

COWAN, Robert

Statistics of fever and
small-pox in Glasgow. 1837

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STATISTICS

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FEVER AND SMALL-POX

Read 29 Nov 1838

IN GLASGOW.

By ROBERT COWAN, M.D.

ONE OF THE PHYSICIANS TO THE GLASGOW ROYAL INFIRMARY.

READ TO THE STATISTICAL SOCIETY OF GLASGOW,

APRIL 28, 1837.

GLASGOW:

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MDCCCXXXVII.



STATISTICS

OF

FEVER AND SMALL-POX IN GLASGOW;

READ to the STATISTICAL SOCIETY of GLASGOW, 28th April, 1837.

IN the following paper, it is proposed to lay before the Society—

I. The Statistics of Fever in Glasgow for the last 42 years.

II. The Statistics of the Glasgow Fever Hospital from the 31st October, 1835, till the 1st November, 1836; and

III. The Statistics of Small Pox in Glasgow.

I.

STATISTICS OF FEVER IN GLASGOW FOR THE LAST 42 YEARS.

Some remarks, illustrative of the geographical situation of Glasgow, of its climate, of the progress of its population, and the amount of Hospital accommodation, must necessarily precede any account of the prevalence of Fever; and, besides these, the state of Trade during the period embraced in the Essay, must be taken into consideration, as all of them form elements in the proper investigation of the subject.

“The City of Glasgow is situated in latitude 55 deg. 51 min. 32 sec. north, and longitude 4 deg. 17 min. 54 sec. west, according to the determination of Dr. Wilson, formerly Professor of Astronomy in the University.”

“The mean heat of Glasgow was formerly determined by Dr. Thomas Thomson to be 47 deg. 75.”

“In the second edition of Dr. Cleland’s folio Statistical work, pp. 102 to 109, the yearly quantity of rain is given for 30 years, as ascertained by Dr. Couper, Professor of Astronomy in the University, showing a yearly average of 22.328 inches. The least quantity in any one year was 14.468, in 1803, and the greatest 28.554, in 1828.”*

* Statistical Account of Scotland, Article Glasgow.

By the kindness of Mr. John Couper and of Professor Nicol, I have been enabled to bring down Dr. Cleland's table to the end of 1836.

REGISTER OF RAIN.

	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.
Jan.	0.523	0.352	0.520	0.620	0.256	3.954	0.985	3.868
Feb.	1.752	1.374	2.000	1.565	2.609	1.368	2.188	0.732
March, ..	1.357	1.463	2.531	1.906	0.598	1.759	1.582	2.375
April,	0.516	3.815	1.481	1.147	1.072	1.134	0.717	1.098
May,	1.265	1.637	0.370	1.205	0.778	0.762	1.992	0.173
June,	1.686	0.978	0.980	2.647	2.617	2.078	0.478	1.812
July,	1.725	2.315	2.120	0.822	1.082	1.183	1.875	4.536
Aug.	5.207	1.656	1.950	2.314	0.936	2.523	1.625	5.317
Sep.	1.425	3.511	1.962	1.259	1.018	2.578	4.554	2.134
Oct.	3.791	1.834	4.313	4.500	1.987	1.403	1.515	4.988
Nov.	1.896	5.461	2.882	2.072	1.753	3.007	3.417	2.004
Dec.	1.348	1.527	1.908	2.728	5.202	1.112	1.738	2.673
Total in inch.	24.491	25.923	22.937	22.785	19.908	21.861	22.666	31.710

To Dr. H. Colquhoun, of this City, I am indebted for the following valuable scientific summaries of the Weather for the years 1834-35-36:—

SUMMARY OF THE WEATHER IN 1834.

	BAROMETER AT 32°.			THERMOMETER.		
	At 9 A.M.	At 9 P.M.	Mean.	At 9 A.M.	At 9 P.M.	Mean.
January,	29.357	29.398	29.378	41°55	41°68	41°61
February,	29.848	29.829	29.838	39.61	40.86	40.24
March,	30.053	30.067	30.060	42.45	42.65	42.55
April,	30.214	30.202	30.208	46.43	45.63	46.03
May,	29.921	29.898	29.910	53.92	51.39	52.65
June,	29.777	29.797	29.787	57.60	54.67	56.14
July,	29.978	29.985	29.982	60.42	58.97	59.69
August,	29.672	29.672	29.672	58.94	56.16	57.55
September,	29.992	29.993	29.993	56.03	53.87	54.95
October,	29.884	29.877	29.880	50.10	49.10	49.60
November,	29.866	29.844	29.855	43.67	43.87	43.77
December,	30.193	30.197	30.195	41.94	42.36	42.15
Yearly averages,	29.896	29.897	29.896	49°39	48°43	48°91

Wind North, -	15 days.	Wind South, -	8 days.
North-East, -	67	South-West, -	135
East, - - -	17	West, - - -	93
South-East, -	7	North-West, -	23

60 days of high wind, or inclining to high.

194 :: without rain.

125 :: clear weather.

86 :: changeable.

240 :: cloudy or dull.

8 :: frost.

1 :: snow.—total depth of snow not 1 inch.

SUMMARY OF THE WEATHER IN 1835.

	BAROMETER AT 32°.			THERMOMETER.		
	At 9 A.M.	At 9 P.M.	Mean.	At 9 A.M.	At 9 P.M.	Mean.
January,	29.949	29.961	29.955	37°34	38°23	37°78
February,	29.535	29.508	29.522	39.68	39.82	39.75
March,	29.817	29.841	29.829	40.45	39.81	40.13
April,	30.084	30.103	30.094	43.90	44.00	43.95
May,	29.788	29.780	29.784	49.39	48.35	48.87
June,	30.011	30.020	30.016	55.93	54.63	55.28
July,	29.896	29.922	29.909	56.84	55.61	56.23
August,	29.894	29.902	29.897	59.00	58.29	58.64
September,	29.487	29.470	29.479	52.40	52.13	52.27
October,	29.611	29.633	29.622	45.42	45.71	45.56
November,	29.771	29.737	29.754	41.23	42.47	41.85
December,	30.049	30.081	30.065	38.10	39.23	38.67
Yearly averages,	29.824	29.830	29.827	46°64	46°52	46°58

Wind North, -	18 days.	Wind South, -	9 days.
North-East, -	70	South-West, -	93
East, - -	35	West, - -	102
South-East, - -	4	North-West, -	34
55 days of high wind, or inclining to high.			
194 :: without rain.			
104 :: clear weather.			
96 :: changeable.			
261 :: cloudy or dull.			
75 :: rainy.			
23 :: frost.			
9 :: snow—total depth of snow about 9 inches.			

SUMMARY OF THE WEATHER IN 1836.

