Vital statistics of Glasgow / by Robert Cowan.

VITAL STATISTICS

OF

GLASGOW.

I.—STATISTICS OF FEVER AND SMALL POX
PRIOR TO 1837.

II.—STATISTICS OF FEVER FOR 1837.

III.—REMARKS SUGGESTED BY THE MORTALITY BILLS.

By ROBERT COWAN, M. D.

ONE OF THE PHYSICIANS TO THE GLASGOW ROYAL INFIRMARY.

READ TO THE STATISTICAL SOCIETY OF GLASGOW,
28*th* April, 1837, *and* 17*th* May, 1838.

GLASGOW:—DAVID ROBERTSON;
ADAM AND CHARLES BLACK, EDINBURGH.
1838.

Price One Shilling.

CONTENTS.

	PAGE.
Statistics of Fever in Glasgow for 42 years prior to 1837,	3
Statistics of the Glasgow Fever Hospital, from 31st October, 1835, till the first November, 1836,	15
Statistics of Small Pox in Glasgow,	27
Statistics of Fever in Glasgow for 1837,	33
Remarks suggested by the Mortality Bills,	44

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 sec."

"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.

MONTHS	1829	1830	1831	1832	1833	1834	1835	1836
January ...	0.523	0 352	0.520	0.620	0.256	3 954	0 985	3.868
February ..	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
August ...	5.207	1.656	1 950	2 314	0.936	2.523	1.625	5.317
September	1.425	3.511	1.962	1.259	1.018	2.578	4.554	2.134
October ...	3.791	1.834	4 313	4.500	1.987	1.403	1.515	4 988
November	1.896	5.461	2.882	2.072	1.753	3.007	3.417	2 004
December	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.

MONTHS	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.

MONTHS	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	29.831	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.

MONTHS	BAROMETER AT 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	35.34	35.39
March	29.213	29.212	29.212	38.84	38.35	38.60
April	29.689	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 addressed by Henry Paul, Esq. a Member of this Society, to the Lord

* Government Census. † Dr Cleland. ‡ Dr Cleland.

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.

Years.	*Population.*	*Burials.*	*Rate of Mortality.*
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	177,280	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 *L.*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
		2270

giving an average of 756⅔ 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
	£46,102	17	9

To this amount fall 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
		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°75, the mean heat of 1835 was 46°58, and that of 1836 only 44°52.

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

	Scotch.	*English.*	*Irish.*	*Total.*
Males,.....	818	37	400	1255
Females,.....	885	16	357	1258
	1703	53*	757	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.	English	Irish.	Total.	Deaths.	Scotch.	English.	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.

Males.	*Females.*	*Total.*
93,724	108,702	202,426

II.

Scotch.	*English.*	*Irish.*	*Foreigners.*	*Total.*
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.															
	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	Total.
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.															
	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	Total.
1835.																
November,	1	7	6	19	9	7	4	3				1			1	58
December,	1	2	5	13	10	8	2	2	3	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					1			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						
5-10	92	99	191	251	299	550			
10-15	149	169	318				849	917	1776
15-20	229	272	501						
20-25	237	188	425	598	618	1216			
25-30	132	158	290						
30-35	84	60	144						
35-40	80	85	165	203	168	371			
40-45	39	23	62						
45-50	39	27	66						
50-55	12	9	21	58	51	109	267	224	491
55-60	7	15	22						
60-65	3	3	6						
65-70	1	1	2	6	5	11			
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 control. 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 Marct, 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 patient's 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	21⅛	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	6		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	1 1.83

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 $6\frac{21}{183}$, while of the females it is only 1 in every $11\frac{21}{101}$.

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.

	MALES.		FEMALES.	
1835.	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
	850	266	819	322

Of 2257 patients—850 males and 819 females=1669 had eruption,
And 266 :: and 322 :: = 580 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
	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	389	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	884	354	1807	899	97
1788	1059	399	1798	864	309	1808	1775	51
1789	1058	366	1799	1105	370	1809	1187	159
1790	1236	336	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
	406	328	219	40	57	=1050

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
	21		10		24		77		117		283

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
	70	21	4	95
Males Vaccinated,				32
Females ::	17	6	0	23
Males Unvaccinated,				17
Females ::	19	4	0	23
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 awanting, 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 country, 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, that 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.
			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
1838	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.

PRINTED BY GEORGE BROOKMAN, 83, MITCHELL STREET.

STATISTICS

OF

FEVER IN GLASGOW, FOR 1837,

AND

REMARKS SUGGESTED BY THE MORTALITY BILLS.

READ *to the* STATISTICAL SOCIETY *of* GLASGOW, 17*th May*, 1838.

IT has already been remarked that the increase of Fever in Glasgow during the seven years prior to 1837, had taken place, not in years of famine or distress, but during a period of unexampled prosperity, when every individual able and willing to work was secure of steady and remunerating employment.

From the close of 1836, one of those periodical depressions in trade, arising from the state of our monetary system, has visited this city, and deprived a large proportion of the population of the means of subsistence.

