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TENTH
ANNUAL REPORT
OF THE
REGISTRAR-GENERAL
OF
BIRTHS, DEATHS, AND MARRIAGES,
IN ENGLAND.



LONDON:
PRINTED BY W. CLOWES AND SONS, STAMFORD STREET,
FOR HER MAJESTY'S STATIONERY OFFICE.

1852.

	PAGE
REPORT	i-xlvi
Marriages, Births, Deaths, and Emigrants from United Kingdom, 1838-47	ii
Marriages, Births, and Deaths, registered in each Quarter, 1837-47	ii-iii
Annual rate per cent. of Marriages, Births, and Deaths, in each Quarter of the 10 Years 1838-47	iii-iv
Tables of Abstracts of Marriages Registered in England, during the Years 1838-47, exhibiting some of the principal facts connected with them	iv-vi
Relative Mortality of the several Quarters of the 10 Years 1838-47	vi
STATE OF THE PUBLIC HEALTH in the First (or Winter) Quarter of the Year 1847, in 117 Districts, comprising chiefly the principal Cities and Towns of England	vi-xvii
STATE OF THE PUBLIC HEALTH in the Second (or Spring) Quarter of the Year 1847, in 117 Districts of England	xvii-xxi
STATE OF THE PUBLIC HEALTH in the Third (or Summer) Quarter of the Year 1847, in 117 Districts of England	xxi-xxv
STATE OF THE PUBLIC HEALTH in the Last (or Autumn) Quarter of the Year 1847, in 117 Districts of England—Prevalence of Epidemic Influenza—Account of previous Epidemics of Influenza in England in the 18th and 19th Centuries	xxv-xlvi

ABSTRACTS :—

Abstracts of MARRIAGES Registered in each of the Divisions, Counties, and Districts of England, in the Year 1847	2-29
Abstracts of the AGES of Men and Women Married in England, in the Year 1847, distinguishing Bachelors, Spinsters, Widowers, and Widows	30-31
Abstracts of BIRTHS Registered in each of the Divisions, Counties, Districts, and Sub-Districts of England, in the Year 1847	32-102
Abstracts of FOUNDLINGS Registered in the Year 1847, showing Sex, When and Where found	103
Abstracts of ILLEGITIMATE BIRTHS Registered in each of the Divisions, Counties, Districts, and Sub-Districts of England, in the Year 1847	104-174
Abstracts of DEATHS Registered in each of the Divisions, Counties, Districts, and Sub-Districts of England, in the Year 1847	176-246
Abstracts of DEATHS AT DIFFERENT AGES, Registered in each of the Divisions, Counties, and Districts of England, in the Year 1847	248-278
Abstracts of DEATHS FROM DIFFERENT CAUSES AT 24 PERIODS OF LIFE, Registered in ENGLAND and in each of the 11 DIVISIONS, in the Year 1847. (These are the first Abstracts of Ages and Diseases for all England.)	288-369
METEOROLOGICAL REMARKS on the Year 1847, by JAMES GLAISHER, Esq., F.R.S., of the Royal Observatory, Greenwich	370-375

REPORT.

TO THE RIGHT HONOURABLE SIR GEORGE GREY, BART.,
M.P., G.C.B.,

Her Majesty's Principal Secretary of State for the Home Department.

SIR,

*General Register Office,
1st December, 1850.*

THE "General Abstract of the Marriages, Births, and Deaths, registered in England during the year 1847," were laid before Parliament by you in 1849, in conformity with the sixth section of the Registration Act, 6 & 7 Will. IV., c. 86.

I have now to submit to you further and more detailed abstracts of the Marriages in each district, and of the Births and Deaths in each Registration District and subdistrict of the kingdom.

The causes of death have, for the first time, been abstracted in such a manner as to show the diseases incidental to each of twenty-four periods of life in the eleven divisions of the kingdom. To obtain these general results, tables of the diseases fatal at each age in each district were constructed. Although it is not at present thought desirable to publish them in detail, much time and labour have necessarily been expended on these abstracts—which are without parallel in any other country; and it is believed that if continued for some years in connexion with the Census, they will throw great light on the causes of death incidental to every stage of life. By carefully studying the causes of death, the laws of mortality can be determined; and useful rules can be deduced for warding off the dangers, prolonging the life, and increasing the energies and powers of mankind.

The year 1847 was in many respects a remarkable year. The marriages from 145664 in 1846 fell to 135845 in 1847; the births from 572625 to 539965; while the deaths rose from 390315 to 423304. These figures exhibit the results of great public prosperity and adversity in strong contrast.

The Quarterly Returns which have since 1842 been published within a month of the end of every quarter, present summary views of the state of public health. They show the deterioration of the population in 1847—resulting from the scarcity, and the ravages of influenza at the close of the year. The Asiatic Cholera was steadily advancing over the Continent towards

England, and many sanatory works were brought under the notice of Parliament.

When the final returns of the Census of 1851 are published, the population in the intermediate years can be accurately determined. I subjoin the usual tables; but I defer until that period entering into any more extensive or exact researches than those contained in the extracts from the Quarterly Returns.

ENGLAND.

YEARS	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847
Marriages	118067	123166	122665	122496	118825	123818	132249	143743	145664	135845
Persons Married	236134	246332	245330	244992	237650	247636	264498	287486	291328	271690
Births	463787	492574	502303	512158	517739	527325	540763	543521	572625	539965
Deaths	342760	338984	359687	343847	349519	346445	356933	349366	390315	423304
Excess of Births Registered over Deaths in England	121027	153590	142616	168311	168220	180880	183830	194155	182310	116661
Emigrants from the United Kingdom*	33222	62207	90743	118592	128344	57212	70686	93501	129851	258270

* Return by the Land and Emigration Commissioners. The number of emigrants who embarked from English ports is stated in the Emigration Reports; but it is notorious that many Irish emigrants embark from Liverpool. The Emigration Report does not, unfortunately, distinguish the birth-place of the emigrants.

ENGLAND.

YEARS.	Quarter ending the last Day of	Marriages.	Births.	Deaths.	Excess of Births Registered over Deaths.		
1837	March						
	June						
	September	24030	74588	148701	15415		
	December	34449	89528				
1838	March	23201	113815			98152	15663
	June	29801	121781			90877	30904
	September	27764	114734	72877	41857		
	December	37301	113457	80854	32603		
1839	March	24679	123543	89740	33803		
	June	31339	128806	87969	40837		
	September	29887	120115	76280	43835		
	December	37261	120110	84995	35115		
1840	March	26395	132305	98896	33409		
	June	30786	129059	90339	38720		
	September	29221	119822	80822	39000		
	December	36263	121117	89630	31487		
1841	March	24447	133720	99069	34651		
	June	32551	129884	86134	43750		
	September	29397	123868	75440	48428		
	December	36101	124686	83204	41482		
1842	March	25860	135615	96314	39301		
	June	30048	134096	86538	47538		
	September	27288	123296	82339	40957		
	December	35629	124732	84328	40404		

TABLE—continued.

YEARS.	Quarter ending the last Day of	Marriages.	Births.	Deaths.	Excess of Births Registered over Deaths.
1843	March	25285	136837	94926	41911
	June	31113	131279	87234	44045
	September	28847	128161	76792	51369
	December	38573	131048	87493	43555
1844	March	26387	143578	101024	42554
	June	34268	136941	85337	51604
	September	31675	130078	79708	50370
	December	39919	130166	90864	39302
1845	March	29551	143080	104664	38416
	June	35300	136853	89149	47704
	September	35003	132369	74872	57497
	December	43889	131219	80681	50538
1846	March	31417	145108	89484	55624
	June	37111	149450	90230	59220
	September	35070	138718	101664	37054
	December	42066	139349	108937	30412
1847	March	27480	146453	119672	26781
	June	35197	139072	106718	32354
	September	32439	127173	93435	33738
	December	40729	127267	103479	23788
10 Years 1838-47	1286538	5212760	3601160	1611600	
Two last quarters of 1837	58479	164116	148701	15415	
10½ Years 1837½-47	1345017	5376876	3749861	1627015	
Persons Married	2690034				

ENGLAND.—Annual Rate per Cent. of Marriages, Births, and Deaths during each Quarter of the 10 Years 1838-47.

YEARS.	Quarter ending the last day of	Proportion Per Cent.*		
		Marriages.	Births.	Deaths.
1838	March	•618	3•032	2•615
	June	•783	3•198	2•387
	September	•719	2•970	1•887
	December	•963	2•928	2•086
1839	March	•649	3•248	2•359
	June	•812	3•338	2•280
	September	•764	3•069	1•949
	December	•949	3•059	2•164
1840	March	•677	3•395	2•538
	June	•787	3•301	2•310
	September	•737	3•021	2•038
	December	•911	3•044	2•252
1841	March	•626	3•424	2•537
	June	•822	3•278	2•174
	September	•731	3•082	1•877
	December	•895	3•092	2•063
1842	March	•654	3•431	2•436
	June	•749	3•344	2•158
	September	•671	3•032	2•025
	December	•874	3•058	2•067
1843	March	•632	3•420	2•373
	June	•767	3•234	2•149
	September	•701	3•114	1•866
	December	•934	3•174	2•119

* See Note, page iv.

Annual Rate per Cent. of Marriages, Births, and Deaths, &c.—continued.

YEARS.	Quarter ending the last day of	Proportion per Cent.*		
		Marriages.	Births.	Deaths.
1844	March	·644	3·507	2·467
	June	·834	3·334	2·077
	September	·760	3·123	1·913
	December	·955	3·115	2·175
1845	March	·721	3·491	2·554
	June	·849	3·291	2·144
	September	·830	3·140	1·776
	December	1·038	3·103	1·908
1846	March	·757	3·498	2·157
	June	·882	3·551	2·144
	September	·822	3·251	2·382
	December	·983	3·256	2·545
1847	March	·655	3·488	2·850
	June	·826	3·265	2·506
	September	·751	2·945	2·163
	December	·940	2·938	2·389
Mean of 10 Years 1838-47	March	·663	3·393	2·489
	June	·811	3·313	2·233
	September	·749	3·075	1·988
	December	·944	3·077	2·177

* The Table may be read thus, without reference to the decimal points:—In the year 1847, the annual rates of marriages in each of the 4 quarters were 655, 826, 751, and 940 to every 100000 of the population of England; the rates of death 2850, 2506, 2163, and 2389 to every 100000 persons living. The 3 months January, February, March, contain 90, in leap year 91 days; the 3 months April, May, June, 91 days; each of the two last quarters of the year 92 days. For this inequality a correction has been made in the calculation. It was assumed that the population increased at the same uniform rate as the females increased in 1841—51, namely 1·212 per cent. annually, or ·302 quarterly. So $\frac{1}{4} \lambda r = \cdot 0013078$.

MARRIAGES Registered in England, Pursuant to the Act of 6 and 7 William IV. cap. 86, in the Years 1838-47.

ENGLAND.	MARRIAGES.										
	According to the Rites of the Established Church.					Not according to the Rites of the Established Church.					
	Special Licence.	Licence.	Banns.	Superintendent Registrar's Certificate.	Not stated by which of the foregoing forms	Total.	In Registered Places of Worship.	In Superintendent Registrar's Office.	Quakers.	Jews.	Total.
In the Years ending 30th June 1838	9	13677	68410	493	24612	107201	2976	1093	76	135	4280
" 1839	10	14669	76328	968	22657	114632	4654	1564	73	160	6451
" 1840	10	15564	78542	912	21890	117018	5140	1938	81	152	7311
" 1841	17	15752	77826	856	19997	114448	5816	2036	66	116	8034
In the Years ending 31st Dec. 1841	13	15792	78015	972	19579	114371	5882	2064	66	113	8125
" 1842	9	14935	75744	944	18415	110047	6200	2357	58	163	8778
" 1843	8	14544	79849	1222	18014	113637	7152	2817	61	151	10181
" 1844	10	14930	85176	1558	18335	120009	8564*	3446	55	175	12240
" 1845	10	16013	92867	1706	18919	129515	9997†	3977	74	180	14228
" 1846	14	17135	92995	1862	18503	130509	10696‡	4167	68	224	15155
" 1847	14	17052	84863	1968	16979	120876	10444§	4258	83	184	14969

* Of 8564 marriages in 1844, 2280 were in Roman Catholic chapels; & 6284 in chapels of other denominations.
 † Of 9997 " " 1845, 2816 " " " " 7181 " " " "
 ‡ Of 10696 " " 1846, 3027 " " " " 7669 " " " "
 § Of 10444 " " 1847, 2961 " " " " 7483 " " " "

MARRIAGES Registered in England, &c.—continued.

ENGLAND.	Total Marriages.	Not of Age.		Re-marriages.		Signed with Marks.	
		Men.	Women.	Widowers.	Widows.	Men.	Women.
In the Years ending 30th June 1838	111481	5575	16563	..	..	..	..
" 1839	121083	5628	16414	..	..	40767	59949
" 1840	124329	6101	17909	..	..	41812	62523
" 1841	122482	5537	16391	..	..	40059	59896
In the Years ending 31st Dec. 1841	122496	5362	16285	..	..	39954	59680
" 1842	118825	5387	16003	15619	10579	38031	56965
" 1843	123818	5511	16403	16305	10811	40520	60715
" 1844	132249	5515	17410	16941	11183	42912	65073
" 1845	143743	6287	19376	18176	12369	47665	71229
" 1846	145664	6313	20001	18343	12128	47488	70145
" 1847	135845	5556	18118	17564	11602	42429	61877

MARRIAGES Registered in England.

YEARS.	Total Married.	Under Age.		Of full Age.			
		Number.	Proportion per Cent. to the whole Number Married.	Number.	Proportion per Cent. to the whole Number Married.		
1843	123818 Couples .	Men .	5511	4·45	Men .	118307	95·55
	or 247636 Persons .	Women	16403	13·25	Women	107415	86·75
	Total and Mean .		21914	8·85		225722	91·15
1844	132249 Couples .	Men .	5515	4·17	Men .	126734	95·83
	or 264498 Persons .	Women	17410	13·16	Women	114839	86·84
	Total and Mean .		22925	8·67		241573	91·33
1845	143743 Couples .	Men .	6287	4·37	Men .	137456	95·63
	or 287486 Persons .	Women	19376	13·48	Women	124367	86·52
	Total and Mean .		25663	8·93		261823	91·07
1846	145664 Couples .	Men .	6313	4·33	Men .	139351	95·67
	or 291328 Persons .	Women	20001	13·73	Women	125663	86·27
	Total and Mean .		26314	9·03		265014	90·97
1847	135845 Couples .	Men .	5556	4·09	Men .	130289	95·91
	or 271690 Persons .	Women	18118	13·34	Women	117727	86·66
	Total and Mean .		23674	8·72		248016	91·29

PROPORTION per Cent. of Persons Married under 21 years of Age, of the Remarriages of Widowers and Widows, and of Persons who signed the Marriage Register with marks in England, 1839-47.

ENGLAND.	Married under 21 Years of Age.			In every 100 Marriages the Proportion of			Signed the Marriage Register with Marks.		
	Proportion per Cent.			Proportion per Cent.			Proportion per Cent.		
	Men.	Women.	Mean.	Widowers.	Widows.	Mean.	Men.	Women.	Mean.
In the Years ending the last day of									
June . . . 1839	4.64	13.55	8.60	..	..	..	33.7	49.5	41.6
„ . . . 1840	4.90	14.40	9.65	..	..	..	33.6	50.3	42.0
„ . . . 1841	4.52	13.38	8.95	..	..	..	32.7	48.9	40.8
In the Years ending the last day of									
December . 1841	4.38	13.29	8.83	12.90	8.99	10.95	32.7	48.8	40.84
„ . . . 1842	4.53	13.47	9.00	13.14	8.90	11.02	32.0	47.9	40.0
„ . . . 1843	4.45	13.25	8.85	13.17	8.73	10.95	32.7	49.0	40.9
„ . . . 1844	4.17	13.16	8.67	12.81	8.46	10.63	32.4	49.2	40.8
„ . . . 1845	4.37	13.48	8.93	12.64	8.60	10.62	33.2	49.6	41.4
„ . . . 1846	4.33	13.73	9.03	12.59	8.33	10.46	32.6	48.2	40.4
„ . . . 1847	4.09	13.34	8.72	12.93	8.54	10.74	31.2	45.5	38.4

RELATIVE MORTALITY of the several Quarters of the Ten Years 1838-47.

