

NINTH
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.

1849.

CONTENTS.

	PAGE.
REPORT	
Marriages, Births, Deaths, and Emigrants from the United Kingdom, 1838-46	1
Proportion of Marriages, Births, and Deaths to 100000 Persons living, 1839-46	1
MARRIAGES, &c.	
Marriages, Births, and Deaths in each Quarter, 1837-46	2
Number of Persons Married, registered in each year from 1756-1846	3
Marriages and Deaths registered in each Quarter of 1846, compared with 1845.	4
Marriages in 12 Town Districts in each Year, 1842-6	5
State of the Country in the 5 Years 1842-6	5-18
<i>The Number of Marriages and Deaths in the several years 1842-6 compared with the Number of Criminals—the Amount expended on the Relief of the Poor—the Deposits in Savings Banks—the Prices of Wheat and Meat—the Supplies of Coffee, Tea, Sugar—the Consumption of Malt—the Value of Imports and Exports—the Imports of Cotton, Flax, Hemp, Wool, Silk—the Expenditure on Railways—the Bank and current Rates of Interest—the State of the Circulation—the Average Price of Consols—the State of Commerce and Trade, as described by the Witnesses examined before the Committees of the House of Commons and of the House of Lords on Commercial Distress in 1848—Political Events—Illustration of the way in which the Marriage Registers indicate and measure the “prosperity” of the Country. Commercial Crisis in Birmingham</i>	5-18
Marriages in the District of Birmingham, Quarter ending the last day of March, 1839-48	13
Ditto ditto ditto during the Years 1785-90; 1821-6; 1842-7	14
Tables of Marriages, Births, Deaths, and Population in Birmingham during several Years	16-17
Tables of Abstracts of Marriages registered in England during the Years 1838-46, exhibiting some of the principal facts connected with them	18-19
BIRTHS.	
Births registered, 1842-6.	19
Number of Legitimate and Illegitimate Children born, likewise the number of Married and Unmarried Women who gave Birth to one, two, three, and four living Children during the Year 1846, &c.	19-20
DEATHS.	
Deaths registered in the several Quarters of the 9 Years, 1838-46	20
State of the Public Health during the Quarter ending March, 1846.	20-22
Deaths registered in 115 Districts of England in each of the March Quarters 1838-46, showing the numbers above and below the average Mortality, allowing for increase of Population.	21
Greenwich Meteorological Table for Quarters ending March, 1844-5-6, and Deaths in London from all Causes, exclusive of Violent and Sudden Deaths, during each week of March Quarters, 1845-6	22
State of the Public Health during the Quarter ending June, 1846.	22-24
Deaths registered in 115 Districts of England in each of the June Quarters 1839-46, showing the numbers above and below the average	23
Greenwich Meteorological Table for Quarters ending June, 1844-5-6, and Deaths in London from all Causes, exclusive of Violent and Sudden Deaths, during each week of June Quarters, 1845-6	24
State of the Public Health during the Quarter ending September, 1846.	24-30
Deaths registered in 115 Districts of England in each of the September Quarters, 1838-46, showing the numbers above and below the average	25

assumption that the population increased at the same rate during the 8 years 1839-46, as during the years 1831-41.

The increase of the population during the years 1801-41, has been regular; and it is not probable that changes in the rate of increase will affect the rate of mortality, birth, or marriage, to any considerable extent. In some countries the excess of births over deaths indicates the exact increase of the population; but in England, through an omission in the Registration Act, all the births are not registered: and there is besides a constant movement of the population: emigrants and other persons are every year leaving the country, while the Irish, the Scotch, and foreigners, are entering and settling in this division of the kingdom. With so many unknown elements the equation of increase becomes indeterminate; and as near an approximation to the true rate of increase is obtained by using the rate which prevailed in the years 1831-41, as by any other method that can be devised.

The presentation of my last Report was delayed to enable me to insert

(c)

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	47558		
	September	27288	123296	82339	40957		
	December	35629	124732	84328	40404		
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		
9 Years 1838-46		1150693	4672795	3177856	1494939		
Two last quarters of 1837		58479	164116	148701	15415		
9½ Years 1837½-46		1209172	4836911	3326557	1510354		
Persons Married		2418344	—	—	—		

a series of elaborate calculations, based on the population returns, which it was necessary to re-arrange, and the deaths in 7 years; showing the relative rate of mortality among males and females of different ages in half the divisions, counties, and districts, of England. This series exhibits more clearly perhaps than anything else can the sanitary state of the several parts of the country: it is completed in the Appendix to the present Report, which also contains an account of the population of each district and sub-district in the years 1801, 1811, 1821, 1831, and 1841, derived from a re-arrangement and careful collation of all the census returns.

Marriages.—In my Eighth Report, which, from the circumstances above referred to, has only recently been presented to Parliament, I analyzed the fluctuations in the marriages, and the causes which appeared to affect those fluctuations, in the 90 years, 1756-1845. To that analysis I must refer in order to avoid repetition.* I shall quote one passage, as the returns of 1846 form a part of the remarkable series which commenced in 1842:—

“The fluctuation in the marriages of a country expresses the views which the great body of the people take of their prospects in the world; and judged by this test they were never more sanguine than in the years 1844 and 1845. The *annual* average price of wheat fell from 71s. a quarter in 1839, to 66s., 64s., and 57s. through the 3 subsequent years, and remained steadily at 50s. and 51s. through 1843, 1844, and 1845.

“The 3 per cent. Consols rose from 89 in 1841 to 94 in 1842, to 96 in 1843, and to 100 in 1844, when the 3½ per cents. were reduced. In 1842, 3, 4, 5, the great changes in the tariff were effected. Commerce revived from the languor under which it suffered in 1842; enterprise awoke, money was called for, and labour was set in motion on all sides with the real and imaginary capital current. Great numbers of persons were engaged on the railways, a new field of labour on which the Chancellor of the Exchequer has stated that 6 million *l.* were expended in 1844, and 14 million *l.* in 1845.

“Under these circumstances 50000 more persons married in 1845 than in 1842. Few examples occur of such an increase in the marriages in England since the year 1756, as seen in the Table (d),

TABLE (d)—Number of Persons Married, Registered in each Year, from 1756 to 1846.

Yrs.	Persons Married.	Yrs.	Persons Married.	Yrs.	Persons Married.	Yrs.	Persons Married.	Yrs.	Persons Married.	Yrs.	Persons Married.
1756	101944	1772	120674	1787	152896	1802	180792	1817	176468	1832	233208
1757	96600	1773	119538	1788	140064	1803	188758	1818	185558	1833	240254
1758	101344	1774	121024	1789	141392	1804	171476	1819	191142	1834	243768
1759	111074	1775	124946	1790	141296	1805	159172	1820	193666	1835	239196
1760	115696	1776	130924	1791	145180	1806	161508	1821	201736	1836	241698
1761	116202	1777	130040	1792	149838	1807	167846	1822	197756	1837	228748
1762	113086	1778	125454	1793	145760	1808	164496	1823	203336	1838	236134
1763	124466	1779	127342	1794	143594	1809	166738	1824	209446	1839	246332
1764	126620	1780	128618	1795	137678	1810	168940	1825	220856	1840	245330
1765	118454	1781	127536	1796	146214	1811	172778	1826	209882	1841	244992
1766	114086	1782	126142	1797	149994	1812	164132	1827	214260	1842	237650
1767	110648	1783	132874	1798	158954	1813	167720	1828	222348	1843	247636
1768	116662	1784	137870	1799	155114	1814	185608	1829	208632	1844	264498
1769	123650	1785	143018	1800	139702	1815	199888	1830	215438	1845	287486
1770	125386	1786	137984	1801	134576	1816	183892	1831	224588	1846	291328
1771	121224										

* Eighth Annual Report, presented to both Houses of Parliament by command of Her Majesty, 1848, pp. ix. to xxvi.

“ which shows the number of persons married, or double the number of “ marriages returned every year since 1756.”

The numbers of persons married in the 5 years, 1842-6, were 237650, 247636, 264498, 287486, 291328; the excess in 1846 over the numbers married in 1842 was 53678, which is an increase of nearly 23 per cent., or, correcting for increase of population, 16 per cent. The number of women living between the ages of 15 and 45 was 3812651 in 1841; and judging from the analogy of other countries, about 2 million of the numbers were unmarried. It is evident that the true tendency to marriage is expressed by the proportion the marriages in a year bear to the unmarried women in that year. But the marriages in 1844 and 1845 were much above the average; the proportion of unmarried women left in 1846 would therefore be less than the average. Consequently the fact that to 100000 persons (50000 males and 50000 females) of all ages living, there were 1713 persons married in each of the years 1845 and 1846, implies that the disposition to marry was rather greater in the latter than in the former year. On examining the returns more in detail it will be seen that the excess of marriages occurred in the first half of the year 1846; in the last quarter there was an actual decrease in the number of marriages. At the same time there was a large increase in the number of deaths. It will be observed that the increase of the mortality began in the quarter ending June 30th; and I believe that the two series of returns give a true view of the condition and prospects of the people in 1845 and 1846. (e, f)

(e)

Years.	Marriages in the Quarters ending the last day of				Marriages in the Year.
	March.	June.	Sept.	Dec.	
1845	29551	35300	35003	43889	143743
1846	31417	37111	35070	42066	145664
Excess in 1846 -	+1866	+1811	+67	-1823	+1921

Years.	Deaths Registered in the Quarters ending the last day of				Year.
	March.	June.	Sept.	Dec.	
1845	104664	89149	74872	80681	349366
1846	89484	90230	101664	108937	390315
Excess of 1846 over 1845 -	-15180	+1081	+26792	+28256	+40949

(f)

Years.	Number of Marriages Registered in the Districts of											
	London.	Portsea Island.	Plymouth, East Stonehouse and Stoke Damarel.	Bristol.	Bath.	Birmingham and Aston.	Manchester and Salford.	Liverpool.	Leeds and Hunslet.	Newcastle-on-Tyne.	Hull.	York.
1842	17826	640	1247	1236	624	1379	3664	3048	1410	891	506	446
1843	18669	696	1336	1225	690	1533	4204	3311	1631	893	517	446
1844	20126	673	1230	1178	644	1672	4900	3473	1751	926	584	434
1845	21770	791	1388	1357	680	1930	5376	4243	1881	1110	624	527
1846	22272	816	1237	1373	583	2165	5292	3912	1850	1161	604	529

The marriages in Yorkshire were 14963 in 1845 and 14742 in 1846; in Lancashire 20559 in 1845, and 19810 in 1846.

Looking at 12 of the principal towns, Birmingham was the only place in which the marriages were considerably more numerous in 1846 than in 1845.

The numbers of criminals committed in England in the 5 years 1842-6, were 31309, 29591, 26542, 24303, and 25107. The fiats of bankruptcy issued in the 5 years were 1655, 1259, 1099, 1160, 1532. As the marriages increased the crimes decreased progressively down to 1845; they began to rise in 1846 as the marriages fell off. The Poor Law accounts end, unfortunately, at Lady-day; so that the results cannot be conveniently compared with other returns. The number of persons relieved in the two years ending Lady-day 1846 and 1847, were 1332089 and 1721350; and the expenditure in maintenance and out-relief was 4011920*l.* and 4367055*l.* The numbers of adult able-bodied paupers relieved in the quarters ending Lady-day 1846 and 1847, were 382417 and 562355. There are no returns for the intervening quarters of 1846. The money received by the savings' banks in the three years 1844-6, were (excluding Friendly Societies,) 1798165*l.*, 1427581*l.*, 1236621*l.*; the money paid out was 700819*l.*, 1424346*l.*, 1021450*l.**

I will enumerate as rapidly as possible the circumstances and the public events which affected the prospects of the people in 1846.† The potato disease first appeared in 1845. The effects were adverted to by Her Majesty in opening Parliament (January 19, 1846). “ I have to lament that, in consequence of a failure of the potato crop in several “ parts of the United Kingdom, there will be a deficient supply of an “ article of food which forms the chief subsistence of great numbers “ of my people.” The winter of 1845-6 was mild, and an abundance of green vegetables supplied, to a certain extent, the partial loss of the potato. In the absence of a system of agricultural statistics in this country it is impossible to estimate the extent of the failure of the potato or corn crop; but it is tolerably certain that the produce of wheat in 1846 was below that of the three previous years. The average price of wheat, which was 45*s.* or 4*cs.* a quarter during the first 22 weeks of 1845, rose progressively to 60*s.* in October or November, when some relaxation in the corn laws was anticipated: prices fell, and ranged from 54*s.* to 57*s.* in the first 20 weeks of 1846. The new corn law received the Royal Assent on June 26, and the average price fell to 45*s.* for the weeks ending August 8 and 15. The spread of the potato blight was rapid and general. The worst anticipations entertained by the Government in 1845 were realized; and none of the provident precautions taken by Parliament to facilitate the supply of food for the population of these islands proved unnecessary. The wheat crop, though not abund-

* The Criminal Tables prepared at the Home Office by Mr. Redgrave for 1846, page 5; Fourteenth Poor Law Report, page 85; Tables of Revenue, Part XVI., Sec. A, page 11.

