

CIRCULATION.—COUNTRY BANKS.

Average Amount of Promissory Notes in Circulation in ENGLAND and WALES on Saturday, in each Week during the SECOND QUARTER (April—June) of 1861; and in SCOTLAND and IRELAND, at the Four Dates, as under.

ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES.	Private Banks. (Fixed Issues, 4,96.)	Joint Stock Banks. (Fixed Issues, 3,27.)	TOTAL. (Fixed Issues, 7,31.)	Four Weeks, ended	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 2,76.)	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 0,85.)
1861.	£ Mlns.	£ Mlns.	£ Mlns.	1861.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
April 2	3,23	3,03	6,26	April 2	1,45	2,47	3,92	2,71	2,82	5,53
" 9	3,32	3,06	6,38							
" 16	3,29	3,07	6,36							
" 23	3,27	3,03	6,30							
" 30	3,24	3,00	6,25							
May 7	3,25	3,06	6,31	May 7	1,50	2,51	4,01	2,86	2,79	5,65
" 14	3,24	3,06	6,31							
" 21	3,21	2,99	6,20							
" 28	3,16	2,88	6,01							
June 4	3,13	2,85	5,98	June 4	1,73	2,81	4,53	3,01	2,78	5,79
" 11	3,08	2,84	5,93							
" 18	3,04	2,83	5,87							
" 25	3,03	2,84	5,89							

FOREIGN EXCHANGES.—*Quotations as under, LONDON on Paris, Hamburg & Calcutta; and New York, Calcutta, Hong Kong & Sydney, on LONDON—with collateral cols.*

DATES.	Paris.				Hamburg.				Calcutta.				Standard Silver in Lbs in India.
	London on Paris.		Bullion as arbitrated.		London on Hamburg.		Bullion as arbitrated.		New York.		India House.		
	London on Paris. 3 m.d.	Agnst. Engd.	For Engd.	Prem. or Dis. on Gold per mille.	London on Hamburg. 3 m.d.	Agnst. Engd.	For Engd.	60 d.s.	60 d.s.	6 m.s.	6 m.s.	30 d.s.	pr.ct.
1861.													
April 2..	25.57 $\frac{1}{4}$	pr. ct.	pr. ct.	—	13.7 $\frac{3}{4}$	pr. ct.	pr. ct.	pr. ct.	177 $\frac{1}{4}$	d.	d.	d.	pr. ct. d.
" 13..	60	—	—	—	8	—	—	—	181	24 $\frac{1}{2}$	25 $\frac{1}{2}$	59	— 61 $\frac{1}{2}$
May 7..	90	—	—	—	11	—	—	—	192	23 $\frac{1}{2}$	—	58	— 61
" 21..	75	—	—	—	9 $\frac{1}{2}$	—	—	—	193	—	—	—	— 60 $\frac{1}{2}$
June 4..	67 $\frac{1}{4}$	—	—	—	8 $\frac{3}{4}$	—	—	—	193 $\frac{1}{4}$	—	—	58	— 61 $\frac{1}{2}$
" 18..	62 $\frac{1}{4}$	—	—	—	9	—	—	—	211	23	25	—	— 61 $\frac{1}{2}$

JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER, 1864.

OPENING ADDRESS of the PRESIDENT of SECTION F (ECONOMIC SCIENCE and STATISTICS), of the BRITISH ASSOCIATION for the ADVANCEMENT of SCIENCE, at the THIRTY-FOURTH MEETING, at BATH, in September, 1864. By WILLIAM FARR, ESQ., M.D., D.C.L., F.R.S.

GENTLEMEN,—I am deeply sensible of the honour which has been conferred upon me by placing me in this Chair.

In opening your proceedings, I propose to bring rapidly under your notice the state of the science which you have met in this Section to promote as members of the British Association.

Mathematics is the great abstract science which fosters all the rest; and physics, mechanics, chemistry, mineralogy, geology, geography, ethnology, embrace the phenomena of the heavens, the earth, and the three kingdoms of nature. They occupy other Sections.

Man himself is the special study of physiology and of ethnology in two of those Sections; but there they inquire into the functions and parts of the body, or the condition of our race as the foremost of the animal kingdom; while geography describes nations, as it describes mountains and rivers, because they are on the earth's surface.

We have to do with men in States, and in political communities. Statistics is essentially a science of the relations of numbers of men, and its laws are founded on the observation of mankind as they exist in nations now and in past times; but, building on facts that can be measured and expressed in numbers, it is only in civilized communities, and in recent times, that it finds adequate materials. The domain of the past we almost abandon to the geologists or the historians: and we leave the uncivilized world in the possession of our enterprising neighbours the ethnologists; while we yet hope one day to enter this field, and indeed have already made, under established Governments, some conquests among the races in India, in Russia, and in South America.

Man in society possesses property, and all his possessions fall

within our province, for they form an intrinsic part of the State. We have to study, besides the political relations of men to each other, their riches in land, in horses, sheep, and the cattle on a thousand hills, in grain and crops, in precious metals, in minerals, and in merchandise.