YEARS.	Deaths Registered in the Quarters ending the last Day of				Total Deaths in England.	Deaths in the Districts making Quarterly Returns.*	Deaths in Districts not making Quarterly Returns.
	March.	June.	September	December.			
1838	98152	90877	72877	80854	342760	..	..
1839	89740	87969	76280	84995	338984	162165	176819
1840	98896	90339	80822	89630	359687	171490	188197
1841	99069	86134	75440	83204	343847	160834	183013
1842	96314	86538	82339	84328	349519	161980	187539
1843	94926	87234	76792	87493	346445	163099	183346
1844	101024	85337	79708	90864	356933	167516	189417
1845	104664	89149	74872	80681	349366	165789	183577
1846	89484	90280	101664	108937	390315	191430	198885
1847	119672	106718	93435	103479	423304	215094	208210

* The Returns of 115 Districts were comprised in this column until 1847, when they were increased to 117 by the addition of Lewisham and Hampstead.

State of the Public Health in the First (or Winter) Quarter of the Year 1847.—(January, February, March.)

“The Quarterly Returns are obtained from 117 Districts, sub-divided into 582 Sub-Districts. Thirty-six Districts are in the Metropolis, and the remaining 81 comprise, with some agricultural Districts, the principal towns and cities of England. The population was 6612958 in 1841.”*

Winter appears to be the season in which it is most natural to man to die. For many years the number of deaths in England has been highest in the winter and lowest in the summer quarter. In the summer quarter of 1846 the reverse was observed; the mortality was greater than it had been in any quarter of the seven preceding years; and in the last winter quarter ending March 31, 1847, fifty-six thousand

* From the 1st Quarter of 1849, the Quarterly Reports have embraced the whole of England and Wales, and include Marriages, Births, and Deaths.

one hundred and five persons died in the 117 districts which make the returns; a number greater than has been registered in any corresponding quarter, and six thousand and thirty-five above the corrected average. The deaths in the quarter in all England and Wales may be estimated at 120000.* [The actual number registered was 119672.]

The annexed Table shows that the mortality was considerably above the average in the winter quarters (ending March 31st) of 1840, 1841, 1845, and 1847,—and much below the average in the winter quarters of 1839, 1842, 1843, 1844, and 1846.

	1839	1840	1841	1842	1843	1844	1845	1846	1847
Deaths registered in March Quarters of 9 Years	42,410	46,376	46,967	44,903	43,748	46,136	49,996	43,850	56,105
Deaths which would have been registered if the mortality had been uniform, and the Numbers had increased from 1839 at the rate of 1.75 per cent. annually	43,581	44,344	45,120	45,910	46,713	47,531	48,362	49,209	50,070
UNHEALTHY SEASONS.									
Difference above the calculated number . . . . .	.	2,032	1,847	.	.	.	1,634	.	6,035
HEALTHY SEASONS.									
Difference below the calculated number	1,171	.	.	1,007	2,965	1,395	.	5,359	.

The temperature was below the average, and the severity of the weather was one cause of the increased mortality. It is, however, worthy of remark, that at Greenwich the temperature was lower in the winter quarter of 1845 when the deaths returned were 49996, than in the past quarter of 1847, when the deaths were 56105.

The Registrars in their notes ascribe the increased mortality generally to inflammation of the lungs and air tubes, to typhus, and other diseases, and the effects of cold on the aged. The high price of provisions is also mentioned.

The Registrar of the Abbey sub-district, Bath, says:—

“The price of provisions has, during the quarter, been about a third above the average, and there has been a want of employment.”

The Registrar of St. James, Bristol:—

“The increase of deaths, on the corresponding quarter of last year must be attributed principally to the severity of the weather during the early part of this quarter. There has been no epidemic disease in the district. The children of the poor have suffered much, and mortality has prevailed amongst them, in consequence of many of the men, who are very generally masons’ labourers, being unemployed in the winter season, when their families become destitute, and the younger children deprived of proper clothing and support, are more exposed to inflammatory complaints, particularly of the chest.”

In Lincoln, north-east—it is said, on the other hand, “work has been abundant in this district, and wages tolerably good.” The “scarcity and dearness of provisions,” and the “imperfect protection

* The yearly deaths in the 117 Districts from which the Quarterly Table is framed, comprise 47.11 per cent. of the deaths in all England and Wales; the proportions in the March quarter are 46.49; in the June, 45.74; in the September, 48.21; and in the December, 48.16 per cent.

which the dwellings and clothing of the poor afford from cold" are referred to by the Registrars of Bulwell and Greasley, Basford; the "high price of provisions and the scarcity of employment," by the Registrar of Sutton, Macclesfield. The Registrar of Little Bolton remarks, that:—

"The severity of the weather, and the extremely high price of provisions, have caused such a severe pressure upon the working classes, as to prevent them from obtaining any thing like a sufficiency of food, which, with the absence of other comforts, has operated materially in promoting epidemics and other diseases."

The deaths in the March quarters of 1846 and 1847 were, in the district of Brighton, 211 and 368; the Isle of Wight, 178 and 252; Portsea Island, 290 and 430; Winchester, 107 and 173; Windsor, 75 and 132; Oxford, 75 and 122; Bedford, 173 and 279; Cambridge, 139 and 178; Devizes, 83 and 162; Dorchester, 101 and 178; Exeter, 202 and 289; Plymouth, 193 and 254; Bath, 388 and 548; Bristol, 415 and 543; Clifton, 376 and 507; Stroud, 192 and 339; Cheltenham, 215 and 316; Shrewsbury, 112 and 165; Worcester, 153 and 208; Kidderminster, 150 and 217; Dudley, 587 and 932; Wolverhampton, 575 and 768; Wolstanton, 240 and 326; Birmingham, 881 and 1188; Aston, 264 and 353; Leicester, 342 and 442; Basford, 341 and 514; Macclesfield, 386 and 541; Great Boughton (with Chester), 277 and 393; Liverpool, 1931 and 3067; Blackburn, 546 and 786; Preston, 566 and 811; Prescott, 237 and 481; Manchester, 1524 and 2182; Huddersfield, 624 and 1005; Leeds and Hunslet, 997 and 1557; Gateshead, 255 and 330; Tyne-mouth, 318 and 432; Newcastle-on-Tyne, 567 and 655; Carlisle, 248 and 340; Abergavenny, 335 and 448; Wrexham, 207 and 331.

The disastrous effect of the immigration of the Irish poor on the health of English towns was dwelt on in the previous Quarterly Return.

The evil increased during the winter quarter; and the deaths in Liverpool, where the mortality has always been high, were 3067, or 1136 more than in the winter quarter of 1846, and nearly 1000 above the average of ordinary seasons. The Registrars' notes, under Liverpool, Manchester, Stockport, and Preston, contain some information on the subject. Notwithstanding the depressing aspect of this overflow of pauperism from a third part of the United Kingdom, left for centuries without an efficient poor-law, the Authorities of the English towns which the visitation has reached, appear to have made every provision in their power for the relief of the unfortunate people. For thousands of the Irish peasantry they have found food; for thousands, graves; and many of their officers and townsmen have fallen in the courageous discharge of the duties thrown on them,—in one sense by a natural calamity—in another by a national crime. The Registrar of the Howard Street sub-district, Liverpool, remarks, that

"The return shows a very great increase in the mortality of this district, which is, without doubt, solely attributable to the many thousands of Irish paupers who have landed here within the last three months, bringing with them a malignant fever, which is here very properly called 'the Irish fever,' and many hundreds of them were suffering from diarrhoea and dysentery when they arrived, which will account for so many deaths from those causes. Every thing which humanity could devise and money carry out for their cases has been

adopted by the Select Vestry; but so many thousands of Irish are continually pouring in, and their habits are so disgustingly filthy, that little can be done as yet to stay the great mortality amongst them. Perhaps there is not a parallel case to that of Liverpool for the last two months in the history of the country."

The new poor-laws about to be proposed to Parliament, will no doubt mitigate these evils.

Fifteen Thousand Two Hundred and Eighty-nine deaths were registered in London during the first thirteen weeks of the year; a greater number than has been registered in any previous winter since the weekly table commenced. The district of Lewisham, and the sub-district of Hampstead, united now to the London districts, have only added 171 to the deaths. Upon the whole the health of London, like that of the rest of the country, has been below the average; and although the causes are to a certain extent accidental, and as we may hope, transitory, it is evident that the health of towns in England is at present stationary, not to say retrograding.

The English system of registration, however imperfect it may still be, has realized the expectation held out in the opening speech of the minister who introduced the measure to parliament, in so far as "it enables the Government to acquire a general knowledge of the state of the population of the country."* In successive Reports the births, deaths, and marriages have been compared with the population of different districts; the prevalence of diseases has been traced in various parts; and the irrefragable proofs of the high mortality in towns induced the late Government to appoint a commission of inquiry, which resulted in a bill submitted to parliament by Lord Lincoln and Sir James Graham. A new bill for improving the health of towns has been prepared and brought in by the Viscount Morpeth, Lord John Russell, and Sir George Grey. As this bill is likely to occupy the attention of parliament in the present session, it may be useful to introduce here some extracts from a series of calculations, based on the census returns of 1841, and the deaths registered during the seven years 1838—44. The facts and methods of calculation are given at length in the Ninth Annual Report, 8vo.; in the mean time it will be sufficient to observe that the object of the investigation is to exhibit the mortality at different periods of life in the divisions, counties, towns, and groups of country districts into which England and Wales have been divided. From these results the duration of life can be deduced. Corrections have been made for the increase of population, deaths in hospitals, and other disturbing causes.

The mortality in Liverpool, Manchester, and some other places has been before adverted to. The following tables show the mortality of all the districts now included in the London tables of mortality. They afford ample materials for reasoning; but I shall here only direct attention to a few of the points bearing more immediately on the great question of the health of towns. London contained 1,950,000 inhabitants in the middle of the year 1841; and 342,565 deaths were registered within its limits in the septennial period, of which 1841 was the middle year. The deaths on an average were 48,938 annually. To 1000 females living at all ages 23 died, while to 1000 males living at

* See Speech of Lord John Russell on bringing forward the Bill for the Registration of Births, Deaths, and Marriages.—*Mirror of Parliament*, p. 131, 1836.

all ages 27 died yearly. The mortality of females in the neighbouring counties, during the same seven years, was from 18 to 20; of males 19 to 21 in the 1000; the mortality of females in London was 5, of males 8 in the 1000 more than in the healthiest county. Out of an equal number of males living, there were 3 deaths in London for every 2 in the healthy counties. Out of 1000 boys under 5 years of age in Surrey, and 1000 in Sussex, 48 and 50 died annually; out of 1000 in London, 93 died annually. The mortality of children under 5 years of age is twice as great in London as in the adjacent counties, including several towns.

	Annual Deaths at all Ages to		Annual Deaths under 5 Years of Age to	
	1000 Females living.	1000 Males living.	1000 Girls living.	1000 Boys living.
In Surrey	18	19	41	48
Sussex	18	19	42	50
Hampshire	18	20	44	52
Kent	19	21	48	57
Berkshire	20	20	46	53
London	23	27	80	93

The excess of deaths in London is not the result of climate, for the climate differs little from that of surrounding counties; and some of the London districts are not more unhealthy than many country districts. Take Lewisham, for instance, comprising Blackheath, Sydenham, Eltham, and Lewisham itself. The annual mortality of females was 16; of males, 18 in 1000.

The deaths registered in London during the 7 years 1838—44 were 342000
 If the mortality during the period had not been greater than in Lewisham, the deaths of London would have been about 244128

Excess of deaths in London 97872

Here are 97000 deaths in 7 years from causes peculiar to London. Other districts may be taken in the place of Lewisham, but the result would be the same.

A considerable part of the population of London is recruited from the country, immigrants entering chiefly at the ages 15 to 35, in a state of good health. The sick and weakly probably remain at home; many of the new comers, too, unmarried, when attacked in London by slow consumption—the most fatal disease at the ages 15 to 35—return to their parents' houses to die; so that the mortality of the great city is made to appear in the returns lower at those ages than it is. If we take children under 5 years of age, where neither these disturbing causes nor occupation interferes, the deleterious influence on health, of London in its present state, will appear undisguised in all its magnitude.

The deaths registered in London (1838—44) under 5 years of age were 139612
 The deaths, if the mortality had not been higher than in Lewisham, would have been 80632

Excess of deaths in London among children 58980

Here are more than 58000 children destroyed in London within 7 of the last 10 years.

In these plain and appalling facts—in the detailed statements that follow of the mortality at each age of life in the several districts—or in the circumstances of the several parts of the population, it is difficult to discover any valid reasons for excluding London from the operation of the measure of Her Majesty's Government for "improving the Health of Towns in England."

There are, however, circumstances peculiar to the metropolis, which present difficulties, and which must be taken into account. The Health of Towns Bill—with the Improvement Clauses—proposes to enable the mayor, aldermen, and burgesses of corporate towns to prepare plans and maps of their respective jurisdictions; to lay out, pave, improve, cleanse streets; provide market-places and slaughter-houses; remove nuisances and dangerous buildings; regulate lodging-houses; secure the ventilation of public buildings; prevent smoke and extinguish fires; lay down sewers and drain-houses; procure supplies of pure water and artificial light. It proposes to give the same powers to Town Commissioners, two-thirds of whom are to be elected by the rate-payers—one-third to be appointed by Her Majesty—in unincorporated towns. It provides the constituted authorities with qualified officers. The Town Councils or Town Commissioners are to appoint surveyors. The First Commissioner of Her Majesty's Woods and Forests, and three others, are to be "The Commissioners of Health and Public Works" to carry out the Bill—appoint Officers of Health, Inspectors, Auditors, to advise, and to aid the Local Authorities. The Bill gives the "Commissioners of Health and Public Works" power to enforce few or no improvements; they can only suggest them; nothing can be done without their knowledge; some things require their approval. The peculiarity of London consists in this, that of its 1950000 inhabitants, in 1841, dwelling in 263000 houses, valued at a rental of nearly 11000000*l.** and standing on 115 square miles of land†—only 124915 men, women, and children, dwelling in 15727 houses, valued at 1399128*l.*, standing on an area of less than a single square mile north of the Thames—have the advantage of Municipal Institutions. The rest of the metropolis is governed by innumerable Vestries, Paving Boards, Sewers' Commissions, Water Companies, Gas Companies, and other bodies, which escape observation, and, to a certain extent, responsibility. The Commissioners appointed to inquire into Municipal Corporations in 1837, reported that, in 1831, the assessed taxes paid by the City were 205476*l.*; by the rest of the Metropolis included in the Parliamentary Boroughs, 102213*l.* "With respect," they say, "to the nature of the population, it is well known that, on the one hand, the City contains by far the most active commercial district of the metropolis, and that it forms the northern bank of the highest part of the Thames accessible to large vessels; and, on the other, that it does not contain either the Courts of Law, the Houses of Parliament, or Government Offices, or, generally speaking, the residences

* Derived from the Return of Real Property assessed to the Property and Income Tax, for the Year ending April 5th, 1843. The annual value of property in London rated for the relief of the poor in 1841 was 7810216*l.*

† The area of the Thames in London is not included in this statement.

of the higher or more opulent classes." The "Corporation Reform Act," in other cities, brought all the parts that would popularly be termed the town, within the scope of the municipal authority. Having "pointed out how small a proportion of the metropolis is comprehended within the municipal boundary," they profess themselves "unable to discover any circumstances justifying the present distinction of this particular district from the rest, except that in fact it is, and had long been so distinguished."* The Health of Towns Bill, without raising the question of Municipal Reform, proposes to deal tenderly, but impartially with London; it leaves the City in possession of all its privileges, and will apparently give to it the same powers under the Act, and subject it to the same inspection as the Reformed Municipal Corporations; while the rest of the metropolis is to be dealt with on the same general principle as unincorporated towns, the Act being put in execution by "Town Commissioners, possessed of real or personal estates to the amount of 5000*l.*, or rated to the relief of the poor upon the annual value of not less than 50*l.*, of whom one-third shall be from time to time appointed by Her Majesty, and the remaining two-thirds shall be elected by the rate-payers of the several parishes or places included within such district." Such is a brief outline of the important measure which has been proposed by Her Majesty's Government to improve the Health of London, as well as of the other Towns of the Kingdom, and so to put a stop if possible to the sickness, suffering, and dreadful loss of life brought to light by the Registration Returns.

