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REPORT OF THE CITY OF GLASGOW FEVER HOSPITALS,

(PARLIAMENTARY ROAD AND BELVIDERE,)

From 1st MAY, 1870, to 30th APRIL, 1872.

BY

DR. JAS. B. RUSSELL,

MEDICAL OFFICER OF HEALTH FOR THE CITY, LATE PHYSICIAN-SUPERINTENDENT OF THOSE
HOSPITALS.

PRESENTED TO THE COMMITTEE OF HEALTH OF THE BOARD OF POLICE,
31st MARCH, 1873, AND ORDERED TO BE PRINTED.

GLASGOW:

PRINTED BY ROBERT ANDERSON, 22 ANN STREET.
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The Committee of Health.

THE Hospitals are under the management of the COMMITTEE OF HEALTH, of which Mr. JOHN URE is Chairman, and Bailie MACLELLAN Vice-Chairman.

This Committee meets every alternate Monday, at 2 P.M.; a Sub-Committee one hour earlier, to examine and pass Accounts, and for other routine Business.

Bailie MACLELLAN takes a general supervision of the affairs of the Hospital; and the Provisioning is entirely under the charge of a Sub-Committee, consisting at present of Bailies MOIR, MACLELLAN, and CRAIG, and Mr. CHALMERS—Bailie CRAIG, Convener.

HOSPITAL STAFF.

Consulting Physician and General Superintendent.

THE MEDICAL OFFICER OF HEALTH.

PARLIAMENTARY ROAD.

Physician-Superintendent.
H. E. CLARK, M.R.C.S.

Matron.
Miss JANE MACGILL.

Storekeeper.
MARY MUNRO.

BELVIDERE.

Physician-Superintendent.
J. HOYLAND LILLY, L.R.C.P.

Matron.
Miss JANE GIBSON.

Storekeeper.
JOHN MUNRO.

Borcas Society.

President—Mrs. WALTER GRAY, 11 Claremont Street.

Secretary—Miss WATSON, 9 Woodside Terrace.

Treasurer—Mrs. JAMES THOMAS, 4 Royal Terrace.

“Operations are carried on through means of a Female Agent, whose duty it is to give attendance at the Store at Belvidere, and to render a monthly statement of the stock, and of the month's distribution.

“In order to keep up the supply at the Store, the Ladies meet once a month to cut the clothing, and to distribute it to those who have intimated their willingness to make it.”—*Report for 1872.*

CONTENTS.

	PAGE
BELVIDERE,	5-11
History of Purchase,	6
Description of Lands,	7
Description of Buildings,	9
STATISTICAL,	11-22
General Statistics,	11
<i>Relapsing Fever</i> —"Hospital Epidemic Chart,"	13
Mortality,	16
Number Stimulated,	18
<i>Typhus, Enteric Fever, and Small-pox,</i>	19
<i>Small-pox</i> and Revaccination,	21
STUDY OF MODIFYING INFLUENCE OF VACCINATION	
ON SMALL-POX,	22-37
Influence of Vaccination on Mortality,	26
Vaccine Marks in relation to Mortality,	27
Influence of Extent of Eruption on Mortality (Diagram),	30
Do. Vaccination on Extent of Eruption,	31
Do. Age do.	33
Quality of Vaccine Marks in relation to Eruption,	34
Influence of Good Vaccination is Stable,	36
FINANCIAL,	38-43
The Lands of Belvidere,	42
APPENDIX,	45-59



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REPORT.

No detailed Report of the Hospitals maintained by the Board of Police of Glasgow has been published since 1870. In June, 1871, I laid before the Committee of Health a memorandum of the number of patients treated, the nature of their diseases, and the mortality for the year 1870-71 stating that, owing to the pressure of current work from the prevalence of fever, my usual detailed Report must be deferred. Since that time another year has elapsed, and we are now nearly at the close of a third. The greater part of what follows has been lying aside in MS. for several months. A portion relating to Small-pox was printed in the *Glasgow Medical Journal* for November, 1872. As the Committee of Health are well aware, the entire Sanitary medical organization has during the past year been recast, after a long period of suspense and uncertainty, which I may be allowed to plead in partial explanation of the lateness of this Report. I am anxious, however, that the statistics of such a vast body of epidemic disease (amounting to 7617 cases) should not be lost, or the series of Reports of the results of our treatment be broken. As a matter of local history, also, many of the facts of the years now under review deserve a permanent record.

BELVIDERE.—The principle of treating infectious disease at the common expense for the common good was introduced first by the Glasgow Police Act, 1862, but it was shorn of half its value by the condition that, only when the Medical Officer had declared such disease to be actually epidemic in the city, or part of the city, could the Board provide and maintain

temporary hospital accommodation. In the observance of this condition many minor difficulties were involved, but the grand error which it initiated and encouraged was that of waiting until an infectious disease had become "epidemic," and only then making provision for its isolation in hospital. Hence the various stages through which hospital accominodation has passed towards its present ample extent, all record the same story of epidemic disease gaining the mastery, and being beaten down instead of prevented from rising. The site off Parliamentary Road was purchased in face of the severe Typhus epidemic which culminated in the winter of 1864-5, and the hospital was opened in April, 1865, when the epidemic was already falling, having burnt itself out. The next Typhus outbreak, in 1869, led to the purchase of additional ground off Parliamentary Road. As Relapsing Fever spread in the autumn of 1870, this was exhausted by the erection of successive pavilions. A Sub-Committee, appointed in February, 1870, "to consider and report on hospital accomodation," reported in September, "that another site should be looked for on which the nucleus of a *permanent Fever Hospital* could be erected, and that this Committee be authorized and instructed accordingly, and to report." This was agreed upon, and during that and the following month many sites were visited, and the aid of a Medical Committee, consisting of the President of the Faculty of Physicians and Surgeons, with three others, and the medical officers of the Board, was obtained. The ultimate issue of the matter was this, that, on 11th November, 1870, at an extraordinary meeting of the Board of Police, on the motion of Lord Provost Arthur, the site of Belvidere was purchased for £17,000, reduced to a ground annual at 4 per cent.

The lands of Belvidere lie two miles east of the Cross, between the London Road and the Clyde, on the extreme verge of the municipal boundary, indeed a small section of the north-east corner lies outside the line. Their extent is nearly 30 acres. The surface rises gently as you approach the Clyde; towards London Road it is even, and laid out in large

arable fields, but towards the Clyde it is broken by three small glens, apparently once the beds and sloping banks of three streams. Of these, one lies on the east, and one on the west boundary, and the third, which is the largest and deepest, runs half-way between the mansion-house and the eastern boundary. All the estate is well wooded, especially towards the river, and these glens give great variety and natural beauty to the grounds. The highest portion is to the east, between the two glens. The garden, enclosed with a high wall, occupies there a plateau overlooking the Clyde. Behind, on a still higher level, is a field of about four acres, on which the present hospital is erected. Between the hospital enclosure and London Road there is a large field, which is let for cultivation to the Cleansing Department. The walks on the garden plateau and on the slopes of the largest glen, afford ample space to the convalescents for exercise.

A photograph of Belvidere House, as well as a history of the estate, will be found in "The Old Country Houses of the Old Glasgow Gentry," a work of much local interest, published by Mr. Maclehose. It is somewhat over a century since the estate was constituted and named by Mr. John M'Call, merchant, and one of the partners in the Thistle Bank. Since then it has passed by sale through the hands of various proprietors. The mansion is a fine, plain, but substantial building, facing south, with a lawn of three acres in front. It has evidently been built on two occasions, the centre being the original house, and the wings a more recent addition projecting in front, with large oriel windows, containing the dining-room on the east and the drawing-room on the west. There is also a greenhouse and vinery, with access from the dining-room, and a six-stalled stable and other outhouses, but these last greatly out of repair.

Such was the estate bought by the Board of Police for their "permanent Fever Hospital." I have described it at some length, because I believe there has never been such a noble provision made by any community for its fever-stricken poor. Unless when the wind is westerly, nothing can be perceived

suggestive of proximity to a large city. The River Clyde runs, still apparently pure, in front, and between it and the Cathkin hills, which close in the horizon at a distance of three or four miles southwards, there is a stretch of wooded country.

Unfortunately, Relapsing Fever was now pressing so hard upon us that it was impossible to build even on such a site "a permanent Fever Hospital." Since the middle of October an increasing proportion of the cases had been treated at home for want of hospital accommodation. At the meeting of the Committee of Health on 14th November, 1870, it was reported that 174 cases were being so treated, and of these 83 at the expense of the Board. It was immediately resolved to erect "two temporary pavilions for about 100 patients," and otherwise to prepare Belvidere, in the quickest possible way, for the treatment of Relapsing Fever. So far as rapidity of erection is concerned, the result was successful. The pavilions were designed to facilitate this in every way consistent with moderate comfort, being of wood, single-lined, covered in all parts with felt, and divided into wards for 24 patients each, with about 1000 cubic feet of space per bed. As wrought-iron bedsteads could not be made quick enough, wooden ones were prepared after the pattern of those used in Ireland during the Typhus epidemic which accompanied the potato famine. The windows were double-glazed to retain the heat, and open fires, in cast-iron fire-places, cased round, so as to admit fresh air from below the floor, after passing over the heated surfaces, were expected to furnish sufficient heat.

The contractor entered the stubble-field, on which the hospital stands, on 22nd November, 1870, and on 19th December a pavilion was finished so far that it was possible to relieve the hospital in Parliamentary Road of 24 convalescents, and in a few days of 24 more. When we remember the distance from town, the difficulty of working out of doors in a winter of such severity, the snow being several inches deep, so that the wood had to be thawed with salt sometimes, we must admit this expedition to be very creditable to the contractor, Mr. Thomas Lamb. My chief

difficulty was with the cuisine. Owing to the extensive alterations necessary to convert the kitchen of a country-house into one fit for a large hospital, it was impossible, at this time, to cook anything but porridge in a satisfactory way; but Mr. Jenkins, of the Great Western Cooking Depot, kindly arranged to supply us from his Bridgeton branch with broth, which was driven by us every day out to Belvidere, and served up comfortably, though made at his central cooking establishment, more than three miles away!

The accommodation of the administrative departments of a hospital is much more difficult to provide for than the accommodation of patients. But for the existence of Belvidere House, within and about which it was found possible to arrange all the departments, excepting the washing and disinfecting, the wards could not have been used for at least a month later. With the aid of Mr. Carrick and Bailie MacLellan, it was astonishing to find that, with very little material alteration, but a good deal of packing, all parties were got together under one roof. In this way the organization was sufficiently advanced to admit of the treatment of Fever in the acute stage on the 25th December. From that date, for some weeks, we removed from all parts of the city as many patients as our vans could convey. On the 28th November, and on the 9th December, two more pavilions had been ordered, making six in all, designed for Relapsing Fever. On the 12th, two pavilions were ordered for Typhus, which were erected after the model of Parliamentary Road, and were superior to the rest in internal arrangement and ventilation. All those pavilions were filled as soon as the workmen left them, until our maximum number of patients, viz., 366, was reached on 10th March, 1871.

It will be understood, then, that from the urgency of circumstances it was necessary to erect at Belvidere a hospital with many defects. Some of these have since been removed. All the pavilions are now double-lined, except the first two erected. They were also slated during the summer of 1872, and heated with hot-water pipes. This additional supply of

heat has enabled us to improve the ventilation by the introduction of Boyle's ventilators, and otherwise.

Other more important additions, in a permanent form, have been made from time to time. In February, 1871, estimates were accepted for a *Washing-house*, or rather two Washing-houses conjoined, each commodious and complete, with all the modern applications of steam to washing and drying—the eastern opening into the hospital yard, and devoted to hospital purposes; the western devoted to the outdoor washing and disinfecting, under Mr. Ellison, Inspector of Cleansing. The bedding and clothing from infected houses are collected by van every morning, driven out to Belvidere, disinfected, washed, dried, and returned by van on the evening of the same day. The building is of brick, relieved with white mouldings. A *Dead-house*, also of brick, has been more recently built, running east and west on the southern boundary of the hospital enclosure. It contains a room for the meeting of relatives and funeral parties, and also a *post-mortem* room, with the most approved arrangements.