Here are found the grounds of two grand divisions of statistics; the first falling under the head of *Population*, and the second under the head of *Property*, which is the subject also of economic science.

Under *Population* are discussed the races, sexes, ages, marriages, births, deaths, causes of death, the ranks, professions and tenures of each people in a State: from their earnings the values of their life-work is deduced; certain acts are also investigated, such as baptisms, attendances at schools or at churches, votes at elections, crimes, punishments, diseases, and civil actions. Civil and military statistics constitute a capital chapter of this division.

The statistics of *Property* are divisible into two chapters: the first treats of the fixed property, including land, mines, forests, manufactories, houses, roads, canals, and rivers; its basis is a map on a scale large enough to exhibit the quantities of every parcel of land and the area of every dwelling-house: the holdings of land, its burthens, and transfers, naturally fall under this head.

Under the second head falls the movable property, including live stock, ships, machines, goods, merchandise, and vendible products of all kinds.

The annual produce of the two classes of property, its transport, its sales, its prices, and its relation to the stock, form the subject of the three sections of agricultural statistics, industrial statistics, and commercial statistics.

The public revenue and expenditure, the financial operations of the public exchequer, of the banks, and of the great companies, offer an extensive field, and are in the domain of financial statistics.

There are other minor divisions, but the object I aim at is to survey rapidly the field of our labours, which, although it is concerned in the facts of public interest to statesmen and political inquirers, and includes the fundamental part of politics, yet does not embrace all the doctrines of that kindred science, which, I may add, has been luminously expounded by Sir George Lewis in the treatise on the "Methods of Observation and Reasoning in Politics;" his greatest work—and to politics what Whewell's book is to the physical sciences—replete with the latest results of European learning, and a solid, hitherto unsurpassed, contribution to political science.

Sir George Lewis was a Fellow of the Statistical Society, and himself a labourer in early life in the field of practical statistics. He was well versed, too, in its philosophy, yet his genius did not lie in the direction of the physical sciences or of the mathematics, which

are the soul of statistics; but, standing on the border land, and on an eminence surveying all the territories, his calm judgment is impartial and commands attention. Noticing the imperfections in the early records of facts and numbers, Sir George Lewis observes:—

"The importance of accurate statistical information as the basis of historical description, as well as of political reasoning, both speculatively and practical, cannot be too much insisted on. The attention of modern Governments has been directed to the subject, and it has been understood that a constant registration of social and political facts ought to be kept up, without any immediate practical object; like the observations of the heavenly bodies, temperature, weather, tides, and other natural phenomena, made by the physical philosopher. Facts, unimportant in themselves, become important as units comprised in a complete enumeration; and results are thus obtained, to which mere conjecture, or the loose and vague impressions derived from a partial observation, could not have led. This process is now carried on, with more or less completeness, by all civilized Governments, and the collection of statistical information, not merely for practical but for scientific purposes, is recognized as a legitimate object of public policy. There are now statistical departments in all the principal States of Europe."*

Here is another element of classification, for the materials of science exist in each State, so in our archives are the statistics of England, Sweden, France, Spain, Italy, Germany, Russia, the United States of America, and some other countries, at least in outline. M. Quetelet, one of the founders of this Section of the British Association, is now engaged on a work, of which proofs are on the table, exhibiting the comparative statistics of the population of Europe, on a plan nearly uniform. He submits it to your inspection, and had a great desire to be present here, but is kept away by circumstances over which he has no control. I feel sure that I have your authority to reciprocate the good wishes of this veteran of science. (Applause.) The work had its origin at the International Statistical Congress, which was convened in 1860 by Her Majesty's Government, in London, and was presided over by the late Prince Consort; whose sagacity, we may believe, did not fail him when he proclaimed that the statisticians of his day were laying "the foundation of an edifice, necessarily slow of construction, and requiring, for generations to come, laborious and persevering exertion, intended as it is for the promotion of human happiness, by leading to the discovery of those eternal laws upon which that universal happiness is dependent." These last words of the good Prince may well cheer us on the way.

* Vol. i, p. 137.

You will see at once that the observation of the scientific facts with which we are concerned in so many States of the world, has already supplied the materials for sure induction, and placed statistics among those applied sciences which reveal laws, and arm man with power over man and over nature.

In proportion as Governments are organized and intelligent, they cultivate statistics; and it is gratifying to observe that nearly all the States of Europe sent official delegates to the Statistical Congress which met last year at Berlin, under the auspices of the Government of Prussia, and under the able presidency of Dr. Engel.

Spain, which had fallen in arrear, had been put upon her mettle, and in 1857, and again in 1861, took a census, of which many interesting results have just been published: the population was 15,658,531, some millions more than she formerly had credit for, and entitling her, when her finances are upon a sound footing, again to a place among the Powers of Europe.