	BAROMETER IN 32°.			THERMOMETER.		
	At 9 A.M.	At 9 P.M.	Mean.	At 9 A.M.	At 9 P.M.	Mean.
January,	29.654	29.652	29.653	37°55	38°13	37°84
February,	29.702	29.719	29.710	35.45	33.34	35.39
March,	29.213	29.212	29.212	38.84	38.35	38.60
April,	29.639	29.707	29.698	42.63	41.47	42.05
May,	30.214	30.213	30.213	52.35	49.74	51.04
June,	29.599	29.630	29.615	56.10	54.27	55.19
July,	29.681	29.696	29.688	55.06	53.71	54.38
August,	29.828	29.855	29.841	53.48	52.87	53.17
September,	29.688	29.693	29.690	47.43	47.30	47.37
October,	29.551	29.566	29.558	43.10	42.68	42.89
November,	29.330	29.320	29.325	37.93	42.47	38.11
December,	29.612	29.603	29.608	37.61	39.23	38.27
Yearly averages,	29.813	29.822	29.818	44°79	44°79	44°52

Wind North, -	25 days.	Wind South, -	7 days.
North-East, -	54	South-West, -	124
East, - -	19	West, - -	91
South-East, -	5	North-West, -	41
72 days of high wind, or inclining to high.			
161 :: without rain.			
91 :: clear weather.			
72 :: changeable.			
275 :: cloudy or dull.			
133 :: rainy.			
39 :: frost.			
8 :: snow—total depth of snow about 20 inches.			

The following table of the population is given, that the numbers admitted into the Hospital and the numbers affected with Fever may be compared with the population existing at the different dates:—

Year.	1791.	1801.*	1811.*	1819.†	1821.*	1831.*
Population.	66,578	83,769	110,460	147,197	147,043	202,426

At the census of 1831, 3,908 was the amount of the rural, and 198,518 of the town population.

It is quite obvious, from the above table, that the increase of population in Glasgow has arisen in a very great degree from immigration, and from the increased demand for female domestic servants, and for female labour in the numerous cotton and power-loom factories and bleachfields in the neighbourhood of the city. A large proportion of the immigrants have been females. Those who resort for employment to towns are generally from the age of fifteen to twenty-five, a fact of some importance in reference to Fever, as will afterwards be seen, and most of this portion of our population are, at this early age, emancipated from the wholesome and salutary check of parental discipline, and consequently more liable to disease.

In 1819, there was one Irish person out of every $9\frac{67}{100}$ of the inhabitants; and in 1831, one out of every $5\frac{69}{100}$.† From this increase of Irish alone, without including the influx of labourers from the Highlands and Lowlands of Scotland, it is quite obvious that the relative proportion of the middle and wealthier classes to the labouring class must have been yearly diminishing; and, hence, one source of the increasing rate of mortality in Glasgow.

At the census of 1831, of 143,142 individuals, the amount of population between 10 and 70 years of age, the occupations of 103,001 were narrated, and of these 29,287 were either directly or indirectly connected with the manufacture of cotton goods. The number of labourers was about 6614, the number of paupers 5006.

A large proportion of the inmates of our Hospital are drawn from the labouring class of the community, from the hand-loom weavers, from the females employed in manufactories, and from the class of paupers, while comparatively few males, above the class of labourers, employed in the public works, apply for admission.

The following tabular view of the amount of population, and rate of mortality, for the last fourteen years is extracted from a letter ad-

* Government Census.

† Dr. Cleland.

‡ Dr. Cleland.

dressed by Henry Paul, Esq. a Member of this Society, to the Lord Provost, &c. &c. on the subject of the Mortality Bill for 1835. By comparing this table with one to be afterwards given of the annual number of Fever patients treated in the Hospital, the influence of Fever on the amount of mortality will be readily ascertained.

<i>Years.</i>	<i>Population.</i>	<i>Burials.</i>	<i>Rate of Mortality.</i>
1822	151,440	3690	1 : 41·00
1823	156,170	4647	1 : 33·75
1824	161,120	4670	1 : 34·50
1825	166,280	4898	1 : 33·94
1826	171,660	4538	1 : 37·82
1827	177,240	5136	1 : 34·51
1828	183,150	5942	1 : 30·82
1829	189,270	5452	1 : 34·71
1830	195,650	5785	1 : 37·73
1831	202,420	6547	1 : 30·91
1832	209,230	10,278	1 : 20·35
1833	216,450	6632	1 : 32·63
1834	223,940	6728	1 : 33·28
1835	231,800	7849*	1 : 29·53
Mean Mortality from 1821 to 1835 inclusive,			1 : 33·24
1836	244,000	9143	1 : 26·687†

HOSPITAL ACCOMMODATION.

The Royal Infirmary, for the reception of medical and surgical patients, was opened in the month of December, 1794, and contained accommodation for about one hundred and fifty patients. An addition was made to it in 1816, containing 80 beds. One-half of the Fever Hospital was opened in 1829, and the other in 1832, and, with some additional accommodation afforded since, can now receive two hundred and twenty patients.

The permanent Hospital accommodation was—

From 1795 till 1816,.....	150 beds.
1816 till 1829,.....	230
1829 till 1832,.....	330
1832,.....	450

At which it still remains.

But besides the permanent Hospital accommodation, stated in the foregoing table, it has on various occasions been absolutely necessary to provide temporary Hospitals, and also to appropriate apartments within the Infirmary for the reception of Patients, apartments never intended for any such purposes. These demands for additional room have been solely caused by the prevalence of typhus fever, with the exception of the Hospitals required in 1832 for the reception of patients affected with Cholera.

In 1818, a temporary Fever Hospital was erected at Spring Gar-

* In the burials from 1822 till 1835 there were included 6257 still-born.

† Of the 9143 burials in 1836 there were 702 still-born.

dens by public subscription, fitted to contain 200 patients. It was opened on the 30th March, 1818, and closed on the 12th July, 1819.

This Hospital was again opened in 1827, at the expense of the Infirmary, and kept open for five months.

In 1828, a temporary booth was erected in the Infirmary grounds, capable of containing 68 patients.

A Fever Hospital, with 135 beds, was opened at Mile-End on the 9th January, 1832, and closed the same year.

Notwithstanding the above amount of Hospital accommodation, that portion of it allotted for the reception of Fever patients has, on various occasions, been found insufficient, and numerous applicants for admission have been thrown back upon their own resources—left to spread the contagion of typhus around their miserable dwellings, thereby augmenting the sum of human misery already existing in its most appalling forms.

The first table exhibits the total number of patients treated in the Royal Infirmary from its opening in December, 1794, till the 1st January, 1837, distinguishing the number of Fever patients each year; and the second table shows the number of patients treated in the temporary Fever Hospitals of Spring Gardens and Mile-End in 1818-19 and 1832.

I.

TABLE of the Total number of PATIENTS treated in the GLASGOW ROYAL INFIRMARY, from 1795 till 1836, distinguishing the number of FEVER PATIENTS each year.

Year.	Total	Fever	Year.	Total	Fever	Year.	Total	Fever	Year.	Total	Fever
1795	226	18	1802	729	104	1809	886	76	1816	1511	399
1796	338	43	1803	806	85	1810	935	82	1817	1886	714
1797	545	83	1804	678	97	1811	826	45	1818	2289	1371
1798	569	45	1805	719	99	1812	877	16	1819	1861	630
1799	631	128	1806	700	75	1813	1022	35	1820	1570	289
1800	733	104	1807	726	25	1814	1135	90	1821	1454	234
1801	702	63	1808	840	27	1815	1340	230	1822	1596	229
1st Period	3744	484	2d Period	5198	512	3d Period	7022	574	4th Period	12167	3866

Year.	Total.	Fever.	Year.	Total.	Fever.
1823	1759	269	1830	2010	729
1824	2091	523	1831	3183	1657
1825	2438	897	1832	2974	1589
1826	2317	926	1833	3082	1288
1827	2725	1084	1834	3879	2003
1828	3133	1511	1835	3260	1359
1829	2321	865	1836	5130	3125
5th Period	16784	6075	6th Period	23,518	11,750

For the last 3 or 4 years, Patients with Small Pox and Scarlet Fever have been included in the returns of Fever.