From the existence of secret combinations among the working classes in various departments of trade, but especially among the cotton spinners, and the "strikes" which resulted from these combinations, a very large proportion of the inhabitants in addition to those already suffering from the state of the money market, were suddenly deprived of employment, and consequently of the means of procuring food.* The high price of coal was the means of diminishing the hours of labour, and consequently the amount of wages, in numerous factories, and placed fuel beyond the reach of the lower classes for domestic purposes. And in addition to these sources of misery, the

* By the strike of the Cotton Spinners on the 8th April, 1837, nearly 8000 individuals, chiefly females for whom no provision whatever existed, were thrown out of employment.—*Blackwood, March* 1838, *p.* 289.

average prices of grain were much higher during 1837 than they had been for some years previously.*

Much was done by the inhabitants to mitigate these evils: funds were liberally supplied by public contribution, employment was procured for 3,072 males during the months of May, June, and July; soup kitchens were established, from which about 18,500 individuals were daily supplied with food; but, notwithstanding all these exertions, famine and pestilence prevailed to a fearful extent, and the rate of mortality (exclusive of the still-born) rose to 1 in 24.63 of the population.

Under such circumstances, it will not be matter of surprise that Fever should have increased most materially during last year, and accordingly we find that its ravages extended over fully more than 1-11th of the inhabitants.

The Fever, however, was chiefly, nay, almost wholly confined to the labouring classes, and to the districts which they inhabited, while among the wealthy and middle classes of society, it was comparatively seldom met with, and when it did occur, was not spread by contagion through all the inmates of the family, as was usually the case among the families of the poor, but was confined to a single individual. It is thus evident, that the concentrated virulence of the epidemic fell exclusively upon a portion only of the community.

In a former Essay we have given the Statistics of Fever in Glasgow for a period of forty-two years, ending in 1836. We shall now present to the society,

I. The Statistics of Fever for 1837; and,

II. Some remarks suggested by the Mortality Bills.

I.

STATISTICS OF FEVER IN GLASGOW FOR 1837.

We shall, as in the former Essay, give Tables of the weather, of the population, of the rate of mortality, and the amount of the hospital accommodation for the year 1837.

* Prices of Grain from the Mark Lane Express:—

	Per Quarter.		
	Wheat.	Barley.	Oats.
	s. d.	s. d.	s. d.
1835	39 4	29 11	22 1
1836	48 6	32 10	23 0
1837	55 10	30 4	23 1

Register of Rain, 1837.

Months, 1837.	Depth of Rain.		
	At the University, Glasgow.	At Hillhead, Two Miles West of Glasgow.	At Birkinshaw, Five Miles South of Glasgow.
January,	1.956 inches.	2.175 inches.	1.5 inches.
February,	2.674 ...	4.85 ...	5.1 ...
March,	1.500 ...	1.275 ...	1.2 ...
April,	1.646 ...	1.50 ...	2.7 ...
May,	1.857 ...	2.325 ...	1.3 ...
June,	2.241 ...	2.375 ...	3.025 ...
July,	3.322 ...	3.675 ...	3.2 ...
August,	2.610 ...	3.25 ...	1.75 ...
September,	1.570 ...	2.425 ...	2.2 ...
October,	2.997 ...	5.25 ...	6.8 ...
November,	2.293 ...	4.35 ...	4.7 ...
December,	1.963 ...	2.90 ...	3.8 ...
Total in 1837,	26.629 ...	36.350 ...	37.275 ...

Summary of the Weather in 1837,

Months, 1837.	Barometer at 32o.			Thermometer.		
	At 9, A. M.	At 9, P. M.	Mean.	At 9, A. M.	At 9, P. M.	Mean.
	Inches.	Inches.	Inches.			
January,	29.802	29.779	29.790	35.68	36o58	36o13
February,	29.603	29.587	29.595	40.64	40.46	40.55
March,	29.887	29.882	29.884	34.00	34.77	34.39
April,	29.697	29.703	29.700	39.27	37.30	38.28
May,	29.807	29.825	29.816	49.16	47.26	48.21
June,	29.815	29.815	29.815	57.42	56.35	56.89
July,	29.755	29.750	29.753	60.93	60.68	60.80
August,	29.820	29.805	29.813	56.90	56.90	56.90
September,	29.703	29.714	29.709	52.45	53.52	52.99
October,	29.750	29.774	29.762	49.54	48.30	48.92
November,	29.536	29.578	29.557	39.97	39.40	39.68
December,	29.715	29.728	29.722	41.32	42.58	41.95
Yearly Averages,	29.741	29.745	29.743	46.44	46.18	46.31

Wind North,	15 days.	Wind South,	6 days.
North-East,	90	South-West,	147
East,	22	West,	45
South-East,	3	North-West,	37

33 days of high wind, or inclining to high.
332 :: slight wind.
189 :: without rain.
113 :: clear weather.
61 :: changeable.
252 :: cloudy or dull.
115 :: rainy or snow.
32 :: frost.
— :: depth of snow, 11 inches.

The following Table gives the estimated population of the city and suburbs, and the rate of mortality, both including and excluding the still-born. In all the mortality bills drawn up by Dr Cleland, the rate of mortality was deduced from the burials and not from the deaths; and it is only in the three last mortality bills that the rate of mortality has been drawn from the actual deaths, and not from the burials. It is necessary, when comparing the mortality bills of 1835, 1836, and 1837, with those of Dr Cleland, to bear this fact in remembrance, or mistakes will unavoidably occur.

TABLE of the Population and Rate of Mortality in 1837.

Population.	Burials.	Rate of Mortality, including still-born.	Deaths.	Rate of Mortality, excluding still-born.
253,000	10,886 *	1 in 23.24	10,270	1 in 24.63

We have some doubts, arising from the increased rate of mortality of late years, from the great diminution in the number of births, and the probable decrease of immigrants in consequence of the state of trade and disease, in 1837, whether the amount of population is quite as great as above stated.