† The returns referred to have been all made to Parliament, and will be found with others on the same subjects, in the Tables of the Board of Trade, Mr. Tooke's 4th volume on Prices, an able Digest of Facts by Mr. Danson, read before the London Statistical Society, Journal, vol. xi., p. 101: or the valuable Appendix to the Report of the Committee of the House of Commons on Commercial Distress.

ant, was of good quality; but the weekly average price ranged in the last 11 weeks of 1846 from 60s. to 62s. The price of meat was above the average in 1846; tea, coffee, sugar, and other articles of common consumption had been rendered cheap by extended competition or alterations in the tariff. The coffee imported into the United Kingdom in the five years 1842-6 was 41, 39, 47, 50, and 52 million lbs.; the tea entered for home consumption, 37, 40, 41, 44, 47 million lbs.; the raw sugar for home consumption, 433, 451, 464, 547, 585 million lbs.

The number of quarters of malt on which duty was paid in England, may be inferred from the gross receipts of the Excise for that article;* which, in the five years 1842-6, were 3937100l., 4187400l., 4285900l., 4316200l., 4500700l.† The increase in the duty was 14 per cent. from 1842 to 1846, and the increase from 1845 to 1846 exceeded four per cent. The quantities of wheat of home growth, returned as sold in England and Wales in the markets inspected for the official averages, have been recently published.‡ Taking the quantity 100000 quarters for unity, the relative quantities sold in the four years from 1843 to 1846 were 53, 55, 67, 60; and the quantities of imported wheat and wheat flour (stated as wheat), entered for home consumption in the same years were as 10, 10, 3, 30; when the average annual prices were 50s., 51s., 51s. 55s.§ The average annual importation of wheat entered for consumption in the six harvest years Sept. 1832-8 was 127151 quarters; in the six harvest years 1838-44 it was 2374372 quarters.|| In the first period, the greatest quantity imported in a year was, 329962 in 1832-3; the least 27707 quarters, in 1835-6: in the second period, the greatest quantity imported in a year was 3560957 quarters, in 1838-9; the least quantity, 1606912 quarters, in 1843-4. The average price was 50s. a-quarter in the harvest years 1832-8, and 62s. in 1838-44. The quantity of wheat imported (476190 quarters) in the harvest year 1844-5, though not considerable, was more than had been imported in any year from 1832 to 1838; the importation (2732134 quarters) in 1845-6 was less than was imported in the year 1838-9, and in 1841-2.

The quantity of food which a country imports does not depend merely on its wants; it depends on its ability to pay for food from abroad; the ability itself varying with the people's powers of production and the prices of commodities in the foreign market. A purely agricultural ill-cultivated country, such as England was in the middle ages, and such as parts of Ireland and France are, suffers more from the failure of a crop than a population like that of England now, whose income is derived from the several sources of agriculture, manufactures, and commerce. It is not the less true that the partial destruction of the crops is an immense loss to the country. In the

* The duty on malt has, since 1840, been 2s. 7d. a bushel, plus 5 per cent.

† Tables of Revenue, Part XVI., Sec. A., p. 33. In another part of the return it is stated that the number of bushels of malt on which duty was charged was nearly 31, 31, 32, 31, and 36 million bushels. Both returns agree in throwing a considerable excess on 1846.

‡ Tables of Revenue, &c., Part XVI., Sec. A., 1846, p. 66, published 1848.

§ Pence are omitted throughout.

|| Mr. Canning's Act, regulating the importation of corn, passed in 1828; Sir Robert Peel's first Act in 1842, his second in 1846.

harvest year 1844-5, the bread grown in the kingdom was nearly sufficient; and it was exchanged by the producers for money, labour, or commodities, with the home population. In 1845-6 the wheat alone imported must, at the average price in England, have cost the consumers more than 7 million *l.*, which, after deducting freight, expenses, and the profits of dealers, went in money and commodities to the foreigner.

If the payment came from the unreplaced capital of the country it was a pure loss; but it is quite possible that a part of it was reproduced by the increased industry of the people. It can never, however, on either supposition, be a matter of indifference whether the country produces its own food. In favourable circumstances, agriculture, employing animals, plants, the earth, the atmosphere—produces almost as much bread, vegetables, and meat as 28 million people consume. Independently of all consideration of price, this blessing of abundance is in different degrees shared by all. Again, when, from the state of the weather, or from the diseases to which plants, as well as animals, are liable, the produce of food is scanty, or a great portion of it is destroyed, part of the labour of the people, as well as the productive power of the earth, the air, and grain-yielding plants is annihilated; and can only be replaced effectually by the accumulations of the past, or the excesses of the coming year. The loss is real; though the elevation of the price is a compensation to the grower for diminished quantity, and the importation mitigates the severity of the pressure on the consumer.

The extent of the failure of the potato crop became evident in August;* Ireland was thrown into a state of panic; and in England, as the year advanced, the pressure on the people must have been more severe, than the price, or the importation of wheat implies; for the obvious reason that the lower classes, who fed on potatoes, could not purchase wheat in any quantity. On October 1st, by Order in Council, a Form of Prayer was issued to be said in churches "in this time of scarcity."

The official value of imports into the United Kingdom in the 5 years, 1842-6, was 65, 70, 75, 85, 76 million *l.*; of exports, 114, 132, 146, 151, and 149 million *l.* The declared value of the produce and manufactures of the United Kingdom exported in the 5 years was, 47, 52, 59, 60, 58 million *l.* Both the imports and exports began to decline in 1846. The decrease in the quantity of cotton-wool imported in 1846 was remarkable: the importation in the 5 years 1842-6 was 532, 673, 646, 722, and 468 million lbs. The price of cotton rose at the close of the year. The imports of flax, hemp, sheep's wool, and silk rose rapidly from 1842 to 1845; in 1846, there was a manifest decline. The diminution in the supply of the raw materials in 1846, implies some depression of the commerce and great manufactures of the country. Expenditure and employment on the railways increased rapidly in 1846. The Chancellor of the Exchequer stated on November 26, 1847, in introducing the Bill for regulating Railway Companies, that in the 5 years 1842-6, the capital authorized to be raised was 6, 4½, 18, 59, and

* Mr. Cotton, however, says, in his evidence, that it was late in 1846 that the Directors of the Bank of England became acquainted with the real deficiency of the harvest and the failure of the potato crop. He mentions the end of October.—Committee of House of Commons on Commercial Distress, 1848. Q. 3970, 3971.

124 million *l.* The amount expended in the 5 years was nearly 3, 4½, 6, 14, 36 million *l.*! The amount expended in the latter half of the year 1846 was 27 million *l.* About one-fifth was expended on the land and on Parliamentary expenses; the remaining four-fifths were outlay on skill, labour, and materials; and not only afforded employment to great numbers of labourers, but stimulated the labour market.* It will be recollected, that the railway speculation attained its maximum in the quarter ending September, 1845; when, according to the moderate estimate of Mr. Danson, 500 million *l.* of stock, scrip, or letters of allotment were on sale in the market. The Bank rate of interest, which for some years had not been less than 4 per cent., was reduced to 2½ per cent. on the 7th of September, 1844;† at which it remained until October 16, 1845, when it was advanced to 3 per cent.; on November 6, it was raised to 3½ per cent.; and about this time the railway speculation epidemic was at its crisis, shareholders rushed in panic into the market, and shares fell rapidly. The gambling speculators were driven from the share markets opened in every large town in the kingdom. The current rate of interest out of doors rose to 5 per cent. by the end of February, 1846, when the deposits on many of the projected railways were paid; the current rate gradually fell from March to September, when it scarcely exceeded the Bank rate, restored to 3 per cent. in August, 1846. The Bank circulation was 22½ million *l.*, the bullion 15½ million *l.* on August 9, 1845; on February 7, 1846, the circulation fell to 21¼ million *l.* the bullion to 13½ million *l.*; but was again 21¼ million *l.*, and 15½ million *l.* on August 8, 1846. The fluctuation in the circulation only ranged from 22½ million *l.* to 20½ million *l.* in the year 1846; and the bullion in the Bank, which was 13½ million *l.* on January 17, 1846, never fell lower; it was 15 million *l.* on December 26, 1846. The deposits, however, ranged from 25 to 13 million *l.*; the securities from 39 to 28 million *l.* The "rest" was 3½ million *l.*; or at the lowest on January 3, and 3¼ million *l.* on December 26: it was greatest on October 3, or 3½ million *l.* before the dividends were paid. The gold and silver coin in the *Banking Department* fluctuated from 401 thousand *l.* to 761 thousand *l.*; it was 606 thousand *l.* on the week ending January 3, and 625 thousand *l.* on the week ending December 26, 1846. The notes on the same weeks were 6¼ million *l.*, and 8½ million *l.*; in September they had been 9½ million *l.*, in October 6½ million *l.*; the dividends having been paid in the interval.‡ The Three per Cent. Consols, which were on an average about 95⅔, were at 97⅔ in February, and 94 in November, 1846. The witnesses examined by the Commons' Committee on Commercial Distress, agree in

* According to a recent return in the Appendix (D) to the Lords' Committee on Commercial Distress, the amount actually raised for railways prior to December 31, 1843, was 65,639,347*l.*; the amounts actually raised in the 4 years 1844-7 were 5,729,138*l.*, 16,457,094*l.*, 38,678,680*l.*, 43,557,974*l.* The total amount raised was 170 million *l.*: 130 million *l.* by shares, 40 million *l.* by loans. 3665 miles of railway were opened for traffic.

† Minutes of Evidence taken before the Committee of House of Commons on Commercial Distress, printed June 9, 1848. Evidence of James Morris, Esq., Governor, and H. J. Prescott, Esq., Deputy Governor of the Bank of England, Questions 3005, 2641.

‡ Revenue Returns, and Appendix to Reports on Commercial Distress.

stating that the general trade of the country appeared to be active in 1846; and little suspicion of its soundness was then entertained. Mr. Gardner, of Manchester, observed, that in "the early part of 1846 we appeared to "be at the height of our apparent prosperity:" and this will apply, allowing for difference of degree, as a general description to the whole kingdom. He added, "The commercial difficulty began, I think, about the middle of 1846;" which was also true out of Manchester. But I will give a brief summary of the evidence of all the English witnesses examined on this subject;* as it illustrates very remarkably the influence of "prosperity" on the marriages of the country:—

4. Mr. *A. Hodgson*, Liverpool, one of the confidential directors of the Bank of Liverpool, stated, that at the commencement of the year 1847, there was nothing that had excited any particular attention as to the state of trade at Liverpool.

651. Mr. *C. Turner*, a merchant of Liverpool:—"Events have proved that the trade, neither in Liverpool nor London, as regards the East India trade, was in a wholesome condition at all; we were very much deceived as to the state of trade. There is no doubt that in the East India trade there was a very great deal of overtrading in the beginning of 1847.

1259. Mr. *Muntz* states that the first difficulties were felt in Birmingham about April, 1846.

1585-1590. Mr. *Gurney* considered that trade at the commencement of 1847 was in a somewhat unnatural excitement. "I think things were going on a little too fast to be quite wholesome." This was at the close of 1846 and the first few months of 1847. The pressure came in the beginning of April, 1847.

1937-1939. Mr. *Horsley Palmer* thought that trade at the commencement of 1847 was in a very good state, a wholesome state.

2246. Mr. *Bevan*. At the end of 1846 and the beginning of 1847, trade was generally considered to be in a fair state; of course there had been a great deal of money absorbed by the railways at that time.

2450. Mr. *Joshua Bates*, a partner in the house of Baring, when asked what he considered the state of trade was in 1846, replied—"The state of trade generally was very prosperous; very active; everything was selling, and merchants were making good profits."

4578-4579. Mr. *Joseph Pease*, of Darlington, in Durham, says—"The year 1846 might be termed a year of about average employment in our district; every one seemed pretty well off, but the rate of profit was acknowledged low." * * * "As regards particular interests, there appeared to be an excess of investments, but as respects the ordinary current business of the country in staple manufactures, its mining and its agriculture, things seemed to be in a wholesome state."

4861-4876. Mr. *R. Gardner*, of Manchester, stated to the Committee that the distress in Manchester exceeded anything he had ever witnessed before. * * * It has been most intense upon the poor, the working classes; but there has been a great destruction of capital. The distress commenced in the latter part of 1846; in fact it was coming on during the whole of 1846, but the severe distress began early in 1847. The commercial difficulty began, I think, about the middle of 1846. A good deal of business was done in 1846, but trade was not in a wholesome state; it appeared to flourish by the great abundance of money, and the great facility in getting long paper discounted. * * * I think in the early part of 1846 we were at about the height of our apparent prosperity. * * * In the manufacturing districts there was a greater

* The extracts are from the evidence taken by the Committee of the House of Commons on Commercial Distress, 1848, P. Paper, No. 395. The principal witnesses examined by this Committee also gave evidence before the Committee of the House of Lords. Papers brought from the Lords, July 28, 1848, No. 565.

supply of goods than was justified by the demand. Immediately after the *China treaty*, so great a prospect was held out to the country of a great extension of our commerce with China, that there were many large mills built with a view to that trade exclusively, in order to manufacture that class of cloth which is principally taken for the China market. * * This trade turned out most ruinous; the losses averaged from 10 to 60 or 70 per cent.