Without going more into detail, or affirming that the details admit of no improvement, or being sanguine enough to imagine that the Municipal Authorities will carry out as rapidly as could be desired the plans for the improvement of the health of town populations—it must be admitted that, on the whole, the Health of Towns Bill is an excellent measure, and well calculated to diminish the evils which have been discovered, and of which the effects have been recorded in these periodical returns. It is no innovation on the institutions of the country, and rests on no new-fangled doctrines. It extends the rule of a Cabinet Minister from "possessions" which Mr. Burke declared "fitter for the care of a frugal land steward than of an office in the state,"† to the domain of National Health, which has always held the first place in the minds of Legislators: it concentrates offices that ought not to be separated, in the hands of the municipal authorities, still maintained in close connexion (as they always have been) with the Crown; it seeks to secure water, pure air, and a little sunshine, for the inhabitants of cities—now so large, active, and important a part of the population—and to extend to the house and street of the tradesman, artizan, and labourer, a share of the advantages which elsewhere are the boon of nature, by the use of means which have been suggested by science, and sanctioned by long experience.

A brief sketch of the Health of Towns question will show that it is not based on new, but on well-established doctrines. The influence on health, of exercise, food, and temperature which is modified by clothing, firing, and lodging—is universally known. The command over these necessaries of life depends on the freedom, industry, and commerce of a

* See Extract from the Commissioners' Report, page 14.

† Burke's speech on Economical Reform.

country; some protection against absolute privation is afforded by the laws. The equal importance of air, water, and locality was perceived by Hippocrates, who wrote his celebrated treatise on these topics four or five centuries before the Christian era. The exposure of a city to the rising or setting sun—to the north or the south; the qualities of the waters used by the inhabitants; and the nature of the soil and climate produced effects on the character, diseases, and institutions, which he observed and described. In Scythia and Egypt, Greece and Asia, man was not then the same; in general, the "form and disposition corresponded with the nature of the place." This doctrine, illustrated by Cicero,* and exaggerated by Montesquieu, has prevailed down to the present day; and one of the latest physiologists, treating of "domestication," after having shown how the varieties of species of animals arise in the tame, and disappear again in the wild state, observes that "the modifiers of the human race, as well as of domestic animals, are always local circumstances, habitation, kind of life, diet; the first effects being variations in size and colour, and then in the proportion and form of organs."†

The influence of these elements on health, and of the others with which the sanatory measure deals, was emphatically stated sixty years ago by Dr. Price, no mere theorist in this matter, but the scientific founder of the Equitable Insurance Society. After showing, from a comparison of the duration of life, in London and Holy Cross, Stockholm and Sweden, Manchester and the parts around, that human life is shorter by almost one-half in cities than in the country, he adds:—

"From this comparison it appears with how much truth great cities have been called the graves of mankind. It must also convince all who consider it, that, according to the observation at the end of the Second Essay, it is by no means strictly proper to consider our diseases as the original intention of nature. They are, without doubt, in general, our own creation. Were there a country where the inhabitants led lives entirely natural and virtuous, few of them would die without measuring out the whole period of the present existence allotted them; and death would come upon them like a sleep, in consequence of no other cause than gradual and unavoidable decay. Let us, then, instead of charging our Maker with our miseries, learn more to accuse and reproach ourselves.

"The reasons of the baneful influence of great towns, as it has been now exhibited, are plainly—First, the irregular modes of life, the luxuries, debaucheries, and pernicious customs, which prevail more in towns than in the country. Secondly, the foulness of the air in towns, occasioned by uncleanness, smoke, the perspiration and breath of the inhabitants, and putrid streams from drains, churchyards, kennels, and common sewers."‡

This induction, drawn with great sagacity from a limited number of

* See the Oration *contra* Rullum, on the Agrarian Law: "Non ingenerantur hominibus mores tam a stirpe generis, ac seminis, quam ex iis rebus, quæ ab ipsa natura loci, et a vitæ consuetudine suppeditantur; quibus alimur, et vivimus." Instancing the Carthaginians and Ligurians he adds: "Campani semper superbi bonitate agrorum, et fructuum magnitudine, urbis [Capuæ] salubritate, descriptione, pulchritudine, &c."

† Geoffroy Saint Hilaire, *Art.* "Domestication," in the *Encyclopédie Nouvelle*, Paris, 1838.

‡ Price's Works, by Morgan, 7th ed. vol. ii. p. 129.

facts, gradually acquired strength; the experiments in prisons and the navy confirmed it; Mr. Milne after Dr. Price demonstrated the high mortality of towns, and of marsh lands; and Mr. Edmonds in the *Lancet*, proved from the census and the returns, imperfect as they were, of the parish registers for six towns of England, for London and the several counties, as well as from correct returns for Glasgow, that the mortality at all ages, was from about 2·8 to 3·0 per cent. in towns—nearly 2·1 per cent. in all England, and as low as 1·7 or 1·8 in some counties. Mr. Edmonds also showed that the mortality bears a certain relation to sickness at each age. For every annual death, two persons are constantly suffering from sickness, of a severity that disables labouring men from work. According to Mr. Neison's recent observations, there are 2·5 constantly sick in Friendly Societies to one death under 60; the recorded sickness after 60 is greater; the sickness in infancy is unknown. But if we assume that 2·5 are sick to one death—and this proportion certainly does not include slight illness, or all for which people take physic—the numbers constantly sick in London were 122000, and the annual attacks of sickness more than 1220000, during the seven years 1838–44; the number of annual attacks would have been at least 350000 less, and the number constantly sick would have been 350000 less, if the health of London had been as good even as that of Lewisham, one of the districts within its own limits. This view, and all the principal facts known in connexion with the public health of England, are discussed in the article Vital Statistics, of McCulloch's Statistical Account of the British Empire, which appeared in 1837. The cholera epidemic, followed by an influenza in 1837, more fatal than cholera, and an epidemic of typhus, had drawn attention to the state of public health; the Registration Bill was brought into operation; Dr. Arnott, Dr. Kay (now Kay Shuttleworth), and Dr. Southwood Smith, were appointed by the Poor Law Commissioners to inquire into the causes of fever in parts of London in 1838; Mr. Chadwick conducted an inquiry into the health of many towns of the kingdom in 1839; subsequently, a Committee of the House of Commons, of which Mr. Slaney was chairman, collected evidence and drew up a report in 1840; and in 1843, a Royal Commission was appointed to inquire into the whole subject. The reports of the Commission appeared in 1844 and 1845.*

In the first Annual Report from this office, in 1839, the mortality in 32 districts of London was calculated, and it was shown that, in 1837, the mortality increased from 18, in the healthiest districts, to 32 and 39 in the crowded poor districts; and as wages are better, and the food more substantial in London, than the families of agricultural labourers enjoy, the source of the high mortality in cities was traced to the insalubrity of the atmosphere, the causes of which were enumerated.† The six Reports which followed contained more information on the subject; and, in connexion with the Census, fully established the early opinions of the influence of air, water, and locality on health—and the principle “that the mortality has a tendency to increase as the population increases, but that the unhealthful tendency can be counter-

* The Commissioners were:—The Duke of Buccleuch; Lord Lincoln; R. A. Slaney, Esq.; George Graham, Esq.; Sir H. T. De La Beche; Dr. Lyon Playfair; Dr. D. B. Reid; Richard Owen, Esq.; Captain W. Denison, R.E.; J. R. Martin, Esq.; James Smith, Esq.; Robert Stephenson, Esq.; W. Cubitt, Esq.

† Reg.-Gen., 1st Rep., 8vo. pp. 108–117.

acted by artificial agencies; in other terms, that the mortality of cities in England is high, but that it may be immeasurably reduced.”* Some room for doubt, however existed, as the calculations in the earlier Reports relative to London were partly derived from the Census returns of 1831; as the deaths were known only for a few years; and as the mortality at different ages could not be calculated, the ages of the living in London having been unfortunately not ascertained at the Census of 1831. All doubt must, however, be dissipated by the present complete series of facts, which embraces all the elements required in statistics to determine the mortality and the duration of life. Instead of the inhabitants of London “measuring out the whole period of the present existence allotted them,” it is found that, in 7 years, 139612 perished in infancy (under 5 years of age); 40830 in youth (5 to 25); 109145 in manhood (25–65); and that only 52464 attained the age of 65 and upwards. Instead of “death coming upon them like a sleep,” when the faculties are dulled by age and slow decay,—it convulses tender infancy, falls with burning fevers upon man in his prime, snatches away the mother with the babe still upon her breast. But not to take an extreme view, nor to be too sanguine—and above all, to avoid any exaggeration—let us set down here the deaths in London and the deaths which would have happened at different ages if the mortality had not been higher than it was in Lewisham, where any one who will take the trouble may ascertain that many obvious and easily removed causes of insalubrity still exist.

Age.	Deaths in London.	Deaths that would have happened if the Mortality had been the same as in Lewisham.	Excess of Deaths in 7 years by causes peculiar to London.
0—5	139612	80632	58980
5—25	40830	35706	5124
25—65	109145	83447	25698
65 and upwards	52464	44343	8121
All specified Ages	342051	244128	97923

Such is the excess of mortality. The excess of sickness must have been still greater.

At the two or three meetings held to oppose the Government Bill for improving the Health of Towns, by bodies holding local trusts, no reference was made to the loss of life constantly going on in London. It appears to have been unknown to the speakers, or to have been taken for granted because the mortality is little more than half as high in the present as it was in the 17th century, that the health of the metropolis is perfect; that plague having been expelled, typhus and consumption may be tolerated. Now the plain truth is, that one day with another 134 persons die daily in London; that the great majority are untimely deaths,—children, fathers, mothers, in the prime of life; and that at least 38 die daily in excess of the rate of mortality which actually prevails in the immediate neighbourhood. 38 persons are destroyed every day in London by local causes. If these deaths took place on London Bridge or at Newgate, would any sensible man in the city op-

* Reg.-Gen., 1st Report, 8vo., p. 113.

pose any reasonable measure devised by a Minister of the Crown, to put a stop to the frightful sacrifice of life? The city has consented to see Newgate partly free from fever—inspected by an Officer of the Crown. Why is the disease cast out of criminals to be allowed to enter and destroy the labouring multitudes? Are their lives of less value? But the city itself, it is said, is as healthy as it can be; the authorities have done everything that can be done. A minister of health can suggest nothing which the City of London has not already accomplished. Has the Lord Mayor ascertained this by personal inspection? He has the conservancy of the swans and fish of the Thames: and so weighty has this duty been held that the first magistrate attended by the civic authorities proceeds periodically to hold courts of inspection and to ascertain the condition of these creatures. If some time after having been

To Thames's banks which fragrant breezes fill,

and seen the white swans on the river and the fishes glide through the clear waters, on landing from his barge below Temple Bar he would place himself under the guidance of Dr. Lynch, a medical officer, and Mr. Hutchinson,* a surgeon and registrar of the city, they could lead the procession on the way to Newgate, Smithfield Market, Houndsditch, and the Tower, through alleys, and lanes, and up courts inhabited by citizens of London, presenting a far different aspect: they would pass through streets on which the sun rarely shines, houses saturated with pestilential vapours—and breezes fanning sewers and excremental matter—the most fatal field of fever in the metropolis. They would see disease gleaming in the eyes of children, wasting the bodies of women, prostrating the strength of men. If they called for the registers of death for the City without the walls, they would find in them 13637 names enrolled in seven years—five thousand of which would have had no place there if the “deliberate conviction” of the Commission of Sewers were well founded, that the “City of London for health, cleanliness, effective drainage, lighting, and for supply of water to its inhabitants, cannot be surpassed.”

The thirty-six districts of the metropolis have been arranged in the relative order of their insalubrity:† the City of London within the walls stands ninth in the list, while the City of London without the walls (the East and West London Districts) stands but five removes from Whitechapel, the last, the unhealthiest of the thirty-six. That Table displays results, in many respects remarkable. If the short time which has elapsed since the calculations were completed had permitted it, I should have endeavoured to present the different degrees of mortality in the districts of London, pictured to the eye on a shaded map. A general idea, however, may be formed of the distribution of the poison which causes death. According to the latest researches, it is not a gas, but a sort of atmosphere of organic particles, undergoing incessant transformations; perhaps like malaria not odorous, although evolved at the same time as putrid smells; suspended like dust, aroma, or vesicular water—in the air, but invisible.‡ If it were for a

* See Mr. Hutchinson's accurate account of the wretched state of parts of the West London District, 5th Annual Report, 8vo. p. 537.

† See Reg.-Gen., 9th Report, 8vo. pp. 94-95.

‡ This question is fully discussed in the Appendix to the Registrar-General's Fifth Annual Report.

moment to become visible, and the eye could see it from a central eminence such as St. Paul's, the disease-mist would be seen dimly over Eltham, Dulwich, Norwood, Clapham, Battersea, Hampstead, and Hackney; growing thicker round Newington, Lambeth, Marylebone, Pancras, Stepney; dark over Westminster, Rotherhithe, Bermondsey, Southwark; and black over Whitechapel and the City of London without the walls. The district of St. Giles would be a dark spot in the midst of surrounding districts; St. George Hanover-square, and St. James Westminster, would be lighter than Marylebone, and St. Martin-in-the-Fields; part of the City of London within the walls would present a deep contrast to the City without the walls. This disease-mist, arising from the breath of two millions of people, from open sewers and cesspools, graves and slaughter-houses, is continually kept up and undergoing changes; in one season it is pervaded by cholera, in another by influenza; at one time it bears small-pox, measles, scarlatina, and hooping-cough among young children; at another it carries fever on its wings. Like an angel of death, it has thus hovered for centuries over London. But it may be driven away by legislation. If this generation has not the power to call the Dead up from their graves, it can close thousands of graves now opening. The poisonous vapour may yet clear away from London—and from all the other towns of the kingdom:—some of the sunshine, pure water, fresh air, and health of the country, may be given to the grateful inhabitants of towns by the parting voice of the Legislature.

State of the Public Health in the Spring Quarter of the Year 1847.
(April, May, June.)

The returns of the quarter ending June 30th, indicate no improvement in the state of the public health: 51,585 deaths were registered; which is 6745 above the average of the season in the 117 Districts making the return.

The annexed Table shows that the mortality was below the average in the spring quarters of 1841, 1842, 1843, 1844, 1845, and 1846, and above the average in the spring quarters of 1839, 1840, but to nothing like the extent observed in 1847.

YEARS	1839	1840	1841	1842	1843	1844	1845	1846	1847
Deaths registered in the June Quarters of 9 Years	41244	42074	39133	38569	40343	38977	40847	43737	51585
Deaths which would have been Registered if the mortality had been uniform, and the Numbers had increased from 1839 at the rate of 1·75 per cent. annually	39029	39712	40407	41115	41834	42566	43311	44069	44840
UNHEALTHY SEASONS.									
Difference above the calculated number	2215	2362	.	.	.	.	.	.	6745
HEALTHY SEASONS.									
Difference below the calculated number . . . . .	.	.	1274	2546	1491	3589	2464	332	.