HOSPITAL ACCOMMODATION.

In addition to the Fever Hospital, which can accommodate 220 patients, the Managers of the Infirmary opened two of the ordinary wards for some months, for the reception of Fever patients, and by their indefatigable exertions the Albion Street, formerly the Cholera, Hospital was also opened on the 1st March, 1837, and kept open during the remainder of the year, the expense being defrayed from the funds of the Infirmary. The Albion Street Hospital could accommodate about 60 patients, and was solely appropriated to the reception of males.

TABLE exhibiting the total number of patients treated in the Royal Infirmary in 1837, distinguishing the number of fever patients, and the number of patients treated in the Albion Street Fever Hospital.

	Total.	Fever.
Royal Infirmary, ...	6294	4481
Albion Street Hospital, . . .	906	906
	7,200	5,387†

The fever patients treated in the Infirmary and in the Albion Street Hospital at the expense of the funds of the Infirmary, were 74.81 per cent. of the patients treated in the Infirmary.

The fever patients treated by the District Surgeons of the burgh, in their own houses, at the public expense, amounted to 2320. It is

* Including 616 still-born.

† Including a few cases of Small Pox, Scarlet Fever, &c., &c.

much to be regretted that no return of a similar nature can be obtained from the populous suburbs of the Gorbals and Barony parishes.

The number of Fever Patients treated in hospital in 1837, was	5387
. . . . . in 1836, .	3125
Being an increase in 1837 of . . .	2262
The number of Fever Patients treated by the District Surgeons, in their own houses, in 1837, was . .	2320
. . . . in 1836 . . .	716
Being an increase of	1604

The above table gives a very inadequate idea of the comparative frequency of Fever in 1836 and 1837. During 1836, till the month of December, every applicant for admission was received into the hospital; while in 1837, seldom a day passed without numerous applicants being refused admission for want of room; and many were deterred from applying for admission from a knowledge of the overcrowded state of the wards. Besides, the number of poor treated in their own houses, in the *suburbs*, cannot be ascertained.

A reference to the mortality bills will express more forcibly the comparative frequency and mortality of Fever during the last three years, than any statement deduced from the hospital returns.

TABLE of the Deaths from Fever recorded in the years 1835, 1836, and 1837.

1835	412	being 1 to every	15.571	of the whole deaths, and 1 to every	570.388	of the population.						
1836	841	..	..	10.036	..	..	..	..	..	290.130	..	..
1837	2180	..	..	4.711	..	..	..	..	..	116.055	..	..

Although the above table may not be numerically correct, as many cases not fever may have been reported such by the relatives of the deceased, still, on the other hand, cases of fever must likewise have been included under other diseases.

Upon making every allowance, and taking into consideration the deaths from diseases not ascertained or not recorded, (amounting to 536 in 1837), there remains no doubt whatever in our mind that the above statement is substantially correct; at all events the numbers bear a relative proportion to each other, and afford a standard of comparison for these three years with each other.

The rate of mortality from fever during 1837 has been calculated as high as 1 in 10 of those affected; and upon this supposition 21,800 individuals have been attacked with the disease. The usual average mortality from fever treated in hospitals, is 1 in 15; but the intensity of the epidemic, arising from the poverty and destitution of the popu-

lation, carried the rate of mortality higher than ever before known in Glasgow.

Upon the assumption that the rate of mortality from fever was 1 in 15 of those attacked in 1835, 1 in 12 in 1836, and 1 in 10 in 1837, which calculations will be found nearly correct, the number of individuals who have been affected with fever in Glasgow during the last three years will be as follows:—

In 1835	6,180
1836	10,092
1837	21,800
	38,072

The mind cannot contemplate without horror the amount of human misery which the above statement so forcibly expresses.

From the mortality bills of 1836 and 1837, the following table of the deaths from fever monthly has been compiled. It is to be regretted that the bill for 1835 was deficient in this respect, otherwise a more accurate account of the rise and progress of the present epidemic might have been obtained.

TABLE of the Deaths from Fever each month, in the years 1836 and 1837, distinguishing the Males and Females, and giving the monthly proportion which the deaths from Fever bear to the whole number of ascertained deaths.

Months.	1836.			1837.			1836.	1837.
	Males.	Females.	Total.	Males.	Females.	Total.	Proportion to whole deaths.	
January,	31	14	45	108	93	201	1 in 17.55	1 in 9.81
February,	16	11	27	77	61	138	24.74	7.13
March,	33	24	57	124	100	224	11.82	4.20
April,	27	37	64	114	88	202	10.00	4.08
May,	39	28	67	120	113	233	10 29	3.22
June,	38	33	71	109	90	199	8.91	3.34
July,	31	30	61	106	88	194	11.14	3.67
August,	51	31	82	101	71	172	8.89	4.93
September,	32	24	56	73	53	126	11.46	5.11
October,	52	37	89	74	75	149	7.71	3.79
November,	42	47	89	83	64	147	8.86	4.28
December,	73	60	133	98	97	195	6.15	3.73
	465	376	841	1187	993	2180		
1st Quarter,	80	49	129	309	254	561		
2nd Quarter,	104	98	202	343	291	634		
3d Quarter,	114	85	199	280	212	492		
4th Quarter,	167	144	311	255	236	491		
	465	376	841	1187	993	2180		

Many interesting observations may be drawn from this Table. It shows the slow progress of an epidemic disease when trade is prosperous, compared with what occurs in seasons of distress. Up to November 1836, the period at which the commercial embarrassments were felt, the mortality from fever had not been rapidly increasing. In November it was just about double what it had been in January preceding, the number of deaths being 45 in January, and 89 in November.