5108. Mr. *S. Jones Loyd*. The general impression with regard to the state of trade in 1846, was that it was in a sound and satisfactory state; at the same time, among reflecting persons, there was an impression that the railroad speculation had been carried to a very undue extent, and that some serious consequences must therefore ensue; and there was also a feeling that the long-continued influx of the precious metals must sooner or later, and probably at no distant period, be followed by a corresponding action in the opposite direction; under this impression the deficiency of the harvest, when it was ascertained, became a subject of serious consideration.

5303. Mr. *Tooke*. The state of trade in the beginning of 1846 was very quiet and uniform; the markets for produce and the rate of consumption were fully up to the scale to which they had been extended in former years; there had been some temporary pressure on the money market connected with the payment of the railway deposits into the Bank, but that did not seem to extend itself so as to produce any material impression upon the trade of the country. Towards the autumn, when the failure of the potato crop was ascertained, and the consequent necessity contemplated for a very large importation, which would entail a drain of bullion on the Bank, considerable uneasiness began to be felt, and the very great extent to which the railway expenditure was proceeding seemed calculated to add to the feeling of uneasiness which then prevailed; at the same time there seemed to be no very sensible impression from those circumstances on the state of the money market. Towards the close of 1846 it was a state of some degree of apprehension, but not of actual pressure or inconvenience of any kind.

The political events of the year 1846 were important. In November and December, 1845, the administration of Sir Robert Peel was dissolved and reconstructed; Lord John Russell having failed in his attempts to form a ministry, Sir Robert Peel met Parliament in January, 1846, with all his colleagues, except Lord Stanley. On the 27th of January the Prime Minister developed his scheme of policy; involving the removal of all prohibitory, and the relaxation of protective, duties. The third reading of the Corn Bill was moved on May 11 by Sir James Graham in the House of Commons, and carried on the 16th by a majority of 327 to 229. The Corn Bill passed the House of Lords on June 26, and came immediately into operation. The Customs Bill, establishing the new tariff, passed in the same month. The Chancellor of the Exchequer, in making, on May 29, his financial statement for the year, said that the *actual* receipt of revenue amounted to 52 million *l.*, the *actual* expenditure to 49½ million *l.* The ordinary gross revenues of the year 1846, ending January 7, 1847, were 57334867*l.*; the expenditure was 55916416*l.* There was consequently a surplus of 1418451*l.*, besides a balance of about 1445000*l.* in the hands of the collectors both on January 5, 1846, and January 5, 1847. During the year the wars of France in Algiers, of Russia in the Caucasus, went on. An insurrection broke out in Silesia on February 22; the Austrian troops were driven from Cracow; the peasants, faithful to Austria, massacred upwards of 200 of their nobles; Cracow was taken, and the insurgents laid down their arms on March 5. The United States in May declared war against Mexico; intelligence arrived of the fighting in

the Rio de la Plata, where the combined English and French fleet had attacked Rossas on November 20, 1845. In Portugal an insurrection broke out on May 10; the Cabral, Palmella, and Saldanha ministries succeeded each other, and civil war raged through the year 1846. The insurgents in Geneva proclaimed a provisional government. Gregory XVI. died on June 1 at Rome. Cardinal Mastai, by birth a Roman noble, was elected pope on June 16. An amnesty and a new Roman tariff were proclaimed. The Sikhs had invaded India; on March 24 intelligence of the brilliant victory of Aliwal was brought by the overland mail; on the 31st, of the victory of Sobraon; on April 19, of the entry of the British army into Lahore; and thus were obliterated the last traces of the impression left by the disasters of Afghanistan. On May 19 despatches were received, announcing the capture of Heki's fortress, and the dispersion of the rebels in New Zealand. Outrages prevailed at the commencement of the year in Ireland; and Lord St. Germans introduced a Bill in the House of Lords for the "Protection of Life in Ireland." The Bill was introduced in the House of Commons by Sir James Graham on March 30; Sir W. Somerville moved a direct negative, seconded by Mr. Smith O'Brien; but the first reading was carried by a majority of 147 to 108. On June 26, at the second reading, the Bill was rejected by a majority of 292 to 219 against the Government. Intelligence of the amicable settlement of the Oregon question arrived, and was communicated to Parliament on June 29, when the intended resignation of the Government was announced.

Lord John Russell formed an administration, and assumed the seals of office on July 6; on July 20 he brought forward a measure for a permanent adjustment of the Sugar Question, substituting, for a prohibitory duty of 63*s.* and a protecting duty of 23*s.* 4*d.* in favour of the West India body, a duty of 21*s.* per cwt. upon all foreign Muscovado sugar, to fall ultimately to 14*s.* in 1851. The Bill founded on these proposals passed during the session. The new Government proposed the continuance of the Irish Arms Bill, which was read a second time against considerable opposition, but was withdrawn on August 17. The restriction on the possession of arms, which had existed in Ireland for 50 years, was thus removed. Lord John Russell now proposed a plan for meeting the existing and impending scarcity in Ireland, by employing the people upon Public Works. The proposed union of the Sees of St. Asaph and Bangor, Flogging in the Army, the Andover Poor Law Inquiry, and the Local Courts Bill, also occupied the attention of Parliament, which was prorogued on August 28. The Spanish marriages were heard of shortly afterwards, and, on October the 10th, the marriages between Queen Isabella and Don Francisco, the Infanta and the Duke of Montpensier, were celebrated. In November the annexation of Cracow to Austria was proclaimed: the treaty guaranteeing its independence was declared to be suppressed by three of the Powers who were parties to the Treaty of Vienna. In May, Prince Louis Napoleon escaped from Ham. Two attempts were made in the year to assassinate Louis Philippe, on April 16 and July 29. The Emperor of Russia modified his tariff: by the new tariff of the United States, which passed in July, and was to come into operation on December 1, the duties on iron in various stages of manufacture, on coal, cable, salt, cloths, glass, and other articles, were reduced from rates of duty ranging at 40 and 168 per cent. to 32 and 25 per cent. In

October large sums of money were voted by the baronies in Ireland for public works. In Mayo, worth 293000*l.* in annual value, 403466*l.*, were voted. In December, nearly half a million of labourers were employed on the works. "In the midst of the starvation," it stands reported, "a rage for fire-arms has arisen; to so great an extent, that the gun trade at Birmingham has experienced a great revival, and the old store-shops have been cleared of their stock. * * Auctioneers, with carts laden with Birmingham arms, attend almost every fair or market in the county of Cavan and the adjoining counties. * * The peasantry are armed or arming. At night, volleys of musketry are heard, and groups of peasants are seen practising at a mark. * * The arms are [often] paid for in the silver just delivered by the Government officers superintending the public works." While these Irish *ateliers nationaux*, established with the most humane intentions, ended in demoralization, great numbers of the poor famished population sought the shores of England at the close of the year, and in the centres of large towns aggravated, if they did not introduce, the dysenteries, diarrhœas, and fevers.

It does not lie within the scope of this Report to discuss the cause either of the prosperity of the years preceding 1846, or of the adversity that followed. I have endeavoured to state the facts hastily in their natural connexion, in order to show how exactly the marriage returns measure the "views which the people take of their prospects in the world." It would not be difficult to prove that the returns furnish data for a more satisfactory explanation of the phenomena in the crises through which the country passes periodically, than many of the theories afloat. I have before referred to the fluctuations in the marriages of Birmingham; and have shown how they have been affected by the speculations of the previous and the present century. The evidence before the Committee on Commercial Distress gives this inquiry a new interest; and I shall again advert to it as a remarkable illustration of the principles established by the facts in the Eighth Report.

A lamp-manufacturer, a brass-founder, a member of the Currency Reform Association, and the witness selected from Birmingham, was examined before the Committee on February 18, 1848. He was asked (Q. 1044) what he "considered the present state of Birmingham to be?" "I never knew the trade of Birmingham in so depressed a condition as it is now; all trades are bad at Birmingham; the East India trade, the West India trade, the Canada trade, and the Home trade; with one exception, and that is in the agricultural districts, there is still some business; it is the only exception to the universal depression, and I might say the almost cessation of business." (1049.) "The amount of wages I pay is diminished more than two-thirds; and I believe that that diminution is about the average of the diminution in Birmingham." Mr. Muntz, in his more judicious and measured evidence, said about the same time, (February 22, question 1256), "Trade is in a very depressed state in Birmingham; as far as I can judge, from what I have ascertained from others in Birmingham there are from 5000 to 6000 people entirely out of employment, and the remaining number, or a very large majority, are working two or three days a week."

The marriage returns express this state of depression: in the first

quarter of 1848 the marriages in Birmingham were only 278; in the first three months of 1846 they had been 373. (g.)

Birmingham has increased rapidly within the last 94 years. The marriages in the church of St. Martin and St. Philip were 155 in the year 1754, and 567 in 1800. The marriages in the parish churches of Aston, Deritend with Bordesley, Edgbaston, St. James (Aston), St. Martin and St. Philip, were 683 in 1801, and 1571 in 1830. The population of the Birmingham district was 60822 in 1801 and 138215 in 1841.

During the period there have been several violent fluctuations in the marriages. At the close of the American war (peace in 1783), the marriages in the 5 years 1780-1784 were 309, 382, 423, 520, 591. In the 6 years 1785-90 there was as great a fluctuation, connected, as was shown in the last Report, with a speculation in buckles. In the 6 years 1801-6, intersected by the famine of 1801, and the peace of Amiens (1802), the marriages fluctuated enormously; the numbers were 683, 1177, 1115, 959, 933, 889. In 1812-17 the marriages were 1011, 1021, 1110, 1331, 1186, 1035. In 1820-6, there was a great fluctuation; again in 1832-7 the marriages fluctuated. The fluctuation has generally extended over 6 years, has commonly followed a similar course, and has almost invariably attended speculations in trade (*h*) [see p. 14.], of which that of 1821-6, described with a sort of graphic confusion by the Birmingham witness, may be taken as a specimen.

(1149.) "I take it that all honest, industrious, able-bodied men were fully employed [in 1824 and 1825]; there was a good supply of money; then we came to 1826, when there was a collapse and a scarcity of money, and all men were thrown out of employment. I would mention another thing, which is, that much has been said of over-trading, if over-trading means producing more than is consumed; in 1824 and 1825 all men were in full employment; every mill and every manufactory, every bit of machinery, was in full employment, and all goods were taken into consumption in those years; the retailers' shelves were bare of goods,—that I ascertained from very extensive inquiry at the time; they sold the goods faster than they could get them from the manufacturers; their stocks diminished; but, in 1826, when all the mills were at half-work, there was a glut of goods, and the shelves were laden with them; the fact was, that the consumption was so far stopped, that even the small quantity that was made could not be taken into consumption; in 1824 and 1825 money was abundant; in 1826 money was scarce. All the difference between prosperity and adversity is made by the relative quantity of money." * * *

The witness, in 1848, is "decidedly of opinion that there has been no over-speculation in any article whatever," but that "the workmen have been employed in most valuable and useful speculations." It is evident

(g)

	Quarters ending the last day of March,									
	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848
Marriages in the District of Birmingham	254	253	229	241	230	232	294	373	313	278

that, *mutatis mutandis*, the description of 1824-5, will apply to the "prosperity" of 1844-5, about which the witnesses have said little.

Looking at the marriage returns, we find that in Birmingham and Aston 2758 persons married in 1842, and 4330 persons in 1846. Now, if the annual marriage of 2758 persons would keep up the number of families existing in 1842, it is evident that the annual marriage of 4330 persons would in no very long period produce three families for every two families that inhabited the town in 1842. Demand, work, and wages increased perhaps as rapidly as the marriages from 1842 to 1846, when affairs began to pause, and in the beginning of 1848 the marriages and trade for a short time nearly stood still. The same thing happened in 1821-1826, in 1785-1790, and in the other crises (*h*). The facts, of course, admit of several explanations. One is suggested by the marriage returns. Birmingham is not a county town; but it lies between a great iron district, and a rich agricultural country, in nearly the centre of England, on the principal lines of road; it abounds in small capitalists, and the division of labour is carried to a great extent; it has been long renowned for its cheap manufactures in metal, used in clothing or furniture, with a vast number of which it supplies not only parts of this kingdom, but other countries. Its trade fluctuates with the foreign commerce of the country, and with the prosperity of the neighbouring agricultural and iron districts, which are supplied with foreign and other goods by the shopkeepers of this entrepôt. Now, the iron trade was remarkably active in 1845, 1846, and 1847; British iron in bar, which was 5*l.* a ton in 1843, rose in 1844, and was about 10*l.* in 1845, 1846, 1847; in 1848 "there were some failures in the iron trade." The iron works were animated by the demand of the British and foreign railways; and the fortunate speculators of 1845, all over the country, evidently purchased large quantities of the Birmingham manufactures for furniture and clothing. The "long bills," the competition of the Bank of England with the money-lenders, the low rate of discounts, the "opening of trade" in China,—enlarged credit, and stimulated the foreign trade. And because there was a demand for more than the usual quantity of goods, "the retailers' shelves were emptied;" all the workmen were fully employed, and worked over-time; the masters meanwhile realized liberal profits; the men's wages were raised, and boys got the

(h)

