolitan Asylums Board (Poplar) Hospital were at no time so extensive as they had previously been; only about 80 cases are recorded as received there, and at the end of the month the Asylums Board lease of the building lapsed, and the hospital ceased to receive small-pox. Throughout the period (March to September) the Cottage Small-pox Hospital of the Urban Sanitary Authority and the Guardians' Small-pox Hospital continued to receive cases, and the latter remained in limited use for small-pox after closure of the former in November.

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*Extracted from the Sixteenth Report of the Medical Officer of the Local Government Board.*

| Small-pox Deaths of the Metropolis. | Small-pox Cases admitted to Plaistow Small-pox Hospitals. |   |   | Fortnight ending. | Small-pox Deaths in 1881-85 of Persons resident at Date of their Attack in West Ham Urban Sanitary District. |                             |   |                             |
|-------------------------------------|---|---|---|-------------------|--|-----------------------------|---|-----------------------------|
|                                     | Metropolitan Asylums Board (Poplar) Hospital at Plaistow. | West Ham Guardians' Hospital at Plaistow. | West Ham Urban Sanitary Authority's Cottage Hospital at Plaistow. |                   | In Area within three-quarters of a mile of the Plaistow Small-pox Hospital.                                  |                             | In the remainder of the West Ham Urban Sanitary District. |                             |
|                                     |   |   |   |                   | Number of Deaths.  | Deaths per cent. of Houses. | Number of Deaths.   | Deaths per cent. of Houses. |
| 8                                   | —   | 6   | —   | 1884.             |  |                             |   |                             |
| 7                                   | —   | 2   | —   | 5th Jan. ..       | 1  | .019                        | —   | —                           |
| 3                                   | —   | 6   | —   | 19th " ..         | —  | —                           | —   | —                           |
| 6                                   | —   | 2   | —   | 2nd Feb. ..       | —  | —                           | —   | —                           |
| 12                                  | —   | 5   | —   | 16th " ..         | —  | —                           | —   | —                           |
| 12                                  | —   | 8   | 101   | 1st March ..      | 1  | .019                        | —   | —                           |
| 14                                  | —   | 13  | —   | 15th " ..         | 1  | .019                        | 1   | .004                        |
| 24                                  | —   | 12  | —   | 29th " ..         | 1  | .019                        | —   | —                           |
| 24                                  | —   | 17  | —   | 12th April ..     | 3  | .059                        | 1   | .004                        |
| 30                                  | —   | 10  | —   | 26th " ..         | 2  | .039                        | 1   | .004                        |
| 66                                  | —   | 20  | —   | 10th May ..       | 3  | .059                        | 1   | .004                        |
| 103                                 | —   | 11  | —   | 24th " ..         | 2  | .039                        | 1   | .004                        |
| 89                                  | —   | 11  | —   | 7th June ..       | 1  | .019                        | 2   | .009                        |
| 90                                  | 166   | 11  | —   | 21st " ..         | 1  | .019                        | —   | —                           |
| 61                                  | 15  | 16  | 132   | 5th July ..       | —  | —                           | 1   | .004                        |
| 53                                  | 3   | 36  | —   | 19th " ..         | 1  | .019                        | 1   | .004                        |
| 31                                  | 12  | 44  | —   | 2nd Aug. ..       | —  | —                           | 4   | .018                        |
| 35                                  | 5   | 24  | —   | 16th " ..         | 1  | .019                        | 8   | .036                        |
| 25                                  | 10  | 14  | —   | 30th " ..         | 6  | .118                        | 4   | .018                        |
| 24                                  | 35  | 29  | —   | 13th Sept. ..     | 1  | .019                        | 4   | .018                        |
| 27                                  | 38  | 21  | —   | 27th " ..         | 4  | .079                        | 4   | .018                        |
| 48                                  | 54  | 36  | —   | 11th Oct. ..      | —  | —                           | 7   | .032                        |
| 66                                  | 20  | 45  | —   | 25th " ..         | 3  | .059                        | 5   | .022                        |
| 95                                  | 31  | 15  | —   | 8th Nov. ..       | 3  | .059                        | 3   | .013                        |
| 101                                 | 35  | 63  | 461   | 22nd " ..         | 12   | .237                        | 5   | .022                        |
| 113                                 | 24  | 51  | —   | 6th Dec. ..       | 9  | .178                        | 12  | .054                        |
|                                     |   |   |   | 20th " ..         | 12   | .237                        | 20  | .091                        |
|                                     |   |   |   | 1885.             |  |                             |   |                             |
| 90                                  | 30  | 53  | —   | 3rd Jan. ..       | 8  | .158                        | 11  | .050                        |
| 112                                 | 43  | 43  | —   | 17th " ..         | 11   | .217                        | 10  | .045                        |
| 117                                 | 32  | 30  | —   | 31st " ..         | 7  | .138                        | 17  | .077                        |
| 116                                 | 40  | 37  | —   | 14th Feb. ..      | 18   | .356                        | 16  | .073                        |
| 81                                  | 20  | 32  | —   | 28th " ..         | 5  | .099                        | 12  | .054                        |
| 62                                  | 17  | 53  | —   | 14th March ..     | 6  | .118                        | 27  | .123                        |
| 47                                  | 14  | 42  | 27  | 28th " ..         | 5  | .099                        | 30  | .136                        |
| 79                                  | 6   | 47  | 17  | 11th April ..     | 13   | .257                        | 29  | .132                        |
| 100                                 | 19  | 41  | 22  | 25th " ..         | 11   | .217                        | 28  | .127                        |
| 114                                 | 6   | 43  | 23  | 9th May ..        | 8  | .158                        | 27  | .123                        |
| 125                                 | —   | 28  | 29  | 23rd " ..         | 5  | .099                        | 36  | .164                        |
| 117                                 | —   | 42  | 38  | 6th June ..       | 7  | .138                        | 34  | .154                        |
| 76                                  | —   | 44  | 31  | 20th " ..         | 4  | .079                        | 17  | .077                        |
| 67                                  | —   | 26  | 17  | 4th July ..       | 7  | .138                        | 21  | .095                        |
| 38                                  | —   | 45  | 26  | 18th " ..         | 3  | .059                        | 20  | .091                        |
| 33                                  | —   | 20  | 12  | 1st Aug. ..       | 4  | .079                        | 12  | .054                        |
| 29                                  | —   | 15  | 11  | 15th " ..         | 2  | .039                        | 14  | .063                        |
| 14                                  | —   | 9   | 8   | 29th " ..         | 2  | .039                        | 3   | .013                        |
| 15                                  | —   | 12  | 8   | 12th Sept. ..     | —  | —                           | 6   | .027                        |
| 19                                  | —   | 10  | 4   | 26th " ..         | —  | —                           | 1   | .004                        |
| 10                                  | —   | 2   | 4   | 10th Oct. ..      | —  | —                           | —   | —                           |
| —                                   | —   | 2   | 1   | 24th " ..         | —  | —                           | —   | —                           |
|                                     | 645   | 1187                                      | 299   |                   | 194  | 3.840                       | 456   | 2.076                       |