The moment, however, the effects of the stagnation in trade extended to the working classes, the mortality increased with fearful rapidity, aided no doubt by the season of the year, the high price of grain, and the scarcity or high price of fuel. The deaths from fever in the four months preceding 1st December, 1836, were 316; for the four months following, 696.

The Table also marks the period at which the epidemic reached its maximum amount of mortality, viz., in the second quarter of 1837, and in the month of May in that quarter, being the month succeeding that in which the strike of the cotton spinners took place, by which 8000 individuals were thrown out of employment.

The establishment of soup kitchens, and the provision of work for the unemployed operatives in the months of May, June, and July, must have materially aided in arresting the progress of the epidemic.

Many expect that fever is to subside suddenly, but an examination of the above table and of the mortality bill for 1838, will prove the fallacy of such opinions by exhibiting a gradual diminution in the numbers attacked.

The Table also exhibits the relative proportion of male and female deaths from fever in 1836 and 1837, to which has been added a similar statement for 1835.

During the last three years the deaths of males from fever have been 54.47 per cent, and of females 45.52 per cent, of the whole deaths from fever. While the mortality of the males from fever has in each year exceeded that of the females, it has done so in a variable proportion as will be seen from the following Table.

Table of the per-centage of the deaths of Males and Females from Fever.

	Males.	Females.
1835 ..	52.93 ..	.. 47.08
1836 ..	55.29 ..	.. 44.70
1837 ..	54.44 ..	.. 45.55

The above Table and the mortality bills confirm the opinion for-

merly given from the Statistics of the Fever hospital, that the mortality from fever at every period of life is greater in males than females.

The Fever Hospital, in 1836, accommodated every applicant for admission, up to the month of December. A reference to the Table will prove, that, prior to this month, the monthly mortality from Fever had never exceeded 89. From the moment the mortality rose above 90 per month, the hospital accommodation became totally inadequate, and will probably continue so till the monthly mortality again falls to this amount.

It appears to me, that, by an improved system, more patients affected with Fever might have been received, as on former occasions, into the front wards of the Infirmary, without a single medical or surgical patient having on that account been refused admission.

The Infirmary (exclusive of the Fever Hospital) can accommodate 230 patients. The greatest number in it, at any one time, in 1837, was 193, (December,) and the average number, 168, leaving, on the average, 62 empty beds available for the victims of Fever. In addition to the above, many chronic incurables might have been denied admission, without infringing, nay, in conformity to, the laws of the house, and thus increased the amount of accommodation. Not a single medical patient (exclusive of Fever) has been refused admission during 1837, for want of room; and it must be recollected, that two Fever patients could have been admitted for one affected with chronic disease, owing to the longer residence of the latter in hospital.

To this proposal it may be urged, that there is danger to be apprehended by the admission of Fever patients under the same roof as the other patients. It can be replied, that for many years the Fever patients were all accommodated under the same roof as the other patients, but in separate wards, and no danger ensued; and during the last three months of 1837, in the Edinburgh Infirmary, "while nine wards have been constantly occupied by about 140 patients in Fevers—many of them very malignant cases—six wards under the same roof, in various places, separated only a few yards from these, have been occupied by about 120 other patients, who have reposed in perfect, and, as the event has proved, well-grounded security; none of them having shown, during that time, any symptom of suffering from the vicinity of the patients in fever."*

The Hospital accommodation, then, has been found deficient

* Report of the Royal Infirmary of Edinburgh for 1837, p. 5.

during the present epidemic, notwithstanding the encouraging prospects held out in the Infirmary Report for 1835, "that the Fever Hospital had ample accommodation, not only for ordinary times, but also for those periods in which, by the dispensations of Providence, the epidemic may, as it has done formerly, prevail with unwonted severity."

Epidemic Fever is now happily declining;* and it has been confidently asserted, that, with the addition of the new Hospital about to be erected, which is to contain nearly 200 beds, there will be ample accommodation for the demands of the population in the next epidemic.

Such an opinion is based on total ignorance of the past, and without anticipation of the future.

Even had the proposed Hospital been in existence in 1837, aided by the Albion Street one, which will probably be abandoned even before the erection of the new one, it is quite evident, from the foregoing Table, that both combined, in addition to the Fever Hospital, would have proved insufficient for the demands upon them.

Since the completion of the present Fever Hospital, the population has increased 50,580, and is still increasing nearly in the same ratio. How, then, can an amount of Hospital accommodation, proved inadequate in the present epidemic, be ample enough, when thousands have been added to the lists of our population? In the next, as in all former epidemics, will the Hospital accommodation be found inadequate; and such will continue to be the case, till the organisation of a proper medical police, under the sanction of an act of parliament, and till the guardians of the poor's rates apply their funds to the treatment of those Fever patients in Hospital who are unable to procure a recommendation from a qualified contributor.

Additional accommodation is then absolutely required before the return of Fever or other epidemic. It therefore becomes a question of some moment to determine where the additional hospitals should be erected, and the sources from which the funds necessary for their erection and maintenance are to be derived.

To enable us to form an opinion upon this subject, the following

* Table of the number of Fever Patients treated in Hospitals, and in their own houses, by the District Surgeons, since 1st January, 1838.