There is still great room for improvement in the administrative accommodation afforded by Belvidere House. The sleeping accommodation for the female officials is quite inadequate to meet the requirements of the hospital when fully occupied by patients. Overcrowding, the double use of beds, &c., are then unavoidable. This would have been remedied by the erection of separate dormitories, but for the rapid diminution of fever. The buildings erected by the Board, when not under epidemic pressure, have been quite worthy of the site; and I have no doubt that, from time to time, the Board will gradually fill in the plan of a hospital entirely such as the natural advantages of the locality merit. Still, they will never be able to look with satisfaction upon Belvidere until the present pavilions are swept away wholly, or in part replaced by permanent brick pavilions, adapted for the treatment of the graver epidemic diseases, as well as more pleasant to look upon.

Any one who has even a slight acquaintance with hospital

management will know that the work which I have rapidly described was not accomplished without great labour exacted from those more immediately subordinate to me. Miss Gibson, the present matron at Belvidere, was transferred from Parliamentary Road, and, indeed, did duty at both hospitals, until her successor was appointed. Her energy, shrewdness, and great experience in organization, were invaluable. Dr. MacEwen, now Casualty Surgeon to the Central Police District, gave his whole soul to the work, and manifested great self-reliance and genuine administrative ability during that arduous winter. Nor can I forget Dr. Tennent, then Resident Medical Officer at Parliamentary Road, in whom I could place entire confidence for the management of that hospital, when my time and attention were absorbed by the demands of Belvidere.

The Tables now to be referred to will be found in the Appendix. I shall first give the statistics of each hospital for each year separately, as exhibited for Parliamentary Road in Tables No. I., II., and III.; and for Belvidere in Tables No. IV., V., and VI.

PARLIAMENTARY ROAD.—From 1st May, 1870, to 30th April, 1871, the total number of patients admitted was 2876. At the close of previous year, 100 were under treatment, making a total of 2976—of whom 2653 were dismissed, and 171 died, leaving 152 to be carried to next year. The highest monthly admission was 437 in December, 1870, and the highest number under treatment at one time was 327 in November. The lowest number in hospital was 76 in June and August. Of the 2876 admitted during the year, 1863 were cases of Relapsing Fever, 495 of Typhus, 38 of Enteric Fever, 369 of Small-pox, 7 of Measles, 17 of Febricula, and 87 of other diseases.

BELVIDERE.—From 25th December, 1870, to 30th April, 1871, the total number of patients admitted was 1449—of whom 1193 were dismissed, and 69 died, leaving 187 to be carried to next year. The highest monthly admission was

376 in March, 1871, and the highest number under treatment at one time was 366 in the same month. Of the 1449 patients admitted during this period, 1199 were cases of Relapsing Fever, 207 of Typhus, 3 of Enteric Fever, 10 of Small-pox, 1 of Scarlet Fever, 3 of Diphtheria, 6 of Febricula, and 20 of other diseases.

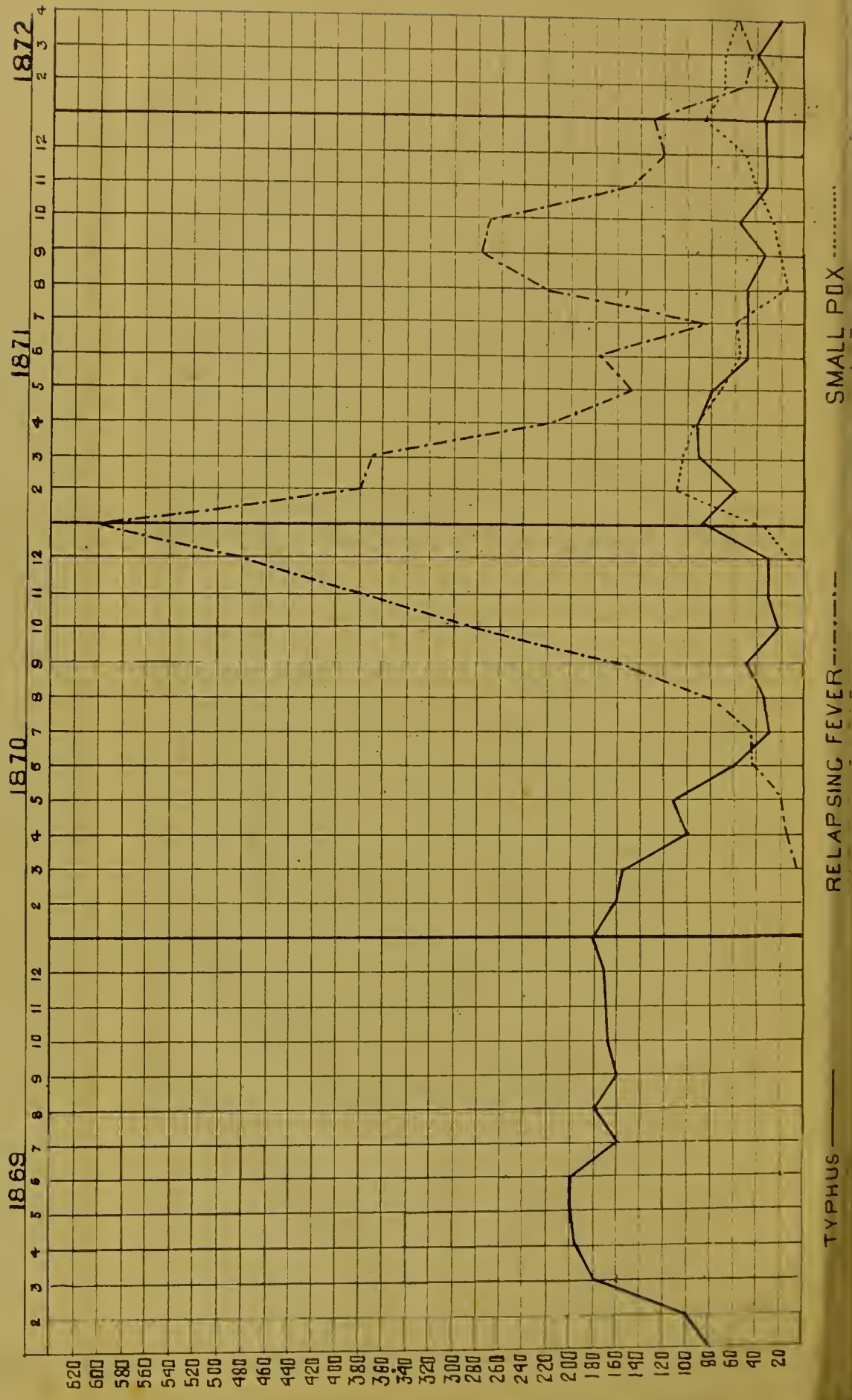
PARLIAMENTARY ROAD.—From 1st May, 1871, to 30th April, 1872, the total number of patients admitted was 742. At the close of previous year, 152 were under treatment, making a total of 894—of whom 738 were dismissed, and 117 died, leaving 39 to be carried to next year. The highest monthly admission was 103 in May, 1871, and the highest number under treatment at one time was 150 in same month. The lowest number in hospital was 13 in September. Of the 742 patients admitted during the year, 614 were cases of Small-pox, 7 of Typhus, 42 of Relapsing Fever, 2 of Enteric Fever, 31 of Scarlet Fever, 22 of Measles, and 24 of other diseases.

BELVIDERE.—From 1st May, 1871, to 30th April, 1872, the total number of patients admitted was 2550. At the close of previous year, 187 were under treatment, making a total of 2737—of whom 2511 were dismissed and 145 died, leaving 81 to be carried to next year. The highest monthly admission was 351 in October, 1871, and the highest number under treatment at one time was 312 in the same month. The lowest number in hospital was 74 in March. Of the 2550 patients admitted during the year, 1702 were cases of Relapsing Fever, 504 of Typhus, 83 of Enteric Fever, 12 of Scarlet Fever, 6 of Measles, 54 of Febricula, and 189 of other diseases.

BOTH HOSPITALS DURING BOTH YEARS.—The total number of patients admitted was 7617, of whom 4806 had Relapsing Fever, 1213 Typhus, 993 Small-pox, 126 Enteric Fever, 44 Scarlet Fever, 35 Measles, 3 Diphtheria, 77 Febricula, and 320 other diseases.

I shall now abandon reference in general either to hospitals or hospital years, and speak of diseases, making a few

HOSPITAL EPIDEMIC CHART.



remarks on the collected figures last given. In speaking of deaths also, it must be observed that in future I mean the deaths after the completed treatment of the cases, not of those which occurred within the limits of the given dates.

Relapsing Fever.—In my last extended Report (1869-70) I drew attention to the appearance of Relapsing Fever in Glasgow, and gave some account of its history, habits, and general symptoms. In March and April, 1870, which were embraced in that Report, 19 cases had been admitted. For the purpose of showing how ample ought to be the hospital resources of a community so subject to sudden epidemic outbreaks as that of Glasgow; and how, by a conjunction of epidemics, even ample accommodation may be exhausted, I have in the following Table presented the number of cases of Typhus, Relapsing Fever, and Small-pox admitted to our Hospitals monthly, from 1st January, 1870, to 30th April, 1872:—

	1870.			1871.			1872.		
	Typhus.	Relaps. Fever.	Small-pox.	Typhus.	Relaps. Fever.	Small-pox.	Typhus.	Relaps. Fever.	Small-pox.
January,...	183	...	...	86	605	35	32	128	83
February,	161	...	...	59	382	114	24	56	65
March,....	156	7	...	91	371	109	41	47	66
April,.....	98	12	...	92	219	97	20	49	54
May,.....	114	19	...	79	149	78	...	...	...
June,.....	58	38	...	52	174	58	...	...	...
July,.....	31	44	...	48	99	60	...	...	...
August,...	37	79	1	52	223	18	...	...	...
September	46	158	...	35	278	21	...	...	...
October,...	27	286	1	55	273	24	...	...	...
November,	30	378	...	36	149	39	...	...	...
December,	31	483	15	37	119	48	...	...	...

To bring home to the eye exactly what these figures mean I give the accompanying Hospital Epidemic Chart, which

shows graphically the rise, progress, and decline of each disease as seen in hospital.* From this it appears that in the winters of 1870-71, when Relapsing Fever reached its maximum, we had also Typhus and Small-pox epidemic amongst us, all these being diseases which must be treated in separate wards — Small-pox, indeed, in a separate hospital.

Relapsing Fever, if left to itself, progresses in a community very much as it does in an individual. This fever is rapid in its development in the individual, and rapid also in its decline. Just in so far, therefore, as the epidemic curve in this chart resembles the fever or temperature curve in an individual case, does it prove that the want of hospital accommodation facilitated the rapid propagation of the disease. From the middle of October, 1870, until January, 1871, Relapsing Fever was treated “at home” in an increasing proportion. The revival of the epidemic in the autumn of 1871, when every case was removed to hospital, presents in the lowness of the curve a striking and instructive contrast. It is almost certain that but for the abundant hospital accommodation then at command, this disease would, as in December, 1870, have prevailed, if not to an equal, at any rate to a much greater, extent. In confirmation of these opinions, I may refer to the experience of 1843, when Relapsing Fever last visited Glasgow. Dr. Perry tells us that at that time, when all but a small fraction of the cases were treated “at home,” and when the population of the city amounted to little more than half its present numbers, in eight months 32,000 persons suffered from this disease. He adds,—“If the public had possessed the means of isolating the first cases as they appeared, by sending them to a hospital, would the epidemic not have been checked? and in place of

* These curves represent, in their general course, very accurately the variations of the entire epidemics, as indicated by the records of the Sanitary Office. Typhus is distinguished from Relapsing Fever only in the Hospital records.

having 32,000 cases, with all their accompanying sufferings, it might have been limited to less than 5000?"*

The analogy between Relapsing Fever in the individual and in the community, when left to itself, happily ceases when it is not left to itself, but isolated in hospital. No treatment hitherto has been found to cut short the individual case, but remove the infected individual to a spacious, clean hospital ward, and expose the infecting virus to abundance of fresh air, and it becomes almost incapable of propagating itself to healthy persons. As pointed out by Dr. Tennent, "Relapsing Fever is in an eminent degree communicable from one person to another in its own habitat."† It haunts the dirty and the destitute. All that sedentary population which settles down from year to year into the slums of our cities seemed to be stirred up and brought to the surface in our hospitals. "Even among the nurses it became, after a time, quite a trite remark that hardly any respectable person came to ask after the relapsing patients." Once established in a locality inhabited by such people, it will fly almost as rapidly and as definitely along its prepared route as fire along a train of gunpowder. I have never known any one come much in contact with Typhus in any official capacity without taking it sooner or later, but this is almost exceptional in regard to Relapsing Fever. My resident medical assistants have all escaped uninjured. In the taking of temperatures, Dr. Tennent exposed himself to Relapsing Fever so thoroughly, that had the same laws governed its communicability as prevail in the case of Typhus, he must have been at once attacked. At Parliamentary Road, "out of 80 nurses and other servants exposed, only 16 were attacked." At Belvidere the proportion was much greater, because the ventilation was not so good. Still, even there it frequently happened that nurses caught Typhus in wards where Typhus

* Facts and Observations on the Sanitary State of Glasgow during the last Year, &c., &c. By Robert Perry, M.D., &c. Glasgow, 1844, p. 13.