	1	2	3	4	5	6
Years - - - -	1785	1786	1787	1788	1789	1790
Marriages from the Registers of St. Martin } and St. Phillip, Birmingham - - }	558	589	623	782	908	649
Years - - - -	1821	1822	1823	1824	1825	1826
Marriages from the Registers of Aston, } Deritend, Edgbaston, St. James (Aston), } St. Martin, and St. Philip - - - }	1193	1181	1321	1582	1832	1366
Years - - - -	1842	1843	1844	1845	1846	1847
Marriages in the Registration Districts of } Birmingham and Aston - - - }	1379	1533	1672	1930	2165	2097
						Great depression in first quarter.

wages of men; for promotion among these *gardes mobiles* of industry is rapid in times of crisis. Youths married, and furnished houses or lodgings; the expenditure of families increased; employers enlarged their establishments, and young men opened new factories—for this extraordinary prosperity appeared at the time perpetual. Experience proves that it has but a limited term. The expenditure on the construction of railways cannot always go on at an accelerated rate. And viewed calmly at a distance, there appears no reason why all the world if they buy twice as many lamps, buttons, teapots, tea-trays, Britannia metal spoons, dolls' eyes,* brass rods, and fire-irons in any given three years, should do the same in the three years following; on the contrary, it is probable that the abundant stock of articles laid in, however perishable, will not be consumed immediately, and, if they are, that the means of purchase or the disposition will no longer be found in their original exuberance. Is it not quite possible, in fact, that Birmingham, at the same time that its permanent trade was extended, did part of the trade, anticipated the profits, and earned the wages of future years in the three years 1844, 1845, 1846? Had, however, the income of Birmingham increased in the prosperous years as fast as the marriages, the surplus saved might have more than supplied the deficiencies of 1848. Assume, for instance, that the income, like the marriages of the people of Birmingham in 1844, was the average, and 4 million *l.*; † then if it increased at the same rate as the marriages, it would be 5017000*l.* in 1847; 5179000*l.* in 1846; and 4617000*l.* in 1845. The excess in the three years laid by would, without reckoning interest, be 2813000*l.* Take any amount of average income as the basis of the calculation; assume that in the prosperous years the income increases in any rational proportion, that only a part of it is saved, and this surplus accumulated will meet the wants of the years of depression. It is only when the wages and profits are expended as well as gained in prosperous years—and when contracts of expenditure for long terms are entered into, on the faith of a state of things being perpetual, which in Birmingham scarcely ever lasts more than five years—that the population is in the sixth year distressed, and panic-struck on the brink of ruin. It is in the situation of a crew on a six months' voyage that consumes its provisions in the first five months, and expiates the excesses of its former by the sharp misery of its latter days; while the leaders of the riotous livers on board repudiate all blame and declaim plausibly against the owners for not supplying their vessel with more canvas.

The population of Birmingham and Aston together, increased from 76132 in 1801, to 189192 in 1841 (*i, j*). The births must have increased rapidly. The industry, energy, and skill of the inhabitants of Birmingham have been such that it is believed their income has increased faster than their numbers. Not satisfied with this progress, the witness from Birmingham examined before the Committee on Commercial Distress,

* Mr. Osler, a manufacturer of Birmingham, stated before a Committee of the House of Commons, in 1824, that he had received a single order for 500*l.* worth of dolls' eyes.—*Report on Artisans and Machinery*, p. 314. M'Culloch, *Statistics of the British Empire*, vol. i. pp. 722-728, 3rd ed., has a tolerably full account of the trades of Birmingham.

† The annual value of the houses in Birmingham was assessed at 667971*l.* in 1842-3 under the Income Tax.

after declaring that, in the years 1824 and 1825, there was not an "able-bodied man in England out of employment," goes on to say "all we want is to go back to 1825 (Q. 1146);" that is, not to remain stationary at the point—for the business and population of Birmingham have increased so as to double in 30 years—but to go on multiplying marriages, boys, girls, buttons, the thousand useful things which ingenuity manufactures in the "toy-shop of Europe,"—at such a rate as to double production every *five* or *ten* years!—Perhaps it is as well as it is, both for Birmingham and the rest of the world (*k, l*).

It never happens that there is any Parliamentary inquiry into the prosperity of the country. Nor is this surprising; for success is satisfied with itself, while misery calls aloud for inquiry into its causes; which it always looks for abroad. From its very nature, distress has a thousand solutions; it is preceded by many changes, surrounded by many circumstances, with any of which it may be connected, and by some of which it is caused. Without going into details—or pretending that it admits at present of demonstration—I have noticed one solution of the problem. The "Currency Association of Birmingham," who have opportunities of studying the matter on the spot, offer a solution of the question much simpler and more general. Their witness, in answer to the inquiry, "What do you consider to be the causes of the commercial distress?" replied—"I myself attribute the distress wholly and entirely to the [Currency] Bills of 1819 and 1844; I would qualify that by saying, that from the passing of those bills, there have been accidental circumstances giving peculiar features to the distress; and it has generally been the custom to say that those circumstances were the cause of the distress." Without discussing the great question of the currency, or stopping to

(i) Marriages in the Birmingham District.

Years.	Quarters ending the last day of				Total.
	March.	June.	Sept.	Dec.	
1839	254	250	273	295	1073
1840	253	223	241	311	1028
1841	229	228	259	301	1017
1842	241	248	228	301	1018
1843	230	237	286	377	1130
1844	232	295	285	410	1222
1845	294	348	355	428	1426
1846	373	357	391	502	1623
1847	313	385	386	477	1561
1848	278	383	—	—	—

(j) Population of the Birmingham District.

	Persons	1801	1811	1821	1831	1841					
		60822	70207	85416	110914	138215					
	Males	28568	33132	40855	54593	67317					
	Females	32254	37075	44561	56321	70898					

Years.	1839	1840	1841	1842	1843	1844	1845	1846	1847
Marriages	1073	1028	1017	1018	1130	1222	1426	1623	1561
Births	4552	4899	5051	5094	5161	5323	5646	5952	5949
Deaths	3659	3767	3673	3578	3342	3885	3604	4634	5404

inquire how Mr. Salt's solution applies to the crises of the 18th century—or the great crises occurring in the years of inconvertible paper—it appears anything but unsound advice to recommend the people of Birmingham in the periods of prosperity to come, (which, I hope, are not far distant—for they began to marry again in the spring of 1848,) to deposit a part of their increased profits and wages in security for at least six years—at the end of which time it is probable they will find it a convenient resource to fall back upon—until prosperity returns. And should the notes "value-one-pound" ever supersede the sovereign—or the antiquated "I-promise-to-pay,"* it would still be prudent to follow the same course—until they find by experience that the tempests of the trading atmosphere are for ever stilled by the flights of a talismanic paper.

I have merely adduced Birmingham for the sake of simplifying the argument; but similar facts exist elsewhere, and the same principles apply to Manchester, Liverpool, Leeds—the whole kingdom. For these fluctuations—these periodical seasons of activity and repose—of success and misfortune—not only affect manufacturers and merchants, but agriculturists in their more placid pursuits:—

Agricolae! quibus ipsa, procul discordibus armis,
Fundit humo facilem victum justissima tellus;

who have also their "distresses" and "good times."

(k)

	PERSONS.				
	1801	1811	1821	1831	1841
Birmingham District*	60822	70207	85416	110914	138215
Aston District*	15310	18091	23429	36635	50977
Birmingham and Aston	76132	88298	108845	147549	189192
Annual Rate of Increase per cent.	1.494	2.114	3.089	2.512	—
Increase in next 10 Years	12166	20547	38704	41643	—

* The district of Birmingham comprises the entire parish of Birmingham; the district of Aston comprises Aston, Curdworth, Wishaw, and Sutton-Coldfield parishes, with their several hamlets or townships.

(l) Marriages in the Birmingham and Aston District.

Years.	Total.	Quarters ending the last day of			
		March.	June.	Sept.	Dec.
1839	1521	336	357	397	431
1840	1417	333	320	353	411
1841	1471	312	345	391	423
1842	1379	313	344	307	415
1843	1533	302	313	403	515
1844	1672	308	415	398	551
1845	1930	381	472	490	587
1846	2165	491	511	516	647
1847	2097	408	501	545	642
1848	—	388	530	—	—

* Evidence before the Committee of House of Commons on Commercial Distress:—

1116.—*Sir Robert Peel*. Will you have the goodness to give us a draft of the bank-note you would permit to be issued?—*Mr. Salt*. I would have it in amount anything that might suit the national convenience; but instead of saying "I Promise to Pay," I would simply put, "Value One Pound," or whatever it might be.

[9.]

c

It appears from all we have seen for a century that the tide of affairs has flowed in waves; any extraordinary advance has always been followed by a reflux; in vain is it bid "be still," for it is one of the conditions and perhaps means, if not of the existence, at least of the progress of society; which, amidst all its perturbations, moves steadily up and down on the shores of time—under the dominion of a power that makes nations advance or recede, and under laws which can only be discovered by long, accurate, analysed observation. As statistical science and education advance, the severity of seasons of distress—whose general course can be calculated—will be diminished by mutual aid—and provision will be made in prosperity against their recurrence; as the losses of shipwreck, fire, and life to society are mitigated by the various kinds of insurance. Knowledge will banish panic and mitigate pain.

The following Tables exhibit other facts of interest connected with the marriage returns (*m, n, o*).

(*m*) Marriages registered in England, pursuant to the Act of 6 and 7 Will. IV. cap. 86, in the years 1838-46.

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	78642	912	21890	117018	5140	1938	81	152	7311
" 1841	17	15752	77826	856	19997	114448	5816	2036	66	116	634
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

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

* Of the 8564 marriages in 1844, 2280 were in Roman Catholic chapels; and 6284 in the chapels of other denominations.
 † Of the 9997 marriages in 1845, 2816 were in Roman Catholic chapels; and 7181 in the chapels of other denominations.
 ‡ Of the 10696 marriages in 1846, 3227 were in Roman Catholic chapels; and 7469 in the chapels of other denominations.

At pages 60-1 of the Abstracts will be found an interesting series of tables, showing the ages at which 24356 men married 24356 women; distinguishing the ages of bachelors and spinsters, widows and widowers.

Births.—The numbers of births registered in each of the five years 1842-6 were 517739, 527325, 540763, 543521, 572625. The births in 1846 exceed any number ever before registered. The increase is diffused over all the divisions, except the eastern, and is partly accounted for by the previous excesses in the marriages. I defer the discussion of this subject for a short time.

Of the 572625 children born alive, 38529, or 19735 boys, and 18794 girls were, it appears, born out of wedlock. The proportion of children

(*n*) Marriages registered in England, &c.—continued.

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, or 247636 Persons.	Men	5511	4'45	Men	118307	95'55
		Women	16403	13'25	Women	107415	86'75
		Total and mean	21914	8'85		225722	91'15
1844	132249 Couples, or 264498 Persons.	Men	5515	4'17	Men	126734	95'83
		Women	17410	13'16	Women	114839	86'84
		Total and mean	22925	8'67		241573	91'33
1845	143743 Couples, or 287486 Persons.	Men	6287	4'37	Men	137456	95'63
		Women	19376	13'48	Women	124367	86'52
		Total and mean	25663	8'93		261823	91'07
1846	145664 Couples, or 291328 Persons.	Men	6313	4'33	Men	139351	95'67
		Women	20001	13'73	Women	125663	86'27
		Total and mean	26314	9'03		265014	90'97

(*o*) Proportion per Cent. of Persons Married under 21 Years of Age, of the Re-marriages of Widowers and Widows, and of Persons who signed the Marriage Register with Marks, in England, 1839-46.

In the Years ending the last day of June	Married under 21 Years of Age.			In 100 Marriages the Proportion per Cent. 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.
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	Sept. & Dec. Quarters of 1841								
1841	4'38	13'29	8'83	12'90	8'99	10'95	32'7	48'8	40'8
" 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

born out of wedlock was 6.7 per cent. It was 7.0 in 1845, and 6.7 in 1842.

In 1845 and 1846 the number of cases of twins, of triple and of quadruple births, was distinguished. In 1846 the results found were that of 528690 married women 523313 gave birth to one living child, 5349 to twins, 27 to triplets, while one woman had 4 living children. Of 38230 women who bore children out of wedlock, each of 37934 bore a single living child, 293 had twins, 3 had triplets.

The proportions were—of married women who bore children 1 in 588690 had 4 children; 1 in 19581 had 3 children; 1 in 99 had twins; of unmarried women, 1 in 12743 women had 3 children, and 1 in 131 had twins.

Deaths.—The number of deaths registered in 1846 was 390315; which is a greater number by 40949 than was registered in 1845; and implies a higher rate of mortality than was observed in any one of the 8 previous years 1838–45. The winter was mild and the mortality was low in the winter quarter of 1846; the excess arose on the last half of the year 1846 (*p*). I shall extract the account of the changes in the mortality, and the prevailing diseases from the Quarterly Reports revised—which, though written hastily at the time, convey, I believe, a correct impression—so far as they go—of the health of the country; and may continue in some degree to promote the sanitary improvements contemplated by the recent Acts of the Legislature.

(*p*) Relative Mortality of the several Quarters of the Eight Years.

Years.	Deaths Registered in the Quarters ending the last day of				Deaths in England.	Deaths in 115 Districts making Quarterly Returns.	Deaths in Districts not making Quarterly Returns.
	March.	June.	Sept.	Dec.			
1838	98152	90877	72877	80854	342760	—	—
1839	89740	87959	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	90230	101664	108937	390315	191430	198885

State of the Public Health in the Quarter ending March 31, 1846.