The deaths in the quarter ending June 30th have, in the last 4 years, been 38977, 40847, 43737, and 51585. The mortality showed a disposition to rise in the same quarter last year; and in the remarks appended to the returns, the necessity of active measures to avert the impending ravages of disease was insisted on, unfortunately without producing up to the present time any practical effect. The deaths, which in the 4 quarters ending June, 1846, were 36139, 39293, 43850, and 43737, became 51405, 53055, 56105, and 51585, in the 4 following quarters, which ended on the 30th of June last. Common cholera was fatal; scurvy prevailed more or less all over the country, from the want of vegetable food, the potato having failed; all food became scarce and dear; typhus broke out, is still epidemic, and shows no sign of decline. To add to the calamities of the country, the poor of Ireland dying of starvation, and consumed by fever, were cast on the coast of England, and are now lodged in the crowded, filthiest parts of the most insalubrious cities, or in workhouses and hospitals provided by English parishes. The deaths in the 12 months, ending June 30th, were 212150. The average of the 7 preceding years was 165832. Add 7.19 per cent. for increase of population, and the average applicable to 1847 is 177700. The excess on the year was thus 34000 deaths.

DEATHS REGISTERED IN 117 DISTRICTS OF ENGLAND.

YEARS* . . .	1839-40	1840-41	1841-42	1842-43	1843-44	1844-45	1845-46	1846-47
In the Quarters ending—								
September	37317	39498	36058	39409	36953	38933	36139	51405
December	41740	44186	39292	39662	42608	44040	39293	53055
March	46376	46967	44903	43748	46136	49996	43850	56105
June	42074	39133	38569	40343	38977	40847	43737	51585
Deaths in the Year .	167507	169784	158822	163162	164674	173856	163019	212150

These districts, however, including nearly all the towns of England, are always unhealthy in their natural state. The mortality is not more than 18 in 1000 in many districts and entire counties where the population is far from being in a favourable condition; and after every allowance has been made, if the ages of the inhabitants be taken into account, the mortality should certainly not exceed 2 per cent.; at which rate, as the population was about 7274900, the deaths in the years ending June, 1846-7, would have been 145498, or less by 32200, than the average 177700. The excess of mortality in the twelvemonth ending June, 1847, tried by this standard, was 66712! and that in only one-fourth part of the population of the United Kingdom.

That this insalubrity exists is incontestable; the causes of it are known; and that they admit of removal to a considerable extent is allowed by all who have paid attention to the subject. But it is a long time before the plainest principles can be carried out. When the works are commenced, it will be some years before they can be completed; and as yet nothing has been begun. After Captain Cook had demonstrated that the health of the navy could be immeasurably improved, thousands of the best seamen had to perish—expeditions to be defeated—millions of pounds expended—30 years to elapse before anything

whatever effectual was done to place the health of the British navy on a satisfactory footing. So it is to be feared that through the natural obstacles in the way, and the pertinacious opposition of parish vestries, of corporations, and companies, and the enemies of the public health, many times the number who have perished this year—many times 66712 lives—will fall a sacrifice ere the towns of England enjoy, by the intervention of science, a moderate share of the health which nature confers on the country around them.

In London small-pox has been latterly prevalent; the deaths which were from 3 to 7 weekly in the beginning of the year, amounted at the close of June to 26 in the week. Typhus, which always prevails more or less, killed 58 persons in the last week of June; it was on the increase.* Diarrhoea, too, was becoming more fatal as the temperature advanced. Purpura and hæmatemesis have both been unusually common. They are probably of the nature of scurvy.

The groundless prejudice against fruit, and the absolute necessity in diet of vegetables like the potato, containing an acid, were dwelt on before scurvy and its kindred diseases made their appearance. It is true, that fruit when taken to excess produces symptoms which may be mistaken by persons unacquainted with medicine for common cholera. But beef or mutton in excess will do the same; and the experience of this year has shown more clearly than had ever been shown before, that bread and meat alone are not sufficient to sustain the system in health. Fruit and acid vegetables are an essential part of the food of man; but it appears that the body when duly supplied with the principle it derives from these sources, husbands it up, and can do without the acid diet for some time. The appetite for fruit and pickles is not then without its use, although the chemists have not hitherto explained how vegetable acids subserve nutrition. Without these aliments the blood loses some of its essential properties, and escapes from the vessels in purple spots under the skin, or with more fatal effect into the structure of internal organs.

We may hope that no such cases as the following will occur again in any of the public institutions of the country.

“The mortality of this district (Maidstone, West) is about the average, except at the County Lunatic Asylum, where the deaths have amounted to 17, exactly the same number as was registered in that institution during the March quarter, while the average of the four quarters of 1846 was only 6½. The increase of mortality there is ascribed to the influence of the cold and inclement weather which prevailed during the early months of the year on the infirm and exhausted constitutions of the patients, who form the great proportion of its inmates. Added to which, the want of a due proportion of vegetables, especially potatoes, appears to have impaired their general health; this being manifested by the occurrence of numerous cases of scurvy in the month of March; none of which, however, proved fatal, as the patients all speedily recovered under a change of diet.”

* Dr. Lynch, whose meritorious exertions in promoting the Health of the City of London were referred to in the previous Quarter, has since fallen one of the victims of typhus.

It is painful to read the Registrars' melancholy accounts of the Irish poor, and of the towns on which they have been cast for support. I can only refer to these accounts drawn up without art, by eye witnesses.

The following description of the fever as it appears in Manchester, from Mr. Leigh, the Registrar of Deansgate, is interesting in a medical point of view.

"The fever is of an exceedingly low type, the subjects of it becoming typhoid, with a dry, brown tongue, within a very few hours after the attack. In many, the brain is oppressed from the beginning, the pulse continuing slow (ranging from 70 to 80) throughout, the pupil being large, whilst in some there is great abdominal irritation, vomiting and diarrhoea ushering in the attack. This is followed by great tenderness over the abdomen, intolerance of pressure, and considerable distension from flatus. So far as my own observation has extended, and as far as I can gather from my professional friends, I think it may be stated generally that the mildest treatment has been the most successful. The present epidemic is essentially a famine fever, imported into this country by a class reduced to the lowest condition consistent with the carrying on of the vital processes. In such a state of the system, general derangement takes place, the body lives upon itself, furnishes its own materials for respiration, abnormal products are formed, partly retained and partly eliminated, producing disease in the system which forms them, and communicating it by the eliminated matters to others. Want compels the destitute to live together, whilst the deficiency of water, and the great personal uncleanness of the Irish poor gives to their sordid skin a morbid coating, and the tainted air they breathe carries its poison abroad, and the well-fed and the wealthy fall victims to the famine they felt not. A better supply of good food, a greater abundance of pure water, the separation of the poor from each other by removing them from the low lodging-houses in which they congregate often to the number of 18 or 20 in a single room, and the inculcation of greater cleanliness by the clergy of all denominations, will, better than all mere medical treatment, subdue the fever which is now sweeping so many to the grave. The number of certified cases this quarter is considerable (211), still it leaves a large number (151) to have had no scientific or skilled assistance during the illness that has proved fatal to them. The medical officers of the union and of the children's dispensaries complain that even in most of the certified cases the children were brought to them in a dying condition. To the apathy that prevails respecting their offspring, or to the marvellous confidence in unskilled advice which the poor so generally entertain, must this be attributed. They have a strange belief in intuitive knowledge. My friend, Dr. Howard, I may remark, has informed me that nearly all the cases of fever he has had in the fever hospital of this town have been distinctly maculated."

A considerable number of medical men, as well as some clergymen and relieving officers, have fallen victims of typhus, caught in their attendance on the sick and dying, and in the discharge of their important public duties. The number of medical men who have died of typhus is yet unknown; the Registrar of Great Howard-street, Liverpool, says:

"Eight Roman Catholic priests and one clergyman of the Church of England have fallen victims to their indefatigable attentions to the poor of their church. Another (curate of St. Martin's) nearly fell a sacrifice to the same disease. Indeed, their exemplary conduct in visiting and relieving the sick has been the theme of praise with all. From 10 to 15 persons connected with the relieving department in the parish offices have also died of the fever, taken by them in discharge of their duties."

The members of the medical profession, the visiting clergy and a few others, stand alone in the circumstance that they discharge their duty at the risk of life. The heroic conduct of those now alive, and of those who have perished, will, we may hope, not be forgotten by their country.

*State of the Public Health in the Summer Quarter of the Year 1847.
(July, August, September.)*

The deaths registered in 117 Districts in this quarter were 49,479; a number less by one thousand nine hundred and twenty-six than were registered in the corresponding quarter of 1846; but 7,007 more than the corrected average of the September quarters of 1838-46. Upon the whole there is a slight improvement in the health of the country.

The relative salubrity of the summer season of the 10 years 1838-1847, is displayed in the subjoined table:—

YEARS	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847
Deaths Registered in the September Quarters of 10 Years.	34752	37317	39498	36058	39409	36953	38933	36139	51405	49479
Deaths which would have been Registered if the Mortality had been uniform, and the Numbers had increased from 1838 at the rate of 1.75 per Cent. annually. Deduced from the average of 1838-46.	36332	36968	37615	38273	38943	39625	40318	41023	41741	42472
UNHEALTHY SEASONS.										
Difference above the calculated Number . . . . .	..	349	1883	..	466	..	..	..	9664	7007
HEALTHY SEASONS.										
Difference below the calculated Number	1580	..	..	2215	..	2672	1385	4881	..	..

In the table of the deaths returned in each quarter since 1838, page xxvi., it will be seen that a small rise in the mortality took place in the spring after the mild winter of 1846—that a sudden advance occurred in summer—that the mortality reached the maximum (56105) in the winter of 1847, and has since slowly subsided.

In London there has been no sign of improvement. 10987, 12601, and 13187 deaths were registered in the September quarters of 1845, 1846, and 1847. The deaths in the summer quarters of the three years from small-pox were 76, 51, and 320; measles, 688, 78, and 521; scarlatina, 194, 208, and 316; diarrhoea, 449, 1549, and 1196; cholera, 26, 197, and 98; dysentery, 43, 75, and 143; remittent fever, 8, 12, 23; typhus, 273, 403, and 895; erysipelas, 56, 92,

and 126; the zymotic class of diseases generally, 2409, 3234, and 4061. The deaths from diseases of the respiratory organs were nearly stationary; 1558, 1784, and 1851 persons died of consumption; 1111, 977, and 1071 persons of inflammatory and other diseases of the lungs. Two, three, and sixteen deaths were directly ascribed to various kinds of privation in the three last September quarters. The increase in the deaths by external violence, which were 342, 403, and 425, may have arisen from erysipelas, and other affections supervening on accidents, in an unusual proportion.

In the first nine weeks of the quarter the mean temperature of the atmosphere, and of the waters of the Thames, was above 60°; the mortality in London from diarrhœa, dysentery, and cholera, rose from 17 on the first to 188 on the seventh week of the quarter, and gradually fell to 107 on the last week. Typhus raged with unusual virulence. The weekly deaths were never below 50, and in the third week of September 111 persons died of this disease. The weekly average was 30 for the same quarter of five preceding years.

The epidemic of fever has been more fatal in Lancashire than in London. In Manchester, Salford, and Chorlton, 4134 deaths were registered from all causes. Diarrhœa and fever were the prevalent diseases. Typhus carries off men and women in the prime of life. Diarrhœa destroys more children, and becomes dangerous to adults in the form of cholera. The Registrar of Deansgate, Manchester, says:—

“More children have died in the district during the last quarter under the age of 5 years than in most other quarters there have been deaths at all ages. This is an astounding fact, yet perfectly consistent with prior observation; if the general mortality be large, the infant mortality will ever be found to bear its due proportion, and the causes, in such a district as this, are perfectly obvious. In the calamitous season just passed, manufactures have been almost at a stand still; food has been unobtainable by the poor, for employment they had none; famine made her dwelling in their homes, and her attendant horror, typhus, relentlessly swept his victims to the grave. During the sickness, which either terminated in death, or rendered the removal of the poor to the fever hospitals necessary, their offspring have been neglected and uncared for; some have sunk under the malady of their parents—others, deprived of the nourishment nature had supplied, have pined and wasted away, the victims of inanition, their glands diseased, and incapable of assimilating the incongruous food supplied to them. The disease of autumn has also done its work fearfully amongst them, no less than 103 deaths, almost entirely of children, being recorded from diarrhœa, under the drain of which the exhausted frames of the little sufferers rapidly sunk. In the close, ill-ventilated, and densely-crowded rooms where the poor hive together, contagious disorders make rapid progress, extending from one to another, and acquiring increased virulence from the filth and noisomeness with which they are nourished.”

Liverpool, created in haste by commerce—by men too intent on immediate gain; and flourishing, while her working population was decaying in cellars—has been severely taught the lesson, that a part of the population—whether in cellars or on neighbouring shores—cannot suffer without involving the whole community in calamity. In itself one of the unhealthiest towns of the kingdom, Liverpool has for a year been the

hospital and cemetery of Ireland. The population of Liverpool was 223003 at the census of 1841. It is impossible to represent more correctly than is done by the short notes of the Registrars, the piteous spectacle which this great town presented—with the floating Lazarettos on the Mersey—the workhouses crowded with destitute paupers—the three large “sheds which will hold 300 persons, nearly full of patients at the present time”—and the fever “getting more prevalent among the upper classes.”

Sub-district.—Saint Martin.—“Deaths 1026; this return shows a fearful increase of mortality in this district. Fever, diarrhœa, and dysentery, as in the last quarter, have been the prevailing diseases, but to a far greater extent. In the corresponding quarter last year, there were 700 deaths, which was the greatest number ever registered by me, but the present return shows an increase on that quarter of 326. The deaths from fever are 291, diarrhœa 174, dysentery 82.”

Great Howard Street.—“Deaths 1250; this return shows an increase of 159 over the preceding quarter. It may be accounted for by the fact, that the floating fever hospitals have been given up by the select vestry, and consequently more patients are sent to the north fever shed. The fever is now getting more prevalent in the upper classes in the town, though not of that fatal character which has destroyed so many indigent Irish. Diarrhœa and dysentery still prevail.”

Dale Street.—“Deaths 747; being 58 less than in the preceding quarter. This may be accounted for in great measure by the removal of the lower Irish from the cellars, besides many being sent back to Ireland by the authorities; otherwise, the mortality would have been greater than in the preceding quarter.—Fever cases, 250; diarrhœa, 111; dysentery, 20; small pox, 16; measles, 11; cholera, 6.”

St. Thomas.—“Deaths 915; which include 301 that occurred on board the Lazarettos, on the river Mersey. Typhus and dysentery have been the prevailing diseases. The former is very much on the decrease, and the district has begun to assume a more healthy state.”

Mount Pleasant.—“Deaths 955; including 630 in the workhouse, and 33 at the infirmary. There is attached to the workhouse a large fever hospital, which will hold about 128 persons; and there have also been very recently erected (for the reception of the Irish paupers) three large buildings or sheds, which will hold about 300 persons; also other buildings, all of which are nearly full of patients at the present time. The deaths this quarter are 52 less than in the last quarter. There were 324 fatal cases of fever; 18 of dysentery; 73 of diarrhœa; and 22 of phthisis in the workhouse. There have also been 51 fatal cases of fever in this district, independently of those in the above public institutions.”

Islington.—“Deaths 524: the largest quarterly number I have ever registered, principally to be attributed to fever, diarrhœa, and dysentery;—from fever in July, 38; August, 42; September, 25=105. Diarrhœa, 78; dysentery, 37.”

It will require all the energy of the enlightened and public-spirited inhabitants of Liverpool, and the utmost resources of science, to place the health of the town in a satisfactory condition.*

* The local authorities have appointed an able Health Officer, and have adopted other measures, which will probably improve the health of this important commercial town.

"The mortality remains high in Birmingham, Dudley, Wolverhampton, Shrewsbury—in many of the towns of Lancashire—in Leeds, Hull, York, and Sunderland. The returns from the other towns of the kingdom present nothing unusual, the mortality being much the same as in previous years. This refers to the relative mortality. The absolute mortality is always higher by from 10 to 50 per cent. in towns than in open country districts. This is illustrated by a comparison of the deaths registered in London during the last 13 weeks, and of the deaths which would have happened if the rate of mortality had been the same as in Dorsetshire—one of the agricultural counties—in which the wages are low, and in which the condition of the labourer is far from what it is desirable that it should be.