	Hospitals.	In their own houses in the City.
1838.—January,	385	117
February,	314	100
March,	267	60
April,	225	64
May,	171	62
June,	166	18
July,	112	17
August,	95	23

Table of the population of the city of Glasgow, Gorbals, and Barony parish, according to the enumeration of 1820 and the Government census of 1831, has been compiled.

	Population.				Population.		
Year.	City.	Gorbals.	Barony.		City.	Suburbs.	City & Suburbs.
1820	73,796	21,768	51,633	Total.	73,796	73,401	147,197
1831	89,847	35,194	77,385		89,847	112,579	202,426

Of the increase of population, between 1819 and 1831, amounting to 55,229, there were 16,051 in the city, and 39,178 in the suburbs, viz. 13,426 in the Gorbals, and 25,752 in the Barony; and there is no doubt that the ratio of increase since 1831 has been even greater in the suburbs than it was between 1819 and 1831.

The population of the city, at present 100,000, will in every probability continue comparatively stationary, while that of the suburbs, amounting to 153,000, will rapidly increase. Most of the factories and large public works are situated in the suburbs, and around these are the dwellings of the workers; and it is in the suburbs that new works will be erected.

The present Fever Hospital is more than sufficient for the accommodation of all the Fever patients who reside within the burgh, and is well placed in regard to them, while there is not accommodation for a single patient situated in the populous and rapidly increasing suburbs of the city.

It is therefore obvious that hospital accommodation should be provided in the suburbs before the return or increase of Fever.

The funds of the Infirmary are chiefly drawn from the contributions of the inhabitants of the city and suburbs; but from the terms of the charter it is believed by some, that the Directors of the Infirmary have not the power of erecting any additional hospital beyond the bounds of the city. If such an opinion is correct, steps should immediately be taken by the contributors to enlarge the powers of the Directors, and to enable them to build hospitals within the parliamentary district in such situations as they may deem most suitable for the present and prospective demands of the population, as it is highly desirable, in an economical point of view, that all the hospitals should be under one general system of management.

Many modes of raising the funds necessary for the treatment of patients, labouring under Fever or other contagious disease, by which they are rendered unable to work, and consequently are at least *pro tempore* paupers, have been suggested.

It has been proposed, in the Municipal Bill lately supported by a

section of the Town-council, to form a Board of Health, who, under certain circumstances, were to be authorised to lay an assessment upon the inhabitants of the parliamentary districts, whenever they deemed such a measure necessary, for the cure and prevention of Fever or other contagious disease; but such powers the citizens will never delegate to any irresponsible body, however beneficial their objects may appear.

Another proposal was to apply to Parliament for a bill, authorising an assessment upon the Parliamentary district for the cure and prevention of Fever or other contagious disease.

These modes are liable to many and grave objections. If power is given to levy an assessment for the treatment of Fever patients, the voluntary and munificent subscriptions to the funds of the Royal Infirmary will diminish materially in amount, as for some years from 54 to 74 per cent. of the patients admitted into that institution were Fever patients.

The annual contributions to the Infirmary are voluntary, and chiefly derived from the affluent, while an assessment would fall heavily on a class at present unable to contribute.

A bill, then, to assess the district, would diminish the voluntary contributions.

Of late years, the kirk-sessions and the public authorities have sent into the Infirmary patients, both with Fever and other ailments, to such an extent, as to encroach materially, not only upon the funds of the establishment, but also upon the rights of the subscribers,—it being a fundamental rule, that each patient is admitted into the Infirmary on the recommendation of a contributor qualified either by a donation of £10, or an annual subscription of £1 1s.

In admitting these patients, the Managers have acted in a manner that reflects the highest credit upon them, and that has hitherto been conducive to the public interests; but with the increase of population, and the increase of the number of qualified subscribers, these encroachments on individual rights may perhaps not be longer submitted to, and some remedy must be looked for.

The patients admitted without recommendations from qualified subscribers, have been chiefly Fever patients, and have been sent in by Magistrates, the Police, and Members of kirk-sessions.

It has been proposed to admit into Hospital, recommended by the public authorities and kirk-sessions, without any recommendation from a subscriber, all patients affected with Fever or other contagious disease, on the payment from the poors' rates of a sum of

money calculated to defray the necessary expense of their treatment and maintenance.

This mode of disposing of the poor's rate, has already, in principle, received the sanction of the authorities, by the establishment of district surgeons, and the giving of medicines to the poor both in the city and suburbs. The application of the poors' rates to the treatment of Fever patients in Hospital, who are unable to provide medical aid for themselves, is held to be legal under the existing poor laws of Scotland.

But in whatever mode the funds are to be raised, it is quite obvious, that, till a system of medical police is established by Act of Parliament, and till accommodation is provided in seasons of epidemic Fever for the early reception of Fever patients, this city will be subject to a recurrence of the scenes of 1827, modified by the state of trade, the rate of wages, and the prices of provisions.

II.

REMARKS SUGGESTED BY THE MORTALITY BILLS.

Annual bills of mortality for the city and suburbs of Glasgow have been published since the year 1821.

Dr Cleland having directed his attention to the Statistics of Glasgow, perceived, "during the progress of his inquiries, that society would derive material benefit by the annual publication of Mortality Bills, if drawn up upon such principles as would enable the actuary to form tables for exhibiting the probable duration of life in large towns."