The Kingdom of Italy was no sooner constituted than its statistics were developed. A census was taken, and we find a population of 22 millions (21,893,171*) in this constitutional State. Over Rome, Venice, Lombardy, Mantua, Trieste, the Tyrol, Ticino, Savoy, Corsica, Malta, and the Kingdom of Italy, a population of 27 millions speaking Italian is diffused. The births, deaths, and marriages are registered, and the principal statistical elements are under observation and inquiry in the Kingdom of Italy, which will henceforward have a voice of weight in the affairs of Europe, and in science. The statistics of Italy are ably displayed in the Statistical Annuary, for 1864, of Correnti and Maestri, who have had a large share in the organization of the statistics of the new kingdom.

Russia, until lately, did little for statistical science; and the Emperor Nicholas refused to send a Russian to the first Congress in Brussels, on the alleged ground that his empire had nothing to learn from the science of Europe. Things have since greatly changed, and the Russian Government now fully recognizes the claims not only of her own people, but of science and of Europe, to a faithful account of the population and resources of that empire. M. Von Buschen and Mr. Wilson were sent over by the Imperial Government to observe our proceedings in the last census; and M. Troinski, who was here recently, informed me that measures were under consideration for taking as accurate a census of Russia as circumstances will allow. The births, deaths, and marriages, will also be registered more accurately. We may thus expect a great accession of information from Russian statisticians, respecting an empire emancipating millions of serfs, and passing through changes which the older States of

* Estimated for 1st January, 1863; by the census of 1st January, 1862, the population was 21,776,953; increase 116,218.

Europe traversed in what may be called pre-statistic times. Popular books contain many statements of numbers which are put forth as statistics, but are purely conjectural, or are based upon loose estimates. Among the latter numbers is the alleged population of Russia, which is set down in the "Gotha Almanack" at 74,139,394 souls, neither more nor less—exclusive of the population of Russian America, which belonged to a company whose privileges expired at the end of 1863. How far this is wrong it is difficult to say; there have been partial censuses, but the population of the empire has never been enumerated.

So it is in our Indian Empire, the population of which is cited as 135,571,351. The populations of the North-West Provinces, and of the Madras Presidency, have been counted, but the other numbers are "guesses," for we have not everywhere adopted the "practice of counting." The population is as likely to be several millions more in India as to be millions less, for the maxim of Dr. Johnson is not invariably true, that "when numbers are guessed they are always magnified." It is said that the population of Rome was once estimated by the weight of cobwebs within its precincts; and that Xerxes ascertained the numbers of his host by measuring the ground upon which they stood. How the guesses are made in India we do not precisely know, but it is probable that the population of many of the provinces has been estimated from their area. The enlightened and really beneficent Government of India, which collects 43,000,000l. of revenue from the population annually, will no doubt ere long contrive to perform the really arduous task, at least once, for that part of Southern Asia which Russia is about to perform in the North for the barbarous tribes of Siberia, and thus extend the boundaries of official knowledge, enumerate Her Majesty's subjects, and make India by its census an integral part of the empire.

The British Colonies deserve great praise for their statistics. The last census of Canada is elaborate; and Mr. Archer, Mr. Rolleston, and their colleagues in Australia, have placed the statistics of those colonies upon such a footing that we shall be able to trace with extraordinary minuteness the development of the empire in the southern hemisphere.

Of China several State censuses are cited, but I confess that I have less faith in the official returns of 367,632,907 "mouths,"*—the Chinese for souls—in China proper—than I have in those of India; in fact, we should be glad to hand them over to the geographers, recommending them, when they give the populations of countries, even in their elementary books, to cite the figures with discrimina-

* See paper by R. M. Martin, in "Addenda to Report on Sanitary State of the Army in India," 8vo. edit., p. 559. A recent return makes the population of the whole empire 415,000,000. ("Gotha Almanack," 1864.)

tion. A due appreciation of the value of published facts is an element in all the sciences.

Statistics is prosecuted to some extent in every State; and in countries where observation is difficult, intelligence scarce, and facts fugitive, figures appear to be so essential that they are invented. I should regret to apply this remark to the census of the Sandwich Islands, which in 1861 had a population of 67,084 natives and 2,716 foreigners, and is declining, according to the census of King Kaméhameha IV and of his Anglo-Saxon Queen Emma, *née* Miss Rooker. Indeed I would rather adduce the insular census to prove that statistics are journeying round the world, and that the statistics of small States are often interesting, and illustrate general laws.

It is evident too that the statistics of Bath, for instance, which has 52,528 inhabitants, are at least as instructive as the statistics of Hesse Homburg, which has a population of only 26,817; while those of the 444,873 people of Somerset, the county in which we meet, are not a whit less interesting than those of any of twenty-four kingdoms and principalities in Germany, which fill the pages of that useful publication the "Gotha Almanack."

Wherever there is local Government we look for local statistics; as they afford means of information which enlightened municipal councillors can always turn to account. We may well believe that, as Adam Smith boasted he had converted some of the merchants of Glasgow to his doctrines before he had promulgated them to the world, his spirit lingers among their descendants, for the statistics of that city have long held an honourable place on our rolls. The statistics of Glasgow are—as indeed are those of any city—of universal interest, when they are collected and discussed by such a statist as the late Dr. Strang, a truthful observer, a thoughtful writer, and an excellent man. In the name of our Section I venture to say that we shall be very glad if the Mayors—with the prosperity of Glasgow before them—and all the town councils in England, Bath leading, will at once appoint competent officers to elaborate their statistics.