II.

Table, exhibiting the number of Patients admitted into the Temporary Fever Hospitals at Spring Gardens and Mile-End:—

Spring Gardens, 1818–19,.....	1929
Mile-End, 1832,.....	1145

3074

The Patients admitted into the Hospital at Spring Gardens in 1827 were treated at the expense of the Infirmary, and are included in the number of Patients in the Infirmary return for that year.

In the first Septennial period, the Fever Patients treated in the Infirmary were— 12.92 per cent. of the whole.

In the second,	9.84	—	—
In the third,	8.17	—	—
In the fourth,	31.77	—	—
In the fifth,	36.19	—	—
In the sixth,	49.96	—	—

and if to this Table, strictly applicable to the Royal Infirmary, we add the numbers treated in the temporary Hospitals, we will raise the per centage in the fourth period

From 31.77	to	47.62 ; and in the sixth period,
From 49.96	to	54.83.

During the first 35 years embraced in the Table, the number of Patients affected with Fever treated in the Infirmary amounts to 11,511, while in the last seven years it amounts to 11,751.

In addition to the numbers treated in the permanent and temporary Hospitals, the third table exhibits the number of Fever patients which, for a period of nine years, have been treated by the District Surgeons within the Burgh at the public expense, distinguishing the number sent by these gentlemen to the Hospitals. All the Patients so treated may be considered as paupers, as, before they are attended by the District Surgeons, a certificate is required from the Elder of their district, certifying that they are unable to pay for medicines and advice, and the salaries of the Surgeons, and the medicines prescribed are paid out of the poor's rates. It must be remembered that all the Patients included in this table reside within the Burgh, the population of which, at the census of 1831, was,

	89,847	of which	12,554	were Irish, while
the Suburbs contained	112,579	..	23,000	...
Total, .	202,426	..	35,554	...

No effective measures have yet been taken to place the indigent

poor of the suburbs under a system of medical superintendence similar to that within the Burgh, though the necessity for it must be apparent from the above statement.

III.

TABLE, exhibiting the number of Cases of FEVER treated by the District Surgeons, from the 1st August, 1827, till 1st August, 1832, and in the years 1833-34-35-36, distinguishing the number sent to the Infirmary.

Year.	Number of Cases.	Sent to Infirmary.	Treated at Home.
1827-28	1281	281	1000
1828-29	1730	390	1340
1829-30	485	135	350
1830-31	898	306	592
1831-32	1428	336	1092
1833	681	294	387
1834	936	538	398
1835	542	215	327
1836	1359	643	716
Total,	9340	3138	6202*

From the above Table, it appears that 33.5 per cent. of the Patients attended by the District Surgeons of the Burgh are sent at a period of the disease, more or less advanced, to the Hospital, while the remainder are treated in their own dwellings. It would be a matter of some consequence to ascertain the rate of mortality of those treated in the Hospital, when compared with that of those patients attended at home. But, without the sex and age of both classes be given, no satisfactory conclusion can be come to upon the subject. The Table also points out the number of Fever patients drawn from the class of paupers, or from those whom an attack of disease reduces to that situation, and strongly marks the connexion of Fever with poverty.

* The above Table shows the arduous and dangerous duties imposed on the District Surgeons from Fever alone. Few of these gentlemen escape an attack of Fever. The salary allowed each is £21 per annum, a sum quite inadequate for the duty performed; and, notwithstanding the eagerness with which, from professional ardour, the situation is sought for, the public ought, in justice to themselves and to the medical profession, to insist upon a more liberal remuneration being made to the District Surgeons.

Causes, peculiar to Glasgow, giving rise to Fever, and favourable to its propagation must exist, and it is the duty of our civic authorities to investigate these causes.

Manchester, with a population at the last census of 227,808, and which, in its constitution and density, must nearly resemble that of Glasgow, has been for years, and is now comparatively free from Fever. The average annual number treated in the Manchester Fever Hospital for seven years, ending in 1836, was - 497
 The annual average in Glasgow during the same period, 1842
 The number treated in Manchester Hospital in 1836, 780
 The Glasgow, 3125
 Fever is now diminishing in Manchester, while it is increasing in Glasgow.

The prevalence of Fever in Glasgow, when compared with Manchester, is still more strikingly contrasted by the great change which has taken place in this respect. From 1797 to 1806, both inclusive, the number of the Fever Patients treated in the Glasgow Infirmary was only 883, while those treated in the Manchester Fever Hospital amounted to 4618.

In Leeds too, another manufacturing city, with a population at the last census of 123,393, the number of Patients affected with Fever and treated in Hospital, amounts to 1923 during the last seven years, giving an annual average of only 274.

In Newcastle and Gateshead, with a population of 57,917, the number of Patients treated in the Institution for the cure and prevention of contagious Fever during the last seven years, amounts to 276, or 39 annually.

In Liverpool, with a population of 189,242, 1700 cases of Fever were treated in the Hospital during 1836; but many of these belonged to the seamen of the Port, a numerous class of its population.

A comparative view of the state of Fever in other towns in England, contrasted with that of Glasgow, would, I am afraid, only place the insalubrity of our city, as far as Fever is concerned, in a more prominent and alarming point of view.

In Edinburgh, with a population of 162,156, the number of Fever Patients admitted into the Royal Infirmary, for the last three years, has been as follows:—

Year ending 30th September, 1834,	712
... .. 1835,	900
... .. 1836,	658
	<hr/>
	2270

giving an average of 756 $\frac{2}{3}$ per annum.

It is not now necessary, from the statements which have been given, to prove that the accommodation provided for Patients affected with Fever in Glasgow is insufficient when the disease becomes epidemic, and rages with unusual violence. The fact is, that Patients for the last six or seven months have been daily refused admission for want of room, although two wards in the Infirmary, in addition to the Fever Hospital, have been appropriated to Fever Patients; and that, since the beginning of March, a temporary Hospital has been opened in the old Police Buildings, containing 56 beds, and into which 216 males have been already admitted.

The facts prove the necessity that exists for further accommodation. Temporary Hospitals have been erected at different times, at an immense sacrifice of money and loss of precious time, as the disease has generally proceeded to an alarming extent before the authorities and the public have been roused to the necessity of additional accommodation.

Instead of wasting the public money on temporary buildings, it appears to me that small unpretending edifices should be erected in those situations where Fever most generally prevails, capable of containing from 50 to 60 Patients each. There should be one in Calton, in Gorbals, and Anderston. These buildings might be occupied, when the present permanent Hospital accommodation is sufficient, in many suitable ways; and when, for a season, the return or increase of epidemic Fever necessitates their employment for the purposes of their original erection, a speedy check would be given to the disease, by instantly removing the infected to them, and thus diminishing one propagating source of Fever—contagion.

We have proved that since 1816, but more particularly during the last seven years, Fever has been steadily increasing in the City of Glasgow, and that its victims constitute within a fraction of 55 out of every 100 Patients treated in our Hospitals, independently of those treated by the District Surgeons within the Burgh.