† Remarks on Relapsing Fever, *Glasgow Medical Journal*, May, 1871.

cases had been admitted only casually, and removed whenever they were recognized. The bad ventilation had intensified the Typhus poison so much more than the Relapsing Fever poison that the former and not the latter was propagated. All these facts go to prove that Relapsing Fever can be controlled only by isolation, and that isolation to be effective must be immediate in each case, and must be enforced at the very outset of the epidemic if we wish to cut short its development.

Table No. VII. shows the number treated and stimulated at quinquennial periods of age in each sex, with percentages of those who were stimulated and those who died. Of the 4806 cases treated, 100 died or 2·08 per cent. The following are the numbers for each year and each hospital:—

	PARLIAMENTARY ROAD.				BELVIDERE.		
	Treated.	Died.	Per Cent.		Treated.	Died.	Per Cent.
1870-71,	1863	31	1·66		1199	32	2·66
1871-72,	42	1			1702	36	2·11
	<hr/>	<hr/>	<hr/>		<hr/>	<hr/>	<hr/>
	1905	32	1·68		2901	68	2·34

The mortality at Belvidere was therefore higher than at Parliamentary Road by one per cent. in 1870-71, when cases were treated contemporaneously and without selection. In 1871-72 it was 2·11, which approaches nearly the average over all.

Dividing the cases into quinquennial periods of age, we find, first of all, that, like Typhus, Relapsing Fever is most fatal at the two extremes of life. Under 5 years, $4\frac{1}{2}$ per cent. died. A more minute analysis would show that the majority of the fatal cases within that period were infants. The period when there is least danger to life is between 10 and 14, at which age 718 patients were treated, and only 1 died. Indeed, between 5 and 24, Relapsing Fever does not kill nearly 1 per cent. of those it attacks. Between 25 and 44 the mortality rises gradually from 2 per cent. to 3 per cent. At 50 the risk is increased by an addition of 4 per cent., and at

60 by an addition of 10 per cent. to the mortality. It is, however, remarkable that five persons above 75 years of age were treated without a death. Comparison of death rates at quinquennial periods has always been maintained by me to be the only safe method of contrasting results. Applying this test to the statistics of Parliamentary Road and Belvidere for 1870-71, we find, that of the 16 quinquennial periods of life, the former has the lowest death-rate at 10, and is equal at 2; so that, when we also find that the proportion of patients at the various ages is the same, it is evident that the aggregate superiority is real. At all ages above 25 the Belvidere mortality is decidedly the greater.

The following shows the incidence of mortality on the sexes at the two hospitals:—

	PARLIAMENTARY ROAD.						BELVIDERE.					
	Treated.		Died.		Per Cent.		Treated.		Died.		Per Cent.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1870-71,....	936	927	17	14	1·8	1·56	594	605	13	19	2·18	2·14
1871-72,....	8	34	...	1	...	...	834	868	22	14	2·63	1·61
Totals,...	944	961	17	15	1·8	1·56	1428	1473	35	33	2·45	2·24

In all, 2372 males were treated, and 52, or 2·19 per cent., died; and 2434 females, and 48, or 1·97, died—a difference of only ·22 per cent. Both sexes would seem therefore to be alike liable to Relapsing Fever; and while, as in all epidemic diseases, the male mortality is heavier than the female, the preponderance is not at all so decided as, for example, in Small-pox or even Typhus.

From the proportion treated with stimulants at each quinquennial period, it appears that, as in Typhus, the percentage stimulated at each age rises and falls *pari passu* with the death-rate, showing that the *tendency* to death is more

general, not merely that a greater number of fatal cases occur. As to the sexes, the same curious law prevails in Relapsing Fever as in Typhus, that a larger proportion of females require stimulants than males. The large Table also shows that this disposition first appears when we pass puberty, and enter the child-bearing period. The following more convenient Table shows the percentage stimulated of

	PARLIAMENTARY ROAD.						BELVIDERÉ.					
	Treated.		Stimulated.		Per Cent.		Treated.		Stimulated.		Per Cent.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1870-71,.....	936	927	163	222	17·4	23·9	594	605	81	120	13·6	19·8
1871-72,.....	8	34	2	11	...	...	834	868	68	127	8·1	14·6
Totals,	944	961	165	233	17·4	24·4	1428	1473	149	247	10·4	16·7

each sex in each hospital for each year. It is evident from this Table that, whether from difference of practice or of patients, the proportion stimulated varied in each hospital, and in different years in the same hospital; but there is always a difference of between 6 and 7 per cent. more females stimulated than males, showing that the difference of sex in this regard is actually a difference inherent in sex, and not a peculiarity either of the hospital or the practice. The fact that females, while requiring stimulants in greater numbers, die in less numbers than men, is an interesting deviation from the law which governs these two phenomena at different periods of age. The explanation probably is that, while females, from causes peculiar to the sex, require stimulants in a larger proportion than men, they benefit more by them, being even in the lower ranks less habituated to their use.

The average residence in hospital was 23 days in 1870-71, when accommodation was in so much demand, and 25 days

in 1871-72. It is on the whole shorter by an average of half a day for Belvidere.

Typhus.—Table No. VIII. shows the number treated and stimulated at quinquennial periods of age in each sex, with percentages of those who were stimulated and those who died. The mortality was 11·3 per cent. in 1206 cases. This is the lowest mortality I have reported since 1867-68, when it was 9 per cent. in 795 cases. The proportion requiring stimulants was 41 per cent. The mortality was almost the same in both sexes (11·5 per cent. in males, and 11·2 in females); but the proportion stimulated was only 36·8 in males against 45·6 per cent. in females, a marked illustration of a law obvious in all this class of diseases in their relations to the sexes, and alluded to above.

Enteric Fever.—Table No. IX. presents in a similar manner the statistics of Enteric Fever. The mortality was 12·39 per cent. out of 121 cases, and 35·5 were stimulated. As is generally observed, there were, out of the total 121, no less than 98 aged between 10 and 30. This remarkably small number of cases in such a population in two years shows that Enteric Fever, while endemic in Glasgow, has never become epidemic.

Small-pox.—Happily the experience of Glasgow in reference to Small-pox has been trivial compared with that of many of the large towns in the kingdom. It presents a striking contrast to that of Edinburgh, which is so near to Glasgow in space, and so much nearer by speed and frequency of intercourse. To say that “happily” Glasgow has escaped Small-pox in a severe epidemic form is to use an expression which does not represent the fact in a right aspect. I believe that the escape of Glasgow is an effect of which the cause was the persistent and thorough enforcement by the Sanitary Department of preventive measures, of which isolation and revaccination were the most important. The disease was hunted down by the Sanitary Inspectors, isolation in hospital was enforced, even by warrant for removal under the Public Health Act when necessary, and revaccination

was offered at the very doors of the people inhabiting infected localities.

The history of Small-pox in Glasgow illustrates admirably the advantage and ultimate economy of an apparently super-abundant hospital accommodation in a large community. A glance at the epidemic chart opposite page 13 will show that in January and February, 1871, we had in fact *three* epidemics on hand—one of Relapsing Fever, just beginning to decline, one of Typhus, and, lastly, one of Small-pox, which culminated in February and March. It so happened that the abundant accommodation provided at Belvidere speedily brought the Relapsing Fever within such limits that Parliamentary Road was left free for Small-pox. The effect of this was doubly beneficial. Patients were *always removed without delay*, and they were *never dismissed hurriedly*. A deficiency of hospital beds proves injurious in the two opposite directions, by preventing prompt isolation, and necessitating premature dismissal. As there never was such a deficiency in Glasgow, I am not aware of any case where a dismissed convalescent was even suspected to have imparted the disease, and contrasting Glasgow with Edinburgh, where there was a deficiency, during the height of the epidemic there, the number of deaths in certain periods was equal to our total number of known cases.

Small-pox first made a noteworthy appearance in December, 1870. One case (a Sanitary Inspector) was admitted in August, and one case in October. As all cases were subsequently sent to our hospital in Parliamentary Road, excepting a very few treated at Barnhill, the register of that hospital furnishes a practically complete view of the extent of the disease in Glasgow, so far as hospitals are concerned. It reached its height in February and March, 1871, declined steadily thereafter until the winter of 1871-72, when it again resumed a limited activity, but only again to decline.

The statistics of Small-pox treated from 1st May, 1870, to 30th April, 1872, are given in Table No. IX., from which it appears that 983 cases were treated, of whom 151, or 15·36

per cent. died, and 291, or 29·5 per cent., were stimulated. Dividing those 983 cases into *vaccinated* and *unvaccinated*, we find that of 668 vaccinated persons, 59 died, or 8·8 per cent., and 112, or 16·7 per cent., were stimulated; while of 315 unvaccinated persons, 92 died, or 29·2 per cent., and 179, or 57·0 per cent., were stimulated.

The value of a man's opinion on a practical question such as that of the efficacy of vaccination and revaccination entirely depends on the circumstances under which it is formed. Men often do their judgment great injustice by coming to conclusions on questions which only a few have the opportunity of rationally deciding. It is in itself an insuperable argument, that every person who has seen Small-pox in hospital, and watched its preventive treatment in the community on a large scale, believes in the efficacy and necessity of vaccination and revaccination. As to primary vaccination, the medical profession are unhesitating, yet the law seems to hesitate in its enforcement to this extent, that it provides for the punishment of the parent, but not for vaccination by force. Mere fining of a parent is nothing if, after all, the child is not vaccinated. Such is the inertia of the brain in some people that we see at the Small-pox Hospital unvaccinated adults calling, making inquiries about unvaccinated relatives stricken with fatal Small-pox, urged to get vaccinated immediately, having vaccination offered without fee, promising to get it done, and yet moving about as silly as moths round a candle, from day to day, until they also are attacked. The law provides for the protection of minors, and the care of the State is extended to those who are insane. It seems to me that when individual ignorance or apathy is so clearly at variance with collective wisdom, as in the case of an adult who will not accept vaccination, or of a parent who will not permit a child to be vaccinated, the collective wisdom should save the individual from his own ignorance and the child from the parent's ignorance. Certainly, in the latter case, I would not fine or punish the parent, but vaccinate the child under warrant. Such a parent resembles the man who stores

gunpowder or petroleum in a crowded neighbourhood. If fire breaks out, a destructive explosion involves the neighbours, and if Small-pox breaks out, a centre of infection is established which punishes the community for the negligence of the individual.

As to revaccination, my own opinion is, that the enforced repetition of revaccination at the age of fifteen could be amply justified. But nearly all the practical benefits of legal enactment might be obtained in a much better way by the adoption and recommendation of revaccination as a routine practice by the medical profession in their family attendance. In the Sanitary preventive service we naturally soon experience the benefit of the co-operation of the family, or even of the casual, attendant who is in high repute in the district, just as we recognize how much our efforts are impeded even by indifference arising from want of positive opinion on the subject, and, of course, much more if there is actual opposition. One of the most common phantoms which haunt the popular mind, from which even the professional mind is sometimes not altogether free, is the fear that revaccination in presence of Small-pox infection may induce, or, at any rate, come into conjunction with the variolous poison, and that between the two agents the condition of the person may be aggravated. The only fact evolved in the event of Small-pox appearing in those circumstances, is simply that of failure to obtain for the vaccine influence a sufficient start. To vaccinate or revaccinate a person who is exposed to the infection of Small-pox is merely to enter him in a race in which everything may be gained and nothing can be lost.