As well as Governments and municipal bodies, England has always at work in the field of science richly gifted independent men, like Buckle and Darwin, who devote their lives to science, either as observers or as reasoners; and as an example of what an individual can do, I will cite Dr. Heysham, who twice enumerated from house to house the population of Carlisle, abstracted the ages from the burial registers, and published the results in a judicious form. The volume, Mr. Milne—as he informed me—found by chance on a book-stall; whereupon he opened a correspondence with Dr. Heysham, constructed the Carlisle Life Table, and deduced a general law of mortality which served through many years as the basis for thousands

of transactions, and for the valuation of millions of property. The names of the two men, the statistical observer and the statistical reasoner, will remain for ever engraved upon our annals.

It is evident that statistics may be investigated in every English parish; and I know no fairer field than local statistics offer to a liberal and ingenuous mind. Some subjects can be more impartially investigated by private gentlemen than by men in office; and a specimen of this is a paper by Mr. Norman, which is a model of style and statistical logic, proving the fact which at first appeared paradoxical, that, large as the taxation is, the people of England pay less in proportion to their means, and get more work for their money than the people of any other country.* Again, the remarkable work before you of M. Guerry, on the comparative crime of England and France, embodies the labours of the life of one of the most ingenious private statisticians in Europe.†

The Statistical Society of London has done so much, by its papers and its Journal, in the eyes of Europe for science, that a similar society has recently been founded in Paris, and publishes an excellent Journal, to which M. Legoyt and others contribute; the necessary complement to the well known "Journal des Économistes." The Dublin and the Manchester Societies remind us by their useful labours of the utility of Statistical Societies in our great cities.

I admit that the country has a right to look to the Government for the census, for registration returns, for commercial statistics, for agricultural statistics, for industrial statistics, and for financial statistics: as the collection, analysis, and promulgation of facts of universal interest is one of the Queen's most useful prerogatives. Formerly little or nothing of the kind was done; but by referring to the annual reports which emanate now from the public offices—you will see that this great duty is kept in view. The reports of the War Office and the Admiralty; those of the Board of Trade, of the Customs, the Inland Revenue, the Post Office, and of the Registrars-General of England, Scotland, and Ireland, of the Poor Law Board, and of the Emigration Commissioners, of the Privy Council Officer of Health, of the Education, Factory, and Mine Inspectors; the judicial statistics, criminal and civil, the Consuls' Reports which the Foreign Office now publishes, show that the Civil Service is everywhere anxious to do its duty. And I shall perhaps be pardoned for reminding you, that men in the Civil Service are among the great names of our science, from Petty, King, and Davenant, to Deacon Hume, Porter, McCulloch, John Mill, and, to cite no more contem-

* "On the Pressure of Taxation in this and other Countries." By George Warde Norman, Esq.

† "Statistique Morale de l'Angleterre comparée avec la Statistique Morale de la France." Par M. A. M. Guerry, Correspondant de l'Institut, &c., &c. 1861.

poraries, Adam Smith himself. The Civil Service of the present day is quite in a position to sustain the statistical reputation of England in the face of Europe. What it wants is a better co-ordination of the work; which might, as was recommended by the Congress, be accomplished by a board at which the principal offices should be represented.

We venture in this Section to call the attention of Mr. Milner Gibson to the organization of a central authority "to direct," in the words of the late Prince Consort, "all the great statistical 'operations.'" Such a body has been recently created in many of the States of Europe.

Another matter this Association may very properly urge on the same minister. We ought, from agricultural statistics, to know approximately in October the produce of the harvest in Europe as well as in America, and the state of the live stock to supply the markets. The season has been extraordinary; what have been its effects upon the crops? Unfortunately the Government has nothing to tell us. English agricultural statistics are a complete blank. Yet no one seriously doubts the utility of this question of the supply of food, to town and country, to rich and poor, to farmers and merchants; it will enter largely into the commercial combinations of the next twelve months, and is one of the elements affecting the circulation.

The Registrar-General of Ireland procures the returns for that division of the United Kingdom; and the produce of the last harvest of Australia is known: it is in some parts, if my memory serves, half the average crop; an unpleasant result, which may influence the gold supply, but will partially be mitigated by timely provisions to meet a loss the extent of which is already known.

Mr. Hunt has just published a return of the mines of every kind; and of the mineral produce of the kingdom. It is alike creditable to him, to Sir Roderick Murchison, and to the mining proprietors, who voluntarily supplied the information. Some of them are not far from us, and will perhaps communicate the results to the Section.

I now come to our tools and our methods. Foremost in importance is the question of statistical units. The Legislature has just passed a measure authorizing the use of the metric weights and measures in England; and the report of a Committee of the Association on the subject will be presented to the Association by Mr. Heywood. In the first stage of statistics we count; but this no longer suffices, and we have to weigh and measure.