This increase, especially during the last seven years, has taken place, not in years of famine or distress, but during a period of unexampled prosperity—a period when the wages of labour have been

ample—the prices of provisions comparatively low, and every individual, able and willing to work, secure of steady and remunerating employment.

True, indeed, the weather has not been favourable since 1830 ; and certain atmospherical phenomena inimical to health have existed, as may be inferred from the prevalence of various epidemics, though not appreciable by scientific instruments ; but these general causes have not acted so severely on other cities of the empire as they have upon Glasgow, which has numbered more victims from Influenza, Cholera, and Fever, in proportion to its population, than any other city in Britain.

Many of the causes of the production and propagation of Fever must be ascribed to the habits of our population ; to the total want of cleanliness among the lower orders of the community ; to the absence of ventilation in the more densely peopled districts ; and to the accumulation, for weeks or months together, of filth of every description in our public and private dunghills ; to the over-crowded state of the lodging-houses resorted to by the lowest classes ; and to many other circumstances unnecessary to mention.

Before the Municipal Bill for Glasgow is presented to the Legislature, a well-digested system of medical police should be drawn up and incorporated with the other necessary enactments. Power should be vested in the police to enforce the daily removal of filth of every description. Public water closets should be established, and every measure calculated to promote the general health rigidly enforced.

If any arguments were wanting to arouse the community to the investigation of this important subject, they might be drawn from the heavy pecuniary tax which Fever entails on the benevolent of our city—from the poverty, misery, and crime which this disease engenders. It is not possible, from the data before me, to give any thing like an accurate calculation of the sums spent for the treatment of Fever in Glasgow during the last twenty years. The following calculation intentionally falls considerably under the amount, to prevent every suspicion of exaggeration.

1. Cost of the Fever Hospital,.....	£8566	7	9
2. Temporary Hospitals, and maintenance of patients in them,.....	5000	0	0
3. 21,691 patients, at £1:10s. treated at the expense of the Infirmary,.....	32,536	10	0
	<hr/>		
	£46,102	17	9

To this amount falls to be added the expense of treating the poor in their own houses under the district Surgeons of the Burgh, and any sums expended by the Heritors of the Gorbals and Barony Parishes for similar purposes. But this sum must have been greatly increased by the demands of pauperism, produced by Fever, on our poor's rates, and on the private benevolence of our citizens; for the duration of the disease, and the period of convalescence which must elapse before an individual can resume his work, will average rather more than six weeks, and when to this is added the difficulty of again finding immediate employment, we may safely assume that the 12,895 individuals treated in the Fever Hospitals during the last seven years, all, with few exceptions, depending on their daily labour, and extending the benefit of that labour to others, were out of employment for a period of at least six weeks.

The mean duration of any disease forms an important feature in estimating the effects produced by it on the population. The duration of an attack of Cholera, when compared with that of Fever, is short; but, in proportion to the duration of any disease, is the amount of misery it produces. "This distinction is of vast importance, for the constantly sick, contributing nothing to their own subsistence, and requiring the care of others, bear with a heavy weight on the community."

In short, the prevalence of Fever in Glasgow presents obstacles to the promotion of social improvement among the lower classes, and is productive of an amount of human misery, credible to those only who have witnessed it.

While it is the duty of those in the management of our Hospital to provide the requisite accommodation for all persons affected with Fever, it is as certainly the duty of our municipal rulers to originate and promote such measures, as, on due consideration, may be considered necessary to check the propagation and continuance of the disease. A few thousand pounds, judiciously expended in opening up the districts most densely populated, and in other obvious ways, would greatly tend to alleviate the pressure of our heaviest municipal tax—the "Fever tax."

II.

STATISTICS OF THE GLASGOW FEVER HOSPITAL,

FROM 31ST OCTOBER, 1835, TILL 1ST NOVEMBER, 1836.

THE Glasgow Fever Hospital can accommodate, without being overcrowded, two hundred and twenty patients, and it may be proper to mention that, during the whole period embraced in the following Report, no patient of either sex was denied admission from want of room.

From the 31st of October, 1835, till the 1st of November, 1836, there were admitted into the wards of the Fever Hospital, 2655 persons, of whom 142 were treated by the Clinical Physicians, and 2513 by myself.

The following Table exhibits the numbers admitted each month:

1835—November,.....	124
December,.....	140
1836—January,.....	141
February,.....	125
March,.....	176
April,.....	203
May,.....	246
June,.....	272
July,	264
August,.....	306
September,.....	303
October,.....	355
	<hr/>
	2655

In the first three months of the Table, the admissions were 405

In the second,..... 504

In the third,..... 782

And in the last three months they amounted to..... 964

In the first six months they were 909, in the last 1746.

The number of patients admitted into the Fever Hospital, in 1835, only amounted to 1359, and, on an average of the last eight

years, to 1477; while in 1836 the number was 3125, being greater than that treated in 1832, in the Infirmary (1589) and Mile-End Hospitals (1145), 2734.

A reference to the Tables of the State of the Weather, given in the preceding part of this paper, will show the quantity of rain which fell monthly during the period of my attendance on the Fever Hospital, and the average temperature indicated by Fahrenheit's thermometer. From these it appears that the quantity of rain was much above the average, while the temperature of almost every month was lower than that of the previous year; and while the mean heat of Glasgow is $47^{\circ}75$, the mean heat of 1835 was $46^{\circ}58$, and that of 1836 only $44^{\circ}52$.

The average residence of each patient in the Hospital was 18 days. Of the 2513 patients under my charge, there were—

	<i>Scotch.</i>	<i>English.</i>	<i>Irish.</i>	<i>Total.</i>
Males,.....	818	37	400	1255
Females,.....	885	16	357	1258
	<hr/> 1703	<hr/> 53*	<hr/> 757	<hr/> 2513

The males and females were nearly equal in number, being 1255 and 1258. The Scotch were 67.76 per cent of the total admissions,

The Irish.....	30.12
The English, &c.	2.10

Although the Fever Hospital is strictly appropriated to the reception of patients labouring under Fever, Small-Pox, Scarlet Fever, Measles, and Erysipelas, still patients affected with other ailments are occasionally sent there, either from their diseases being mistaken for Fever, or from the facilities of admission being greater than those of the Infirmary.

The following is a Table of the Diseases treated in the Fever Hospital, from 31st October, 1835, till 1st November, 1836, distinguishing the sex and nation of the patients, and the rate of mortality.

* Including 13 Foreigners and those born in the Colonies of Great Britain.

TABLE I.

	MALES.					FEMALES.				
	Scotch.	Engl. ish.	Irish.	Total.	Deaths.	Scotch.	Engl. ish.	Irish.	Total.	Deaths.
Fever,.....	712	34	370	1116	*	782	14	345	1141	*
Small-Pox, . . .	45		4	49	13	46			46	13
Scarlet Fever, . . .	15		5	20	2	35	1	5	41	5
Measles,	3			3	2	1		1	2	
Erysipelas, . . .	3			3	2	1		1	2	
Inflammation, Brain, .	1		1	2	2	1		1	2	2
Delirium Tremens, . .	3			3	2					
Chronic Abscess, Brain,			1	1	1					
Quinsy,	5			5						
Catarrh,	7	1	3	11	1	4		1	5	
Pleurisy,	3		4	7	3	3			3	3
Inflammation of Lungs, .	14	2	11	27	8	6		2	8	2
Bowels,						1	1	1	3	2
Consumption, . . .	2			2	2	3			3	3
Rheumatism, . . .	2			2	1	1			1	
Diseased Liver, . . .						1			1	1
Old Age, Vagrancy, &c.	3		1	4						
	818	37	400	1255		885	16	357	1258	

Of the Fever patients, the Scotch form 66.10 per cent.