N.B.—*The following is the text of a paper entitled, "A Study of 972 Cases of Small-pox, with reference to the modifying influence of Vaccination," published in the Glasgow Medical Journal for November, 1872, the Tables being mostly omitted.*

It is of great importance to keep clearly in mind that vaccination is a *process*, and not merely an *operation*, as regards the individual. Though the operation may be performed to-day, the person operated upon is not really vaccinated until some days have elapsed. Hence it is *prima facie* absurd to propose vaccination as a mode of *treatment* of Small-pox, or to use vaccine lymph as a medicine or antidote in actual Small-pox. It would be equally reasonable to inoculate a person in whom natural Small-pox was already active. Vaccination and revaccination must be practised as a process through which the system must pass, requiring time for its completion, and therefore to be begun without a moment's hesitation where the system is unprotected, or where it is well to renew the protection.

After closely observing over 1000 cases of Small-pox in hospital, I have become deeply impressed with the helplessness of medicine when face to face with the unmodified disease. In this sense the only successful mode of treating Small-pox is by vaccination. To take firm hold of its efficacy and necessity, and enforce their convictions in practice without wavering, is the most useful, almost the only useful, action the medical profession can adopt against variola. When a case presents itself the first question in prognosis is regarding vaccination, although then the chief work of vaccination has been done, inasmuch as the only other circumstance in the patient's condition which is worth mentioning as affecting the prospects of recovery is the extent of the eruption, which I shall show is the direction in which post-vaccinal Small-pox is chiefly modified. If *vaccinated*, then the attitude is one of hope that the disease may be cut short, however bad present appearances are, though, in fact, the probability is that the symptoms are from the first trivial. If *unvaccinated*, then the attack will probably be severe, the eruption copious or confluent, and we recognize a virulence and deep constitutional disturbance against which the resources of medicine

are powerless. As regards the individual, the opportunity for medical interference is past, and we can only turn his case to profit by following on those about him the practice from the neglect of which he suffers.

I find that the mortality among my unvaccinated cases was 30 per cent.; among my vaccinated cases 9 per cent. (1) Therefore by vaccination in childhood the lives of the unvaccinated would have been transferred from a risk of 30 per cent. to one of 9 per cent. (2) But from the statements of the patients or their friends I found that about 60 per cent. of the unvaccinated, and 50 per cent. of the vaccinated knew that they were exposed to the contagion of Small-pox. Therefore, exactly that proportion had, on their own showing, had a clear chance of obtaining protection by primary and secondary vaccination. (3) Above a half of these cases of Small-pox were avoidable; but when we consider that every case has a goodly lineage of cases derived from it, we may safely say that, mild as the epidemic was in Glasgow, it might with ease have been reduced to a third of its extent, and by a much larger proportion of its mortality, by the prompt use of demonstrated means of prevention. And when we speak of *Small-pox as preventible*, we must remember that we use the word in a much more exact sense than when, in the present state of our knowledge, we speak of *Typhus or Cholera being preventible*. The latter are preventible as the ignition of a dress is preventible by caution, while Small-pox is preventible, as the ignition is preventible, by making the fabric of the dress non-combustible.

Being convinced, then, that recent Small-pox experience can be turned to public advantage only in so far as it can be made to teach the public the benefits of vaccination, and knowing also that, in reference to the phenomena of Small-pox after vaccination, the profession are still necessarily only collecting facts, I have made a special study of the statistics of 972 cases of Small-pox so as to forward those ends. This number includes all the cases admitted to the City of Glasgow Fever (Small-pox) Hospital, Parliamentary Road,

from 1st January, 1871, to 30th April, 1872. Previous to the former date, only 11 cases were admitted.

Age.	Total Treated.		Vaccinated.				Unvaccinated.				Odd Cases.	
			V. M. Visible.		Said to be, but no v. m.		Admitted to be.		No information and no v. m.			
	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.	T.	D.
0—4	39	11	6	—	1	—	30	11	—	—	2	—
5—9	142	21	71	1	4	2	50	15	13	3	4	—
10—19	343	30	228	10	15	1	95	19	3	—	2	—
20—29	337	53	233	20	16	3	76	29	7	—	5	1
30—39	78	22	59	9	5	4	14	9	—	—	—	—
40—49	20	9	15	6	4	3	—	—	—	—	1	—
50—59	8	1	6	1	1	—	1	—	—	—	—	—
60—	5	3	5	3	—	—	—	—	—	—	—	—
All Ages,	972	150	623	50	46	13	266	83	23	3	14	1
Percentages,	—	15·4	—	8·	—	28·2	—	31·2	—	13·	—	—

METHOD OF RECORDING AND CLASSIFYING CASES.

This Table shows those 972 cases as primarily classified with reference to vaccination, and distributed in decennial periods of age. Under this head I shall explain the principle of classification of the cases which form the subject of my remarks, and the precautions taken to insure the accuracy of my facts.

(1.) *As to Vaccination.*—If the vaccination marks were visible, then their *number* and *quality* were noted. The quality was determined according to the standard described in my paper on "Revaccination," in *Glasgow Medical Journal*, May, 1871. In the ward journals the quality is described as "very good," "good," "indifferent," "bad," "very bad;" but in my tables I have reduced those degrees to two, viz., "good" and "bad." Sometimes persons were said to be vaccinated, but no marks could be seen, very frequently because of the abundance of the eruption. In some of those cases which recovered an inspection before dismissal discovered vaccine marks, sometimes "very good." Those who died, or who were not so examined, are placed in

a separate column as "said to be vaccinated, but v. m. not visible." I do not observe in the Reports on Small-pox, as observed in London and Dublin, any allusion to this difficulty. Even the best vaccine mark is readily obscured, or even hidden, by a copious eruption, and unless such special means as I have described are adopted, it is impossible accurately to ascertain the facts of Small-pox in the vaccinated. Under "unvaccinated" also there is a separate column in this Table, containing those regarding whom no information could be got, but on whose persons no marks were visible, usually not because of the abundant eruption, but because there was really none. These were no doubt unvaccinated, and are so reckoned for the objects of this paper. A few cases of a second attack of Small-pox, also of Small-pox modified by recent primary vaccination, are classified simply as "odd cases."

(2.) *The extent of eruption* formed another subject of methodical observation. The descriptive terms employed in the ward journals were "rare," "sparse," "copious," "semi-confluent," "confluent," "hæmorrhagic." These are all reduced to three categories in this paper, viz.:—the "rare," "copious," and "confluent."*

INFLUENCE OF VACCINATION ON MORTALITY.

General Mortality.—Of the 972 cases under review, 150, or 15·4 per cent., died. Of these, 669 were vaccinated, and 63 of that number died, or 9·4 per cent.; 289 were unvaccinated, and 86 of that number died, or 29·75 per cent. The remainder are classified as "odd cases," 14 in number, with one death. As already stated, therefore, the fact of

* The application of those terms to the cases was, for the most part, either originally made, or, at least, subsequently reviewed by me. My assistants were thoroughly versed in the principles of my classification, so that the distinctions indicated, both as to vaccine marks and eruption, are not fictitious or capricious, but real and uniform.

The completeness of my paper has been much impaired by the loss of one of the ward journals, which has inexplicably disappeared. It contained the record of about 140 cases, the want of the data concerning which causes *lacunæ valde defendæ* in all my Tables.

vaccination, without further refinement, reduced the mortality to less than a third.

Influence of Age and Sex on Mortality.—It is obviously well to gauge the amount of other influences which may interfere with our conclusions as to the influence of vaccination. [*The Table and remarks thereon are omitted, as age and sex are found not materially to affect the subsequent conclusions as to vaccination.*]

Quality and Number of Vaccine Marks in relation to Mortality.—It is evident that, in so far as the success of the operation of vaccination is indicated by the *quality* of the vaccine mark—*i.e.*, of the local traces left upon the skin—we should expect to find some relation between the quality of the vaccine mark and the protective influence, as tested by subsequent events. If the operation has been successful, and if we can decide, long after its performance, that it has been so from the local traces left, then we ought to find that, in a vaccinated community uniformly exposed to variolous contagion, the proportion of those with good marks of vaccination who are attacked is much less than the proportion of those having bad. From the nature of the case there are insuperable practical difficulties in the way of proving this, except very indirectly; but the *protecting* influence of vaccination becomes, in those who do take Small-pox, a *modifying* influence, and can thus be submitted to various methods of measurement as to nature and duration. We have the unmodified disease, as found in those who have never been vaccinated, as a standard, and the extent to which the phenomena of Small-pox, after vaccination, deviate from this standard may be made the subject of exact investigation.*

* Those who are acquainted with the literature of vaccination will not require to be told that all I aim at in this paper is to confirm, and perhaps more vividly illustrate Marson's paper, originally published in the *Med.-Chirurgical Transactions*, Vol. XXXVI. I am not aware of any previous systematic confirmation of his results; and I have elaborated the relation of vaccination to extent of eruption more than Mr. Marson.

Vaccine marks may be considered as to quality or number simply, or as to number and quality combined, and the modifying influence may be exhibited and estimated in the mortality, or in the extent of the eruption. We are at present looking for it in the *mortality*.

As to *Quality* simply, of 335 persons having "good" marks, 13, or 3·8 per cent., died; while of 156 persons having "bad" marks, 33, or 21 per cent., died. The contrast is apparent at all periods of life, but rises steadily from a minimum in the earliest to a maximum at the latest periods. The mortality of our 289 unvaccinated having been 29·75 per cent., it is evident that badly vaccinated persons are in the aggregate not much better protected from a fatal result than unvaccinated; and looking to the age, the badly vaccinated approach the unprotected condition more and more nearly as they become older.

As to *Number* simply, 491 cases were observed, of whom 46 had died, and it was found that of 313 persons who had only 1 mark, 32 died, or 10 per cent.; of 161 persons who had 2 marks, 14 died, or 8·7 per cent.; while of 14 persons who had 3 marks, of 2 who had 4 marks, and of 1 who had 8 marks, none died.

As to *Number and Quality combined*, when so far subdivided, the data at my disposal are insufficient to warrant any conclusion. The preceding facts as to number of vaccine marks, *without regard to quality*, point to no practical conclusion excepting this, that by introducing vaccine matter into several places on the child's arm, you are more likely to be successful than by introducing it at one only, on the principle which leads a bad marksman to throw a handful of stones instead of one. There can be no doubt that quality is of more importance than number, that it is better to have one really good mark than several bad ones, and that the vaccinator should endeavour to succeed in one or two spots, rather than carelessly to insert his lymph in half-a-dozen.

I must confess that, led by the analogy of fevers and

other infectious diseases, in which a mild attack, so far as we know, is as protective as a severe one, and on the general principle that the production of a constitutional effect, and not the amount of the specific poison which produces that effect, is the important factor in conferring constitutional immunity. I made my observations with the expectation that quality of mark alone would prove to be of importance. That is to say, I thought that one good mark must be as protective as several. While, undoubtedly, quality is of much greater value than mere number; while a person with one good mark and two bad marks cannot be supposed to be better off than one with one good mark only, nor can any number of bad marks give better ground for confidence than one, except on the rough principle already alluded to, still there are evidences that, in producing the constitutional effect of vaccination, the quantity of the specific poison introduced does bear some relation to the extent of immunity conferred. In coming to this conclusion I have in my mind the elaborate observations made by Mr. Marson, on numbers sufficient to make his result worthy of notice, and the confirmation of those results, furnished by the experience of the Homerton and Stockwell Hospitals of the Metropolitan Asylum Board, during the recent epidemic of Small-pox. These latter are, that of 632 persons having one good mark 5·3 per cent. died; of 674 having two good marks 4·1 died; of 301 having three good marks 2·3 died; and of 259 having four or more good marks only 1·1 died. My own cases showed that of 191 persons having one good mark 8 died, or 4·2 per cent., while of 130 having two good marks 5 died, or 3·8 per cent., and of 13 persons having three good marks, and one having four, none died. My observations therefore coincide with those quoted.