“The Quarterly Returns are obtained from 115 districts,* subdivided

* The districts comprise:—

The whole of London.

In the South Eastern Division.—Maidstone, Brighton, Isle of Wight, Portsea Island, Winchester, Windsor.

In the South Midland Division.—St. Albans, Wycombe, Oxford, Northampton, Bedford, Cambridge.

In the Eastern Division.—Colchester, Ipswich, Norwich, Yarmouth.

In the South Western Division.—Devizes, Dorchester, Exeter, St. Thomas, Plymouth, Redruth, Penzance, Bath.

In the Western Division.—Bristol, Clifton, Stroud, Cheltenham, Hereford, Shrewsbury, Worcester, Kidderminster, Dudley, Walsall, Wolverhampton, Wolstanton, Birmingham, Aston, Coventry.

In the North Midland Division.—Leicester, Lincoln, Nottingham, Basford, Derby.

In the North Western Division.—Stockport, Macclesfield, Great Boughton (including Chester), Liverpool, West Derby (adjoining Liverpool), Blackburn, Preston,

Rochdale, Bury, Bolton, Wigan, Prescott, Chorlton, Manchester, Salford, Ashton.

“into 576 sub-districts. Thirty-four districts are placed under London, “and the remaining 81 districts comprised, with some agricultural districts, the principal towns and cities of England. The population was “6579693 in 1841.”

“43708 deaths were registered in the last winter quarter (ending March 31st). This number is less by 6166 than the number (49874) registered in the winter quarter of 1845. If the increase of the population (about 1.75 per cent. annually) be taken into account, the mortality will also be found to have been less in the last winter than in any of the 8 previous winters. This marked diminution of the mortality occurred in more than two-thirds of the districts from which returns are procured; but is most obvious in London, in the western and north-western divisions. In the districts of the northern division, alone, of England, the mortality was considerably higher than in the winters of 1844 and 1845; and this is referred by the Registrars to epidemics of scarlatina in Sunderland, Tynemouth, and Carlisle.

“The annexed Table shows that the mortality was considerably above the average in the winter quarters (ending March 31) of 1838, 1840, 1841, and 1845, and below the average in the winter quarters of 1839, 1842, 1843, 1844, and 1846 (*q*).

“Temperature, the command of food by the working classes, epidemics, and the general condition of the streets and dwellings, have all a certain effect on the rates of mortality; but there can be little doubt that the low mortality in the present Table is to be ascribed to the extraordinary mildness of the winter of 1846. The mean temperature at the Greenwich Observatory was nearly 5 degrees above the average of 25 years, 8 degrees above the average temperature of the winter of 1845. The mean temperature of the week ending February 14th was 36 degrees; of the week ending March 21st, 38 degrees; of all the other 11 weeks in the quarter the mean temperature was 40 degrees and upwards. The south-west winds prevailed; the fall of rain at Greenwich was nearly 6 inches; 10.26 inches of rain fell at Helston, 13.35 inches at Truro, only 1.92 inches at Newcastle-on-Tyne.

(*q*)

	1838	1839	1840	1841	1842	1843	1844	1845	1846
Deaths Registered in the March Quarters of 9 Years	45783	42258	46206	46809	44746	43620	45965	49874	43708
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	42395	43136	43891	44659	45441	46236	47045	47869	48706
UNHEALTHY YEARS.									
Difference above the calculated number	3388	—	2315	2150	—	—	—	2005	—
HEALTHY YEARS.									
Difference below the calculated number	—	878	—	—	695	2616	1080	—	4998

In the York Division.—Sheffield, Huddersfield, Halifax, Bradford, Leeds, Hunslet, Hull, York.

In the Northern Division.—Sunderland, Gateshead, Tynemouth, Newcastle-on-Tyne, Carlisle, Cockermouth, Kendal.

In the Welsh Division.—Abergavenny, Pontypool, Merthyr Tydfil, Newtown, Wrexham, Holywell, Anglesey.

"In London, the deaths by small-pox were 77, and ranged from 3 to 9 weekly. In 1845, 481 persons died of small-pox during the same quarter. Measles was the prevailing epidemic at the beginning; whooping-cough at the end of the quarter. Typhus, though more prevalent than in the winters of 1840, 1841, 1842, and 1845, was much less fatal than in the winters of 1839, and 1843.

"The effects of temperature in London are shown by the annexed Tables (r, s).

(r) METEOROLOGY of 1844, 1845, & 1846.

Quarters ending.	Years.	THERMOMETER.										In the Water of the Thames at Greenwich by the Self-Registering Thermometer, read at 9 o'clock.		Difference between the Dew Point temperature and Air temperature.		WIND.		Mean amount of Cloud, 0-10.	Rain in Inches (91 days).					
		Highest during the Quarter.					Lowest during the Quarter.					Mean.		Self-Registering.		Pressure in lbs. on the square Foot.								
		Mean height of the Barometer, from 936 observations, corrected and reduced to 32 deg. Fahrenheit.	Lowest during the Quarter.		Highest on each day, 78 observations.		Lowest on each day, 78 observations.		Difference.		Mean of 936 observations.		Mean of 936 results.—Dew Point.		Highest in the Sun.		Lowest on the Grass.		Mean.		Mean amount of Horizontal Movement of the Air in each Week.			
March.	1844	29°705	57°6	18°6	43°7	33°4	10°4	38°6	34°9	83°6	52°3	6°3	27°1	—	—	3°8	7°9	0°8	—0°3	17°0	0°63	1238	7°27	13
	1845	29°788	59°0	8°8	40°6	30°9	9°1	35°4	31°7	68°8	49°6	6°0	23°8	37°2	36°4	3°7	7°7	0°8	—3°5	13°0	0°6	1046	7°54	80
	1846	29°721	59°9	26°7	48°6	39°1	9°5	43°7	39°8	78°5	54°2	15°0	32°4	45°7	43°5	3°9	7°7	1°1	+4°9	12°0	0°6	1039	7°65	73

* Mean of last six weeks of the quarter.

(s) Deaths in London from all Causes, exclusive of Violent and Sudden Deaths.

Number of Weeks.	1	2	3	4	5	6	7	8	9	10	11	12	13
Winter Quarter {	1845	1320	1089	990	976	970	963	1082	1097	1097	1079	1034	1115
	1846	1638	942	1003	874	878	888	858	907	894	829	874	988
Mean	1845	37°6	40°3	40°8	39°5	32°4	33°4	29°3	31°1	37°5	29°3	29°1	33°5
Temperature	1836	40°8	40°8	41°6	48°9	47°7	43°7	36°2	44°1	51°7	47°6	44°2	38°2

State of the Public Health in the Quarter ending June 30, 1846.

"43582 deaths were registered in the spring quarter ending June 30th; a number greater by 2853 than were registered in the corresponding quarter of 1845, and 4731 more than in the June quarter of 1844. The mortality was little lower than in the preceding mild winter quarter, when the deaths were nearly 5000 less than the average. The districts of Lancashire and Yorkshire were the most unhealthy. The subjoined Table shows that, taking the whole of the 115 districts, the mortality was above the average in the spring quarters (ending June 30th) of 1839, 1840, 1845; and below the average in the spring quarters of 1841, 1842, 1843, 1844, 1845. There was an evident tendency to decline through the 7 years; but in 1846, this tendency was counteracted, and the deaths exceeded the calculated average (t).

"The inadequate supply of water by companies, the imperfect sewerage in towns, the open drains and ditches, and the general neglect of cleanliness, leave everywhere great quantities of organic matter to decay and putrefy in the midst of crowded populations. In such circumstances, the mortality, like putrefaction, is always increased when the temperature is high; and epidemics of diarrhoea, dysentery, and cholera prevail. Many thousands of the people of England were carried off in the last quarter by these diseases and others of the zymotic class.

"The deaths in the quarter were 43582. If the mortality had not been higher in the towns than in the poor country districts where the air is purer, the deaths in the quarter would not have exceeded 33000.

"In London the deaths at the close of June from diarrhoea, dysentery, and common cholera rose to 40 weekly, and have since increased. Nor is that to be wondered at. Notwithstanding the improvements effected when cholera was last epidemic; the foul untrapped sewers and the ground areas of the best streets emit noisome smells and volatile poisons, which are as fatal as arsenic to a certain number of persons. London is surrounded, too, by stagnant, putrid ditches, as some cities are by walls. It would be well not to wait carelessly until cholera reaches the country, but to 'look before,' remove these nuisances, and purify the reeking atmosphere, which gives the disease breath, life, and being. These remarks apply with tenfold force to Liverpool, Sheffield, and the towns of the north, where the epidemics in the last quarter were more fatal than they had ever been before, and diseases were in proportion to the population at least one-third part more numerous than in London.

"The mean temperature at Greenwich of the 13 weeks ending June 27th is 55°·2; which is 2°·3 above the average of 25 years, and 3°·3 above the average of the corresponding quarter of 1845. The temperature is very little above the temperature of the same season in 1844, when the wheat crop was so abundant; 5½ inches of rain have, however, fallen in the present quarter, and the winter of 1846 was of extraordinary mildness, while the winter of 1844 was of more than the average severity. The highest point of the thermometer in the shade at Greenwich was 87°·0 on June 20; the lowest 33°·3; the extreme range was therefore 53°·7. The highest point in the sun was 116°·5, the lowest on the grass 21°·0; to these extremes, differing 95°·5, vegetation was exposed. The temperature of the Thames was 59°·4 in the day, 58°·3 in the night. The water was on the average 3°·7 warmer

(t) TABLE showing the Mortality in 115 Districts, from 1839 to 1846.

	1839	1840	1841	1842	1843	1844	1845	1846
Deaths Registered in the June Quarters of 8 Years	41120	41903	38961	38441	40216	38851	40729	43582
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	38090	38757	39435	40125	40828	41542	42269	43009
UNHEALTHY SEASONS.								
Difference above the calculated number	3030	3146	—	—	—	—	—	573
HEALTHY SEASONS.								
Difference below the calculated number	—	—	474	1684	612	2691	1540	—

than the air. The dew point was 48°·3. The air wanted 6°·8 of saturation, and was much drier than the spring of 1845; but not so dry as the same season of 1844. The sky was more clouded than in 1844; and there was less wind. In the spring quarter of 1844, the mean weekly amount of horizontal movement of the air was 948 miles; in the same quarter of 1846, it was only 655 miles. The barometer was 29·919 inches in 1844, and 29·740 inches in 1846 (u, v).

(u) Comparative Meteorology of the Spring Quarters of 1844, 1845, and 1846.

Quarters ending.	Years.	THERMOMETERS.										In the Water of the Thames at Greenwich by the Self-Registering Thermometer read at 9 o'clock.	Difference between the Dew Point temperature and Air temperature.	WIND.	The mean Weekly amount of Horizontal movement of the Air.	Mean amount of Cloud, 0-10.	Rain in Inches (91 days.)							
		Mean.		Self-Registering.	Highest in the Sun	Lowest on the Grass	Mean of 96 observations.	Mean of 936 observations.	Mean of 936 results.—Dew Point.	During the Quarter.	Mean of 91 observations.							Lowest of 91 observations.						
June.	1844	29·919	83·3									34·0	65·4	45·5	19·9	55·0	47·2		111·7	88·6	21·0	37·0	—	—	7·8	15·4	1·6	+	10·0	0·4	948	5·5	2·31
	1845	29·731	83·2	29·5	60·5	44·2	16·3	51·9	46·5	115·6	80·0	12·2	36·3	54·9	54·1	5·4	12·0	0·9	-1·1	12·0	0·5	956	6·4	4·80
	1846	29·740	87·0	33·3	63·9	45·7	17·2	55·2	48·3	116·5	86·6	21·0	39·1	59·4*	58·3	6·8	14·0	1·4	+2·3	11·0	0·2	655	6·3	5·54

* Mean of 81 observations.

(v) Deaths in London from all Causes, exclusive of Violent and Sudden Deaths.

Number of Weeks.	1	2	3	4	5	6	7	8	9	10	11	12	13
Spring Quarter	{ 1845	884	888	910	878	848	789	808	798	868	818	802	756
	{ 1846	969	931	832	820	785	820	781	802	804	812	776	817
Mean Temperature.	{ 1845	44·6	40·4	45·3	51·2	53·8	44·5	50·6	47·5	53·1	58·7	64·1	62·2
	{ 1846	46·8	45·5	50·4	45·5	48·4	55·2	51·8	54·2	57·6	64·6	66·4	61·2

Public Health in the Quarter ending September 30, 1846.

“51235 deaths were registered in the summer quarter ending September 30; a number greater by 15227 than the deaths (36008) in the corresponding quarter of last year. In the mild winter quarter of this year ending March, 1846, the deaths were nearly 5000 below the average; in the spring quarter (June), the mortality was slightly above the average; intestinal complaints then arose, and, becoming epidemic, have been the principal causes of the immense loss of life on record.

“The relative salubrity of the hottest season of the seven years, 1839—46, is displayed in the annexed tables, (w, p. 25, and x, y, p. 29).