English, 2.12 ...

Irish, 31.67 ...

Of 95 patients with Small-Pox, 91 were Scotch and 4 Irish, and all were, with two or three exceptions, above 20 years of age.

Of 61 patients with Scarlet Fever, 50 were Scotch, 10 Irish, and 1 English.

The two following Tables, exhibit the number of males and females, according to the Government census of 1831, and also the number of Scotch, Irish, English, and Foreigners at the same time.

I.

<i>Males.</i>	<i>Females.</i>	<i>Total.</i>
93,724	108,702	202,426

II.

<i>Scotch.</i>	<i>English.</i>	<i>Irish.</i>	<i>Foreigners.</i>	<i>Total.</i>
163,600	2,919	35,554	353	202,426

The proportion of Irish treated in the Fever Hospital is much less than what is generally believed by those who have not paid attention to the subject. Dr. Lombard, of Geneva, estimates the num-

* The mortality of the Fever patients will be given at page 22.

ber of Irish resident in Glasgow at 60,000, and ascribes the prevalence, and what he deems the peculiarities of our Fever, to the number of Irish resident in Glasgow.* The author of the article "Vital Statistics," in M'Culloch's Statistics of the British Empire, vol. ii. p. 572, makes the following remarks:—"The increasing mortality in Glasgow is no doubt in part due to the accession of Irish population, who amounted, in 1831, to more than 1-6th of the inhabitants. The poor Irish, we strongly suspect, are keeping up, if they be not introducing, the Fevers of their wretched country in the heart of the British cities. This is confirmed in the case of Glasgow, by the ages at which the mortality is augmented, and by a report of the Glasgow Infirmary before us, from which it appears that, in the year 1835, out of 3260 patients treated, 1258 had Fevers, and of these 125 died."

This statement will be proved to be incorrect while adverting, at the close of this essay, to the influence which Fever has had in augmenting the mortality of Glasgow, especially during 1835, the year alluded to in the quotation.

The second and third Tables exhibit the ages of the patients admitted, distinguishing males from females, and the fourth gives the combined ages without reference to sex.

In connexion with these Tables, the ages of persons in Glasgow, according to the Government census of 1831, is appended.

AGES of PERSONS in Glasgow and in the Suburban Parishes of Barony and Gorbals, in 1831.

Under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 and upw	Total.
Males, 15422	13127	10491	8489	15177	12179	8685	5549	3228	1090	260	26	1	93724
Females, ... 14855	12580	10720	12256	23008	14240	9329	6099	3692	1502	385	32	4	108702
Total, ... 30277	25707	21211	20745	38185	26419	18014	11648	6920	2592	645	58	5	202426

* Dublin Medical Journal, for September, 1836.

TABLE II.

TABLE exhibiting the Ages of the Male Fever Patients, distinguishing the number of admissions at each age for each month.

	AGES.															Total.
	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	
1835.																
November,	1	4	6	10	4	6	4	3	2	1						41
December,			3	10	8	7	1			1						30
1836.																
January,		4	7	9	13	4			2	2	1	1				43
February,		2	5	10	13	6	2		2	1		1		1		43
March,		4	8	9	21	6	1	5	1	3	1	1				60
April,		2	3	17	27	15	11	7	6	3	2				1	94
May,	1	16	19	26	19	12	4	4	5	2	3	1	1			113
June,		12	14	31	12	15	8	9	4	4		1				110
July,	4	6	16	18	19	16	14	11	3	6	1		1			115
August,	2	17	23	28	30	11	10	18	9	4	1		1			154
September,		11	17	27	36	17	12	10	1	6	2	1				140
October,	2	14	28	34	35	17	17	13	4	6	1	1			1	173
	10	92	149	229	237	132	84	80	39	39	12	7	3	1	2	1116

TABLE III.

TABLE exhibiting the Ages of the Female Fever Patients, distinguishing the number of admissions at each age for each month.

	AGES.															Total.
	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	
1835.																
November,	1	7	6	19	9	7	4	3				1				58
December,	1	2	5	13	10	8	2	2	3	1		1	1		1	49
1836.																
January,	2	2	6	14	13	5	2	5	3		1	1				54
February,	3	8	9	8	8	2	1	3								43
March,		6	13	13	13	7	6	2		2			1			63
April,	2	8	15	21	17	8	3	5		2		3				84
May,	1	10	15	28	15	18	2	5	1	7	1	1				104
June,	2	8	26	27	17	22	6	11	1	5	1					126
July,	5	12	14	28	14	21	6	9	3	1		4				117
August,	5	11	18	24	29	7	6	14	4	5	1	3				127
September,	3	11	19	31	18	30	13	14	4	3	3					149
October,	6	14	23	46	25	23	9	12	4	1	2	1		1		167
	31	99	169	272	188	158	60	85	23	27	9	15	3	1	1	1141

TABLE IV.

TABLE exhibiting the number of Patients at each age.

Age.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1-5	10	31	41	251	299	550	849	917	1776
5-10	92	99	191						
10-15	149	169	318						
15-20	229	272	501	598	618	1216			
20-25	237	188	425						
25-30	132	158	290						
30-35	84	60	144	203	168	371	267	224	491
35-40	80	85	165						
40-45	39	23	62						
45-50	39	27	66	58	51	109			
50-55	12	9	21						
55-60	7	15	22						
60-65	3	3	6	6	5	11			
65-70	1	1	2						
70-75	2	1	3						
	1116	1141	2257	1116	1141	2257	1116	1141	2257

From an examination of these Tables, it appears that the period of life at which Fever is most liable to occur, is from the age of 20 to 25 years for the males, when the proportion is 21.23 per cent. and from the age of 15 to 20 for females, when the proportion is 23.83 per cent.

The number of females at every age prior to 25 exceeds that of the males.

The number of females admitted under 20 years of age is 571

Males, 480

Excess of females under 20, ... 91 or

8.64 per cent.

This fact must be kept in view, as it has an important bearing on the relative mortality of the sexes.

The number of both sexes admitted from the age of 20 to that of 30 years, is 1216, or 53.87 per cent.

The number admitted under the age of 30 years, is 1766 or 78.24 per cent.

The admissions rapidly diminish after the age of 40. Of 2257 individuals affected with Fever, 2075 were under 40 years of age and only 182 above it.

The rate of mortality in a Fever Hospital depends on a great variety of circumstances, over many of which the physician has little or no controul. It varies according to the proportion which the

accommodation bears to the number of the diseased in the town or district in which the Hospital is situated—to the facilities which may be afforded, or the restrictions opposed to the admission of patients—to the relative amount of accommodation for the sexes—to the ages of the patients admitted, and to the age to which admission is restricted.

It is dependent, too, on the intensity of the prevailing epidemic and on the period of the epidemic, as it is well known that epidemic disease is generally more fatal at the commencement and rise, than at the period of its decline and termination.

The season of the year also gives occasion to a great and varying mortality in Fever, as well as in other diseases.