AGES	0-15	15-35	35-55	55 and upwards.	All ages.
Deaths registered in London in 13 weeks ending September 25, 1847	6534	1786	1983	2334	13187
Deaths which would have happened if the mortality had been at the same rate as in Dorsetshire in the September quarters 1838-44	3078	1709	1367	1955	8109
Excess of deaths in London during the 13 weeks	3506	77	616	879	5078

3506 children under 15 years of age were destroyed in London, in addition to 3078 carried off by causes which may be supposed to be the same as those fatal in the country. The mortality is nearly equal at the age 15—35, when London receives healthy recruits from the various counties. After the age of 35 the mortality is 45 per cent. higher in London than in Dorsetshire. If the chance that a man above 35 will die in the country during the summer quarter be represented by 2, the chance that he will die in London is nearly 3. It may be admitted that part of the London population is poisoned by alcohol, and that in their houses and persons they are from local causes dirtier than the country people; still the great excess of mortality, and in part, perhaps, the intemperance and impurity must be ascribed to the crowding, the want of water, decaying animal and vegetable matters unre-moved, and the inefficiency of the sewers, which neither carry off the solid, liquid, nor gaseous matters poured into or generated within them every day. If the chance of dying is increased from 2 in the country to 3 in London, the liability to suffer from epidemics is raised still more.

All the diseases of the zymotic class—such as small-pox, measles, scarlatina, typhus, influenza and cholera—have the remarkable property of becoming *epidemic*. After certain intervals of time, in which they are fatal to a smaller or greater number of persons in different places and seasons, great multitudes are suddenly attacked and destroyed in a given locality; the disease in this intense form involves the neighbouring population, spreads around the whole region, and sometimes travels over the tracks of human intercourse through the world. Little is known of the immediate chemical or vital causes of epidemics; but in given circumstances, where many are immersed in an atmosphere of decaying organic matter, some zymotic disease is invariably produced;

where there is starvation, it is most frequently typhus; cold, influenza; heat,—it is cholera, yellow fever, plague. At the mouths of the Ganges, of the Nile, of the Niger; in London, particularly up to the 17th century; in camps, in barracks, in ships, in prisons formerly; in Ireland, in Liverpool, in all our towns now, the circumstances in which zymotic diseases become epidemic are witnessed.

A city breathing an atmosphere perfectly pure may not be exempt from every epidemic; but observation has shown that such irruptions are infrequent, and fatal to few persons of strength or stamina. Internal sanatory arrangements, and not quarantine or sanitary lines, are the safeguards of nations. A salubrious city in an epidemic—like a city built of stone in a conflagration—is exposed to danger and injury, but not to the same extent as the present cities of Europe, which are left without any adequate regulations for the health and security of their inhabitants.

The great historical epidemics have diminished in intensity; and there appears to be no reason why they should not be ultimately suppressed, with the advances of the population among which they take their rise. Their origin is obscure, but influenza appears generally to become first epidemic in Russia—cholera in India.* It is in India that the source of the latter disease must be attacked. If the health of India become sound, Europe might be safe, and hear no more of the epidemic which is now traversing Russia. The attention of the Indian authorities has for some time been directed to the subject. The Marquis of Wellesley in 1821 effected improvements in Bengal. Mr. Martin, one of the Commissioners appointed by the late Government, to inquire into the Health of Towns, addressed Lord Metcalfe, the Governor-General, on the sanatory improvement of Calcutta in 1835; his comprehensive plans were promoted by that eminent statesman. Lord Auckland appointed a sanatory commission, of which Sir John Grant was the chairman; and thus procured a very able official report on the health of Calcutta, before the subject was touched at home.†

The other nations of Europe are beginning to take an interest in public sanatory improvements; and any plans found to succeed in England will no doubt be carried out as speedily as possible in all parts of Her Majesty's dominions; for all the parts of this vast empire are intimately united. Asiatic cholera has taught us, that the lives of thousands in England may depend on the condition of the Ryots of Jessore.‡

State of the Public Health in the Autumn Quarter of the Year 1847.
(October, November, December.)

57925 deaths were registered in the quarter ending December 31st. The average number of deaths deduced from the returns of the corresponding quarter of nine preceding years, and corrected for increase of population, is 46549. There is consequently an excess of 11376 deaths in the quarter. The deaths registered in the December quarters

* In Italy, influenza is called the *catarro russo*; in Germany, the *russische krankheit*.

† See *Lancet*, Sept. 25, and Oct. 9, 1847.

‡ The epidemic cholera, which reached England in 1831, broke out at Jessore, near Calcutta, in 1817, and destroyed there 10000 persons.

of 1845, 1846, and 1847, are 39293, 53055, 57925; the mortality in the first is to that of the last quarter nearly as 2 to 3. The mortality, it will be seen in the subjoined table, was below the average in the autumn quarters of the 5 years, 1841-5, and above the average in the 5 years 1838-40, 1846-7.

YEARS	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847
Deaths registered in the December } Quarters of 10 Years }	40173	41740	44186	39292	39662	42608	44080	39293	53055	57925
Deaths which would have been } registered if the mortality had } been uniform, and the Num- } bers had increased from 1838 at } the rate of 1.75 per cent. an- } nually }	39820	40516	41225	41947	42681	43428	44188	44961	45748	46549
UNHEALTHY SEASONS.										
Difference above the calculated } number }	353	1224	2961	.	.	.	.	.	7307	11376
HEALTHY SEASONS.										
Difference below the calculated } number }	.	.	.	2655	3019	820	108	5668	.	.

A slight increase in the mortality was noted in the returns of the *June* quarter, 1846; the mortality in the following hot *summer*, when the potato crop failed, was excessive: *cholera* and *diarrhœa* were epidemic: in the *autumn* of 1846, as well as the winter and spring quarters of 1847, the mortality was still higher; scurvy prevailed in the beginning of the year, but in the summer the public health appeared to be slightly improved. Epidemics of typhus and influenza, however, set in; and made the mortality in the last quarter of 1847 higher than in any quarter of any year since the new system of registration commenced.

Deaths Registered in each of the Four Quarters of the Nine Years 1839-1847, in 117 of the Districts of England and Wales.

YEARS.	1839	1840	1841	1842	1843	1844	1845	1846	1847
Quarters ending									
March	42410	46376	46967	44903	43748	46136	49996	43850	56105
June	41244	42074	39133	38569	40343	39977	40847	43737	51585
September	37317	39498	36058	39409	36953	38933	36139	51405	49479
December	41740	44186	39292	39662	42608	44080	39293	53055	57925
Total	162711	172134	161450	162543	163652	168126	163275	192047	215094

The deaths in the year 1845 were 166000; in 1847 *two hundred and fifteen thousand*. The excess in 1847 is *forty-nine thousand!* or not less than 35000 over the corrected average of 1839-45. The districts from which the Quarterly Table is made up, have hitherto returned less than half the deaths in England; but it is not probable that the country districts have suffered to the same extent as most of those in the return.

In London the deaths registered in the quarters ending December 1845-6-7, were 11838, 13221, and 18553 (13 weeks). The greatest number registered in any quarter of the 9 previous years was 14686 in the severe winter of 1845.

It was shown in the last Quarterly Report on the State of the Public Health, that if the chance that a child in Dorsetshire under 15 years of age will die in the summer quarter be represented by 1, the chance that a child under 15 in London will die in the same time is represented by 2. It was also shown that the chance of dying among men above 35 in London, is to that in the country as 3 to 2: and it was remarked that "if the chance of dying is increased from 2 in the country to 3 in London, *the liability to suffer FROM EPIDEMICS is raised still more.*" The truth of this proposition has unfortunately been too soon exemplified. The population was inadequately supplied with potatoes, and scurvy was prevalent in the beginning of the year. Meat and bread were dear, distress was rife; vagrants flocked in from the country, the poor Irish came to their kindred, the workhouses were crowded. In April and May typhus became epidemic; instead of the average of 34, *fifty* died weekly in London; it steadily spread and burnt on until it killed a hundred and eleven victims in a single week. Diarrhœa, dysentery, and cholera had been a little more fatal than usual throughout the year: 17, however, only died of these diseases in the first week of July; the mean temperature of the air was above 60°; the number of deaths rose to 38, 47, 67, 125, 128, 188, by the middle of August, and then gradually subsided. Notwithstanding the continued prevalence of typhus and scarlatina, the deaths in the last week of October were only 945; one person died of influenza, 36 of bronchitis (inflammation of the air-tubes), and 62 of pneumonia (inflammation of the substance of the lungs). In the three weeks following, ending November 20, the total deaths were 1052, 1098, and 1086; of which 2, 4, and 4 were by influenza; 49, 58, and 61 by bronchitis; 68, 79, and 95, by pneumonia. The wind had generally been blowing S.S.W. and S.W. since the first week of October; the weather was unusually warm; a brilliant aurora was observed, and shook the magnets on October 24; it appeared eight times during the quarter; on Tuesday, November 16th, there was a remarkable darkness; the wind changed to N.W., and amidst various changes still blew from the north over Greenwich at the rate of 160, and 250 miles a day. The mean temperature of the air suddenly fell from 11° above, to 10° below the average; on Monday it was 54°, Friday 32°; the air on Friday night was 27°, the earth was frozen; the wind was calm three days, and on Saturday evening a dense fog lay over the Thames and London for the space of five hours. No electricity stirred in the air during the week. All was still: as if Nature held her breath at the sight of the destroyer, come forth to sacrifice her children. On Sunday the sky was overcast, the air damp, the wind changed in the night to S. by E., and passed for four days over Greenwich at the rate of 200 and 300 miles daily; the temperature suddenly rose, and remained from 2° to 9° above the average through the week ending November 27th: when the deaths of 1677 persons—819 males, and 858 females—were registered in London; 771 persons under 15 years of age, 518 aged 15-60, and 388 of the age of 60 and upwards. Influenza was epidemic. On the first week of December *two thousand four hundred and fifty-four* persons died: 1141 were males, 1313 females; 1012 children, 712 persons in the prime of life, 730 of the age of 60 and upwards. On the week following *two thousand four hundred and sixteen* persons died: 1175

males, 1241 females; 1016 under the age of 15; 698 at the age of 15—60, and 702 at the age of 60 and upwards. The deaths in the weeks ending Saturday, December 18, December 25, and January 1, were 1946, 1247, and 1599. 11339 persons died in six weeks, and altogether the epidemic carried off more than 5000 souls over and above the mortality of the season. The epidemic attained the greatest intensity in the second week of its course; raged with nearly equal violence through the *third* week; declined in the *fourth*, and then partly subsided; but the temperature falling, the mortality remained high not only through December, but through the month of January.

The epidemic was most fatal to adults and to the aged: thus in the three weeks ending November 13, the deaths under 15 years of age were 1553; in the three weeks of the epidemic ending December 18, the deaths under the age of 15, were 2846. In the same *two periods* the deaths at the ages 15—60 were 966 and 1970; at the age of 60 and upwards, 576 and 1999. The mortality in childhood was raised 83 per cent., in manhood 104 per cent., in old age 247 per cent. From the age of 4 to 25, however, the mortality was comparatively not very much increased; at the age of 10 to 15, the healthiest period of life, it was scarcely increased at all in girls.

During the 7 years 1838—44 the deaths of males in London were more numerous than those of females in the proportion of 1749 males, to 1677 females; in the second week of the influenza epidemic the proportions were reversed, for 1141 males, and 1313 females died; in the six weeks ending January 1, the deaths of 5580 males and 5759 females were registered. Looking, however, at particular ages, the deaths in the six weeks under 5 years of age were—2321 males, 2009 females; from 5 to 55, males 1580, females 1507; 55 and upwards 1678 males, 2241 females. At all ages there are more females than males living in London; at 55 and upwards the males in 1841 were 71021, the females 90143; at 75 and upwards, males living 6754, females 11124. A disease much more deadly in the old than in middle-aged and young people, therefore necessarily increases the total deaths of females more than the total deaths of males, without for that reason being more fatal to the female than to the male sex. The difference in the mortality of males and females from the epidemic is but slight, and can only be determined by nice calculation—into which I shall not enter here.

Influenza attacked those labouring under all sorts of diseases, as well as the healthy. The vital force was extinguished in old age and chronic diseases. The poison, permeating the whole system, fastens chiefly on the mucous membrane lining the sinuses of the face and head, and the air-tubes of the lungs. Hence it is fatal to the asthmatic; the deaths directly ascribed to asthma in October and November were 12 weekly; in the six weeks of the influenza epidemic, 77, 86, 78, 52, 14, 26, besides the numerous cases classed under influenza. 36 deaths were ascribed to bronchitis in the week ending October 30th, and 49, 58, 61, 196, 343, 299, 234, 107, and 138 in the nine following weeks. 62 deaths were ascribed to pneumonia in the same week, and 68, 79, 95, 170, 306, 294, 189, 131, 148, in the nine weeks following. In some of these cases the inflammation specified was the primary disease, in others secondary, and in many it was purely influenza—mis-reported. There is a strong disposition among some English practitioners, not only to

localize disease, but to see nothing but a local disease; hence although it is certain that the high mortality on record was the immediate result of the epidemic of influenza—the deaths referred to that cause are only 1157; namely in the first week of November, 2, and in the eight weeks following 4, 4, 36, 198, 374, 270, 142, 127; and these include nearly all the cases in which influenza was returned, whether as primary, or secondary in conjunction with other diseases. A similar defect has hitherto been found in the returns of all great epidemics; in 1665, the great plague year, 97306 burials were returned in the London Bills of Mortality, only 68596 of which were ascribed to plague. Influenza attacked persons labouring under other zymotic diseases: thus the deaths from hooping-cough rose from 12 and 25, to 65 and 71 during the epidemic; the deaths from measles rose from 43 to 96, 89, 69, 75, during the first four weeks of the epidemic, and then subsided to 37 and 58. Typhus, which had been fatal to 70 and 80 weekly, rose to 132, 136 and 131, in the second, third and fourth week of the influenza epidemic, and then fell to 83 and 74. Although influenza is not mentioned in these cases, it is in others, and there can be little doubt that two or more zymotic processes do often go on simultaneously in the blood and body; a fact of profound interest to the pathologist, and worthy of attentive investigation.

The epidemic was much more fatal in some districts of London than in others. To show this, I take the deaths in each of the London districts during the six weeks from November 21st, 1847, to January 1st, 1848—and comparing them with the population, obtain the relative mortality. It was at the rate of 46 per annum to 1000 living in London; the mortality in the seven years 1838—44, was at the rate of 25 annually to 1000; the mortality was consequently raised for 6 weeks, by the epidemic, about 80 per cent. above the average. Lewisham, including Blackheath, Sydenham, and Eltham, is one of the healthiest districts in London; the ordinary rate of mortality is 17 annually, during the epidemic it was 27. St. George in the East is one of the unhealthiest districts; the ordinary rate of mortality is 29 in 1000, the rate of mortality during the epidemic was 73: the increase in Lewisham was 10, in St. George in the East 44; the latter district suffered four times as much from influenza as the former. Excluding districts which contain hospitals or the workhouses of other districts, we have the following result:—

DEATHS TO 1000 annually.

	Mean Annual Rate of Mortality, 1838—44.	Annual Rate of Mortality during the last 6 weeks of 1847.	Difference in the Mortality ascribable to the Epidemic.
LEAST UNHEALTHY DISTRICTS OF LONDON.			
6 Districts of London in which the ordinary mortality of Females is low }	20	38	18
UNHEALTHIEST DISTRICTS OF LONDON.			
6 Districts of London in which the ordinary mortality of Females is high, see p. xlv. }	27	61	34

The epidemic of influenza killed twice as many people in the insalubrious parts of London as it did in those less unhealthy: its fatality

in Lewisham and St. George in the East was, as we have seen, 1 to 4. The annual average rate of mortality for London, in 1730-39, was 41 in 1000; the rate in the 6 weeks of the epidemic of 1733 was 72 in 1000; the increase was 31 in 1733; the increase in 1847 was 21.