“Respecting the proximate causes of the mortality in London, the weekly tables furnish full information. The deaths in the summer quarter were 10842 in 1845, and 12409 in 1846. Of the excess of 1567 deaths, 1303 were from diarrhœa, cholera, and dysentery, which proved fatal respectively to 1549, 197, and 75 persons. The mortality by intemperance, delirium tremens, jaundice, liver diseases, and rheum-

atism, was also greater than usual. Inflammatory diseases of the lungs and influenza lay in abeyance, as if the morbid force had directed and expended itself on the digestive organs. No death from hydrophobia appears to have been registered in London during the last three summers. The five weeks from July 11 to August 15 were the unhealthiest; 1100 deaths, exclusive of those by violence, were registered in the first week of August: the numbers then fell off, and only amounted to 783 on the last week of the thirteen. Upon comparing the facts in the table, it will be seen that young children were the chief sufferers. Indeed the form of the disease, which has long been prevalent in the cities of America, is designated in their bills of mortality *cholera infantum*. The disease also proved fatal to many old people, and some adults died of attacks which could not in their symptoms be distinguished from Asiatic cholera. It was, however, quite evident from the first that the EPIDEMIC had not the characters of that malady which broke out here in the winter of 1832, but was closely allied to the cholera described by Sydenham, which he says lasted a month, and—*‘eam anni partem qua æstatem fugientem atque autumnum imminentem complectitur, (unice ac eadem prorsus fide, qua veris primordia hirundines, aut insequentis tempestatis fervorem cuculus,) amare consuevit.’**

“While the deaths in London were little more than 14 per cent. above the return of 1845, the deaths rose from 25166 to 38826—or about 52 per cent. after a correction for increase of population—in the towns and other districts of the kingdom included in the return. In some densely-peopled towns the mortality was doubled. The deaths in the corresponding summer quarters of the past and present year were in Maidstone, 124 and 239; Brighton, 219 and 372; Portsea Island, 239 and 433; Winchester, 89 and 141; Oxford, 89 and 194; Northampton, 182 and 221; Bedford, 182 and 254; Ipswich 119 and 240; Norwich, 306 and 451; Plymouth, 191 and 279; Clifton, 323 and 436; Worcester, 106 and 173; Dudley, 457 and 744; Walsall, 158 and 288; Wolverhampton, 439 and 687; Wolstanton and Burslem, 164 and 315; Coventry, 188 and 300; Nottingham, 285 and 469; Lincoln, 154 and 246. No such mortality has been witnessed in Birmingham for many years; the deaths in 1845 were 694, in 1846 they amounted to 1627. In Liverpool and the adjacent district of West Derby the deaths in the summer

(w)

	1838	1839	1840	1841	1842	1843	1844	1845	1846
Deaths Registered in the September Quarters of 9 Years	34614	37189	39337	35699	39249	36815	38782	36008	51235
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	36191	36825	37469	38125	38792	39471	40162	40864	41580
UNHEALTHY SEASONS.									
Difference above the calculated number	—	364	1868	—	457	—	—	—	9655
HEALTHY SEASONS.									
Difference below the calculated number	1577	—	—	2226	—	2656	1380	4856	—

* Sydenham Opera. Obs. Med. Anni 1669. He also describes the severer epidemic cholera of 1676, “Insueti tempestatis calore evectus.”

quarters of 1845 and 1846 were 2595 and 4090; in Manchester and the contiguous districts of Salford and Chorlton 2411 persons died in 1845, and 4248 in 1846. Stockport, Macclesfield, Chester, Blackburn, Preston, Bury, Bolton, Wigan, Prescott, Ashton, and other districts of Cheshire and Lancashire, suffered to an equal or a greater extent. The districts of Yorkshire did not escape; 1039 persons died in Sheffield, where only 445 died in the summer quarter of 1845, and the mortality in any preceding summer since 1838 had never exceeded 647. Huddersfield, Leeds, Hull, and York, suffered severely. In Sunderland, Gateshead, Tynemouth, and Newcastle-on-Tyne, 1172 deaths were recorded in the summer quarter of 1845, and 2313 in the corresponding quarter of 1846.

"Upon the other hand, the mortality of the quarter was below the average in Pontypool and Newtown, but slightly above the average in the other districts of Wales; and generally the country and southern districts suffered comparatively little.

"In the above summary the mortality of the summer quarter of 1846 is compared with the mortality of the same districts in the corresponding season of the previous year. The *proportion* which the *deaths* bear to the *population* shows the *relative mortality in different districts*, and is still more important. Thus at the last census the population of Anglesea was 38105, the deaths in the same quarter were 160; the population of Gateshead was 38747, the deaths in the same quarter 473; the population of Abergavenny and Newtown 77000, the deaths 378; the population of Sheffield 85000, the deaths 1039. Again, the population of the seven Welsh districts was 273000, the deaths in the last quarter 1465; the population of Manchester and Salford 263000, the deaths 3149! The population of the six districts of the South Eastern division was 218000, the deaths in the last quarter (ending September 30), were 1458; the population of Liverpool was 223000, the deaths in the same quarter 2946!

"In the annual reports and quarterly returns the causes of these differences in the mortality of the several parts of the country and of the population have been discussed. The high mortality of towns has been traced to crowded lodgings—dirty dwellings—personal uncleanness—the concentration of unhealthy emanations from narrow streets without fresh air, water, or sewers. The rapidity of decomposition, and the facility with which all kinds of animal matter become tainted and run into putrefaction, enable us to understand how, in a summer like the past, in which the temperature was unusually high, the diseases referable to an impure atmosphere should be so prevalent and fatal.

"The Seventh Annual Report, 8vo edition (pp. 330–338), contains some calculations which set in a striking light the extent to which human life and health have hitherto been sacrificed. The calculations have been made with care; they are based upon the returns of deaths for the seven years 1838–44, and the census taken in 1841, the middle of the period.* It appears—to give a few examples of the results—that the annual deaths in the town districts of Manchester to 1000 males living are 37, in the extra-metropolitan parts of Surrey 19 in 1000.

* The calculations referred to are in the Appendix to the present Report.

To take particular ages, the annual mortality of boys under five years of age is 48 in Surrey, 148 in Manchester, to 1000 living.

"Of men of the age of 35 and under 45, the annual mortality is 11 in Surrey, 21 in Manchester to 1000 living. The enormous difference will be rendered more obvious to some by the simple facts—

		Deaths registered in the 7 Years 1838–44.
"Population of the Town Sub-Districts of Manchester in 1841	163856	39922
"Population of the Extra-Metropolitan Districts of Surrey	187868	23777
		<hr/> Difference 16145

"The population of Surrey exceeded that of Manchester, yet in 7 years 16000 persons died in Manchester over and above the deaths in Surrey, the mortality in which from the poverty of the labourer, and slighter degrees of the influences so fatal in Manchester, is higher than it should be. There were 23523 children under 5 years of age in Surrey, and the deaths of children of that age were 7364; the children in Manchester were 21152, the deaths 20726! In the 7 years, 13362 children in Manchester alone fell a sacrifice to known causes, which it is believed may be removed to a great extent; and the victims in Liverpool were not less numerous. Other parts, and particularly the *towns* of England, are similarly afflicted.

"The returns of the past quarter prove that nothing effectual has been done to put a stop to the disease, suffering, and death, in which so many thousands perish. The improvements, chiefly of a showy, superficial, outside character, have not reached the homes and habits of the people. The house and the children of a labouring man can only be kept clean and healthy by the assiduous labour of a well-trained, industrious wife, as any one who has paid the least attention to the subject is aware. This is overlooked in Lancashire, where the woman is often engaged in labour from home. The consequence is that thousands, not only of the children, but of the men and women themselves, perish of the diseases formerly so fatal for the same reasons in barracks, camps, gaols, and ships.

"The supply of water, and the removal of refuse from the surface, or of matters in solution and suspension through the sewers, are 'simple engineering questions, the success of which,' in the words of Mr. Smith of Deanston, 'is certain, while the cost can be estimated on known data.' The wealthiest and most populous parish in the metropolis—Marylebone—is an example of the imperfect manner in which these questions are solved in the present state of the law. The parish, on an area of about 1490 acres, had 14169 inhabited houses, and 138164 inhabitants in 1841. The annual value of property rated for the relief of the poor in the same year was 815279*l.*—57*l.* to each house. Yet a considerable part of the parish is without sewers, or any direct open communications with the sewers. It is said, though the information on this head is imperfect, that half the houses in the parish have cesspools, many of which remain unemptied from year to year. The vestry, under the local Act,

is empowered 'to nominate persons to carry out the *dust, dirt, cinders, or ashes*;' yet no effectual arrangements are made for the removal of decaying animal and vegetable matters—the 'filth' and 'noxious matters' which are really prejudicial to health. The contracts only apply specifically to 'ashes' which are innoxious. 894 persons died in the parish last quarter. The condition of other parishes may be conjectured from this specimen.

"In the remarks of the registrars, attention is very properly called to the neglect of parents in procuring proper medical attendance for their children.

"The registrar of *Heaton Norris, Stockport*, says:—"Of the 120 persons, 53 were children of 1 year and under; and of these deaths of infants the causes were certified by a medical attendant in only 28 cases. It is to be feared that many at this age are lost for want of medical assistance, and care of the mother, who is soon obliged to leave her child in other hands, and go forth to engage in constant and unwholesome toil. The child sickens, and is soothed by opiates."

"The registrar of *Hulme, in Chorlton District, near Manchester*, observes:—"When we take into consideration that the infants of the poor are, many of them, fed upon innutritious and improper food, and a large portion of them in this district are constantly drugged with narcotics, such as Godfrey's cordial, paregoric, and miscalled infants' preservatives, inducing a morbid and congested state of the *primæ viæ*; that they live in unhealthy localities, in ill or non-ventilated dwellings, surrounded by an atmosphere pregnant with noxious exhalations, we cease in some degree to be surprised (these remote and predisposing causes existing) that, when an epidemic affecting the abdominal viscera prevails, it should prove so extensively fatal, and more particularly when these poor infants, many of them, have not had the advantage of judicious medical treatment, consequently no chance of recovery. During the last quarter there have been registered very few deaths of children of the higher class of society caused by bowel complaints, they being in a great measure exempt from the predisposing causes before enumerated, and having had the advantage of proper medical assistance. The 298 deaths certified, include many that have been seen only once or twice by regular practitioners, having been previously attended by druggists. Deaths not certified, 88, include those where it has not been convenient to get a medical certificate, and those who have not had attendance during the latter weeks of their illness. Deaths, not certified, where there has been no proper medical aid, 93, include those that have been attended by druggists, or have had no medical assistance whatever."

"The registrar of *Deansgate, Manchester*, remarks:—"Of the 279 children, the deaths of only 126 were certified, so that 153 died without any proper medical assistance having been procured for them, and of the certified cases a large number were stated in the medical certificates to have been in a hopeless state, having been ill several days or weeks before medical assistance was sought. The chief cause of mortality has been diarrhœa, and this of a very controllable character when taken early. Here we have 153 children dying in one district alone, and in one quarter, without any reasonable attempt having been made to save them, and if the deferred cases were added, the number would probably not fall short of 200. It is difficult to think of this frightful waste of

life without feeling that all other circumstances affecting the mortality of large towns dwindle beside it into insignificance. It is indeed deeply to be deplored that no proper provision has hitherto been suggested, and carried out for the preservation of the children of the poor. In all Manchester there is but one children's dispensary, and this has but two medical officers. Such institutions should be numerous in large towns, and much good might be effected; but the unfortunate out-door occupation of the women, by causing the withholding of nature's nutriment from the children, is terribly destructive to the latter."

"How pitiful is the condition of many thousands of children born in this world! Here, in the most advanced nation of Europe—in one of the largest towns of England—in the midst of a population unmatched for its energy, industry, manufacturing skill—in Manchester, the centre of a victorious agitation for commercial freedom—aspiring to literary culture—where Percival wrote and Dalton lived—13362 children perished in seven years over and above the mortality natural to mankind. These 'little children,' brought up in unclean dwellings, and impure streets—were left alone long days by their mothers, to breathe the subtle, sickly vapours—soothed by opium, a more 'cursed' distillation than 'heb-

(x) Deaths in London from all Causes (exclusive of Violent and Sudden Deaths), and from Diarrhœa, Dysentery, and Cholera, in the 13 weeks of the Summer Quarters 1845 and 1846.

Number of Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	Total.
Deaths from all causes, exclusive of Violent and Sudden Deaths	1845 757 1846 894	756 882	829 1026	858 976	810 1063	852 1100	834 925	821 870	796 875	742 850	804 880	739 819	811 783	10409 11943
Deaths from Diarrhœa, Dysentery, and Cholera	1845 15 1846 76	30 98	30 149	50 187	41 218	50 238	48 180	42 169	38 148	38 126	46 87	38 83	52 62	518 1821
Mean Temperature	1845 61.3 1846 65.0	60.9 60.0	59.6 64.9	60.0 62.6	56.3 70.6	59.5 66.5	55.6 61.8	56.5 60.8	57.6 62.6	54.6 61.6	55.8 64.5	55.0 60.3	50.0 59.2	57.1 63.1

(y) Comparative Meteorology of the Summer Quarters of 1844, 1845, and 1846.

(Deduced from the Greenwich Observations.)