The real meaning of these facts seems to me to be, that *the quantity of a specific poison has something to do with the immunity conferred by the constitutional infection.* The number of vaccine marks can have no meaning excepting in so far as they indicate in a general way the quantity of lymph

introduced into the system. It cannot be that the *same quantity of lymph*, introduced into four spots successfully, confers more immunity than if introduced into one spot successfully, or that, by dividing a cicatrix into four, its protective value is increased. Hence I am inclined to think that the local and permanent phenomenon which would best indicate the quantity of lymph introduced, and consequently show even more striking relations to the mortality, would be the *superficial area* of good vaccine cicatrices. It seems evident, from Marson's description of his mode of vaccination, that he would produce five good vaccine marks, whose united area would probably little exceed that of one vaccine mark such as is left by the operation as practised at our public vaccine stations in Glasgow. The data for establishing my conjecture as to the area could not be obtained without immense trouble. Still I think the residuum of these observations is this—and it is of great importance in relation to the general etiology of diseases propagated by specific poisons—that the *quantity of vaccine virus absorbed regulates the duration and thoroughness of the constitutional immunity from Small-pox conferred.*

INFLUENCE OF EXTENT OF ERUPTION ON MORTALITY.

A rate of mortality indicates not only the fact of the death of certain individuals, but also the fact of the risk run by those who did not die. A greater percentage of mortality therefore indicates that the persons making up the centum ran a greater risk of death. To measure and exhibit this risk is of importance, but cannot always be done. In Typhus I have employed, as a general indication of the fact, as well as a means of estimating it, the proportion of patients stimulated, which rises and falls with the mortality. In Small-pox we obtain a better measurement of risk by classifying patients according to the extent of the eruption. The risk of life is almost absolutely in proportion to the extent of the eruption. By testing the effects of vaccination as shown

in the proportion of persons having a certain extent of eruption, we shall not only demonstrate a very important clinical fact, but, by appealing to a much wider basis of induction than mere mortality affords, we shall lessen the risk of error, and also bring out in greater relief what may be only faintly shown in the preceding pages.

Mortality from Small-pox directly proportioned to the extent of the eruption.—The vaccinated and unvaccinated cases were arranged in three categories, according as the eruption was “rare,” “copious,” or “confluent.”

It was found that only one death took place among those having a “rare” eruption, whether vaccinated or unvaccinated. On referring to the journal of the ward, I find that this death was not in any way connected with Small-pox. The patient had chronic cardiac disease, and, after having been walking about for above a week, died suddenly. We may therefore say that *no person having a “rare” eruption dies from Small-pox, whether vaccinated or unvaccinated.*

Of those having a “copious” eruption, among the vaccinated 6 per cent., among the unvaccinated 12 per cent. died. Of those having a “confluent” eruption, among the vaccinated 69 per cent., among the unvaccinated 55 per cent. died. No remarks are required to prove from these statistics that the gravity of a case of Small-pox depends very directly on the extent of the eruption.

INFLUENCE OF VACCINATION ON EXTENT OF ERUPTION.

Vaccination influences the fatality of Small-pox by diminishing the original extent, as well as occasionally checking the subsequent course, of the eruption. (See Diagram.) The relative proportion per centum of the three degrees of eruption in natural Small-pox, *i.e.*, in the unvaccinated, was this:—*Of 254 unvaccinated persons,*

13	per cent.	had a	“rare”	eruption.
41	do.	do.	“copious”	do.
46	do.	do.	“confluent”	do.

On the other hand, the proportion per centum of the three degrees of eruption in modified Small-pox, *i.e.*, in vaccinated cases, was this:—*Of 566 vaccinated persons,*

59	per cent.	had a	“rare”	eruption.
29	do.	do.	“copious”	do.
12	do.	do.	“confluent”	do.

So that the proportions are more than reversed. While *unvaccinated* people are liable to “confluent” or fatal Small-pox, in the proportion of 46 per cent. of those attacked, 59 per cent. of the *vaccinated* who are attacked take the “rare” or non-fatal form of the disease.

We have spoken of “good” and “bad” vaccination. Any effect which we suppose vaccination to have ought to be very decidedly influenced by its quality.

The relative proportion per centum of the three degrees of eruption in Small-pox found in persons who had “good” and “bad” vaccine marks was this:—*Of 330 persons having good marks,*

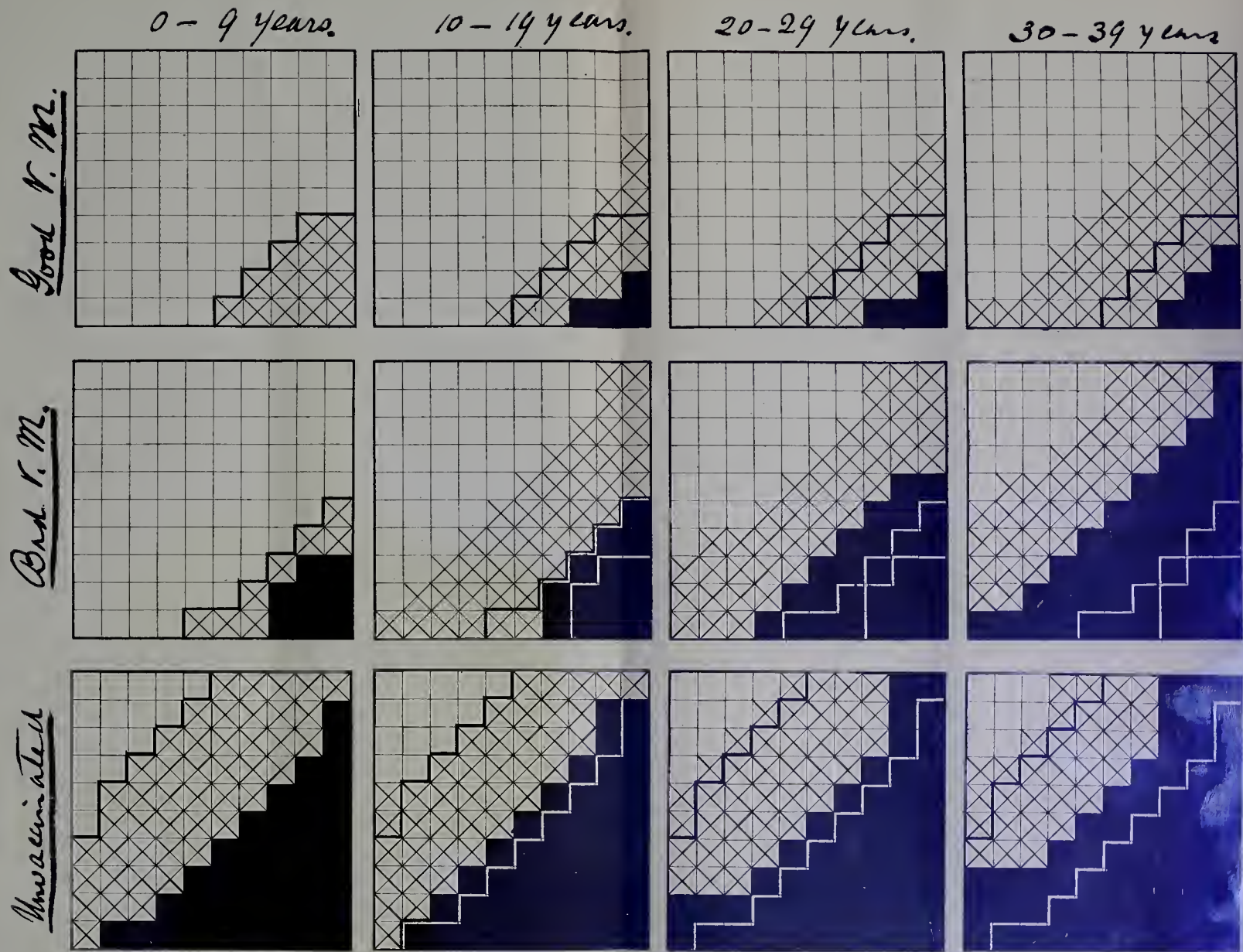
74	per cent.	had a	“rare”	eruption.
22	do.	do.	“copious”	do.
4	do.	do.	“confluent”	do.

While, *of 152 persons having “bad” marks,*

37	per cent.	had a	“rare”	eruption.
37	do.	do.	“copious”	do.
26	do.	do.	“confluent”	do.

We may bring the three gradations of proportions of eruption together as follows, so that at a glance it may be seen how vaccination tends, by reducing the original amount of eruption, to render Small-pox innocuous to life:—

	“Rare.”	“Copious.”	“Confluent.”
Good v. M.....	74 per cent.	22 per cent.	4 per cent.
Bad v. M.....	37 do.	37 do.	26 do.
Unvaccinated,.....	13 do.	41 do.	46 do.



Rare Eruption ☐ Common Eruption ☒ Confluent Eruption ☒

N.B. The large squares contain 100 smaller ones, so that the varieties of the smaller squares represent percentages.

DIAGRAM ILLUSTRATIVE OF REMARKS, Pages 31-37.

The general design of this Diagram is to exhibit to the eye the variable percentages of "rare," "copious," and "confluent" eruption found at different decades of life, in the *unvaccinated*, those who have a *bad vaccine mark*, and those who have a *good vaccine mark*. The following are the principal points which this Diagram illustrates:—

I. *Vaccination diminishes the original extent of the eruption* (p. 31). This will be evident to any one who contrasts the squares *vertically*, passing from below upwards, especially in the column "0—9 years."

II. *Age has a slight influence in increasing the tendency to confluence in the natural disease* (p. 33). The lowest *horizontal* series of squares marked "unvaccinated" shows this. The outline of the original percentages with which we start at "0—9 years" is retained in the subsequent squares by a black line for the "copious," and a white line for the "confluent." In the same way the "drift" of the disease with age is made apparent in all the Diagrams.

III. *The influence of vaccination on the extent of the eruption diminishes as the age increases* (p. 33).

IV. *The influence of a "good" vaccination is very stable, and of a "bad" very unstable.* Indeed, until we get above 30, the "drift" of those having a "good v. m." does not exceed in amount what is due to age as seen in the unvaccinated; but then those having a "bad v. m." have almost reverted to the proportions of the unvaccinated (p. 35).

The two upper series of squares display all this. Taking those under "30—39 years," it is evident, in the first place, looking to the white and black lines, which represent the percentages at "0—9 years," that the "drift" in the unvaccinated is least, and in those with a "bad v. m." greatest. In the latter the black squares have swallowed up even those which were simply crossed, and have invaded the blank or "rare" squares. The eye at once recognizes the gradual assimilation of the squares representing the "bad v. m." to the squares representing the "unvaccinated." Equally readily will a glance show the extreme stability of a "good v. m."



The influence of Vaccination on the extent of the eruption diminishes as the age increases. (See Diagram.)

It is necessary first to determine *what is the influence of age on the extent of eruption in the natural disease.* This is shown in the following Table, in which the actual numbers are reduced to percentages of the whole number treated at each decennial period of age:—

AGE.	UNVACCINATED.			VACCINATED.		
	Rare.	Copious.	Confl.	Rare.	Copious.	Confl.
0—9	16	46	38	77	21	2
10—19	14	40	46	65	27	8
20—29	10	39	51	57	30	13
30—39	8	31	61	39	36	25
40—	...	...	...	39	25	36
All Ages,	13	41	46	59	29	12

From this Table it is evident that age alone, or age with the usual average deteriorating influence of vice, hardship, &c., has a decided influence even in the natural disease on the extent of the eruption, and that influence is in the direction of increasing the tendency to confluence. In other words, the older an unvaccinated person is the more risk he runs of having the confluent or fatal form of the disease. Thus, while the proportions per cent. of “rare,” “copious,” and “confluent” cases are, during the first ten years of life, respectively 16, 46, and 38; during the ten years between thirty and forty, they are 8, 31, and 61, with an intervening gradation. The question therefore is, whether vaccinated persons show a *greater* “drift” than the unvaccinated in the direction of confluence.

That in the vaccinated there is a very decided “drift” in this direction is evident from the second half of the last Table, in which decennial percentages of the vaccinated also are given. Starting with a proportion of “rare,” “copious,” and “confluent” cases during the first ten years of life of 77, 21, and 2 per cent. respectively, we reach between thirty

and forty years a proportion of 39, 36, and 25 per cent., with intervening gradations. That in the vaccinated there is also a very much *greater* "drift" towards confluence than in the unvaccinated will be manifest from the following Table, in which I have taken the percentages of the first decennial period as the standard, and have entered at each subsequent period the difference between its percentages and those of the preceding, using a *plus* or a *minus* sign, according as the difference is an increase or a diminution. In this way, at each decennial period after the first, we can see the exact amount of change or "drift," as I have called it, in the distribution of the percentages as compared with the previous period.