Another cause of the conflicting statements regarding the mortality of Fever in Hospitals, arises from the variation in the mode of computing the number of deaths occurring immediately after admission. In some Hospitals all the deaths are included, however short the period of residence may have been: in others, the deaths within 12, 24, 36, or even 48 hours, are excluded from the lists.

The most striking discrepancies in the rate of mortality are those that exist between the English and Irish Hospitals. This will be best seen by taking the extremes. Thus, "in Guy's Hospital, London, under the attendance of Dr. Marcet, the deaths in 1816 are said to have been 1 in 4, and in the London Public Dispensary, under the charge of the celebrated Willan, during the Autumn months of 1799, no less than 1 in 2, or a half; while in Dublin, during 1817, according to Percival, the average of the whole receptacles was 1 in 22, and in Stevens' Hospital, taken separately, if the printing be correct, only 1 in 50."* It is obvious, from this statement, that extreme pauperism must have broken down, on this occasion, all the usual barriers to Hospital admission.

In the accompanying Tables, fifth and sixth, I have given the number of male and female patients admitted into the Fever Hospital at each age—the number of deaths at each age occurring within the first 24 hours of the patients' admission. As most, if not all of those so dying were never seen by me, they are in a subsequent column of the Table deducted, and the rate of mortality is calculated from the deaths exclusive of those dying within 24 hours of their admission. The fifth Table exhibits the rate of mortality at each age, distinguishing males from females, and the sixth Table shows the mortality at each age, without reference to sex.

* Millar.

TABLE V.

TABLE exhibiting the total number admitted with Fever, the deaths within the first twenty-four hours, the numbers treated, the deaths among these, and the rate of mortality.

MALES.						
Age.	Total.	Died within 24 hours.	Treated.	Dead.	Proportion.	Per Cent.
5	10		10			
10	92	1	91	3	1 in 30 1-3d	3.29
15	149		149	7	21 2-7ths	4.69
20	229		229	19	12 1-9th	8.29
25	237	1	236	30	7 26-30th	12.71
30	132	1	131	27	4 23-27th	20.61
35	84	6	78	14	5 8-14th	17.93
40	80	3	77	25	3 2-25th	32.46
45	39		39	15	2 9-15th	38.46
50	39	2	37	16	2 5-16th	43.24
55	12		12	2	6	16.66
60	7	1	6	5	1 1-5th	83.33
65	3	1	2			
70	1		1			
75	2	1	1			
	1116	17	1099	163	1 in 6 121-163	14.83

TABLE V. CONTINUED.

FEMALES.						
Age.	Total.	Died within 24 hours.	Treated.	Dead.	Proportion.	Per Cent.
5	31		31	1	1 in 31	3.22
10	99		99	2	49½	2.02
15	169		169	8	21½	4.72
20	272	1	271	17	15 16-17th	6.27
25	188		188	19	9 17-19th	10.10
30	158	2	156	14	11 2-14th	9.03
35	60	4	56	6	9 2-6th	10.70
40	82	1	84	11	7 7-11th	13.09
45	23	1	22	9	2 4-9th	40.90
50	27		27	9	3	33.33
55	9		9			
60	15		15	5	3	33.33
65	3		3			
70	1		1			
75	1		1			
	1141	9	1132	101	1 in 11 21-101	8.92

TABLE VI.

TABLE of the Mortality at each age of the Fever Patients in the Glasgow Fever Hospital, from 31st October, 1835, to 1st November, 1836.

Age.	No.	Dead.	Proportion.	Per Cent.
5	41	1		2.43
10	190	5		2.63
15	318	15		4.71
20	500	36		7.20
25	424	49		11.55
30	287	41		14.28
35	134	20		14.92
40	161	36		22.36
45	61	24		39.34
50	64	25		39.06
55	21	2		9.52
60	21	10		47.61
65	5			
70	2			
75	2			
	2231	264	1 in 8 119-264	11.83

The first point that attracts our attention is the relative mortality of the two sexes, and certainly it is very remarkable. The total mortality of the males is 1 in every $6\frac{1}{2}$, while of the females it is only 1 in every $11\frac{1}{10}$.

In the males the mortality is 14.83 per cent.

In the females 8.92 ...

The deaths of the males within the first 24 hours amount to 17.

The deaths of the females 9.

At almost every period of life embraced in the Table, the mortality of the males from Fever exceeds that of the females.

At the age of 15 the mortality is very nearly the same in both sexes.

At the age of 30 the mortality of the males is more than double that of the females.

The rate of mortality is greatest in females at the age of 45.

The mortality of the males under 20 years of age, 6.04 per cent.

... .. females 4.90 ...

The total mortality under 30 years of age, 8.35 per cent.

... .. above 30 24.84 ...

From the Table of Mortality without reference to sex, and which is a combination of the first two Tables, it appears that, after the

age of 10, the mortality from Fever slowly increases till the age of 35. From the mortality being 2.63 per cent. at 10 years of age, it has gradually risen to 14.92 at 35: at 40 it is 22.36, and at 50, 39.06.

The mortality of the Scotch and Irish was precisely the same, while that among the English, if any inference can be drawn from such a small number, was considerably less.

Fever may occur without the presence of any eruption during the whole of its progress, or it may be attended by eruptions of various kinds, both when prevailing sporadically and epidemically. The eruptions most commonly attending the fever of this country are petechiæ and vibices—appearing towards the last stage, and symptomatic of a putrid state of the system—an exanthematous eruption, denominated by French writers “eruption typhoide,” and sudamina, with others of less frequent occurrence. These eruptions may occur singly or in combination.

In many of the epidemic fevers which have taken place, the occurrence of any eruption has not been so general as to form a characteristic feature of the disease, while in others it has been so frequent as to entitle the epidemic to be ranked as an exanthematous, or eruptive fever.

In the epidemic fever of 1816-17 and 18, the fever in the Glasgow Hospital was distinguished, in the worst cases, and in the more advanced stages, by petechiæ and vibices, and was not attended by any exanthematous eruption. In the existing epidemic fever, an exanthematous eruption is present in a vast majority of the patients admitted.

This eruption generally makes its appearance from the fourth to the ninth day of the disease, occasionally, according to my own observations, and those of Chomel, appearing at a later period.

From discussions which took place in the Medical Society of this city, I was induced to pay particular attention to the prevalence of this eruption, and the following are the results of the investigation.

TABLE of the Patients admitted with Fever, distinguishing Males from Females, and the numbers of each sex in whom the Typhoid Eruption appeared.

1835.	MALES.		FEMALES.	
	Eruption.	None.	Eruption.	None.
Nov.....	27.....	14.....	25.....	33
Dec.....	14.....	16.....	19.....	30
1836.				
Jan.....	31.....	12.....	29.....	25
Feb.....	22.....	21.....	19.....	24
March,....	36.....	24.....	29.....	34
April,....	68.....	26.....	52.....	32
May,.....	84.....	29.....	77.....	27
June,.....	90.....	20.....	105.....	21
July,.....	104.....	11.....	96.....	21
August, 115....		39.....	108.....	19
Sept.....	116.....	24.....	120.....	29
October, 143....		30.....	140.....	27
	<hr/>	<hr/>	<hr/>	<hr/>
	850	266	819	322

Of 2257 patients—850 males and 819 females=1669 had eruption,
And 266 :: and 322 :: = 588 had none.