Upon the choice of units of weights and measures our progress in no slight degree depends. Now, one weight will not serve all purposes. Coal, for instance, cannot be sold by the ounce, it is sold

by the ton; sugar by the hundredweight; tea by the pound; gold by the ounce; while opium is administered in grains. If the hundredweight consisted of one hundred pounds, the ton of ten hundreds, the ounce of the tenth of a pound, and all the units required in every trade were so related to each other that we could say tens, hundreds, thousands, and so on, as we do in common numeration, all the compound rules which fill our books of arithmetic, and puzzle children, would be got rid of. So with regard to measures and money—let all the units increase by tens, and all goes "merry as a marriage bell." One set of rules will apply to the weights, measures, and moneys of all trades and of all nations which use the Arabic figures. With regard to money, we cannot do better than adhere to the sovereign for statistical purposes: it is of gold, which is becoming everywhere the standard of value, is the largest unit in use, and is admirably suited to measure large quantities. The florin, and new farthings or mils, of which 100 would make a florin, $.1,000 = 1\text{l}.$, are all the moneys of account required. The penny would be 4 farthings, the shilling 50, and no change in the coinage is required. The Chancellor of the Exchequer will, let us hope, inaugurate this reform, which would be an immense boon to all classes that have anything to do with bills, accounts, and statistics.

We might decimalize our old weights and measures, but the several ranks of units would not fit well into each other; the change would give a great deal of trouble, and there is no chance that other nations would adopt it, for this simple reason, that the first nations have had for years the admirable metrical system in use. Our merchants deal with these nations largely, and if we adopt the meter, Russia, America, and our colonies will adopt it. If England wills it, the whole civilized world will have one system of weights, measures, and money, as it has one system of decimal arithmetic. This system annihilates those ugly pages of Colenso, the compound rules; so through it, in the words of the highest authority, Professor Barlow, "a child may learn everything necessary for entering into the 'common concerns of the world in a month as well and better than 'in a year under our complicated system.'"

A Metric Act will be an emancipation act for children, and will give them time for higher studies in mathematics. The compound rules of arithmetic, English orthography, and Latin verses, are the tasks for which the school-boy is oftenest punished; and they are the opprobrium of the age. Unlike the truths of science, they can only be flogged into the brains of English boys. Statists should at once make the pound sterling and the metric weights and measures their units.

* "Mathematical Dictionary."

In the English market gold and silver are sold by the ounce coffee, tea, tobacco, spices, indigo, silk, cotton, and leather by the pound; meat by the stone; sugar, butter, rice, by the hundred-weight; coal, iron, copper, tin, lead, palm oil, logwood, hemp, flax, by the ton; wool by the pack. For statistical purposes it is convenient to take one unit, the metric ton = a cubic meter of water, and nearly equal to the English ton, to express the imports and exports, and the quantities of all articles sold by weight. This would facilitate comparison. The quantities sold by volume, such as wheat, fish, oil, wine, and spirits, might also be expressed by one unit—the metric tun, the bulk of water weighing a metric ton. The qualities and prices of some articles, such as wheat and spirits, are regulated by the weight of equal bulk, or by the specific gravity, which is easily expressed as it is the weight of a metric tun of the stuff, when a metric ton is taken for unity. Cloth, linen, calico, and silk, are sold by linear units, which are exceedingly objectionable, and should be converted into square units for statistical purposes.

In mechanics a unit of this kind is used; a pound weight raised a foot is called a unit of work, and 33,000 such units of work in a minute, form the further unit—Watt's *horse-power*. The unit of work may be called a double unit, inasmuch as it involves two elements—weight (*pound*) and space (*foot*), while the horse-power takes in time (*minute*), and is a treble unit. The French use a similar element thus compounded: the horse-power is 75 *kilograms* raised a *meter* in a *second*. Remark that two of the elements of this unit are intangible. Chemistry furnishes examples of compound units in its binary and ternary atoms. In statistics, double and triple units are in use; thus when I say the rate of mortality in a regiment is 2 per cent. per annum, I employ the double unit, a year of life. The years of life are found by multiplying the time in years into the mean numbers living. The strength of a regiment is 1,000, and the average deaths are 20 in a year, 5 in a quarter, so the mortality is as above stated; but if the men die at the rate of 20 in a quarter, you have 20 deaths to 250 years of life, and the mortality is 8 per cent.

These compound units are the sources of frequent fallacies; thus if the population is compared with the deaths in a quarter, a week, a day, or any short interval of time, the apparent mortality is reduced to any extent. In reckoning interest and profit-rates, 1*l.* under investment a-year is the double unit; if the dividend on 100*l.* is 2*l.* half-yearly, the rate of profit is 4*l.* a-year.

The rate of profit is found by dividing (1) the profits by (2) the capital multiplied into (3) the *time*.