Age.	UNVACCINATED.			VACCINATED.		
	Rare.	Copious.	Confl.	Rare.	Copious.	Confl.
0—9	16	46	38	77	21	2
10—19	—2	—6	+8	—12	+6	+6
20—29	—4	—1	+5	—8	+3	+5
30—39	—2	—8	+10	—18	+6	+12

So that, while in the successive decennial periods after the first the "drift" towards confluence in the *unvaccinated* shows itself in a falling off of 2, 4, and 2 from the percentage of "rare" eruption, in the *vaccinated* the falling off is 12, 8, and 18. Still it will be noticed that the "drift" for the most part only goes the length of transferring the "rare" into the "copious" in the vaccinated, while in the unvaccinated it ends entirely in an addition to the "confluent."

The *quality* of the vaccine mark may be here again employed as a test of the accuracy of those conclusions. If the modifying influence of vaccination diminishes as the age increases, then it ought to diminish more rapidly in those who are badly vaccinated than in those who are well vaccinated. The following Table is made up, on the principle

already described, of percentages derived from the actual numbers:—

Age.	"Good."			"Bad."		
	Rare.	Copious.	Confl.	Rare.	Copious.	Confl.
0—9	86	14	—	84	8	8
10—19	78	18	4	44	42	14
20—29	72	24	4	33	40	27
30—39	53	41	6	18	35	47
40—	80	10	10	9	33	58
All Ages,	74	22	4	37	37	26

During the first decennial period the percentages of the three degrees of eruption are much alike both in the well and in the badly vaccinated, being 84, 8, 8 in the badly, as against 86, 14, 0 in the well vaccinated; but while between 30 and 40 years of age the badly vaccinated have reverted so nearly to the condition of the unvaccinated as to present a percentage proportion of 18, 35, and 47, the well vaccinated still maintain the proportion of 53, 41, and 6 of "rare," "copious," and "confluent" cases respectively.

It is scarcely necessary to gauge the comparative amount of this "drift," except to contrast and exhibit to the eye *the stability of effect of a good vaccination and the rapidly fading effect of a bad one.* (See Diagram.) This the following Table, constructed from the preceding manner already described, does very clearly:—

Age.	"Good."			"Bad."		
	Rare.	Copious.	Confl.	Rare.	Copious.	Confl.
0—9	86	14	—	84	8	8
10—19	— 8	+ 4	+ 4	—40	+ 34	+ 6
20—29	— 6	+ 6	—	—11	— 2	+13
30—39	—19	+ 17	+ 2	—15	— 5	+20

It may be said that in well vaccinated persons the amount

of the "drift" towards confluence is not greater than age alone would explain until we get above 30 years of age. The badly vaccinated, on the other hand, show excessive instability, and the "drift" above 20 years tends to increase the "confluent" cases at the expense both of the "rare" and the "copious." There are therefore three degrees of "drift" increasing with age—

- 1st. *The natural "drift," as seen in the unvaccinated, which is least.*
- 2nd. *The "drift," as seen in the well vaccinated, which is not greater than the natural drift until we pass the age of 20.*
- 3rd. *The "drift," as seen in the badly vaccinated, which is greater than the natural drift at all ages.*

It must be remembered, when we speak of the tendency towards confluence increasing with age in the vaccinated in greater proportion than in those who have the natural disease, that in the vaccinated we set out so to speak from a higher level, and therefore have farther to decline. The proportions of "rare," "copious," and "confluent" cases seen in the natural disease in the first decennial period of age are exactly reversed in the vaccinated. Therefore this greater "drift" in the vaccinated is in reality the tendency of Small-pox to revert to its natural type. In short, the ultimate issue of this inquiry is to demonstrate, almost to express in exact terms, what I believe to be the fact, that *in the aggregate the influence of vaccination is unstable.* We cannot prove this by finding the proportion of the vaccinated living at each decennial period who, being equally exposed, will take Small-pox; but in those at each decennial period who have taken Small-pox we can find evidence that, as you recede from the point of vaccination, the disease tends to emancipate itself from the modifying power of the vaccination, and to revert to its original type. In other words, the constitutional insusceptibility gradually fades. At the same time, it is of the greatest practical importance to remember

how very stable in its effects vaccination may be made by care in the performance of it. While variola very speedily throws off the modifying influence of a "bad" vaccination, it remains subject to the influence of a "good" vaccination to the latest periods of life. We may be sure that the protective follows the same law as the modifying power. Still these facts, derived from averages, furnish no argument against the revaccination, especially in the face of known exposure to contagion, even of those persons who present evidences of perfect primary vaccination. "It is very well for us to know that one person, under inspection, of a certain age, with certain marks, runs so much less risk of proving to be susceptible when exposed to Small-pox than this other person. But so long as we cannot say, you are the individual who will escape, we have no right to leave him even to this diminished risk."

Other Diseases.—Table No. XI. gives a detailed statement of the various diseases erroneously sent into hospital, and classified as "Other Diseases." The number of diseases represented was 37, and 113 persons were found to have "nothing" the matter. Probably many of these had already passed through their illness, and were in fact convalescent cases of Relapsing Fever. The number of patients accounted for under this head was 320, of whom 93 died, or 29 per cent. This enormous mortality proves that the condition of these patients was very grave, and, consequently, that the mistake was in general a pardonable one. The diseases mistaken for Fever will be readily distinguished from those mistaken for Small-pox. The fact that the errors of the two hospitals are combined, accounts for the appearance of 17 cases of Small-pox, and 1 of Scarlet Fever in this category. These were at once transferred, the former to Parliamentary Road, the latter to Belvidere, and were classed under those diseases in the respective Tables of those hospitals. Pneumonia, Bronchitis, Phthisis, Tuberculosis, Tubercular Meningitis, less definite forms of Cerebral Disease, and

Renal Disease, were the chief errors in the diagnosis of Fever. A case of Acute Farcy or Glanders was very interesting, as an illustration of a disease transferred from the horse to man. The unfortunate patient was employed in Mr. Walker's establishment, and speedily succumbed. Diseases which produce eruptions on the skin were most frequently mistaken for Small-pox. The majority of the cases of Measles treated reached us in this way. Erysipelas, Scabies, Eczema, Urticaria, Acne, Erythema, and the peculiar rash caused by the prolonged use of Copaiba were also found in the Small-pox wards. These were at once revaccinated.

FINANCIAL.

In former *Annual Reports* I have given the various items of expenditure in considerable detail, classified from the Hospital books. In the present Report, however, I shall, for the sake of brevity, merely extract from the Annual Statements of the Treasurer of Police for 1870-71 and 1871-72 the items of expenditure connected with the Hospitals as there classified. The period embraced in those Annual Statements runs from Whitsunday to Whitsunday, so that the year differs from mine by a fortnight, but they represent accurately all actual payments made within that year, and are the official and only authentic sources of information regarding such. It is indeed questionable whether it would not be wise in future to adopt the Treasurer's Official Abstract of Expenditure either with or without change in the Hospital year.

I have divided the expenditure into Ordinary and Extraordinary, the former representing what may be taken to be

the ordinary working expenditure, the latter chiefly consisting of expenditure on building and furnishings. The item feu-duty or ground-annual and assessments, which hitherto I have never included in working expenditure, because it does not accrue from the working, is in these statements included, so that in any comparison with previous years this must be remembered.

The sum of the finance of the period under review is this, that from 15th May, 1870, to 15th May, 1872, there was expended on the Hospitals at Parliamentary Road and Belvidere—

Ordinary Expenditure, ...	£15,185	1	4
Extraordinary Expenditure, ...	15,230	17	8
Total Expenditure, ...	£30,415	19	0

During the same period the Treasurer of Police received to the credit of the Hospitals—

For Patients treated therein, ...	£3,043	0	0
And from sundry other sources, ...	143	4	0
Total, ...	£3,186	4	0

Deducting this from the Ordinary Expenditure, gives as the nett expenditure, £11,998 4s.

We have seen that 7617 persons were treated during the two years, and the expenditure was £15,185, so that in round numbers the cost of each patient during this period was £2. I append a few calculations, showing the entire expenditure per day, the expenditure per patient per day, and the entire expense per patient on the basis of the average residence, giving these data for each Hospital, for each year apart. The interest of these calculations consists in the differences exhibited in the average cost of treating patients in small and in great numbers, and also according to the disease from which they suffer.

PARLIAMENTARY ROAD, 1870-71.

Average Daily Number of Patients,	...	...	159.
„ Residence of Typhus Cases,	...	...	21·26 Days.
„ „ Relapsing Fever Cases,	...	...	23·4 „
„ „ Small-pox Cases,	...	...	32·18 „
„ „ All Cases,	...	...	23·98 „
„ Daily Expenditure,	$\frac{£4710}{365}$	$= £12\ 18s.\ 1d.$	
„ Daily Cost of Patients,	$\frac{£12\ 18s.\ 1d.}{159}$	$= 1s.\ 7d.\ 1·91\ fs.$	
„ Cost of all Cases (1s. 7d. 1·91 fs.) × 23·98	$= £1\ 18s.\ 11d.*$		

BELVIDERE, 19th Dec., 1870, to 30th April, 1871.

Average Daily Number of Patients,	...	...	241·4.
„ Residence of Relapsing Fever Cases,	...	...	22·5 Days.
„ „ Typhus Cases,	...	...	23·1 „
„ „ All Cases,	...	...	22·9 „
„ Daily Expenditure,	$\frac{£1774}{132}$	$= £13\ 8s.\ 9d.\ 1·7\ fs.$	
„ „ Cost of Patients,	$\frac{£13\ 8s.\ 9d.\ 1·7\ fs.}{241·4}$	$= 1s.\ 1d.\ 1·4\ fs.$	
„ Cost of all Cases (1s. 1d. 1·4 fs.) × 22·9	$= £1\ 5s.\ 5½d.$		

PARLIAMENTARY ROAD, 1871-72.

Average Daily Number of Patients,	...	...	57.
„ Residence of Small-pox Cases,	...	...	25·41 Days.
„ „ All Cases,	...	...	24·77 „
„ Daily Expenditure,	$\frac{£3404}{366}$	$= £9\ 6s.\ 0·4\ fs.$	
„ „ Cost of Patients,	$\frac{£9\ 6s.\ 0·4\ fs.}{57}$	$= 2s.\ 3d.\ 1·5\ fs.$	
„ Cost of all Cases (2s. 3d. 1·5 fs.) × 24·77	$= £2\ 16s.\ 6d.$		

* The average cost of Typhus and other cases can, of course, be got by similarly multiplying the average residence of each into the average daily cost.

BELVIDERE, 1871-72.

Average Daily Number of Patients,	...	...	178·11.
" Residence of Typhus Cases,	...	...	25·39 Days.
" " Relapsing Fever Cases,	...	...	25·5 "
" " Enteric Cases,	...	...	33·6 "
" " All Cases,	...	...	25·13 "
" Daily Expenditure,	$\frac{£5295}{366} = £14\ 9s.\ 4d.\ 0·5\ fs.$		
" " Cost of Patients,	$\frac{£14\ 9s.\ 4d.\ 0·5\ fs.}{178} = 1s.\ 7d.\ 1·9\ fs.$		
" Cost of all Cases	$(1s.\ 7d.\ 1·9\ fs.) \times 25·13 = £2\ 0s.\ 9d.\ 1·6\ fs.$		

The cost of treatment of a patient in Hospital may be divided into "direct" and "indirect"—the former including food, stimulants, and medicine, which are directly and solely caused by the entrance of the patient into the Hospital; the latter including official expenses, firing, conveyance, &c., and not purely governed by the number of patients. From the Hospital books I am able, as in former years, to ascertain the "direct" expenditure for food, stimulants, and medicine, and to compile the following Tables:—

	AVERAGE "DIRECT" EXPENSE PER PATIENT PER DAY.			
	1870-71.		1871-72.	
	Parliamentary Rd. Hospital.	Belvidere Hospital.	Parliamentary Rd. Hospital.	Belvidere Hospital.
	<i>s. d. q.</i>	<i>s. d. q.</i>	<i>s. d. q.</i>	<i>s. d. q.</i>
Food,.....	0 4 3·21	0 4 1·61	0 4 3·38	0 4 3·34
Stimulants,.....	... 1·98	... 2·01	... 0·94	... 1·94
Medicine,.....	... 1·32	... 0·97	... 2·67	... 0·97
Total "Direct" Expense,	0 5 2·51	0 5 0·59	0 5 2·99	0 5 2·25

	AVERAGE "DIRECT" EXPENSE OF TREATMENT PER PATIENT.											
	1870-71.						1871-72.					
	Parliamentary Rd. Hospital.			Belvidere Hospital.			Parliamentary Rd. Hospital.			Belvidere Hospital.		
	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.
Food,.....	9	7	0·65	8	4	3·26	10	0	0·04	10	1	2·01
Stimulants,.....	0	11	3·48	0	11	1·02	0	5	3·28	1	0	0·75
Medicine,.....	0	7	3·65	0	5	2·21	1	4	2·13	0	6	0·37
Total "Direct" Expense,	11	2	3·78	9	9	2·49	11	10	1·45	11	7	3·13

We shall leave to the curious in such matters the making of the comparisons and conclusions of which this Table contains abundant material.