Dr Cleland, under the sanction of the Provost and Magistrates, and with a view to the publication of Mortality Bills, procured an enumeration of the inhabitants to be made in 1819-20, in which, not only the numbers and sexes were ascertained, but also the ages, country, occupation, religion, and status, (as householders, lodgers, servants, married, &c. &c.) thus forming, it is believed, the first classified enumeration of the inhabitants of any large town in the kingdom.

With these data, and the Government census of 1821 before him, Dr Cleland published the Mortality Bill for 1821, and continued to publish one annually till 1835, when the duty was devolved by the Town-council on their Committee on "Churches and Church-yards," by whose convener, Henry Paul, Esq., the Mortality Bills for the last three years have been drawn up.

Dr Cleland's bills contained the number of baptisms and marriages engrossed in the public registers; but notwithstanding the

measures which he adopted to procure the fullest information upon these points from the clergy of all denominations, he yet failed in his object; and this portion of the Mortality Bill remains defective, and will continue so till a legislative enactment is obtained, rendering the registration of marriages and births imperative, of which, with the existing hostility to the measure, there is not the slightest hope, the bill of Mr Stewart having been for the present abandoned.

Dr Cleland included all the still-born in the burials, and deduced the rate of mortality from the burials, and not from the deaths. The ages at which death occurred is noted, as also the number of males and females buried in each month, but for reasons which he assigns, Dr Cleland gave no list of the diseases of which the parties died.

To Dr Cleland the citizens of Glasgow are much indebted for the origination of the Mortality Bills, for the mode in which they were drawn up, and, above all, for the classified enumeration of the inhabitants which preceded their publication.

"The public spirit of the Glasgow Town-council, and the enlightened exertions of Dr Cleland in obtaining a second voluntary enumeration of the living and their ages in 1831, are as honourable to them as the omission of the ages in 1831 is discreditable to the persons who directed the last census in England and Scotland."*

Many material improvements have been made upon the Mortality Bills since they have been drawn up by Mr Paul, and numerous highly important tables have yearly been added.

The Mortality Bill for 1837, besides some excellent general remarks well deserving the attention of our municipal rulers, contains twenty-six tables exhibiting a mass of useful and varied information.

The Mortality Bills drawn up by Mr Paul, have received the approbation of the most distinguished actuaries; and in a recent number of the Dublin Journal of Medical Science, it is stated that Mr Paul's "labours upon this subject are above praise, and that his Mortality Bills should serve as models for all future investigations of the kind."

The Mortality Bill of 1837 exhibits a rate of mortality inferring an intensity of misery and suffering unequalled in Britain, and not surpassed in any city that we are acquainted with on the continent of Europe. The rate of mortality in 1832, during the prevalence of cholera, was 1 in 21.67; but owing to the shorter duration of cholera, less misery and pauperism was produced by it than by fever.

* Statistical Account of the British Empire, by J. R. M'Culloch, vol. ii. p. 571.

TABLE showing the rate of Mortality in the years specified, and from this table the still-born are excluded.

Year.	Deaths.	Rate of Mortality.
1822	3,408	1 in 44.43 of the population.
1823	4,286	36.43
1824	4,354	37.00
1835	7,198	32.64
1836	8,441	28.90
1837	10,270	24.63

The above table marks emphatically the effects of poverty and wretchedness upon the rate of mortality, especially when combined with the presence of any epidemic disease.

During the prevalence of poverty and epidemic disease, in an Essay on the influence of Epidemics, read to the Glasgow Medical Society, we showed, from the Prussian Bills of Mortality, that the number of marriages and births were uniformly diminished, while, at the same time, the deaths were increased.

Accordingly, we find, in Glasgow, during 1837, that the number of marriages and baptisms has diminished, while the number of deaths has increased.

The marriages in 1836 were	2375
. . . 1837,	2095
Being a decrease of	275
The baptisms in 1836 were	3325
. . . 1837,	3085
Being a decrease of	243

The above numbers show the decrease in the *registered* marriages and baptisms only, and not in the total marriages and births, the number of which cannot be obtained. As less than one-half of the births are registered, and as 86 fewer still-born were interred in 1837, the diminution in the number of births may be assumed as about 572.

Of the decrease in the number of marriages, 35 only were in the city, and 240 in the suburbs; and of the births, 94 in the city, and 149 in the suburbs; one evidence of the misery being greater in the suburbs than in the city.

The burials, including still-born, in 1837, were	10,886,	excluding still-born,	10,270
. 1836	9,143,	. . .	8,441
Being an increase of burials in 1837 of	1,743,	and of deaths of	1,829

While the increase of burials in 1837 has been only 1743, the increase of deaths has been 1829; and this apparent discrepancy has arisen from including the still-born in the burials.

Whenever, as has been already stated, disease and poverty prevail, the marriages and births diminish, and consequently there is a falling off in the number of the still-born. In 1837 there were 86 interments of still-born fewer than in 1836; and if, from the actual number of deaths you subtract this number, the increase of burials will only be 1743, as above stated, which by no means gives the precise number of deaths.

The number of *deaths* for the last three years has been—

In 1835.....	7,198,	being an increase over		1834 of	1031
. 1836.....	8,441	.	.	1835 .	1243
. 1837.....	10,270	.	.	1836 .	1829
			Total increase,		4103

The two following Tables exhibit the ages at which the increase and decrease of deaths have occurred in 1835, 1836, and 1837.

TABLE of the Increase of Deaths in 1835-36-37, with the Ages.