Inattention to this principle is the source of some of the common fallacies on the income tax. Thus if two persons are taxed equitably

on their property, they are taxed in proportion to its amount and to the time it is under the protection of the State: if A pays 1*l.* on 1,000*l.* in a-year, B is not fairly treated if he is made to pay 1*l.* every three months. The sophist assures B that he pays at the same rate as A, keeping out of view the fact that the taxable unit is compounded of value and time. Income is an indication, but not a measure, of property, and if A has a sum under investment in one way, he may have to pay at the rate of 6*d.*, while B with the same amount of property may now have to pay 10, 20, 30 sixpences as his quota of the year's taxation. A life income of 1,000*l.* a-year on men of 20 and upwards, at 5 per cent., is on an average worth 11,712*l.*; while at the same interest, the same income in perpetuity is worth 20,000*l.* The owners of two properties taxed upon the same unit of value, pay 11·712*l.* and 20·000*l.* as their quota of the year's tax; under an income tax the same premium is exacted from properties of totally different values.

The first step in every statistical inquiry is to determine the value of the units to be employed, be they single, double, or multiple. Thus if you find that the mines of a country yield 5,000 tons of copper ore, while the mines of another yield 10,000, these are only preliminary units; the final statistical unit is the ton of copper ore. So of all the minerals the ton of metal is the final unit. The heating power of coal is the element of value, and as it can be measured, it should supply the final unit.

In the statistics of products it is necessary to take time and space into the final units of value; thus, coal at the pit's mouth is worth say 5*s.* a ton, and at this price 40,000,000 tons are worth 10,000,000*l.*; but the consumer pays 10*s.*, 20*s.*, 30*s.*, 40*s.* a ton for this coal, and its cost in consumption may be 40,000,000*l.* This comprises the profit of the coal merchant, the interest of capital, the coal dues, and the cost of transport, which varies with the supply of horses, roads, canals, railways. Our exports and imports differ in value in the home and foreign market. The value of products should be determined at every stage; thus we should follow wheat from the market till it becomes (1) flour, and (2) bread, and take care that in all these cases the units are so like in all their aspects as to admit of comparison. It does not follow that two countries which have the same numbers of cattle are equally rich in that kind of stock; the herds of cattle may differ in size, in age, in their amounts of produce of milk, butter, and meat—in the quality of all their products. Horses differ still more in excellence. In Smithfield sheep are not bought by the head, but by the stone; the offal is sunk, and the price varies from 6*d.* to 8*d.* per pound in inferior and prime sheep. The butcher gets at, and the statist uses, the pound of saleable meat as the final unit. All the elements which

the statistician wants here are taken into account in the *value* of stock and of its produce; with this he gets comparable units in every climate. Again, take land: land measures vary. Statists gain a step by employing as their unit a hectare, or a square of 100 meters to the side; it is a large acre, of which our present acre is four-tenths. The United Kingdom contains (31,367,507) thirty-one million hectares of land, rather more than a hectare to each person. This is the proportion of land to people in a populous country; and the hectare is a convenient unit of area. England has 15, Scotland 8, and Ireland 8 million hectares of land; the population being 20 millions in England, 3 millions in Scotland, and 6 in Ireland. The proportions in ten—are England 7, Ireland 2, Scotland 1; on areas related as 2, 1 and 1. Ireland has still twice the population of Scotland. Italy has 26, Prussia 29, Spain 51, France 63, Austria 64 million hectares.

We come to States of a very different magnitude; the United States of America hold 440, Turkey 474, Russia in Europe 544 million hectares. Including the whole of their subject territories, the United States possess 730, England has 1,145, and Russia 2,133 million hectares. We do not accept this unit in statistics as the final unit of land. Land is rich, poor, or waste,—cultivated or uncultivated; and a hectare in the centre of London, in the vale of Gloucestershire, on the banks of the Lena in Siberia, in Melbourne, and in the middle of Australia, is a very different thing. All the chief elements that we need are summed up in the mean *value of a hectare*; and in the usual divisions of hectares into arable, meadow, pasture, forest, water, waste. The value of the land of the United States certainly exceeds that of the Russian Empire; in the absence of agricultural statistics, we do not know the value of our land, but the value of the fixed property of the Isles of England exceeds the value of the fixed property in either the Russian or American dominions.* The *value of a hectare* is the final land unit.

As all the mechanical forces are expressible in units of weight, so the values of land, of all property, of all products, are expressible in units of gold; and we may either measure those values, and express them in tons, or in any pieces of equal weight of that metal. We take the sovereign for the statistical unit of value, because it is in use; for the same reason as engineers take horse-power as the unit of work.

What are we to say to the human unit? Here also distinctions have to be drawn. As hectares differ, so does the average man of different states. Besides the divisions incidental to sex and age, the work of different races of men varies in quantity; a navvy, a

* The true value of real estates and personal property in the States was extended at the census of 1860 to 3,232,000,000^{l.}, taking \$5 to 1^{l.}

Siberian peasant, a Hindoo, a Negro, a Chinaman, an Esquimaux, do very different quantities of work in the year.