TABLE of the per centage of patients with Typhoid Eruption, each Quarter, distinguishing Males from Females.

	Males.	Females.
1st Quarter,.....	63.15.....	45.34
2d :: 	63.95.....	52.63
3d :: 	82.24.....	80.11
4th :: 	80.08.....	83.06
	<hr/>	<hr/>
	76.16	71.77

Total—2257 : 1669 = 73.99

From these Tables it appears that the proportion with eruption varied each month; and that, with the exception of the quarter ending in October, the number of females with eruption was always less than that of the males.

For the first six months of my attendance, less than one-half of the females had eruption, while in the last six months four-fifths had it; and, upon the average of the whole year, 71 out of every 100.

Of the males the monthly proportion also varied considerably, but on an average of the first and second quarters, 63 per cent. had the typhoid eruption.

During the last six months the proportion of males and females in which the typhoid eruption appeared was nearly the same. At

the close of the year, in 76.16 per cent. of the males, and 71.77 of the females, the typhoid eruption had occurred, giving as an average of the whole cases 73.99 out of every 100 admitted.

From these Tables I am warranted in the inference that the exanthematous eruption is not an essential character of the fever of this country, as during the first six months it occurred in only 49 per cent. of the females, and 63 per cent. of the males; and, besides this, even in an epidemic, in which it is a distinguishing feature, it is not invariably present, as during the last six months it was absent in nearly 1-5th of those admitted.

There is a question connected with the subject of fever that is an important one, and is justly considered so by the public, as well as by the medical profession—I allude to the question of contagion. Some medical men in this country, and many upon the continent, believe that fever is not contagious. The majority—the very great majority—of the medical practitioners in Great Britain and Ireland believe that fever is contagious. I am of that opinion, for reasons which it would be out of place here to specify.

Of the patients admitted into the Fever Hospital last year, 472 males and 589 females, forming 47 per cent. of the whole, either ascribed the origin of their disease to contagion, or had been exposed to its influence.

All the gentlemen who have acted as Clerks in the Fever Hospital for many years past have been attacked with fever, unless they had it previously to their election. During last year twenty-seven of the nurses of the establishment were seized with fever, and five of them died. Several of the students have been affected. One gentleman, who acted as apothecary, died in the House; and if I have escaped, it must be attributed either to being past the period of life at which fever usually takes place, or to my being secured by having had two dangerous attacks at an earlier period of my career, when acting as physicians' clerk in the Infirmary during the epidemic of 1816-17 and 18. These facts are strongly corroborative of the opinion that fever is contagious.

III.

STATISTICS OF SMALL POX IN GLASGOW.

THE introduction of inoculation, although it diminished the relative mortality, will, it is believed, be found to have increased the absolute mortality of small-pox ; as by this practice the disease, which, before its introduction, occurred epidemically only at long and uncertain intervals, was kept constantly prevailing at all times and seasons, thereby producing a mortality, especially among children, which could now be scarcely credited, but for the attested registers of its ravages. The fact is undoubted, that small-pox inoculation did not effect that saving in human life so generally attributed to it. While it was adopted by the upper and intelligent classes of the community, it was rejected by the lower ; and the bills of mortality prove the deaths by small-pox to have increased, after the practice of inoculation was introduced. In this city small-pox inoculation was generally practised, and recommended by medical practitioners, during the period embraced in the following table. We have no data from the Glasgow bills of mortality to prove the fact of the mortality from small-pox being greater at the close than at the commencement of the eighteenth century, but it has been ascertained in other towns, and the following extract from Heberden, confirms the assertion in regard to London. “ Out of every thousand deaths in the bills of mortality, the number attributed to the small-pox, during the first thirty years of the 18th century, before inoculation could yet have had any effect upon them, amounted to seventy-four. During an equal number of years, at the end of the century, they amounted to ninety-five. So that, as far as we are enabled to judge from hence, they would appear to have increased in a proportion of about five to four.” I have, therefore, no hesitation in ascribing a large proportion of the mortality recorded in the following table to the practice of inoculation for the small-pox, being borne out in my assertion by the above quotation from Heberden, and by the medical statistics of other cities.

The following table exhibits the total deaths under ten years of age, and the deaths under ten from small-pox in Glasgow, for thirty years, divided into three equal periods, and is compiled from tables prepared from the registers of this city, by the late Dr. Robert Watt, and published in the Appendix to his work on *Chincough*.

TABLE I.

Year.	Total.	Small-Pox.	Year.	Total.	Small-Pox.	Year.	Total.	Small-Pox.
1783	719	155	1793	1126	339	1803	940	194
1784	877	425	1794	759	235	1804	863	213
1785	744	218	1795	1048	402	1805	884	56
1786	941	348	1796	797	177	1806	786	28
1787	1016	410	1797	834	354	1807	899	97
1788	1059	399	1798	864	309	1808	1775	51
1789	1058	366	1799	1105	370	1809	1187	159
1790	1236	333	1800	746	257	1810	1027	28
1791	1367	607	1801	766	245	1811	1274	109
1792	902	202	1802	985	156	1812	1278	78
1st period	9919	3466	2d period	9080	2894	3d period	10913	1013

The ravages of small-pox were never before more vividly illustrated than in the foregoing table.

In the first period of ten years, the total deaths under ten years of age amounted to 9919, and the deaths from small-pox, to 3466, being 35·94 per cent. and rather more than one-third of the whole deaths under ten.

In the second period, the total deaths under ten are 9080, and the deaths from small-pox 2894, or 31·87 per cent; and in the last period, the total deaths under ten are 20,913, and the deaths from small-pox 1013, or only 9·28 per cent.

The saving of human life in infancy by the introduction of vaccination is thus most satisfactorily established, as the table shows an improvement to the extent of 25 per cent. and if to this be added the lives saved above ten years of age, which we have no means of exhibiting from the Glasgow mortality bills, we will be able to judge of the benefits conferred on society by Jenner.

I am not aware that small-pox was so fatal in any town as it appears to have been in Glasgow. In Berlin, the deaths from small-pox were, for a short time, as 1 in 4, but more generally as 1 in 7, of the whole deaths under ten years of age, while in the city and suburbs of Glasgow, it was fatal in the proportion of one in three of the deaths under ten years, and that not for one or two years merely, but for a long period.

The great saving of human life is rendered apparent from the third period embraced in the table. Up to the very moment of small-pox inoculation being superseded by cow-pox the mortality is immense, and the instant the latter is employed, the mortality becomes trifling in comparison.

From 1812 till the publication of the Mortality Bill for 1835, there was no statement made of the number of deaths annually from

small-pox. From the increased rate of mortality of late years, and the period of life at which the augmented mortality has taken place, I have for a long time expressed the opinion that small-pox has been prevailing to a greater extent than has been generally supposed.

This must remain a matter of conjecture for the period prior to 1835, unless some person, possessing the persevering industry of Dr. Watt, shall attempt the task of completing his tables from 1812 till 1835.

The following table gives the deaths from small-pox, according to the Mortality Bills for 1835-36, but does not include the whole of them, as the causes of death were not ascertained in many instances; and at the Tollcross burying ground, in which the interments, in 1835-36, amounted to 645, the diseases have not been recorded.

TABLE II.

TABLE of the deaths from Small-pox, 1835-36.