Let us look to the few country and small town districts in the present return. The deaths in St. Albans, (population 17000 in 1841,) during the last quarters of the four years 1844-7, were 94, 75, 91, and 76. The Registrar of the sub-district of St. Albans says, "No epidemic has visited this district." The deaths in the Kendal district (population 35000) during the last quarters of the four years were 160, 213, 268, and 155; in Anglesea (population 38000) the deaths were 155, 163, 206, 158. The Registrar of Llandausaint, Anglesea, says, "latterly influenza has been prevalent;" but it was, as has been seen, not very fatal. In the Isle of Wight (population 43000) the deaths in the December quarter of the four last years were 235, 167, 201, 179. The Registrar of the Godshill sub-district says, "The district would be healthy but for influenza, which has just made its appearance; but no case has yet been fatal." Epidemic influenza is mentioned in the notes by the Registrars of Maidstone, Brighton, Portsea Island, Northampton, Cambridge, Norwich (mild—"fatal to few"), Yarmouth, Exeter, St. Thomas, (this is the district round Exeter; influenza had just made its appearance at Topsham,) Plymouth, (very fatal in St. Andrew's sub-district, deaths in October, 48; November, 49, December 103; Charles the Martyr, sub-district, deaths in October 17, November 26, December 63), Redruth, Penzance, Bath, (Lansdown, sub-district, deaths in the three months, 16, 21, 47; the Abbey, 18, 19, 58), Bristol, Clifton, Stroud, Hereford City, ("influenza is just appearing,") Shrewsbury, Walsall, Wolverhampton, Burslem, Birmingham, Aston, Coventry, Leicester, Lincoln, Nottingham, (St. Ann sub-district, deaths in three months, 35, 33, 76,) Basford, Derby, Stockport, Macclesfield, Great Boughton with Chester, Liverpool, West Derby. Preston. ("influenza prevailed during the last two weeks of December"), Bury, Bolton, Wigan, Prescott, Chorlton, Manchester (Ancoats, deaths in October 169, November 135, December 270), Salford, Ashton and Oldham, Sheffield, (West sub-district, deaths in October 27, November 27, December 85), Huddersfield, Halifax, Bradford, (Horton sub-district, "no particular disease, except in 10 days commencing November 27, when influenza was prevalent"), Leeds, Hunslet, York, (Walmgate, sub-district, deaths October 61, November 52, December 99,) Sunderland, Tynemouth, Newcastle-upon-Tyne, Carlisle, ("no epidemic disease prevalent at present in Dalston, Carlisle,") Pontypool, Wrexham, Anglesea. The Quarterly Return includes few of the country districts: but it is evident that influenza pervaded England generally; in many places it appeared later than in London; some places it has not yet reached at all, or its visitation has been so slight as not to attract attention. The mortality was raised in the unhealthiest towns; but on the whole much less in the mixed town and country districts than in London. The deaths in the December quarters of the four years 1844-7, were in the districts of London, 13819, 11838, 13221, 18553, (thirteen weeks):—in the other districts, 30261, 27455, 39834, and 38320. In the latter districts, notwithstanding the epidemic influenza, the mortality on the whole was lower in 1847 than in 1846. The weather did not differ much in any part of the country.

Edinburgh. Dr. Stark, to whom Edinburgh is indebted for tables of mortality, states that in that city influenza suddenly attacked great masses of the population twice during the course of November; first on the 18th, and again on the 28th day of the month. It appeared, in both cases, during keen frost, and an excessively damp, thick fog, which came on rather suddenly after a few days of very mild weather. The total deaths returned, exclusive of still-born, were in October 521, November 728, December 1001. The mean temperature of Edinburgh in December was 39°; the highest 57°, the lowest 21°.*

Our knowledge of the progress of the epidemic in other countries is necessarily imperfect, as no weekly tables are yet published in any of the great continental cities. We learn, however, from the medical and other journals, that the *grippe*, which had prevailed for a week, was at its height in Paris about December 4th; when one-fourth or one-half of the population were ill (Un quart, si non la moitié de la population est couchée.—*Gaz. Médicale*). It is stated that 50000 of the inhabitants of Madrid were in bed, suffering from influenza on January 11th. The epidemic still prevailed on the 19th, and was exceedingly fatal. London was probably attacked a few days before Paris; Madrid a month later. In a former epidemic (1782), influenza attacked London at the end of May, France in June, Italy in July, and Spain in August. It travels faster now. The present epidemic reigned in Rennes October 30, (Prof. Toulmache, in *Gaz. Med.*) Influenza attacked the crew of the *Lousquor* French packet in the Mediterranean in October, and was so general that, in difficult circumstances, the surgeon believes the vessel must have been lost. The epidemic did not prevail in Marseilles when the *Lousquor* left. The *Albatros* and *Nile* had cases at sea, but the epidemic was in full force at Toulon and Marseilles when they left port.† Dr. Laval, a member of the Council of Health at Constantinople, states that influenza broke out in that city towards the end of August (1847), and prevailed, though not to a very great extent, for a month or six weeks.‡ A slight epidemic of cholera broke out in October, and still reigns in Constantinople. Respecting the influenza epidemic in Germany, Russia, and Italy, no authentic information has come to hand.

By returns already received at the office of the Director-General of the Medical Department of the Navy, and with which I have been favoured by Sir William Burnett, it appears that epidemic catarrh or influenza prevailed on foreign stations during the year 1847, as under noted. In January, and February—on the coast of Portugal and South coast of Spain. January, February, March—in Newfoundland, and New Zealand. February, March—at Valparaiso. April—Coast of Syria. July, August, September—West Coast of Africa south of the Equator. August—Hong-Kong.

Coryza, gravedo, destillatio, and other forms of catarrh are described by the ancients. The disease is called *pose* by old English writers from the Anglo-Saxon *gepose* (heaviness, stupor). Epidemic catarrh is mentioned by Targioni Tozzetti in the *Cronica Meteorologica* of Tuscany under the years 1323, 1328, 1358, 1387. Cullen cites other in-

* Report by J. Stark, M.D.

† Bulletin de l'Acad. Royale de Med. T. 13, n. 12, 13. Mem. from Dr. Renault, Surgeon of the *Lousquor*.

‡ Letter dated 25 Nov. 1847, in the *Gazette Médicale*.

stances in his *Nosology** under the years 1510, 1575, 1580, 1591, 1658, 1675, 1679, 1708-9, 1712, 1729, 1732-3, 1737, 1742-3, 1748, 1758, 1762, 1767, 1775, 1779-80. Ozanam adds the years 1239, 1311, 1327, 1400, 1403, 1438, 1482, 1505, 1557, 1597, 1627, 1669, 1691, 1695. Some of these epidemics, and others which he describes, were apparently local.†

The disease, when severe, runs into inflammation of the lungs and pleura, and there can be no doubt that several of the epidemic pleurisies and pleuri-pneumonias of the middle ages were what is now known as influenza. The malignant pleurisy at Venice in 1535, which pervaded Brescia and Lombardy in 1537, as well as the epidemic pleurisy of Switzerland and Upper Italy in 1551, are examples.‡ The more celebrated epidemic of 1564 is said to have appeared first in England; to have spread thence to the Netherlands, Holland, and Switzerland. Patients died in 3-6 days, after violent delirium, coma, apoplexy. Vast numbers were victims of the epidemic; and physicians, who at that time began to examine bodies after death, learnt that "inflammation of the substance of the lungs may be combined with pleurisy." Sydenham notices that peripneumonia, and pleurisies committed great slaughter at the end of March, 1665—the year of the Great Plague.§ The winter had been excessively cold, and with a dry frost lasted till spring; a sudden thaw took place in March. Influenza was epidemic in England in 1657; it broke out in April (*Willis de Febribus*). Influenza, described tolerably well by Sydenham as, "*Tusses epidemicæ anni 1675, cum pleuritide et peripneumonia supervenientibus*," and distinguished by him from pure pleurisy, spared scarcely anybody; attacked all ages and temperaments; and seized whole families together—"integras simul familias pervadentes." It was dangerous. The previous years 1674, 1675, are referred to as a period of great dearth; the harvest of 1673 proved defective; and wheat which was 36s. per quarter on Lady-day 1673, was 64s. on Lady-day 1674. The epidemics of 1709 and 1729-30, in Germany appear to have been well described by Hoffman. Epidemics in 1728, 1733, 1742, 1758, 1762, 1775, 1782, 1788, 1803, 1831, 1833, and 1837 have been mentioned, several have been fully described by English writers. An abridged account of them is given elsewhere from the original accounts. The symptoms in these epidemics only differed in severity, and from complications with other maladies.

Influenza, like small-pox, probably always exists; in ordinary circumstances it is confounded with inflammation of the air tubes, yet in London from one to five deaths have been directly referred to it, nearly every week since the new London Tables were published. Like other zymotic diseases it becomes, at intervals of some years, epidemic; that is, it attacks the people generally of all classes. Its epidemics are distinguished by the numbers they assail; by affecting the same persons more than once; by being most fatal to the aged of both sex, and therefore, where there are more old women than old men, causing the deaths of females to exceed those of males during their pre-

* Art. 39, *Catarrhus a contagio*.

† *Histoire Med. des Maladies épidémiques*, tome 1, page 93-218.

‡ Sprengel *Histoire de la Med.*, vol. iii. p. 88. And authors cited.

§ *Syd. Opera Obs.* sect. 2, cap. i.; sect. 4, cap v.

valence; by great differences in the severity and fatality of their attacks; by the rapidity of their course, and passage from place to place. After the mortality they occasion becomes apparent in London, it attains a maximum in the second or third week; and the mortality falls to the average in the sixth or seventh week—(See Table, p. xlii). Influenza appears to be generated in ill-organized camps, in crowded, ill-cleansed cities; and to be most fatal among people who have for some time before been depressed, ill-fed, or ill-supplied with vegetables, as after hard winters and in war;* it rages in cold and hot, moist and dry weather, but most frequently breaks out after a thaw, or with violence after a fog, generally the result of cold streams of air mixed with warm air—and a calm. The saturation of the atmosphere favours the transformation of all organic matters; and those of a zymotic character among the rest. Extreme cold only never raises the weekly mortality in London above 1500; extreme heat still less; intermediate changes affect the mortality but slightly in ordinary circumstances; November fogs occur every year without giving rise to influenza; in November, 1847, the weather was nearly the same all over England, yet influenza did not break out simultaneously. When once generated, the epidemic spreads through the air. The great epidemics generally travel from (1) Russia, over (2) Germany, (3) Denmark, Sweden, England, France, (4) Italy, Spain—in from three to six months; and then reach America. Influenza is often associated with other epidemics. It appears to have preceded, or accompanied the Plague, in the Black Death of the 14th century;† it preceded the Great Plague of London (1665); it followed epidemic typhus in London 1803, preceded it in 1837, occurred in the midst of the typhus epidemic of 1847, preceded and followed the epidemic cholera in 1831-2-3. It carries off asthmatic persons, and those suffering from chronic disease: it affects those labouring under other zymotic diseases; in the healthy it quickens the seeds of other maladies, particularly of the lungs. The fatality and duration of attacks vary with age. In some of the late epidemics 2 in 100 cases attended by medical men are said to have died;‡ if 2 per cent. was the rate of mortality in London, for 5000 deaths there must have been 250000 cases of sickness of not less than seven days' duration. This would be little more than one in eight of the population; but nearly all were affected more or less; and

* "*Morbi præsentés à præteritâ temporum conditione fluunt; accipiunt verò etiã differentiam à conditione præsentis: quare utriusque oportet habere rationem.*" The first part of this profound Hippocratic aphorism, which applies to revolutions as well as epidemics, is often overlooked.

† See Hecker ("*Epidemics of Middle Ages*)." The symptoms were not, as he assumes, those of simple bubo plague. The pulmonary symptoms are always dwelt on by the contemporary writers; and Fracastorius, referring to the Black Death, specifies them exclusively:—

*Insolita exarsit febris, quæ pectore anhelo,
Sanguineum sputum exagitans, (miserabile visu!)
Quartâ luce frequens fato perdebat acerbo.*—Fracastorius, *Syph.* Lib. 1, v. 189.

‡ See a return by Dr. Bain of the mortality at *different ages* among 317 persons, and a lucid description of the epidemic of 1837, as it appeared in London; *British Annals of Med.*, vol. 1. p. 265; and the able Report on the Influenza of 1837, by *Prov. Med. Assoc. Trans.* vol. vi. Data might now be procured for determining the exact mortality at different ages of complicated and uncomplicated cases.

without taking slight instances, it is probable that not less than 500000 persons in 2,100,000, suffered in London from the epidemic of 1847.

The English physicians of the 18th century agreed in pronouncing influenza contagious. They did not mean that it was propagated by contact; but that it was introduced into cities, institutions, and houses in England by persons actually affected by the disease. This notion is however too exclusive; the word "contagion," applied to influenza or cholera, is apt to mislead, and to have practically a bad effect. When people ask if a disease is contagious, they generally mean: "Are we more likely to have influenza or cholera if we touch, or go near persons labouring under these diseases?" Now if the matter of contagion is very diffusible, and is distributed equally through the room, the house, the street, the city in which a patient is lodged, no one living in the house, street, or city is much more likely to be infected if he approach the sufferer than if he remain in absolute solitude, shut up like the grocer of Wood-street in the Plague. The matters which excite influenza and cholera are evidently highly diffusible; in a few days influenza spread all over London; it met you everywhere: nobody, therefore, has attempted to show that medical men, nurses, or others in attendance on the sick, suffered more than other people. If such should ever be the case either in influenza or the cholera epidemics, it will be in rare circumstances, and should never deter the most timid from discharging their duties to the sick.

The earth, it is well known, is surrounded by an atmosphere of organic matter, as well as of oxygen, nitrogen, carbonic acid, and watery vapour. This matter varies and is constantly undergoing transformations from organic into inorganic elements: it can neither be seen, weighed nor measured. The chemists cannot yet test its qualities. Liebig, with all the appliances of the Giessen laboratory, cannot yet detect any difference between the pure air of the Alps and the air through which the hound can tell a hare, a fox, or a man has passed; or the air which observation shows will produce small-pox, measles, scarlatina, hooping-cough, dysentery, cholera, influenza, typhus, plague. These matters may either be in a state of vapour—that is elastic, or they may be inelastic; or like water, they may exist in both states. They are most probably in a state of suspension; hang, like the smoke in cities, over the places in which they are produced, but are spread and driven about like vesicular water in clouds. A stream of aqueous vapour of the same elasticity from the Atlantic—passing over England—is, in one place, perfectly transparent; in another, mist; in another, rain: so clouds of infectious matter may fleet over the country, and in one place pass harmless by, in another (as influenza in London), destroy thousands of lives. The emanations from the living, the slaughterhouses, the heaps of filth, the Thames—into which the sewers still empty—raise over London a canopy which is constantly pervaded by zymotic matters; in one season this, in another that, preponderating; and the epidemic influenza may easily be conceived, either to have broken out spontaneously, to have been conveyed here by ships, or to have been carried over by the winds;—as the cases of the Indiaman infected in the Chinese seas, our own fleets, and the *Lousquor* in the Mediterranean—seem to imply that *influenzine* may be carried great distances over the ocean, from the place of its origin.

Proinde ubi se cælum, quod nobis forte alienum est,
Commovet, atque aer inimicus serpere cœpit;
Ut nebula ac nubes paulatim repit, et omne
Qua graditur, conturbat et immutare coactat;
Fit quoque ut in nostrum quam venit denique cælum,
Corrumpat, reddatque sui simile, atque alienum.

The zymotic hypothesis, here so well stated, explains the phenomena to a certain extent. Still epidemics afford a vast field for research; for much remains to be investigated.* The mariner, however, steers his ship without knowing whence the winds come, whither they are going, or why they are blowing; so, as the returns adduced above establish beyond a doubt the fact that influenza was four times as fatal in one part of the population of London as it was in another, and that it is much more fatal in a part commonly insalubrious than in a part usually healthy, the course to be pursued is plain. If the means which improve the public health are applied with intelligence and energy, the general mortality can be reduced; and the ravages, either of any future influenza, or of the *coming cholera*,† can be rendered inconsiderable.