THE LANDS OF BELVIDERE.

Only a small portion of the lands of Belvidere are actually taken up by the Hospital, and the Committee of Health and Bailie MacLellan have endeavoured to turn the remainder to profit.

Two gardeners are constantly employed about the grounds—the head gardener occupying the lodge. The garden is almost entirely employed in the cultivation of fruit and vegetables; and we have supplied the Hospital at Belvidere almost wholly with these articles, and Parliamentary Road also to a considerable extent. An accurate note of the products served out was not at first kept; but from 15th September, 1871, to 30th April, 1872, there was supplied to Belvidere—

Turnips,	1643	Beetroot,	76
Cabbages,	736	Greens,	120
Cauliflowers,	97	Beans,	45 lbs.
Savoy,	273	Dishes of Brussels Sprouts, ...	40
Bunches of Leeks,	231	Do. Rhubarb,	7
Do. Parsley,	32	Do. Pease,	1
Heads of Celery,	96		

and to Parliamentary Road—

Cabbages,	88	Bunches of Leeks,	21
Savoys,	216	Dishes of Brussels Sprouts, ...	6

In addition, both Hospitals were abundantly supplied with preserves, and 88 stones of rhubarb were sold in 1871. The gardening operations and the grounds are under the care of Mr. Duncan MacLellan, Superintendent of Parks.

The arable portion of the lands of Belvidere is let to the Inspector of Cleansing at 70s. per acre. There are over 13 acres, and the annual rent amounts to £47 11s. 6d. The revenue from this source during the period now reported upon was £71 7s. 3d., and for cut grass and the grazing of the wooded parts £13 5s. 8d. was received. Two pigs were fed, and sold for £6 14s. 10d.



APPENDIX TO REPORT.

TABLES REFERRED TO IN REPORT.

STATEMENTS OF ANNUAL EXPENDITURE.

TABLES I, II., III.—Statistics of City of Glasgow Fever Hospital, Parliamentary Road,
during the Years 1870-71 and 1871-72.

TABLE No. I.—Monthly Admissions, Dismissions, and Deaths, from all causes, during the Years 1870-71 and 1871-72.

MONTH.	1870-71.						1871-72.					
	Admitted.	Dismissed.		No. IN HOUSE.		Average No. in House.	Admitted.	Dismissed.		No. IN HOUSE.		Average No. in House.
		Well.	Died.	Highest.	Lowest.			Well.	Died.	Highest.	Lowest.	
May,	141	124	19	122	96	107	103	148	7	150	101	130
June,	107	113	10	97	76	86	69	91	9	103	60	81
July,	87	80	9	92	79	85	68	89	5	80	43	69
August,	121	98	2	102	76	91	18	43	4	42	14	28
September,	222	145	7	184	104	154	31	15	4	26	13	19
October,	329	234	8	258	170	204	53	24	4	55	28	41
November,	418	354	15	327	262	307	57	51	12	58	45	54
December,	437	440	18	318	269	306	56	39	13	57	39	45
January,	413	384	27	309	282	297	92	58	23	63	50	57
February,	217	276	20	295	212	244	71	60	11	69	48	59
March,	229	212	16	222	200	210	67	67	12	61	46	54
April,	155	193	20	218	151	181	57	53	13	61	33	47
TOTAL,	2876	2653	171	327	76	...	742	738	117	150	13	...

TABLE No. II.—Monthly Admissions of various Diseases, with Number of Deaths from each after Treatment, 1870-71.

MONTH.	TYPHUS.		RELAPSING FEVER.		ENTERIC FEVER.		SMALL-POX.		MEASLES.		FEBRICULA.		OTHER DISEASES.		TOTAL.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1870.	114	17	19	...	1	...	...	...	...	...	3	...	4	1	141	18
	58	7	38	2	4	...	...	...	...	...	1	...	6	3	107	12
	31	4	44	2	3	...	...	...	...	...	5	...	4	...	87	6
	37	2	79	...	3	...	1	...	...	...	...	...	1	...	121	2
	46	5	158	2	12	1	...	...	...	...	...	...	5	...	222	11
	27	4	286	4	7	1	1	...	...	...	1	...	7	5	329	14
	30	1	378	5	3	...	...	...	...	...	...	...	7	6	418	12
	24	4	380	6	2	...	15	...	...	...	1	...	15	8	437	20
	56	4	310	9	2	...	35	2	...	...	...	...	10	9	413	29
	24	1	75	8	2	...	113	8	...	...	...	...	2	...	217	17
	33	1	66	...	...	...	109	16	3	...	1	...	15	2	229	15
	15	6	30	1	...	...	95	11	2	...	2	...	11	2	155	18
TOTAL,...	495	56	1863	31	38	2	369	46	7	...	17	...	87	39	2876	174

1871.

TABLE No. III.—Monthly Admissions of various Diseases, with Number of Deaths from each after Treatment, 1871-72.

MONTH.	TYPHUS.		RELAPSING FEVER.		ENTERIC FEVER.		SMALL-POX.		SCARLET FEVER.		MEASLES.		OTHER DISEASES.		TOTAL.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1871.	6	..	9	..	..	..	78	8	..	2	7	1	6	..	103	9
	58	5	1	..	6	..	3	..	69	6
	60	4	2	..	3	..	3	..	68	4
	18	3	..	..	..	..	..	..	18	3
	3	..	..	..	21	3	6	2	..	..	..	..	31	5
	20	1	1	..	24	5	6	..	..	..	1	1	53	7
	12	..	..	..	39	11	3	..	1	..	2	..	57	11
	1	..	..	..	1	..	48	9	2	..	1	..	1	..	56	11
	83	22	4	1	3	..	1	..	92	23
	1	..	..	..	65	13	4	..	..	..	2	1	71	14
	66	10	..	..	1	..	..	..	67	10
	54	12	..	..	..	..	3	..	57	12
1872.

TOTAL,...	7	..	42	1	2	..	614	105	31	6	22	1	24	2	742	115

TABLES IV., V., VI.—Statistics of City of Glasgow Fever Hospital, Belvidere, during the
Years 1870-71 and 1871-72.

TABLE No. IV.—*Monthly Admissions, Dismissions, and Deaths from all causes during the Years 1870-71 and 1871-72.*

MONTH.	1870-71.						1871-72.					
	Admitted.	Dismissed.		No. in House.		Average No. in House.	Admitted.	Dismissed.		No. in House.		Average No. in House.
		Cured.	Died.	Highest.	Lowest.			Cured.	Died.	Highest.	Lowest.	
May, .....	...	...	...	...	...	...	227	239	15	188	146	165
June, .....	...	...	...	...	...	...	248	186	12	210	153	182
July, .....	...	...	...	...	...	...	165	240	11	202	124	163
August, .....	...	...	...	...	...	...	304	173	12	243	118	180
September, .....	...	...	...	...	...	...	342	296	8	311	252	281
October, .....	...	...	...	...	...	...	351	337	14	312	279	295
November, .....	...	...	...	...	...	...	207	279	10	280	197	238
December,	110	...	2	108	15	53	198	217	12	215	168	191
January,	332	156	14	269	107	197	197	156	16	196	156	176
February,	354	267	15	284	351	320	103	190	12	197	94	145
March,	376	452	21	366	248	325	115	105	10	95	74	84
April,	277	318	17	227	181	209	93	93	13	105	81	93
TOTAL,	1449	1193	69	366	15	...	2550	2511	145	312	74	...

TABLE No. VI.—Monthly Admissions of various Diseases, with Number of Deaths from each after Treatment, 1871-72.

MONTH.	TYPHUS.		RELAPSING FEVER.		ENTERIC FEVER.		SCARLET FEVER.		MEASLES.		FEBRICULA.		OTHER DISEASES.		TOTAL.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
1871.	73	8	143	4	1	1	...	...	1	...	...	...	8	...	227	15
	52	7	174	2	4	...	...	...	...	...	...	...	18	...	248	14
	48	3	99	3	4	...	...	...	4	...	...	...	10	...	165	10
	52	6	223	2	9	1	...	...	1	...	...	...	19	...	304	13
	35	4	275	5	6	...	...	...	...	...	...	...	14	...	342	9
	55	2	253	6	15	...	...	...	...	...	...	...	22	...	351	13
	55	3	137	4	11	2	...	...	...	...	...	...	17	...	207	12
	37	4	119	2	9	3	...	...	...	...	...	...	24	...	198	15
	32	4	127	3	7	...	...	...	...	...	...	...	22	...	197	13
	32	4	56	4	5	1	...	...	...	...	...	...	12	...	103	11
	24	5	47	4	9	...	...	...	...	...	...	...	12	...	115	15
	41	6	47	...	3	...	...	...	...	...	...	...	11	...	93	7
	20	3	49	1	2	...	6	1	...	...	5	...	...	...	...	...
	504	55	1702	36	83	13	12	1	6	...	54	...	189	42	2550	147
TOTAL,																

1872.

TABLES VII.-XI.—Joint Statistics of both Hospitals for Two Years, 1870-72.

TABLE No. VII.—Statistics of Relapsing Fever, showing number Treated and Stimulated at Quinquennial Periods of age in each sex, with percentages of total at each period Stimulated and Died, during the Two Years ended 30th April, 1872.

AGES.	TREATED.		DIED.		STIMULATED.		TOTAL TREATED.	TOTAL DEATHS.		TOTAL STIMULATED.	
	Males.	Females.	Males.	Females.	Males.	Females.		Number.	Percent. of Total Treated.	Number.	Percent. of Total Treated.
0—4	119	125	4	7	14	13	244	11	4·50	27	11·06
5—9	282	279	2	...	14	11	561	2	0·35	25	4·45
10—14	374	344	1	...	16	15	718	1	0·13	31	4·31
15—19	402	375	1	2	31	39	777	3	0·38	70	9·00
20—24	294	294	2	2	40	51	588	4	0·68	91	15·4
25—29	211	193	5	3	26	44	404	8	1·98	70	17·32
30—34	154	194	3	6	21	63	348	9	2·58	84	24·14
35—39	128	160	3	5	23	47	288	8	2·77	70	24·30
40—44	155	185	4	6	34	54	340	10	2·94	88	25·88
45—49	88	113	4	4	24	42	201	8	3·98	66	32·83
50—54	83	83	10	3	26	35	166	13	7·83	61	36·74
55—59	23	35	1	3	9	22	58	4	6·89	31	53·45
60—64	45	36	7	6	26	28	81	13	16·00	54	66·66
65—69	7	5	2	1	5	5	12	3	25·00	10	83·33
70—74	5	10	3	...	4	8	15	3	20·00	12	80·00
75—79	2	3	...	...	1	3	5	...	...	4	80·00
All Ages,	2372	2434	52	48	314	480	4806	100	2·08	794	16·52

TABLE No. VIII.—Statistics of Typhus, showing the number Treated and Stimulated at Quinquennial Periods of age in each sex, with percentages of total at each period Stimulated and Died, during the Two Years ended 30th April, 1872.