Quarters ending.	Years.	Mean height of the Barometer, from 936 observations, corrected and reduced to 32 deg. Fahrenheit.	THERMOMETERS.										In the Water of the Thames at Greenwich by the Self-Registering Thermometer read at 9 o'clock.	Difference between the Dew Point temperature and Air temperature.	Difference between the mean temperature of the same Quarter on an average of 23 Years.	WIND.	Pressure in lbs. on the square Foot.	The mean Weekly amount of Horizontal movement of the Air.	Mean amount of Cloud, 0-10.	Rain in Inches (91 days).				
			Highest during the Quarter.		Lowest during the Quarter.		Mean.		Self-Registering.		Dew Point.													
			Mean.		Mean.		Mean.		Mean.		Mean.													
			Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.	Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.	Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.	Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.	Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.												
Sept.	1844	29.762	85.1	40.6	66.9	51.4	15.5	58.9	53.6	115.0	90.0	30.0	43.5	—	—	5.3	11.8	0.8	-2.0	9.0	0.29	870	6.3	3.38
	1845	29.768	80.5	35.3	65.0	50.1	14.9	57.1	52.3	111.6	87.1	22.5	44.2	61.0	60.6	4.8	10.7	0.9	-3.8	9.0	0.4	917	6.9	7.00
	1846	29.797	88.4	43.0	72.3	55.3	17.0	63.1	56.6	115.8	94.5	32.0	47.7	67.6*	65.8	6.5	15.0	0.8	+2.1	9.0	0.2	751	6.7	8.03

* Mean of 63 observations.

enon²—and when assailed by mortal diseases, their stomachs torn, their bodies convulsed, their brains bewildered, left to die without medical aid,—which like Hope should ‘come to all,’—the skilled medical man never being called in at all, or only summoned to witness the death, and sanction the funeral!”

Public Health in the Quarter ending December 31, 1846.

“The time from harvest to Christmas, comprising the last three months of the year, has hitherto been distinguished only by an excess in the number of marriages. During the past quarter (ending December 31st), funerals have taken their place. 52905 deaths were registered; which is 7311 more than the corrected quarterly average of previous years, and 13727 more than were returned in the corresponding season of 1845 (2).

“The first quarter of 1846 was remarkably healthy. The winter was mild; the rate of mortality lower than in the corresponding quarters of eight previous years. The northern districts alone, Sunderland, Newcastle-on-Tyne, and Carlisle, for instance, were striking exceptions. In the second quarter (ending June 30th) the mortality was a little above the average; and the diseases began to be prevalent in June, which raised the mortality in the third quarter (ending September 30th) 9655 above the average of that season. There was an epidemic of diarrhoea, and what is called English cholera. In London 1100 deaths, exclusive of those by violence and cases of inquest, were registered in the first week of August; the epidemics declined, and the deaths fell to 783 in the last week of September. The deaths, which in the last week of November were 918, rose in the four following weeks of December to 1020, 1111, 1214, 1214, in London; and the quarterly returns indicate a still greater increase of mortality in the other towns of the kingdom.

“The deaths in 1846 were 25641 more in districts making the quarterly returns than in 1845;* and nearly the whole of the excess in 1846 arose on the two last quarters of the year, from diseases of a totally different character. Thus in London 1821 deaths from diarrhoea, dysentery, and cholera, were registered in the September quarter, 389 in the December quarter; while 977 deaths from lung diseases (exclusive of consumption) were registered in the September, and 2628 in the

(2)

	1838	1839	1840	1841	1842	1843	1844	1845	1846
Deaths Registered in the December Quarters of 9 years	40030	41598	44044	39165	39544	42448	43918	39178	52905
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	39685	40380	41086	41805	42537	43281	44039	44810	45594
UNHEALTHY SEASONS.									
Difference above the calculated number	345	1218	2958	..	..	..	..	..	7311
HEALTHY SEASONS.									
Difference below the calculated number	..	..	..	2640	2093	833	121	5632	..

* The returns for the whole of England had not been received when this was written; the number of deaths in 1846, for the whole kingdom, was given by estimate, which is here omitted, as it was erroneous, for the reasons assigned, p. 36.

December quarter. Small-pox, measles, scarlatina, whooping-cough, croup, and thrush, which proved fatal to 1987 persons, chiefly children, in the December quarter, 1845, only destroyed 963 lives in the December quarter, 1846, when diarrhoea, dysentery, cholera, and influenza were unusually common, and typhus carried off 619 persons, of all ages. Bronchitis (in many cases a consequence of influenza), asthma, hernia, colic, or ileus, diseases of the stomach and liver, and rheumatism, were more than usually fatal. 397 persons (including suicides) died violent deaths—a number nearly 100 greater than died from the same causes in the December quarter of 1845. The deaths from cold and want were nearly twice as numerous as in previous years. A great increase in another very distressing class of cases will be observed. In the 13 weeks 163 mothers died in childbirth. Only 95 deaths were registered from the same cause in the corresponding quarter of 1845. It is to be regretted that steps are not taken in this country to educate nurses and midwives, on whose care and services the lives of women in childbirth often depend.

“The increased mortality in London gives but a faint notion of the mortality in the large towns of the country. The deaths in the December quarters of 1845 and 1846 were respectively 11695 and 13033 in the London districts; 27483 and 39872 in the other districts which made returns. The deaths in the December quarters of 1845 and 1846 were in Maidstone, 175 and 262; Brighton, 251 and 375; Winchester, 96 and 163; Oxford, 90 and 189; Bedford, 131 and 327; Colchester, 85 and 152; Ipswich, 145 and 212; Dorchester, 95 and 135; Exeter, 203 and 267; St. Thomas (surrounding Exeter), 183 and 276; Plymouth, 180 and 306; Portsea Island, 347 and only 380; Bristol, 363 and 471; Stroud, 171 and 227; Shrewsbury, 99 and 151; Dudley, 475 and 768; Walsall, 225 and 300; Wolverhampton, 464 and 630; Wolstanton and Burslem, 171 and 327; Birmingham and Aston, 1007 and 1787; Leicester, 354 and 460; Stockport, 437 and 793; Macclesfield, 293 and 425; Great Boughton (including Chester), 235 and 392; Blackburn, 435 and 853; Preston, 552 and 968; Bury, 439 and 717; Wigan, 402 and 675; Prescott, 290 and 510; Manchester, Salford, and Chorlton, 2555 and 4029; Ashton and Oldham, 1018 and 1485; Sheffield, 527 and 805; Huddersfield, 574 and 960; Leeds and Hunslett, 891 and 1389; Hull, 261 and 404; York, 231 and 342; Gateshead, 215 and 426; Tynemouth, 320 and 498; Newcastle-on-Tyne, 434 and 888; Carlisle, 183 and 327; Cocker mouth, 173 and 262; Abergavenny, 241 and 332; Wrexham, 177 and 348; Holywell, 185 and 268. It will be observed, that the manufacturing parts—the iron, coal, pottery, cotton and woollen districts, and generally the counties north of Staffordshire, were most severely visited.

“Referring to the registrars’ notes, the high mortality in the towns of the country is in many places ascribed to typhus. The diarrhoea of the summer quarter was succeeded by fever; generally ‘of the form accompanied by considerable disorder of the digestive organs.’ It was apparently the typhus characterized by ulcerations of the intestinal glands (dothineria) rather than typhus with petechiæ. The epidemic of diarrhoea continued in several towns; and scarlatina, the disease most fatal to children between five and ten years of age, and which tracks their path up to twenty, raged with great violence in several districts, but

chiefly in the northern counties. It was fatal to between 200 and 300 persons in Newcastle-upon-Tyne alone. Bronchitis and other inflammations or congestions of the chest were the immediate consequences of the cold weather, and the causes of many deaths, particularly amongst persons afflicted with asthma and heart disease.

"The mean temperature of the quarter at Greenwich was $44^{\circ}2$, which is $1^{\circ}9$ below the temperature of the corresponding quarter of 1845, and $1^{\circ}3$ below the average of the quarter for 25 years, but $1^{\circ}8$ above the temperature of the last quarter of 1844. The mean dew point was 41° . The rain was 8.16 inches. The horizontal movement of the wind, which was at the rate of 751 miles a week, in the summer, became 1003 miles a week. At the close of November the wind which had been s. and s.s.w. went round to the n.n.w., and the mean temperature from 46° fell below the freezing point; the mean temperature of the week ending December 5th was 32° ; the highest was 38° , the lowest 25° ; the highest in the sun, 57° , the lowest on the grass, 10° . The next week the mean temperature rose a little, but fell on the week following to 30° : the lowest temperature of the atmosphere was 20° ; of the grass on the ground 9° ; of the water of the Thames, 33° . Upon the whole the weather in December 1846 was not so severe as the weather in December 1844; and in London the mortality of the quarter was not so great in 1846 as in 1844. The aggregate mortality in the December quarter 1844 was 43918; in the same quarter of 1846 it was 52905. It may therefore be concluded that though the cold was fatal to many lives in both years, it was not the chief cause of the excessive mortality in the last quarter of 1846.

"The registrar of St. George, Manchester, after stating that the great number of deaths in his district—406—may be partly accounted for by the prevalence of measles and typhus, goes on to say:—

"The population of the district is to a great extent composed of the lower order of Irish, who live and lodge together in great numbers in the same house. In one part of the district, called 'Angel Meadow,' it is not uncommon to find 20 or 30 persons living in one house where there is not accommodation for one-third part of that number, especially if health is to be in the least considered. During the last 2 or 3 months large numbers of the poor from Ireland have crowded themselves in the district, droves of them rambling about the streets seeking lodgings, and no doubt being exposed to the severe and inclement weather. Many of the poor creatures have died from cold producing fever and other diseases. Owing to the great increase of mortality during the last few weeks, I instituted inquiries as to the length of time the deceased had been in England, and found in very many cases they had been only a few weeks. The poverty and destitution of the district at the present time is very great. The houses are badly ventilated, and the unhealthy odour arising from so many persons huddled together in a confined apartment must have a very injurious effect. It cannot be surprising that while such a state of things exists the mortality should be so great."

"The same thing is noticed in Liverpool. The registrar of St. Thomas says:—'A considerable portion of the increase [of deaths] arises from the great influx of poor people from Ireland, most of whom are quite destitute when they arrive. Some have been only a few weeks, others a few days in the town previous to their death.'

"The population of the United Kingdom, which was about 28487000 in the middle of the year 1846, probably increased at the mean rate of 800 daily. The daily births exceed the deaths by 1056; and the surplus of 256 is the average number who leave the United Kingdom. The emigrants from England are constantly replaced by nearly an equal number of the natives of Scotland and of Ireland, who, it is estimated, amounted to upwards of 27000 a year in the 10 years 1831-41.* The sad condition and the habits of these poor Irish immigrants, have, no doubt, contributed to deteriorate the health of Liverpool, Glasgow, and Bristol, the ports through which they enter, as well as to raise the mortality of Manchester and other inland towns. They may also introduce fevers and other diseases into England. As the different families of men are of one kind and of one blood, they have diseases in common. Like living things, epidemics do not cease with the circumstances in which they are produced; they wander to other places and descend to remoter times. The plagues of the eastern empire,† and the 'black death,' depopulated the western world; the Egyptian ophthalmia blinded thousands in Europe; the *febris castrensis*—a typhus called *fièvre meningite catarrhale de congelation*, by Larrey—which broke out in the French army after their disastrous retreat from Moscow, became contagious, and committed terrible ravages among the peaceful citizens of Poland, Prussia, Saxony, Germany, and France;‡ the cholera epidemic, generated in the miserable population of Asia, on the banks of the Ganges, traversed England from Sunderland to London and the Land's End. If all nations, however remote, are liable to suffer from each other's maladies, and have, therefore, a direct interest in each other's well-being, the principle holds with tenfold force of the provinces of the same kingdom, and the inhabitants of the same cities. The unhealthy and miserable parts of the population, who are left with an imperfect claim to relief on the property of their native soil, exercise, in a variety of ways, a deleterious effect on the rest of the empire, both when they are suffered to feed at home in hovels on one kind of the lowest and most precarious subsistence—the failure of which entails starvation on men, women, and children, or lights up fever—and when they have strength left to quit their parishes and kindred, to seek a livelihood in England. But the extraordinary mortality of Manchester and Liverpool in 1846 cannot be ascribed, to any great extent, to the influx of Irish: in Manchester, for example, this influx is stated

* Registrar General's Seventh Annual Report.

† In the reign of M. Aurelius, A.D. 167, the real Oriental plague was carried into Europe by the army returning from the Parthian war, and spread all over the western world, Asia Minor, Greece, Italy, Gaul, &c. Africa alone was perhaps not reached by it. This pestilence must have raged with incredible fury, and it carried off innumerable victims. As the reign of M. Aurelius forms a turning point in so many things, and above all, in literature and art, I have no doubt that this crisis was brought about by that plague. * * * The happiness of M. Aurelius was thus disturbed by the plague, which was carried into Europe from the East, and by the wars with the Germans. * * * It increased in the reign of Decius, that is, from A.D. 256. During the ravages made by the barbarians it spread all over the empire; it now raged in Africa and Egypt, and became settled.—Niebuhr, *Hist. Rome*, vol. v. pp. 281-2, 345.