The mechanical force of a country is the sum of the working forces of its population, with its steam-engines, horses, winds, waters, which can all be measured by the engineer's unit of work. Adam Smith proposed to employ a unit of labour as the unit of value. The wages of men express the value of their labour in gold, and from the mean value of these earnings at different ages of life, the economic value of a man is calculated by taking the interest of money and the contingencies of his life into account. At the age of 25, the present value of the future earnings of an English agricultural labourer, after deducting the cost of necessary maintenance, is 2461.* The value of the mean worktime of artisans, artists, and professional men, varies indefinitely; and as it is evident that the human units differ, so the difference can be appreciated by the value of their works. Nations differ in their intellect as well as in their moral faculties; and the expression of these forces of the soul, whether we look at scientific achievements or vulgar errors, at virtues or crimes, is one of the difficult problems in statistics. It is by the correct appreciation of units—of the things signified by figures—that the statistician is distinguished from the empiric who throws heaps of tables in our faces, and asserts that he can prove anything by figures.

After observation, discrimination of units, and expression of their numbers in figures, come the exposition of facts in tables or diagrams, and the determination of their relations by mathematical analysis. Logarithms facilitate the calculation of ratios; and the calculus of probabilities enables the statistician from the past to predict the future within determinable limits of error. Prediction is a function of this, as it is of all the sciences. The exposition of doctrines, and the use of them in argument, to induce men to follow a course of action, is an important part of statistics; and as it is connected with politics, has been carried to a high pitch of excellence in England. Several of the pieces of Burke, some extant speeches of Pitt, and in recent times the speeches of Huskisson, of Peel, and of the Chancellor of the Exchequer, as well as articles in the newspapers and reviews of the higher class, offer examples of this order of eloquence.

Statistics admit of many practical applications, and this naturally commends the study to the minds of Englishmen. I will mention an example. In the first place, as we have had a minister, we have had statistics of trade, and from the time of Davenant until the present day, when the Statistical Department is presided over by Mr. Fombanque, the statistics of trade have formed the basis of a large field of economical reasoning. They guided Huskisson, Peel, Graham, and

* *Statistical Journal*, vol. xvi, p. 43.

Gladstone in legislation, by showing the exact effects of rates of duty on the revenue, and on the property of the country. Yes, the statistics of Deacon Huine, of Porter, of Tooke, of Newmarch, of Wilson, of McCulloch, and of our blue books, have accelerated the march of free trade, and banished protection from the shores of England. Statistics, pursuing her through the world, are demonstrating her disastrous influences in every land. Figures show, year after year, that every country which isolates itself from mankind by prohibition, no matter what may be the natural riches of its soil and climate, withers under the influences of protective tariffs. The people out of the open air of competition grow idle and weak. The imports of 1861, in England, were of the value of 217 millions sterling, and the exports of 160 millions, including 35 millions of foreign and colonial merchandise; the revenue was 70,600,000*l.*, and exceeded the expenditure. What do the statistics of Austria show us? Why in 1861-62, her total imports were 22 millions sterling, her exports 34 millions; her revenue 40 millions, her expenditure 51 millions; and as a consequence her debt is accumulating in geometric progression; her credit is low, and her paper is depreciated. This magnificent empire, of 36 millions of the finest races of Europe, with minerals in the Carpathians, Bohemia, and the Alps, with 64 million hectares of land stretching over the rich plains on the Upper Elbo and the Danube, is thus crippled, by a good Emperor and a patriotic Chamber, on the speculation that certain manufactures will prosper ultimately in Austria if they are nursed and encouraged at the expense of the nation for some indefinite time.

France has been drawn towards free trade by statistics; her exports are 123 millions sterling in value; and by the development of her resources, she does not yet falter under an annual expenditure of 83 millions sterling.

Spain again, which has broken the chains of the Inquisition, is still in the fetters of protection, that is, still makes her people pay dear for goods to satisfy their wants; her imports are of the value of only 15 millions sterling, her revenue is only 20 millions, and she is unable to pay her debts, so that she is without the legitimate credit which a nation containing many men of the nicest honour can justly claim.

The United States' statistics offer the saddest illustration of the effects of levying protective duties; their imports (1860-61) were 67 millions sterling; their revenue was 10 millions in 1861-62, exclusive of loans, and their expenditure, it is said, was 114 millions; and higher rates of import duties on the class of articles manufactured in New England will necessarily reduce the amount of revenue. The present war was kindled by combustible materials, of which protective duties form no insignificant item.

The statistical argument in favour of free trade is accumulating: it gains fresh force in every table, and will in the end lead all nations to exchange their products freely.

Another thing statistics does; it enables Governments to count the cost of war, and to weigh its results against its expenses.