	Under 1 Year.	1 to 2	2 to 5	5 to 10	Above 10	
1835.....	204.....	154.....	75.....	17.....	23.....	= 473
1836.....	202.....	174.....	144.....	23.....	34.....	= 577
	<u>406</u>	<u>328</u>	<u>219</u>	<u>40</u>	<u>57</u>	<u>=1050</u>

The annual average number of deaths under ten years of age, for ten years prior to 1812, from small-pox, was 101, while, during the two last years, they have amounted to 903.

TABLE III.

TABLE of the number of Patients, with Small-pox, annually admitted into the Glasgow Royal Infirmary, from 1795 till 1836.

Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.	Year.	No.
1795	4	1802		1809	10	1816	14	1823	46	1830	10
1796	2	1803		1810	2	1817	7	1824	37	1831	12
1797	4	1804	1	1811		1818	11	1825	3	1832	3
1798	9	1805	3	1812	4	1819	7	1826	1	1833	14
1799		1806	1	1813	2	1820		1827	25	1834	62
1800	1	1807	5	1814	2	1821	33	1828	4	1835	72
1801	1	1808		1815	4	1822	5	1829	1	1836	110
	<u>21</u>		<u>10</u>		<u>24</u>		<u>77</u>		<u>117</u>		<u>283</u>

This table shows a progressive increase in the number of patients with small-pox admitted into the Infirmary for some years past, and also how small a proportion of the adult population was admitted during the years in which, as appears from Table I. small-pox was carrying off hundreds annually under ten years of age.

Of the 110 patients treated in the Infirmary in 1836, ninety-five came under my charge; and the next table gives the sex, nation, and district of each patient, with the proportion vaccinated, and the number of deaths. The patients, with three exceptions, were adults.

TABLE IV.

	Highlanders.	Lowlanders.	Irish.	Total.
Males,.....	34.....	11.....	4.....	49
Females,.....	36.....	10.....	0.....	46
	<hr/> 70 <hr/>	<hr/> 21 <hr/>	<hr/> 4 <hr/>	<hr/> 95 <hr/>
Males Vaccinated,.....				32
Females ::	17.....	6.....	0.....	23
	<hr/>	<hr/>	<hr/>	<hr/>
Males Unvaccinated,.....				17
Females ::	19.....	4.....	0.....	23
	<hr/>	<hr/>	<hr/>	<hr/>
Males Dead,.....	9.....	3.....	1.....	13
Females ::	10.....	3.....	0.....	13

The first remarkable feature in the above table is, that out of 95 patients affected with small-pox, there are only four natives of Ireland.

The second is, that of 91 natives of Scotland, 70 are Highlanders, and 21 natives of the Lowlands. A very large proportion of the Highlanders were from the remote islands, and all of them, without a single exception, had recently arrived in Glasgow.

Fifty-five of the patients had apparently been vaccinated, and forty never had this operation performed. Nearly one-half of the Highlanders had marks on their arms, but these were not in general the result of what I would consider perfect vaccination.

No death occurred in any individual who presented the appearance of having been properly vaccinated.

The Irishman who died was a vagrant, who had not been vaccinated, and who was exposed to the contagion of small-pox in a lodging-house at Finnieston.

The occurrence of so many as ninety-five cases of small-pox would at first sight induce us to believe that the efficacy of vaccination was not so great as was anticipated by Dr. Jenner. An investigation, however, alters our views upon the subject; for if any additional argument in favour of vaccination was wanting, it might be amply supplied by the table before us. The natives of Ireland furnish, as we have already seen, 30 per cent. of the admissions to the

Fever Hospital, while of ninety-five individuals with small-pox, four only are Irish. There must exist some cause for this immunity from small-pox in the Irish, and it is to be found in the general practice of vaccination among the lower classes, by the surgeons of the county, and other dispensaries of Ireland. To the neglect of vaccination, and to the practice of it with impure lymph, deteriorated perhaps in the transmission, must be ascribed the prevalence of small-pox among the Highlanders.

Having proved, from the records of the Infirmary, and the Mortality Bills of the city, that small-pox is decidedly increasing, and that its mortality has been alarmingly great for the last two years at least, and most probably for a longer period, it becomes a subject of inquiry, to what cause is the increased frequency and mortality of small-pox to be ascribed? I have no hesitation in affirming, that it is owing to the neglect of vaccination, and not to the occurrence of small-pox after vaccination.

From the early period of life at which the deaths from small-pox took place, as seen in Table II. by which it appears that of 1050 deaths 953 were under five years of age, I am warranted in the inference, that vaccination had never been performed, and, from the small number of deaths after the age of ten, I consider it as demonstrated that death from small-pox after vaccination is very rare; for it must be kept in view, that the majority of the patients above ten, who died from small-pox in 1836, were inmates of the hospital, none of whom had been vaccinated.

The increasing prevalence of small-pox should attract the attention of the public. It is a disease which has caused a mortality during the last two years inferior only to that of typhus, and it is one which could be eradicated under proper management at a trifling expense.

It may be said that there already exist in the city three establishments for affording vaccination to the poor gratuitously. To this I would reply, that "the number now vaccinated at the three stations put together do not amount to the number vaccinated in the Faculty Hall alone in the early years of the practice,"* notwithstanding the great increase in the number of inhabitants. Besides, it is self-evident, that the three institutions, though efficient in some respects, have failed to eradicate the small-pox, and that other measures should be adopted. Let the proper steps be taken, and the result would soon be apparent, in a diminished mortality of the infantile population of Glasgow.

* Cleland.

The increasing rate of mortality in the city of Glasgow has given rise to much speculation as to its causes, and many opinions have been promulgated regarding it.

It has been ascribed solely to the prevalence of Fever; but this cause has acted chiefly on the adult proportion of the population, and consequently has been limited in the extent of its operation. Small-pox has had its share in augmenting the mortality; but, unlike Fever, it exerts its influence during infancy: and to it, in a great measure, must be attributed the increased mortality under ten years of age.

The deaths from Fever,	in 1835, were	412.
::	::	1836, 841.
::	from Small-pox, in 1835,	473.
::	::	1836, 577.
		<hr/> 2303.

Of the deaths from Fever, 186 were under ten years of age,
And of those from Small-pox, 993 :: ::

The following Table exhibits the proportion which the total deaths, and the deaths under ten years of age, bear to the population at different periods, and the per centage which the deaths under ten years are of the total deaths.

Year.	Rate of Mortality.	Rate of Mortality under 10 years.	Deaths under Ten Years of Age.
1821.....	1 in 39.89.....	1 in 75.29.....	50.27
1831.....	1 in 30.91.....	1 in 60.04.....	51.48
1835.....	1 in 29.53.....	1 in 49.92.....	59.15
1836.....	1 in 26.68.....	1 in 48.07.....	55.50

The above Table presents but a melancholy index of the state of public health since 1821, and shows how severely, during the last two years, the augmented mortality has affected the earlier years of life.

The lesson which it affords should not be lost, but should stimulate our civic rulers to the investigation of the causes which have produced such a frightful rate of mortality—a rate which, it is believed, is unequalled in any city in Britain.

Gaylord
PAMPHLET BINDER

Syracuse, N. Y.
Stockton, Calif.

Accession no.

Author Cowan
Statistics of
fever and small-
pox in Glasgow.
1837.

Call no. Innoc.
Vac.