The piety of the ancients, and of our ancestors, made them consider all plagues the immediate visitations of God's wrath.‡ And there can be no doubt, that though as affecting individuals there is nothing now judicial in plagues, they are the results of great national violations of the laws by which the Almighty is pleased to govern the universe. It has been shown, year after year, that the impure air of London destroys thousands of lives—that it makes epidemics fatal: the causes of the excessive mortality have been pointed out; and it has been proved that they admit, to a considerable extent, of removal. Yet the efforts of Her Majesty's Governments to introduce sanatory measures were strenuously opposed up to the close of the last session of parliament. The population of London was left at the mercy of any epidemic that should break out in any part of the world. During six weeks influenza interrupted business, afflicted hundreds of thousands by sickness, implanted fatal diseases in the breasts of many, and destroyed five thousand of the inhabitants! Are the men who opposed sanatory measures, and declared so loudly that the "City of London, for health, cleanliness, effective drainage, lighting, and for supply of water to its inhabitants, cannot be surpassed," satisfied? or will they fight against the public good till cholera drive away their best customers, and decimate their own families? Let us hope that, instead of pursuing such a course, they will assist in supplying London with the necessaries of city life, which they have enumerated, and which they now know are wanted.

Previous Epidemics of Influenza in England.

1728, an epidemic catarrh prevailed in the beginning of January.‡ 1727-9 was a period of some dearth. Wheat rose from 4s. to 8s. a

* The inquiry would be greatly facilitated if such meteorological returns as the Astronomer Royal now supplies, and weekly tables of the causes of death were published on a uniform plan in Paris, Berlin, Stockholm, Petersburg, Moscow, Vienna, Venice, Rome, Naples, Madrid, Lisbon, Cairo, Constantinople, and Calcutta.

† Asiatic cholera broke out in October 1848: it will be recollected that this passage was written in January, 1848.

‡ *Morbos tum ad iram Deorum immortalium relatos esse.*—CELSUS.

§ Arbutnot on Air, p. 193. Huxham de Aëre, An. 1728, 1733, 1743. The dates given in O.S. are converted into new style.

bushel. The winter of 1728 was almost as rigorous as that of 1709, when influenza broke out in Frederic's new city of Berlin.

1733.* Influenza invaded the northerly parts of Europe before the southerly; was in Saxony, November 26, and lasted in its vigour fourteen days; was earlier in Holland than in England; in Edinburgh than in London; where it lasted in its vigour from about the end of January for about three weeks; the bill from February 3-10, contained in all 1588 deaths, being higher than any since the Plague. This is equivalent to 5304 deaths in the present population (2100000); for the population in the bills then was about 650000. The mortality in 1733 was nearly double that in the epidemic of 1847. The deaths in the three years 1731-2-3 were 25262, 23358, 29233, according to the London bills. The price of wheat was low in the three years; 33s., 27s., and 28s. a quarter (of nine gallons) at Eton. The epidemic began in Paris about February 1, and lasted till the beginning of April. It raged in Naples, and Southern Italy, in March and April. It was four months in passing over these parts of Europe. Huxham, writing at Plymouth, says it seized upon rich and poor; scarce any escaped, old or young, strong or infirm, either in the town or country. It was in Cornwall in January; but attacked Plymouth on February 21. It was a Saturday, on which a very great number were, as it were, suddenly seized; the next day an infinite number felt it, and by the 29th of March everybody everywhere. Few died at Plymouth, and those were chiefly infants and old asthmatic people. In 1728 and 1733, a most vehement cough seized almost all the horses about a month or two before it attacked mankind.—*Huxham*. Under 9 Geo. I. (1722-3) the workhouse system came into operation, and many parishes farmed out their poor at low rates. Wars, which often give rise to epidemics, prevailed. The Persians, under Kouli-Khan, defeated the Turks in 1730.

1743.* Another epidemic raged through all Europe in 1742 and 1743; the disease obtained the name of influenza:—*per totam Europam hoc vere sub nomine Influenza*—are the words used by Huxham; * hence the learned Sprengel is mistaken when he says that the disease was first called influenza in 1762.† At the end of 1741 remarkable auroras were visible; in February, 1742, Influenza became epidemic in Saxony; it was at Milan in November, Venice in December, France in March, 1743. In the spring of 1743, it increased the funerals in London to 1448 in one week. The burials in London in the six years 1739-44, were 25432, 30811, 32169, 27483, 25200, 20606. The winter of 1739-40 was one of extraordinary severity and duration; coals were 2s. a bushel, water relatively dearer, bread was dear, and there were riots. Fever appears to have been epidemic; at the beginning of 1742 the assize

* Arbuthnot on Air, p. 193. Huxham de Aère, An. 1728, 1733, 1743. The dates given in O.S. are converted into new style.

† It was called *grippe*, (which is "whim," in French—and also suggests *gripper*, to grip, to seize,) in Paris during this epidemic; it had formerly been called *coqueluche*, ("a cowl,"—also "the reigning fancy,") and in some of the epidemics had been apparently confounded with whooping-cough. The epidemic has hitherto been the occasion of *bons mots* for our *spirituel* neighbours; it will be well worth the while of the public, even for the sake of change, to look at it seriously now, and to support the able men in France, who think that Paris would be all the merrier for being clean and healthy. In the sixteenth century, influenza was called "the new acquaintance" in Edinburgh, at the Court of Queen Mary.

of wheaten bread was 5½d., at the end 4½d. the quarter loaf. This was cheap at that time. The plague, swept off 50000 of the inhabitants of Messina in 1743.

The four years 1739-42 were passed in cruel destructive wars, waged by Nadir Shah, Kouli Khan, and the Turks in Asia; Frederick, Maria Theresa, Louis XV., in Germany; the Swedes, the Russians, and the Turks, in their own dominions; Spain and England, in America. Vernon and Wentworth were ordered to return in September 1742, after the disastrous expedition of Carthage; Anson was away on his fatal, but not in some respects unfortunate voyage round the world.

1758. The summer and autumn were warm and dry, the wind easterly, the epidemic influenza made its appearance in Edinburgh in September, was very general in October, at the end of which it began to decline. It did not appear at St. Andrews until October 10; nor at Inverness until the middle of the month. It was most fatal at Dundee, Perth and Glasgow.*

1762. Sir George Baker commences his relation by saying that on April 4th, three persons were attacked in the same house by the same disease; and that by April 24th it had spread through the whole of London. It attacked all indiscriminately, and was fatal to the aged, and particularly to those who were asthmatic. The burials in the bill for the week ending May 4, were 467, and for the weeks following 626, 750, 659, 516, 504. The burials in each of the 5 years 1760-4 were 19830, 21063, 26326, 26143, 23202. Influenza raged in Warsaw at the end of February, the deaths from 30-40 rose to 150 weekly; at Magdeburgh in April, Hamburg in the beginning of April, Alsace in June, in the Mediterranean among British sailors in July. It was more fatal in Venice than elsewhere. Paris was not visited. It was unknown in Britain until it invaded London; and in many cities, notably in Norwich, Lincoln, Leicester, and Exeter: those first attacked were strangers lately arrived from London. A dysentery followed in July, and is described by the same author.† The war with France ended in the peace of Fontainebleau, November 3.

1767. Dr. Heberden mentions an epidemic cold, resembling that of 1762 in London, in June and July, when it entirely ceased. It brought on anginas, pleurisies, and peripneumonias. Both sexes, and all ages were attacked. It occurred in other parts of England about the same time. The season preceding this was remarkably cold, while that in 1762 was remarkably warm.‡

1775. Dr. Fothergill states that the influenza appeared about the beginning of November. Some, in addition to the common symptoms, had diarrhoea. The mortality was trifling considering that so many persons were attacked. Horses and dogs were much affected by the complaint. Sir John Pringle had sore throat himself, and no cough. He met with similar cases. He heard of this complaint in France, Italy, and the low countries; and inferred, with Sir G. Baker, that the "sensible qualities of the air had most probably no share in producing this complaint." Dr. Heberden saw the first patient on October 28th; and at the end of three weeks few were attacked who had escaped it up

* Med. Obs., vol. ii., comm. by Dr. Whytt, Dr. Alves, Dr. Simpson.

† De Catarrho et de Dysenteria. auct. G. Baker, Lond. 1764.

‡ Med. Trans., vol. i. p. 437.

to that period. Two persons had eruptions like scarlatina. It "did not kill, but hastened the death of those who had other complaints." Sir George Baker saw it first about October 20th. Dr. Haygarth, of Chester, remarks that "it assumes a milder form in warm weather;" Dr. White, of York, that the epidemic "was checked by severe frost and snow."* The burials in London were 20514 in 1775, which was below the average of that period. This was towards the commencement of the American war.

1782.—This epidemic was reported on by a Committee of the College of Physicians, and by a great number of medical men all over the country.† Influenza, in September 1780, broke out in an East Indiaman sailing from Malacca to Canton, where it was raging violently at the same time that they had it on board. It broke out in the British army at Negapatam, in November 1781, (Coll. com.). It prevailed at Moscow in December 1781, and January 1782; at St. Petersburg, in February 1782. It was traced to Tobolski, but was supposed to have been brought from China. It reached Denmark at the end of April; many died of it at Copenhagen before May 11th. (Dr. Gray). It was in Scotland and Ireland later than in England (June); France, in June and July; Italy, in July and August; Portugal and Spain, in August and September; afterwards in America.—(Dr. Grant.) It was most prevalent in London in the 4th week in May. Dr. Grant thinks that it first prevailed in London; the Committee of the College are uncertain, and say that it did not observe any regular progression from any one point of the compass to another. They note, however, that it appeared at Newcastle-upon-Tyne at the end of April, and raged in May and June; in London, May 12—18; Norwich and Bury, the middle of May; Hadleigh, in May, but was worst in June; Kingston and Guildford, May 20th; Portsmouth in May; Oxford, the 3rd week of May; Chester, May 26; Plymouth, May 30th; and Cornwall (West), May 19th; York and Liverpool in June; Edinburgh in May; but not at Musselburgh, within five miles of Edinburgh, until June 9th; nor at Glasgow until June. It appeared earlier in towns than in villages: in villages earlier than in detached houses. Dr. Parr, of Exeter, states that the epidemic first appeared in Devon, May 23; was prevalent in June; disappeared in July; lasting in the county about seven weeks. Dr. Scott says it was first observed in Northumberland on June 1st; and then spread all over that county. It was fatal. In the beginning of June it affected the whole of the regiment in the castle of Edinburgh within a few days. The disease was almost universal in London, four-fifths of the people had it; few died, except the old and asthmatic. It seldom held any one more than a fortnight; some had three or four relapses. It generally went through whole families, seizing all simultaneously; in some instances, however, portions of families escaped. Of 700 boys at Christ's Hospital only fourteen had it, and those not severely. Three families, consisting of seventeen persons arrived on the same day at an hotel in the Adelphi all in perfect health; the next day they were all

* Med. Obs. and Enq., by a Soc. of Physicians in Lond., 1775. Queries were circulated by Dr. Fothergill.

† Medical Transactions, vol. iii., p. 54, and Medical Communications, vol. i. p. 2.

affected with symptoms of the reigning disease. In an hospital containing 170 persons more than 100 were attacked within twenty-four hours; few escaped afterwards.* A serjeant of the 10th Foot Grenadier Guards visited London on furlough, when the disease raged there. He returned in a few days to St. Albans affected; and communicated the disease to the people in whose house he had his billet. It was the first appearance of the disease there, and thence spread rapidly all over the town.† In this case much would of course depend on the care and judgment of the observer. Two Hanoverian regiments which arrived from Minorca, on July 23rd, at Plymouth, where influenza had ceased for ten or fourteen days, had nothing of the influenza before or after their arrival. On the other hand, a family who arrived in England from the West Indies, in September, was attacked by influenza in October. Carmichael Smith observed petechiæ and gangrene in two fatal cases; others terminated in malignant fever. Mr. Jacob met with erysipelas of head, abscesses in various parts, parotid and axillary, miliary eruption, pleurisy. In Cambridge it had a putrid type; with delirium. Some died suddenly, some had diarrhœa, (Dr. Macqueen). All agree in calling it a universal disease. It is worthy of remark, that in March, 1781, a distemper broke out among horned cattle; who were directed to be killed and buried, by order of Council, to prevent infection. The *Gazette* of August 27, 1782, contains dreadful details of the ravages of plague at Constantinople, Sir G. Baker observed that influenza was more fatal in France, Holland, and Germany, than in this island. The Bills in London were not much swollen. The burials in four weeks ending May 28, were 299, 307, 336, 390; in five weeks ending July 2nd, 385, 560, 473, 434, 296. Neither the mortality of London nor of England was increased in 1782, above the average of the period; the burials in London, 1780—83, were 20517, 20709, 17918, 19029; in all England, 191736, 195902, 187152, 188264. The inefficiency, however, which it caused may be conjectured, from its effects in the fleets, employed at the close of the American war.

On the 2nd of May, 1782, Admiral Kempenfelt sailed from Spithead with a squadron of ships under his command, of which the *Goliath* was one, whose crew was attacked with influenza on the 29th of that month; the rest were affected at different times; and so many of the men were rendered incapable of duty by this prevailing sickness that the whole squadron was obliged to return into port about the 2nd week in June, not having had any communication with any shore, and having solely cruised between Brest and the Lizard. The gallant Kempenfelt went down in the Royal George, August 30th of the same year.

About the 6th of May, Lord Howe sailed for the Dutch coast with a large fleet under his command: all were in perfect health towards the end of May. The disorder first appeared in the *Rippon*, and two days after in the *Princess Amelia*; other ships of the same fleet were affected with it at different periods, some indeed not until their return to Portsmouth about the 2nd week in June. This fleet also had no communication with the shore until their return to the Downs, on their way back to Portsmouth towards the 3rd and 4th of June.

* Med. Trans., vol. iii., p. 59.

† Dr. Hamilton, Mem. Med. Soc. of London, 1782.

In 1788 there was an epidemic. It raged in Paris in July, Vienna in November. Dr. Willan, in his Reports for 1797 and 1800, mentions epidemic catarrhs; which he says were improperly termed influenza by many practitioners—as they were not “infectious,” nor general.

In the beginning of December, 1799, influenza became epidemic in Moscow, and soon after that at Petersburg. In January, 1803, it was epidemic in Paris.—(*Ozanam.*)

1803. Dr. Andrew Duncan, Edinburgh, met with cases of influenza on February 10; it was very common in March—contagious—not very fatal. He says it was common in London, February 3; its progress from Paris to London, London to Edinburgh, and from Edinburgh, is a proof that it is contagious. Dr. John Scott says that it appeared at the end of March in the Isle of Man; it attacked patients already confined to their bed; it promoted phthisis, induced miscarriage. At Bristol, Dr. Carrick says that it was provoked by exposure to cold and sharp east winds, prevalent at that time—March. There had been a scarcity in 1800 and 1801; a famine and typhus followed. The annual deaths in London, 1799—1804, were 18134, 23068, 19374, 19379, (19582), 17038. The annual rate of mortality among females in all England was 2.62; 2.52; 2.51; 2.19 in the four years 1801—4; after the year 1803 a remarkable decline in the general mortality of the country took place; and this was only disturbed by higher rates of mortality than 2.2 per cent. in 1807, 1808, 1810, 1825, 1826, until 1831.