Years.	Und. 1.	1 to 2.	2 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	Ab. 70.	Total.	
1835	362	342	41	163	142	29	18	13	...	...	43	1153	
1836	60	160	176	...	...	190	190	124	134	138	117	1289	
1837	1	34	...	...	129	252	397	399	299	240	197	1948	
	423	536	217	163	271	471	605	536	433	378	357		4390

TABLE of the Decrease of Deaths in 1835-36-37, with the Ages.

Years.	Und. 1.	1 to 2.	2 to 5.	5 to 10.	10 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	Ab. 70.	Total.	
1835	...	...	...	...	...	...	...	...	59	30	33	122	
1836	...	...	...	15	31	...	...	...	...	...	...	46	
1837	...	...	49	57	34*	...	...	...	...	...	10	119	
	...	...	49	72	34	...	...	...	59	30	43		
	Deduct decrease, - - - - - - - -												287
	Total increase, - - - - - - - -												4103

* Decrease under 15 years of age.

TABLE exhibiting the proportion which the total Burials (including still-born), and the burials under 10 years of age, bear to the population, and the per centage which the burials under 10 years of age are of the total burials.

Year.	Rate of Mortality.	Rate of Mortality under 10.	Per centage of Burials under 10.
1835	1 in 29.53	1 in 49.92	59.15
1836	1 in 26.68	1 in 48.07	55.50
1837	1 in 23.24	1 in 50.15	45.17

While the above tables show that, during the last three years, the rate of mortality has been increasing, they likewise demonstrate that the deaths at different periods of life have been fluctuating, and also that, during 1837, the increased mortality has arisen among the adult and not among the infantile population,—a point of much importance, as the mortality of the adult and productive portion of the community occasions much more misery, suffering, and pauperism, than an equal or even much greater mortality does at an earlier period of life.

It is in this particular that the increased rate of mortality in 1837 stands prominent above all former years, with the exception of 1832, when the city suffered from the ravages of cholera. In 1832 the per centage of burials under 10 years of age was 42.23, and in 1837, 45.17 in both years, being less than in any year since registers were kept.

To what epidemics, then, are we to ascribe the increased mortality of the last three years? A reference to the Mortality Bills of Mr Paul will settle this point; and it is in an investigation of this nature that they surpass those of his predecessor.

We have in the preceding pages exhibited fully the influence which Fever has had in increasing the mortality of the city.

The other epidemics which have contributed to swell the lists of mortality during the last three years, have been small-pox, measles, scarlet fever, hooping-cough, and catarrh or influenza; the four first diseases affecting chiefly the infantile portion of the community, as will appear from the following tables.

TABLE of the Deaths from Small-pox, Measles, Scarlet Fever, and Hooping-cough, in 1835-36-37.

	Small-pox.	Measles.	Scarlet Fever.	Hooping-cough.	
1835....	473....	426....	273. ...	483	
1836.....	577.....	518....	355.....	454	
1837.....	352.....	351.....	79.....	457	
	1402	1295	707	1394	of which there were
Under 5 years of age,	1256	1187	440	1298	
Above 5 years of age,	146	108	267	96	

The above diseases may be considered the epidemics of children; and it is very remarkable how large a proportion of the deaths from them are under 5 years of age. The deaths from small-pox in London, during the last year, were only 300, while in Glasgow they amounted to 352.

The efficacy of vaccination is very apparent from the above table. Had small-pox been a fatal disease after vaccination, the deaths from it would certainly have been more numerous above 5 years of age. The mortality among adults from small-pox in Glasgow is almost exclusively confined to the Gaelic portion of the population.

TABLE of the proportion which the Deaths from Small-pox, Measles, Scarlet Fever, Hooping-cough, and Fever, bear to the whole deaths in 1835-36-37.

	1835.	1836.	1837.
Small-pox,	1 to every 13.737...	1 to every 14.629...	1 to every 29.176
Measles,	. . 15.253... .	. 16 295 .. .	. 29.342
Scarlet Fever,	. . 23.802... .	. 23 777... .	. 130.000
Hooping-cough,	. . 13.453... .	. 18.592... .	. 22.472
Fever,	. . 15.571... .	. 10.036... .	. 4 711

Epidemic, Catarrh, or Influenza, visited this city in the month of December, 1836, but its effects on the Mortality Bill were barely perceptible till the month of January, 1837. It continued to prevail during February and the first weeks of March, but in a modified degree. In April the deaths from Influenza were only 13.

The total number of deaths recorded from Catarrh (Influenza) in 1837, amounted to 389, of which, 229 took place in January, proving that the great force of the epidemic was expended during that month.

The deaths in the month of January were 1972, being an increase of 1182 over the month of January, 1836, and of 1153 over the month of December immediately preceding.

The following Table shows the recorded deaths from Catarrh (Influenza) during the months of January, February, and March, distinguishing Males and Females.

	Males	*Females*	*Total*
1837—January,.....	111.....	118.....	229
February,.....	37.....	62.....	99
March,.....	9.....	20.....	29
	157	200	357
Other months,	16	16	32
	173	216	389

The above Table proves that the Influenza, unlike Fever, was more fatal to Females than to Males. The deaths of the former being 55.52 per cent., and of the latter only 44.47 per cent. of the deaths from Influenza.

It is quite obvious that the deaths recorded from Catarrh (Influenza) in January, do not nearly account for the increased Mortalit of that month.

It will therefore be necessary to give a Table exhibiting the numbers dead in January, 1837, the diseases of which they died, and to compare this statement with a similar one for January, 1836, noting the increase or decrease under each disease.

TABLE OF THE MORTALITY

IN THE

Months of January and February, in the Years 1836 *and* 1837.