AGES.	TREATED.		DIED.		STIMULATED.		TOTAL TREATED.	TOTAL DEATHS.		TOTAL STIMULATED.	
	Males.	Females.	Males.	Females.	Males.	Females.		Number.	Percent. of Total Treated.	Number.	Percent. of Total Treated.
0—4	21	28	1	...	4	6	49	1	2·04	10	20·40
5—9	78	66	1	1	6	9	144	2	1·38	15	10·41
10—14	112	101	1	5	21	23	213	6	2·81	44	20·65
15—19	107	105	4	7	38	42	212	11	5·18	80	37·73
20—24	91	91	10	6	33	46	182	16	8·79	79	43·40
25—29	45	48	6	5	21	33	93	11	11·82	54	58·06
30—34	35	49	8	10	21	30	84	18	21·42	51	60·71
35—39	32	50	6	10	18	36	82	16	19·51	54	65·85
40—44	27	34	13	8	25	23	61	21	34·42	48	78·68
45—49	12	20	4	6	7	14	32	10	31·25	21	65·62
50—54	11	11	5	3	7	8	22	8	36·36	15	68·18
55—59	11	3	5	2	8	3	14	7	50·00	11	78·57
60—64	6	5	3	3	6	4	11	6	54·54	10	90·90
65—69	...	4	...	2	...	3	4	2	50·00	3	75·00
70—74	2	1	1	1	2	1	3	2	66·66	3	100·00
75—79	...	...	...	...	...	...	...	...	...	...	...
All Ages,	590	616	68	69	217	281	1206	137	11·35	498	41·29

TABLE No. IX.—Statistics of Enteric Fever, showing number Treated and Stimulated at Quinquennial Periods of age in each sex, with percentages of total at each age Stimulated and Died, during the Two Years ended 30th April, 1872.

AGES.	TREATED.		DIED.		STIMULATED.		TOTAL TREATED.	TOTAL DEATHS.		TOTAL STIMULATED.	
	Males.	Females.	Males.	Females.	Males.	Females.		Number.	Percent. of Total Treated.	Number.	Percent. of Total Treated.
0—4	1	...	...	...	1	...	1	...	...	1	100·0
5—9	2	2	...	...	...	...	4	...	...	...	...
10—14	10	10	1	...	4	2	20	1	5·00	6	30·00
15—19	16	14	2	2	4	5	30	4	13·33	9	30·00
20—24	21	10	3	2	7	6	31	5	16·12	13	41·93
25—29	14	3	2	...	2	...	17	2	11·76	2	11·76
30—34	4	3	...	1	2	2	7	1	14·28	4	57·14
35—39	5	1	1	...	3	1	6	1	16·66	4	66·66
40—44	2	...	1	...	2	...	2	1	50·00	2	100·00
45—49	1	1	...	...	...	1	2	...	...	1	50·00
50—54	...	...	...	...	...	...	...	...	...	...	...
55—59	...	1	...	...	...	1	1	...	...	1	100·00
60—64	...	...	...	...	...	...	...	...	...	...	...
65—69	...	...	...	...	...	...	...	...	...	...	...
70—74	...	...	...	...	...	...	...	...	...	...	...
75—79	...	...	...	...	...	...	...	...	...	...	...
All Ages,	76	45	10	5	25	18	121	15	12·39	43	35·53

TABLE No. X.—Statistics of Small-pox, showing the number Vaccinated and Unvaccinated, Treated and Stimulated at Quinquennial Periods of age, with percentages of total at each age Stimulated and Died, during the Two Years ended 30th April, 1872.

AGES.	TREATED.		DIED.		STIMULATED.		TOTAL TREATED.	TOTAL DEATHS.		TOTAL STIMULATED.	
	Vaccinated.	Unvaccinated.	Vaccinated.	Unvaccinated.	Vaccinated.	Unvaccinated.		Number.	Percent. age of Total Treated.	Number.	Percent. age of Total Treated.
0—4	10	31	...	11	2	17	41	11	26·82	19	46·34
5—9	84	60	4	16	10	29	144	20	13·88	39	27·08
10—14	92	67	4	15	10	39	159	19	11·94	49	30·81
15—19	136	46	5	7	12	27	182	12	6·53	39	21·42
20—24	161	61	17	16	31	33	222	33	14·86	64	28·82
25—29	89	32	6	13	15	18	121	19	15·70	33	27·27
30—34	38	14	7	10	11	12	52	17	32·69	23	44·23
35—39	28	3	3	3	5	3	31	6	19·35	8	25·80
40—44	13	1	8	1	9	1	14	9	64·28	10	71·42
45—49	6	...	1	...	1	...	6	1	16·66	1	16·66
50—54	2	...	...	...	1	...	2	...	...	1	50·00
55—59	4	...	1	...	1	...	4	1	25·00	1	25·00
60—64	2	...	1	...	2	...	2	1	50·00	2	100·00
65—69	2	...	2	...	2	...	2	2	100·00	2	100·00
70—74	1	...	...	...	...	...	1	...	...	...	...
All Ages,	668	315	59	92	112	179	983	151	15·36	291	29·51

TABLE No. XI.—Abstract Statement of Admissions and Deaths, from
"Other Diseases," in Belvidere and Parliamentary Road Hospitals,
during the Two Years ended 30th April, 1872.

DISEASES.	Admissions.	Deaths.	DISEASES.	Admissions.	Deaths.
Nothing,.....	113	...	Totals brought up,...	278	72
Pneumonia,	63	21	Orchitis,	1	...
Bronchitis,	19	9	Acute Farcy,.....	1	1
Small-pox,	17	...	Scabies,	2	...
Scarlet Fever,.....	1	1	Jaundice,.....	1	1
Pyogenic Fever,.....	1	1	Eczema,	1	...
Intermittent Fever,.....	1	...	Urticaria,.....	1	...
Puerperal Fever,.....	1	1	Acne,	1	..
Phthisis,.....	7	5	Erythema,	1	...
Tuberculosis,.....	7	6	Idiopathic Pyæmia,	1	1
Diarrhœa,.....	9	5	Influenza,	1	...
Croup,.....	1	1	Renal Disease,.....	5	4
Hydrocephalus,.....	2	2	Scrofula,.....	1	...
Tubercular Meningitis,....	7	7	Tonsillitis,	3	...
Infantile Convulsions,.....	1	1	Peritonitis,.....	1	...
Cerebral,	10	8	Tabes Mesenterica,	1	1
Epilepsy,	2	1	Rheumatism,.....	2	...
Mania,	2	1	Amenorrhœa,	1	...
Delirium Tremens,	2	...	Poisoning—Carbolic Acid,	1	1
Effects of Drink,.....	4	2	Aneurism,.....	1	...
Erysipelas,.....	3	...	Debility,.....	1	1
Syphilis,	2	...	Debility from Birth,.....	5	5
Gonorrhœa,	2	...	General Debility,	3	1
Copaiba Rash,.....	1	...	Burns,.....	2	1
Carry forward,.....	278	72	Exhaustion—old age,.....	4	4
				320	93

STATEMENT OF EXPENDITURE

ON ACCOUNT OF

The City of Glasgow Fever Hospitals,

From 15th May, 1870, to 15th May, 1872,

(Extracted from Annual Statements of the Treasurer to the Board of Police.)

PARLIAMENTARY ROAD HOSPITAL, 1870-71.

ORDINARY EXPENDITURE.

Salary to Physician-Superintendent of Hospitals,	£175	0	0
Salaries to Resident Medical Assistants, ...	140	0	0
Matron (One Year's Salary), ...	53	0	9
Medicines, Cordials, &c., for Patients, ...	252	18	4
Maintenance of Officials and Patients, ...	1559	9	4
Keep of Horse, ...	52	2	3
Coal, Gas, &c., ...	510	15	2
Fen of Ground and Assessments, ...	596	13	10
Wages to Employés, ...	771	4	10
Cleaning Material, Petty Expenses, Repairs,			
Insurance, and other Charges, ...	245	6	1
For Printing Report, by Superintendent, ...	17	10	6
Carbolic Acid, Soap, &c., ...	76	2	11
Clothing to Patients, ...	164	7	10
Stationery, Printing, and Advertising, ...	71	17	7
Funeral Charges of Patients, ...	23	15	4
			£4710 4 9

EXTRAORDINARY EXPENDITURE.

Paid for Drawing Fen Contract, ...	£80	4	3
Causeway Work, ...	187	15	9
Mattresses, Bedsteads, Bedding, &c.,	£511	0	0
Paid to Account for Erecting New Pavilions, ...	2,360	1	11
Paid Tradesmen to Account for Fitting up Heating Apparatus, ...	230	0	0
	3101	1	11
			3369 1 11

Total Outlay, 1870-71, as in Treasurer's Statement, £8079 6 8

BELVIDERE HOSPITAL, 1870-71.

ORDINARY EXPENDITURE.

Salaries to Resident Medical Assistants, ...	£58	5	4
Salary to Matron,	25	0	0
Medicines, Cordials, &c., for Patients, ...	64	15	9
Maintenance of Officials and Patients, ...	631	18	0
Keep of Horse,	29	13	6
Coal and Gas, &c.,	141	8	6
Ground Annual and Assessments,	356	9	3
Wages to Employés,	313	8	8
Cleaning Material, Petty Expenses, Repairs,			
Insurance, &c.,	127	13	10
Carbolic Acid and Soap,	24	17	6
Funeral Charges of Patients,	1	1	6
	<hr/>		
		1774	11 10

EXTRAORDINARY EXPENDITURE.

Clothing to Patients,	£352	15	3
Purchase Price of Horse and Van,	89	10	0
Mattresses, Bedsteads, Furniture,			
Stoves, &c.,	£2002	17	3
Tradesmen to Account for Erec-			
ting Pavilions,	3600	0	0
	<hr/>		
		5602	17 3
	<hr/>		
		6045	2 6
Total Outlay, 1870-71, as in Treasurer's Statement,	£7819	14	4

PARLIAMENTARY ROAD HOSPITAL, 1871-72.

ORDINARY EXPENDITURE.

Salary to Physician-Superintendent of Hospitals, £200	0	0
Salaries to Resident Medical Assistants, ...	136	0 0
Matron—One Year's Salary, ...	50	0 0
Medicine, Cordials, &c., for Patients, ...	109	8 0
Maintenance of Officials and Patients, ...	892	1 3
Keep of Horse, and Saddlery, ...	68	7 11
Coal and Gas, ...	270	9 6
Ten of Ground and Assessments, ...	799	17 5
Wages to Employés, and Honorarium to Physician-Superintendent, ...	557	12 11
Cleaning Material, Petty Expenses, Repairs, Insurance, and other Charges, ...	233	15 10
Carbolic Acid, Soap, &c., ...	38	7 6
Clothing to Patients, ...	36	13 9
Advertising, &c., ...	5	10 6
Funeral Charges of Patients and Officials, and Price of Ground, ...	6	14 0
		<hr/> £3404 18 7

EXTRAORDINARY EXPENDITURE.

Laying Water Pipes, ...	£21	19 10
Measuring the Works of one additional Pavilion, ...	17	10 0
		<hr/> 39 9 10
Total Outlay, 1871-72, as in Treasurer's Statement,	£3444	<u><u>8 5</u></u>

BELVIDERE HOSPITAL, 1871-72.

ORDINARY EXPENDITURE.

Salaries to Resident Medical Assistants,...	£186	15	10
Salary to Matron,	60	0	0
Wages to Employés,	825	1	8
Medicine, Cordials, &c., for Patients,	228	18	7
Maintenance of Officials and Patients,	1988	6	0
Keep of Horse, and Saddlery,	75	3	9
Coal and Gas, &c.,	591	0	1
Ground Annual and Assessments,	653	19	6
Cleaning Material, Petty Expenses, Repairs, Furnishings, Cab Hires, Insurance, &c.,...	423	4	7
Carbolic Acid, Soap, &c.,	69	7	2
Clothing to Patients,	73	11	4
Stationery, Printing, and Advertising, &c.,	74	7	8
Watchman's Wages,	45	10	0
	<hr/> £5,295 6 2		

EXTRAORDINARY EXPENDITURE.

Purchase Price of Horse,	£43	0	0
Paid for a Mangle, Hand Fire Engine, Hand Truck, &c.,	49	3	6
Making Sewer and Road at Belvidere,	552	4	4
India-rubber Water Beds,	11	19	6
Paid for Drawing Feu-Contract of Ground Annual of Belvidere,	75	10	0
Wages of Inspector for Inspecting Erection of Washing-Houses,	44	13	4
House Furnishings,	90	19	6
Paid Tradesmen to Account for Erecting Morgue,	325	0	0
Do. do. do. Pavilion,	1250	0	0
Do. do. do. Washing- House,	1750	0	0
Do. do. Fitting-Up Heat- ing Apparatus,	1000	0	0
Do. in Full for Slating Pavilions,	380	0	0
Do. do. Erecting Paling,	204	13	3
	<hr/> 5,777 3 5		
Total Outlay, 1871-72, as in Treasurer's Statement,	<hr/> £11,072 9 7 <hr/>		

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