Bateman in his Reports, extending from 1804 to 1816, noticed, in the three months ending February 1813, cases resembling the commencement of the epidemic influenza. The winter of 1814 was the severest since that of 1794—5; a dense fog in December 27, 1813 was followed by fog, snow, and frost in January 1814, a partial thaw occurred, then the Thames was frozen over in February, and great multitudes were entertained in booths on the Thames. On many days the temperature was as low as 15°. The frost suddenly disappeared in March 20. About 200 of the dispensary cases assumed the form of acute catarrh; many were entered as catarrhal fever, 50 put on the character of the most active pneumonia.*

1831. An influenza epidemic began in London about the middle of May, and continued during June and a part of July, under very hot though damp weather.† The burials in the London Bills of the parish clerks (now become very defective) were 21645 and 25337 in the two years 1830, 1831; the mortality in the whole kingdom was 2.09, and 2.25 per cent. in the same years. The Polish insurrection broke out in November, 1830; Warsaw capitulated in December, 1831. Cholera raged in the armies in 1831; and was preceded by influenza. Cholera broke out as an epidemic at Sunderland, October 1831; the deaths of 6 persons were ascribed to it in the London Bill for the week ending February 14, 1832. Cholera raged with considerable violence in March and April for 9 weeks, subsided in May and June, and broke out a second time at the end of June, raging with considerable violence for 14 weeks, through July, August, and September. No cases were returned in February, March, April, May, 1833.

* Bateman's Reports, pp. 212, 226, 232.

† Medical Notes, by H. Holland M.D. 2nd ed., . 200.

1833. “Influenza” broke out as an epidemic in the spring. The word first found its way into the Bills of the parish clerks for April 30, 1833. The burials returned for the 8 weeks ending April 9, to May 28 were 321, 587, 796, 961, 940, 874, 575, 311. The cause of the excess in the mortality was influenza; to which however only 89 deaths were directly ascribed. “It spread over every part of Great Britain and Ireland during the spring of 1833, after having previously appeared in Russia and the northern parts of Germany, inflicting great mortality in every part of its course.* Cholera broke out in London again in July, epidemically, and prevailed through August and September.

1837. Influenza was epidemic during the month of December 1836, in Russia, Sweden and Denmark. In Copenhagen 30000 persons suffered from the disease at one time—(*Dr. Otto*). In Scotland it was observed earlier than in England. It had been prevalent a fortnight in London before it reached Brighton. It appeared also in Lancashire, Cheshire, and Gloucestershire, from 7 to 14 days later than in London. Though very general some places in the neighbourhood of infected places seemingly escaped. Dr. Holland, from whom this account is taken, goes on to say:—

“The epidemic showed itself in Paris about a month later than in London, having previously appeared at Calais and other intervening places. I saw patients who, on their journey from Paris to London, had come upon an infected town, and been suddenly seized with the malady. At Paris it was stated to have affected at least half the population, but seemingly with less mortality than in London.(?) The epidemic spread gradually over other parts of France. About the end of February it affected the northern coast of Spain, and was the more conspicuously there from its influence on the events of the civil war, then raging in Biscay and Navarre. Almost at the same time it appeared at Lisbon—a new occurrence in that city—spreading successively to the several towns which lie upon the Tagus, even to the Spanish frontier. Dr. Leitao, who has narrated its progress in Portugal, tries to show that it is contagious, and was brought directly from England to the British squadron in the Tagus, in the vessels of which it first appeared. The same idea prevailed in Biscay as to its manner of importation. The disease reached Madrid about the end of March, and prevailed there the whole of April.

“In Germany the influenza appeared at Berlin in January, affected Dresden somewhat later, and Vienna and Munich a fortnight after Dresden. At Hamburg, where it appeared in the first days of January, Dr. Rothenburgh states, that more than half the population was attacked. I do not possess any information as to its progress in Italy. In Malta it first showed itself about the 1st of June.

“A remarkable fact is, that an epidemic, having the characters of the influenza of the northern hemisphere, prevailed at Sydney and the Cape of Good Hope in the latter part of 1836; the time thus corresponding with its earliest appearance in the north of Europe, though under a date of season wholly different. Sir John Herschel informs me, that the weather was warm and apparently genial, at the time when almost every individual in the Cape district was suffering under the epidemic.

* Medical Notes by H. Holland, M.D., 2nd ed., p. 196.

The malady spread up the country as far as Gnadenthal, producing there considerable mortality in the Hottentot population.*

Cholera was epidemic in Germany, but not in England during 1837. Typhus was epidemic in England, and the mortality of females in 1837,† through the country, was 2.52; or considerably higher than it had ever been since 1801. The mortality in the year 1832, when cholera was epidemic, was only 2.42 per cent.; in 1833, when cholera and influenza were epidemic, it was 2.30 per cent. The new system of registration came into operation in July, 1837; and the mortality of females never exceeded 2.10 in any of the eight years 1838—45; except in 1840, when it was 2.20, and in 1838 when it was 2.14 per cent. Influenza was slightly epidemic from February 20th to April 24th, 1841; but the weekly deaths by the new tables never exceeded 1079, and ranged from 780 to 1079 during that time. Influenza prevailed to a slight extent at the end of 1846 and the beginning of 1847.

Deaths from all causes returned in each of five series of Nine Weeks when Influenza was Epidemic, and most fatal.

INFLUENZA EPIDEMICS.					
No. of Week.	1733	1743	1833	1837	1847
1	529	478	321	298	1098
2	531	579	587	284	1086
3	783	1013	796	477	1676
4	1588	1448	961	871	2454
5	1166	1026	940	860	2416
6	828	629	874	598	1946
7	591	537	575	558	1847
8	613	500	311	350	1599
9	507	423	479	321	1364
Weekly Average Return	502	501	429	429	980

INFLUENZA EPIDEMICS.					
No. of Week.	1733	1743	1833	1837	1847
1	1767	1561	634	486	1098
2	1773	1891	1231	605	1086
3	2615	3309	1696	1016	1676
4	5304	4730	2047	1856	2454
5	3894	3351	3003	1832	2416
6	2097	2034	1862	1274	1946
7	1974	1754	1225	1189	1247
8	2047	1633	663	746	1599
9	1693	1382	1021	684	1364
Weekly Average Return	1677	1636	914	914	980

Total Deaths in 9 Weeks	23164	21665	12452	9688	14886
Number of Deaths that would have happened if the average Mortality had prevailed in the 9 weeks	15093	14724	8226	8226	8820
Difference	8071	6941	4226	1462	6066

Huxham and Arbuthnot described the great epidemic influenza of 1733; I take the following passage from Arbuthnot, as the account is in a popular style:—

“ XI. There have been of late two remarkable instances of the influence of the air in producing an epidemical disease, perhaps over the greatest part of the surface of the earth; the first happened in the year 1728, the last in the latter end of the year 1732, and beginning of 1733; which being the more recent and remarkable, I shall give a short description of it, till a more particular one can be procured

* Medical Notes, by H. Holland, M.D., pp. 198-9.

† The mortality of females is taken in these comparisons extending from 1801-37. The male population—on account of the military—could not be so accurately determined.

from the collected memoirs of the several countries which it invaded, of which I have seen only a few.

“ XII. The previous constitution of the air was in England, and in the greatest part of Europe, a great drought, which may be inferred from the failure of the springs, in the abatement of the fresh water in all its usual currents and reservoirs, which are the best measure of the quantity of moisture falling from the clouds. What is most generally taken notice of in the accounts I have seen from Germany, France, and some other places, was, that the air in the beginning of winter, especially in November, was more than usually filled with thick and frequent fogs, the matter of which was not precipitated upon the earth in rain, snow, or any other fruits of the air. Fogs are so usual in this country in November, that there was nothing particular observed about them that I know; but there was hardly anything fell from the clouds during the month of November, except a very small quantity of snow, attended with a frost of no long duration; and this was all the winter we had. In the northern parts of France there was a very small quantity of snow, which lasted from their 15th and our 4th of November, till after Christmas. This was succeeded by southerly winds and stinking fogs, during which there was observed by some chirurgeons a great disposition in wounds to mortify.* Both before and during the continuance of the disease in England, the air was warm, beyond the usual temper of the season, with great quantity of sulphureous vapours, producing great storms of wind from the south-west, and sometimes lightning without thunder.

“ XIII. As to the times of the invasion of the disease, they were different in different countries. It invaded Saxony and the neighbouring countries in Germany about the 15th of November, and lasted in its vigour till the 29th of the same month. It was earlier in Holland than in England; earlier in Edinburgh than in London. It was in New England before it attacked Britain; in London before it reached some other places westward, as Oxford, Bath, &c., and as far as I can collect from accounts, it invaded the northerly parts of Europe before the southerly; it lasted in its vigour in London from about the middle of January, 1733, for about three weeks;†—the bill of mortality from Tuesday the 23rd to Tuesday the 30th of January contained in all 1588, being higher than any time since the Plague. It began in Paris about the beginning of their February, or the 21st of our January, and lasted till the beginning of their April, or the 21st of our March, and I think its duration was longest in the southerly countries. It raged in Naples and the southerly parts of Italy in our March. The disease, in travelling from place to place, did not observe the direction, but went often contrary to the course of the winds.

“ XIV. The uniformity of the symptoms of the disease in every place was most remarkable. A small rigor or chilliness succeeded with a fever of a duration (in such as recovered) seldom above three days. This fever was attended with a headache, sometimes pains in the back, thirst in no great degree, a catarrh or thin defluxion, occasioning sneezing, a coryza, or running at the nose, a cough, with expectoration

* The late King of Denmark, it is said, had phlebitis; is not there some liability to this disease during an influenza epidemic?

† All the dates are in old style: January 15, 1732, is therefore January 26, 1733, new style, &c. The French adopted the Gregorian reform of the calendar in 1582.

of a thin pituite at first, and afterwards of a viscous matter, in which if there was observed a clear oily matter, it proved generally the case to be mortal, for this clear matter was purulent. These were the most common symptoms. But a great many during that season were affected with a spitting of blood, pleurisies, and inflammation of the lungs, dangerous and often mortal—in some places, particularly in France, the fever after six or seven days ended in miliary eruptions; in Holland often in imposthumations of the throat; in all the blood was sisy, and everywhere the disease was fatal to aged people. What was observable was, that the fever left a debility and dejection of appetite and spirits, much more than in proportion to its strength or duration, and the cough out-lasting the fever in some more than six weeks or two months.

“XV. There was, during the whole season, a great run of hysterical, hypochondriacal, and nervous distempers; in short, all the symptoms of relaxation. These symptoms were so high in some as to produce a sort of fatuity or madness, in which, for some hours together, they would be seized with a wandering of their senses, mistaking their common affairs; at the same they had not any great degree of fever to confine them to their beds; but in several who were thus affected, the urine was observed often to change from pale to turbid alternately, so that there was some fever, though I did not observe nor hear that the bark was effectual, but the saline febrifuge draughts had generally a most surprisingly good effect. Since this disease has been over, the air has continued to be particularly noxious in diseases which affect the lungs, and for that reason occasioning a great and unusual mortality of the measles, at the rate of forty in the week, from which one has reason to expect some specialties in the diseases of the succeeding season.

“XVI. The remedies commonly successful in this epidemical catarrhus fever, were bleeding, sweating, promoted by watery diaphoretics, blisters, and the common pectoral medicines; and what I observed before, febrifuge draughts of salt of wormwood, juice of lemon, &c. I have not particulars enough to enable me to enter into the etiology of this distemper.

“XVII. It was a matter of fact, that there was a previous ill constitution of the air noxious to animal bodies. In autumn, and long afterwards, a madness among dogs; the horses were seized with the catarrh before mankind; and a gentleman averred to me, that some birds, particularly sparrows, left the place where he was during the sickness.

“XVIII. The previous great drought as has been observed before must have been particularly hurtful to mankind; great droughts exert their effects after the surface of the earth is again opened by moisture; and the perspiration of the ground, which was long suppressed is suddenly restored. It is probable that the earth then emits several new effluvia hurtful to human bodies; that this appeared to be the case by the thick and stinking fogs which succeeded the rain that had fallen before.

“XIX. It is likewise evident that these effluvia were not of any particular or mineral nature, because they were of a substance that was common to every part of the surface of the earth; and therefore one may conclude that they were watery exhalations, or at least such mixed with other exhalable substances that are common to every spot of ground.

“XX. Lastly it is agreeable to experience that watery effluvia are hurtful to the glands of the windpipe and the lungs, and productive of catarrhs.”—*Arbuthnot upon the Air, and its effect upon the Human Body*, 1733, chap. vii., page 193.

With this extract I close my Report on the Marriages, Births, and Deaths of the Year 1847.

I have the honor to be,

Sir,

Your faithful Servant,

GEORGE GRAHAM,

Registrar-General.

xlvi *Annual Rate of Mortality per Cent., in Districts of London.*

Annual Rate of Mortality per Cent., in the Districts of London, deduced from the Deaths in the last 6 Weeks of the Year 1847, compared with the Rate of Mortality of the 7 Years 1838-44.

DISTRICTS.	Annual Mortality per Cent. during the 7 Years 1838-44.†	Annual Mortality per Cent. during 6 Weeks 1847.‡	DISTRICTS.	Annual Mortality per Cent. during the 7 Years 1838-44.	Annual Mortality per Cent. during 6 Weeks 1847.
London	2.522	4.579	Shoreditch	2.508	4.953
Kensington and Chelsea	2.337	*3.935	Bethnal Green	2.387	4.990
St. George, Hanover Square	1.816	*3.204	Whitechapel	2.904	*6.630
Westminster	2.598	*5.172	St. George-in-the-East	2.887	6.881
St. Martin-in-the-Fields	2.400	*3.694	Stepney	2.417	4.019
St. James, Westminster	2.117	3.491	Poplar	2.408	3.858
Marylebone	2.272	4.238	St. Saviour and St. Olave	2.847	*7.537
Panaras, with Hampstead	2.222	*4.562	Bermondsey	2.639	5.363
Islington	1.996	4.196	St. George, Southwark	2.669	5.492
Hackney	1.969	3.523	Newington	2.320	4.848
St. Giles	2.690	4.709	Lambeth	2.328	3.866
Strand	2.417	*3.878	Camberwell	1.971	*3.872
Holborn	2.656	5.595	Rotherhithe	2.767	6.319
Clerkenwell	2.418	4.117	Greenwich	2.382	*4.852
St. Luke	2.761	*4.100	Wandsworth	1.975	2.948
East and West London	2.673	*6.419	Lewisham	1.726	2.504
City of London Union	2.137	*3.872			

* These Districts contain Hospitals; or the Workhouses interfere with the result. The Workhouses of the City of London District are in Peckham, Stepney, and Norwood, &c.
 † The Mortality here given is the Mean of the Mortality of Males and Females.
 ‡ No correction has been made for the Deaths in Hospitals in this calculation.

Comparative Annual Rate of Mortality per Cent., in the Healthiest and Unhealthiest Districts of London, during the 7 Years 1838-44, and the last 6 Weeks of 1847.

Annual Rate of Mortality in the least Unhealthy Districts.				Annual Rate of Mortality in the Unhealthiest Districts.			
DISTRICTS.	During the 7 Years 1838-44.	During the last 6 Weeks of 1847.	Excess in the 6 Weeks of 1847.	DISTRICTS.	During the 7 Years 1838-44.	During the last 6 Weeks of 1847.	Excess in the 6 Weeks of 1847.
Lewisham	1.726	*2.504	.778	Holborn	2.656	5.595	2.939
Hackney	1.969	3.523	1.554	Bermondsey	2.639	5.363	2.724
Wandsworth	1.975	2.948	.973	Rotherhithe	2.767	6.319	3.552
Islington	1.996	4.196	2.200	St. Giles	2.690	4.709	2.019
St. James, West- } minster }	2.117	3.491	1.374	St. George, South- } wark }	2.669	5.492	2.823
Newington, (Surrey)	2.320	4.848	2.528	St. George-in-the-East	2.887	†6.881	3.994
Mean	2.017	3.585	1.568	Mean	2.718	5.727	3.009
Corrected for Deaths in Hospitals	2.017	3.803	1.786	Mean	2.718	6.075	3.357

* Lewisham corrected for Deaths in Hospitals, 2.656; it is probable, however, that few persons belonging to Lewisham District died in the London Hospitals.
 † St. George-in-the-East corrected for Deaths in Hospitals, 7.299.