‡ *Chirurgie Militaire et Campagnes de Baron D. J. Larrey*, vol. iv., pp. 139, 147, 455.

to have taken place during 'the last two or three months.' Now the mortality of Manchester, Salford, and Chorlton, which is under ordinary circumstances nearly double the mortality of the healthiest parts of the kingdom, rose from 2411 in the three months, July, August, September, 1845, to 4248 in the same months of 1846, before the tide of Irish destitution had set on Lancashire. The increase of mortality commenced at the same time, and has continued since in Birmingham, Oxford, Bedford, and other towns, large and small, where the Irish population is considerable.

"The 'high price of provisions,' 'depression of trade,' and 'distress,' are referred to by the registrars of Stockport and Little Bolton as causes of the high mortality in December. The failure of the potato crop and the dearth of provisions left the poor very ill able to provide the additional clothing and firing required by the severities of the weather, and their sufferings must have been aggravated where their earnings were at the same time diminished. As this 'distress' is not adverted to in the preceding September quarter, and but rarely in the December quarter, it will not account for the excessive mortality of the half-year. In connexion with cold, however, want was the cause of many deaths in December.

"No mention is made of the potato disease having had any direct connexion with the mortality. The potato, in a state of partial disease, has no doubt been extensively consumed, without giving rise to any specific malady in man, or indeed having any appreciable connexion with the disorders of the bowels and fever, which grew prevalent about the time the last crop came into use. The absurd and unfounded fancy that the cholera epidemic, so fatal to infants at the breast and old people, as well as others, is caused by fruit, or has any connexion with the 'plums in season,' derives not the slightest support from the observations of the year when the supplies of fruit were unprecedentedly scanty. Dr. Baly, the physician to the Millbank Penitentiary, showed some time ago that scurvy was very prevalent in prisons from the dietaries of which potatoes were excluded, and did not exist where potatoes were used.* The potato contains a small quantity of a vegetable acid, in combination with potash (bitartrate of potash, or cream of tartar). It is certain that scurvy, which was formerly common, has almost disappeared since the potato entered largely into the food of the population. If, now that the potato has grown scarce, this disease, characterised among other symptoms by swollen bleeding gums, again become prevalent, its simple prophylactics should be had recourse to.†

"In the above observations on the mortality of particular districts, the mortality of the past year has been compared with the mortality of the same districts in previous years. Manchester in 1846 has been compared with Manchester in 1845 and other years. I shall here call attention for a moment to the difference in the mortality of different places in the same years. The mortality of 1846 was raised much above the average in both Anglesea and Manchester.

* Medical Gazette.

† This anticipation of the appearance of scurvy was unfortunately realized. Scurvy became prevalent in many parts of the country in 1847 (*Note August, 1848*).

"The population of Manchester, Salford, and Chorlton
in 1841, was 356372
The deaths in the December quarter of 1845 were 2555
The deaths in the December quarter of 1846 were 4029

"The population of the Anglesea district in 1841 was 38105
The deaths in the December quarter of 1845 were 163
The deaths in the December quarter of 1846 were 206

Allowing for increase of population. the inhabitants of Manchester, &c., were probably 10 times as numerous as the inhabitants of Anglesea; the deaths were 15 times as numerous in 1845, and 20 times as numerous in 1846.

"Again, the population of Hull was 41130; the deaths in 1845 were 261; in 1846 they were 404: the population of the Isle of Wight was 42547; the deaths in 1845 were 167; in 1846 they were 201.

"Innumerable examples of the same kind may be given from calculations now in progress.

"It is found from the returns of the 7 years, 1838-44, that the mortality of Liverpool and Manchester, and the worst parts of other towns, is nearly double the mortality of tolerably salubrious districts;* and it is here seen, that while the mortality of the latter districts was raised 50 or 60 per cent., the ordinary but unnatural and frightful mortality of the denser districts was raised from 70 to 100 per cent. in 1846 over what it was in 1845.

"It is well known, that the decaying matters of marshes give rise to agues, dysenteries, and fevers; and it is proved satisfactorily by the facts collected under the Registration Act, that the excessive mortality from diseases of the zymotic and other classes, observed in towns, is occasioned by animal or vegetable poisons, with which the atmosphere is charged, in different degrees of concentration, depending on accumulated filth, crowding in dwellings and workshops, the closeness of courts, imperfect supplies of water, and the want of efficient sewers. The high temperature of the summer of 1846, in which the mean temperature ranged from 0°2 to 7°7 above the average during 10 weeks out of 13, accelerated the decomposition, and increased the virulence of these effluvial poisons as well as of the diseases which they promote. Once grown epidemic, the diseases continued to rage during the rest of the year. Thus the mortality of 1846 may be accounted for. If it took place in obedience to any cyclical law, or to a general cause acting simultaneously in Asia and Europe, the great fact remains, that the deaths were nearly twice as numerous in ill-constructed towns, where the poison is concentrated, as in the country, where it is diluted and destroyed by the fresh air.

"The precise degree of influence which the various agencies have in causing the high mortality of towns is not easily determined. Opinions differ as to what fraction of the suffering and death is to be set down to the want of water or of sewerage; crowded lodgings, narrow streets, ill-ventilated workshops; the destitution of skilful medical advice; the neglect of children; doses of opium and inroads of quackery; slaughter-houses and rank churchyards. Similar discrepancies of opinion

* Seventh Report, 8vo, pp. 332-3.

existed formerly as to the causes of the ill health and inefficiency of the navy. Down to the end of the last century the loss of life in our shipping was immense. The first fleet of the East India Company, out of 528, lost 100 men before and 5 after landing, in the voyage of seven months to the Cape of Good Hope. Anson, in 3 ships, lost 626 men out of 961 in 10 months after leaving England. The men had scurvy, dysenteries, putrid fevers; their limbs dropped off; they swooned and died. In the year 1780, the Channel fleet sent 11732 sick to Haslar Hospital; 1457 had scurvy, 240 dysentery, 5539 fever. At that time, Sir James Saumarez said, 'neither the ships nor men could keep the sea more than two months.*' Captain Cook left Deptford in 1772 with 112 men, sailed round the world, and returned in 3 years with the loss only of 4 men by accidents, and 1 by disease. Cook, in a paper read before the Royal Society, described the means which he employed to secure the health of his crew; the care which was taken in the selection of a vessel, in drying and ventilating, in providing good provisions, anti-scorbutics, and an abundant supply of fresh water. In the third voyage the men were equally healthy. After some years had elapsed, and after a reform of the Naval Administration,† the principles established by Cook were carried out by the Admiralty, and the health of the navy was raised to a satisfactory standard. In Parry's three voyages of a year and a half and two years' duration, only 7 men died out of 334. The annual mortality in the last voyage was 0.5 per cent. Cook did not wait till it had been settled how much of the sickness at sea was caused respectively by bad ships, dirty water, rotten provisions, the want of ventilation and of lemon-juice. He procured, amidst great difficulties, all that he believed was requisite to the health of the men. The experiment, though not an *experimentum crucis*, as applied to any one cause, was successful. It did not solve a physiological problem, but it saved the men's lives. If the general measures for the health of towns announced are proceeded with, they will, no doubt, be as successful as the similar measures introduced into the navy, and crowned in Cook by the award of the Royal Society in the last century. He who raises the industrious population of this many-cited kingdom to the natural standard of health, will confer a greater service on the country than Cook; and will indeed be *parens ac deus salutis nostræ*; if, according to Pliny, *Deus est mortali juvare mortalem. Et hæc ad æternam gloriam via!*"

It will be seen from the following Table that the deaths in the 115 districts from which the quarterly return is procured, were to the total deaths in the country during the 6 years 1839-44 as 987084 to 2095415, or as 100 to 212. Using these proportions to deduce the deaths in the 2 years 1845-6 of all England, from the deaths in the 115 districts, we have the two proportions—

Actual Deaths.

$$(1) 987084 : 2095415 :: 165789 : x = 351942 ; 349366$$

$$(2) 987084 : 2095415 :: 191430 : x = 406374 ; 390315$$

The first result agrees closely with the facts: the second gives a result considerably above the truth; which implies that the mortality in the great town districts, where the average mortality is high, was increased in

* Cited by Sir Gilbert Blane, Diss., vol. i. p. 18.

† M'Culloch's Statistics of the British Empire.

1846 to a much greater extent than the mortality in the country districts and small towns of the rest of the kingdom. This is in conformity with the law, that where the "average mortality is high, the population "suffers more from epidemics than populations favourably situated." The facts observed in the influenza and cholera epidemics place this principle beyond doubt.

Comparative Meteorology of the December Quarters of the Years 1844, 1845, and 1846.

Quarters ending.	Years.	THERMOMETERS.										In the water of the Thames at Greenwich by the Self-Registering Thermometer read at 9 o'clock.		Difference between the Dew Point temperature and Air temperature.		WIND.		Rain in Inches (91 days).						
		Highest during the Quarter.					Lowest during the Quarter.					Mean of 936 observations.	Mean of 936 results.—Dew Point.	Self-Registering.		Mean of 936 differences.	Mean of the greatest on each day, 78 observations.		Mean of the least on each day, 78 observations.	Greatest pressure in the Quarter.	Mean for the Quarter.	The mean Weekly amount of Horizontal movement of the air.	Mean amount of Cloud, 0-10.	
		Mean.		Mean.		Mean.		Mean.		Mean.				Mean.										
		Highest on each day, 78 observations.	Lowest on each day, 78 observations.	Difference.	Mean of 936 observations.	Mean of 936 results.—Dew Point.	Highest in the Sun.	Lowest on the Grass.	Of the highest on each day, from 91 observations.	Of the lowest on each day, from 91 observations.	Mean of 936 differences.	Mean of the greatest on each day, 78 observations.	Mean of the least on each day, 78 observations.	Greatest pressure in the Quarter.	Mean for the Quarter.	The mean Weekly amount of Horizontal movement of the air.	Mean amount of Cloud, 0-10.							
Dec.	1844	29°713	65°9	21°6	44°3	38°7	5°6	42°4	39°4	87°2	52°6	7°9	32°4	45°1	44°5	3°0	6°1	0°8	-2°6	8°0	0°35	864	7°	9°23
	1845	29°767	67°1	28°3	51°6	40°4	11°2	46°1	42°5	84°8	59°9	15°0	33°4	47°4	46°4	3°6	7°4	0°9	+0°9	15°0	0°5	1107	6°2	5°42
	1846	29°621	65°8	19°8	48°5	39°7	8°8	44°2	41°0	86°5	60°7	9°0	33°0	-	45°8	3°1	6°7	0°8	-1°3	10°5	0°3	1008	7°3	8°16

Deaths in London from all Causes, exclusive of Violent and Sudden Deaths.

Number of Weeks.	1	2	3	4	5	6	7	8	9	10	11	12	13	Total.	
Autumn Quarter	1844 1845 1846	910 801 85	992 759 872	879 750 798	909 905 862	943 917 93	949 905 912	1000 918 889	877 883 937	1011 938 918	954 928 1020	1150 947 1111	1326 918 1214	1170 887 1214	13076 11314 12543
Mean Temperature	1844 1845 1846	54°6 55°0 53°5	51°6 47°7 56°4	48°6 52°9 50°5	46°1 45°9 49°1	44°2 48°9 43°2	43°8 47°2 49°1	49°9 44°8 44°1	44°5 45°5 47°8	37°6 46°1 45°8	31°7 42°4 32°0	28°2 39°2 35°9	37°0 43°6 29°9	33°4 40°1 36°3	42°4 46°1 44°2

Deaths Registered in the Four Quarters of the Eight Years 1839-1846.

	In 115 Districts of England from which the Quarterly Return is procured.								
	1839	1840	1841	1842	1843	1844	1845	1846	
March	-	42258	46206	46809	44746	43620	45965	49874	43708
June	-	41120	41903	38961	38441	40216	38851	40729	43582
September	-	37189	39337	35899	39249	36815	3872	36008	51235
December	-	41598	44044	39165	39544	42448	43918	39178	52905
Total	-	162165	171490	160834	161980	163099	167516	165789	191430
	In Districts of England from which no Quarterly Return is procured.								
	176819	188197	183013	187539	183346	189417	183577	198885	
Total	-	176819	188197	183013	187539	183346	189417	183577	198885
March	-	47482	52990	52260	515°8	51306	55059	54790	45776
June	-	46849	48436	47173	48097	47018	46486	48420	46648
September	-	39091	41485	39541	43090	39977	40926	38864	50429
December	-	43397	45586	44039	44784	45045	46946	41503	50022

I have continued the publication of the Weekly Returns of the Births, Deaths, and Causes of Death in London; which within the limits I have marked out comprised 1948369 souls in 1841, when the last census was taken; and if the population increases at the same rate (1.551 per cent. annually), as in 1831-41, now contains about 2172000 souls. These returns, made down to the last entry on Saturday, by the registrars in the Metropolis, are received by post every Monday, abstracted on the same day, and published on Tuesday afternoon. It is gratifying to me to be able to state that the returns are sent in with great regularity; and it seldom happens that a single return is missing. The deaths by each kind of disease are shown; the prevailing diseases are recorded; and every epidemic is traced week by week from its origin to its termination. The Quarterly Table is at the present time compiled from returns made by 582 registrars, whose districts, with some agricultural parishes, comprise the principal towns of England, and had 6612958 inhabitants in 1841. The number of deaths and the prevailing epidemics of these districts are published quarterly within a month after the date of the last entry.

I have the honour to be, Sir,
Your faithful Servant,
GEORGE GRAHAM,
Registrar-General.