	Accidents.	Aged.	Asthma.	Bowel complaints	Catarrh.	Childbirth.	Croup.	Decline.	Dropsy.	Fever.	Head diseases.	Heart diseases.	Hooping cough.	Inflammations.	Measles.	Nervous.	Scarlet fever.	Small-pox.	Miscellaneous.	Not ascertained.	Not recorded.	Total.	Increase.
January, 1837	1 7	274	185	143	229	25	22	247	54	201	56	3	113	112	90	9	16	57	27	30	62	1972	
January, 1836	1 5	73	36	71	4	6	17	124	23	45	47	2	56	60	63	9	70	13	12	17	27	790	
Increase ...	2	201	149	72	225	19	5	123	31	156	9	1	57	52	27	-	-	44	15	13	35	1236	
Decrease ...	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	54	-	-	-	-	54	1182
February,1837	12	92	28	84	99	8	16	144	32	138	40	7	59	66	37	6	13	25	23	13	42	984	
February,1836	13	66	29	81	3	7	9	129	15	27	47		42	48	28	4	40	17	12	18	33	668	
Increase ...	-	26	-	3	96	1	7	15	17	111	-	7	17	18	9	2	-	8	11		9	357	
Decrease ...	1	-	1	-	-	-	-	-	-	-	7	-	-		-	-	27	-	-	5	-	41	316

The foregoing Table for January shows that the Mortality from all diseases (with the exception of Scarlet Fever, which exhibits a diminution of 54) had materially increased, when compared with that of the corresponding month of the previous year; and that, while the number recorded dead from Catarrh (Influenza) as a primary disease was only 229, the effects of the epidemic were severely felt by the aged, the asthmatic, and the consumptive, the deaths under these heads being 706, showing an increase of 473 upon 233, the number in January, 1836.

The epidemic influence produced bowel complaints in the young, the deaths from these ailments being doubled over those of January, 1836; and of 143 deaths from Bowel Complaints, 136 took place under 5 years of age, and only 7 above it.

The deaths in child-birth in 1837 were 93 in number, being an increase of 16 over the previous year; but owing to the great diminution in the number of births during 1837, the increased Mortality in child-birth was in truth much greater than the above numbers indicate. Of those dying in child-birth during 1837, amounting to 93, 25 were cut off in January, being upwards of one-fourth of the whole number during the year.

The Table for February shows a remarkable diminution in the rate of Mortality, as compared with January, but a very considerable increase over February, 1836. The decrease is principally, as in January, in the number of deaths from Scarlet Fever, (27,) leaving on the whole an increase of 316 over February, 1836. This increase chiefly arises from Fever (111), Catarrh (96), Old Age (26), Decline (15), Hooping-Cough (17), &c. &c.

It is not deemed necessary to give any Table for March, as the epidemic had nearly abated early in that month.

To prove the influence of the epidemic Catarrh (Influenza) in augmenting the rate of Mortality, the following Table of the rate of Mortality is given from November, 1836, till May, 1837.

1836—November,....	1	in	25.34	of the Population.
December,.....	1	:	25.23	..
1837—January,.....	1	:	10.89	..
February, ...	1	:	19.72	..
March, ...	1	:	22.78	..
April,.....	1	:	25.17	..
May,.....	1	:	28.61	..

It has been proved by the preceding Tables and remarks, that the increase of Mortality in Glasgow, during 1835-36-37, has been occasioned by the prevalence of Scarlet Fever, Measles, Small Pox, Hooping-Cough, Fever, and Influenza, aided in their operation during 1837, by want and destitution among a large body of the population.

The first four diseases were most fatal in 1835-36, and confined their ravages to children under 5 years of age. Fever prevailed during the whole 3 years, but its ravages were but slightly felt till 1836 and 1837. In 1835 the deaths from Fever, as already stated, were to the total deaths as 1 to 15.57, in 1837 1 in 4.71. The Influenza prevailed chiefly in January, 1837, and to its effects on the extremes of life, and on those labouring under chronic disease, must be attributed a large share of the Mortality of the year.

The great Mortality of 1837 took place in the first eight months of the year, but particularly in January. During the last four months the state of public health, notwithstanding the prevalence and mortality of Fever has been much more satisfactory than in the corresponding months of the previous year, as will be evident from the subjoined Table.

RATE OF MORTALITY.

	1836.	1837.
September,	1 in 31.15	1 in 32.22
October,	1 : 30.08	1 : 38.03
November,	1 : 25.34	1 : 33.00
December,	1 : 25.23	1 : 29.47

The rate of Mortality in the City of Glasgow, has now for the present reached its maximum, and during the next year or two our Mortality Bills will, as usual, after the prevalence of any epidemic disease, exhibit a very marked diminution in the ratio of deaths to the population. The diminution in the number of Marriages and Births will account for the probable decrease of deaths in the earlier stages of life; and so many aged and delicate people having been cut off by Influenza, must necessarily diminish the deaths at a more advanced period of human existence.

The Fever, too, has nearly exhausted itself from want of *materiel;* and the comparative increase of remunerating employment must produce a decidedly beneficial effect upon the health of the citizens.

But in the course of a few, a very few, years, the same cycle will again revolve, and again will pestilence revisit the city.

During the interval, however, the moral and physical condition of the inhabitants demands the immediate attention of the Municipal Authorities to alleviate, where they cannot remove, the evils attendant on a dense, a manufacturing, and a rapidly increasing population.