There can be no doubt that statistics, by disclosing the laws of life and reproduction, tends to improve the health and moral condition of the people; to point out the causes of disease; and to prove so plainly the utility of sanitary measures, that the people become willing to pay the expenses. In England the Registrar-General has, during twenty-seven years, shown how much the public health is deteriorated by destructive causes; so in our towns they are in the course of removal; the Registrar-General of Scotland and Dr. Stark have lately done the same there, and in the present year the Registrar-General of Ireland and Dr. Burke, following Sir William Wilde, have entered the field. Our army has been invigorated by statistics; and the Commission over which Lord Herbert first, and after his death, Lord Stanley so ably presided, has proposed to endow India with the sanitary institutions of England. Under the eminent man who now governs India, the English race, which has hitherto languished in that paradise, will, we may hope, taste the fruits of the tree of life, and perpetuate itself in the tropics among the natives who also descended from the original Aryan stock.

Statistics, it must be confessed, has done little for mankind yet, in comparison with its vast powers. Innumerable social problems are still unsolved, and politics, which Alembert justly pronounced, in the "Cyclopaedia," "perhaps the most difficult of all the sciences," is every day making fresh demands on statistics. Take the Balance of Power. How are political powers to be measured, and how is the statesman to construct his parallelogram of forces? In past times France, the Emperor, and England were the principal powers; and the problem had then the complications of the three bodies in mechanics, but England, France, and Austria have now Prussia and Russia by their sides, to say nothing of Turkey; Spain is rising again, and the Italian sword is asserting its place; the two States of America disjoined, will be two of the great powers of the world, with which Europe will have to reckon. Italy was comminuted into small States; it is now one power. And latterly Germany—still in two great masses, and a multitude of fragments, which have been as dust in the balance—coalescing, has planted herself on the neck of the Baltic in the face of Russia and Sweden, England and France looking on. Here is a mass of 72,000,000 men, with its due proportion of needle-rifles, and a navy, not yet formidable. It has nearly, but not quite, twice the population of France

(37,386,313) with her rectified frontier; against which Denmark, with only 2,605,024 people, or, excluding German Holsteiners, two millions, dared gallantly to defend her frontiers; but which the Emperor of the French did not deem it prudent to encounter for the sake of an old ally of France in the company of England, with the coveted Rhine—that German river—before his armies.

This population of the German States is split up (our statistics show) into 36 million Austrians, 18 million Prussians, and 18 million Germans communed in cities and principalities—but scarcely powers. And if it has France on the west flank it has Russia, with what may be taken at 66 million people, on the eastern frontier, not very distant from Berlin and Vionna. Germany has also unfriendly races within its limits—Poles, Hungarians, and Italians who divide Austria from the sea. Between Germany and Russia lies Poland, in pieces and ashes, but still exhaling her indestructible soul in one flame to heaven. The fine Scandinavian race has fallen back behind the Baltic, before the masses of Russia and Germany, and stands at bay, looking towards England. In the south is looming, we are reminded, the possible coalition of the Latin races in face of the descendants of those Germans who broke the power of the Roman empire. Over the Atlantic, 8 millions were added to the population of the United States in ten years; and at the same rate of increase, the people on the ample territories will amount to 42 millions in six years, to 56 millions in sixteen years' time. Our colonies are increasing at as fast a rate, and reposo secure in peace under the sceptre of the Queen. How are all these bodies to be balanced? How is the power of each State to be measured?

The first step in the solution of the problem of equilibrium is naturally the determination of the population, and of the value of the wealth or credit which nerves the sinews of war. When this is done for each State, the unit to get at is the precise worth of the fighting man and officer; the numbers of such units in service and in reserve; the arms, fortresses, and ships. It was enough not long ago to count the ships of the line, frigates, and other vessels; for when the naval historian had told, in addition to the number of ships and men, the number of guns at Aboukir or Trafalgar, his readers were satisfied. The unit of naval force is now by no means so simple; it is compounded of the velocity of the ship and its resisting power—as well as of the weight, velocity, and destructive force of its shot and shells. Strategic position, administration, fertility of military genius, are all elements of power to be taken into account. What minister knows at this hour the military force in war of his own State with any degree of accuracy? or can weigh the force of other States in his balance? What means has he of judging

of the number of possible adverse or favourable combinations? As the number of States increases, the possible combinations increase more rapidly. Thus take England, France, or Austria, and there are only three possible combinations of two against one; throw in Russia and Prussia, and the possible combinations are ten of three powers against two, and five of four powers against one; and one, two, or three may be neutral while the rest are at war. England, France, Prussia, Austria, Russia, Italy, Spain, Turkey, the Federals, and Confederates, constitute ten States of 293 millions; that is 29·3 millions to each on an average; and ten combinations can be formed of nine against one, 210 of four against six; in all 511 war combinations. Then if we introduce the element of neutrality, the combinations are still further multiplied; and there remains the separate probability of each alliance. After all the resources of statistics are exhausted, enough is left to task the intellect of the most sagacious minister. We are beyond the age of Government by instinct; and the political questions of the day in England demand new light from science. In the decision of the course to pursue in all the questions of the balance of power—of peace and war—the country has the wisdom of experienced ministers like Lord Palmerston and Lord Derby to rely upon; but the Queen's Ministers know the difficulties of the problem, and will appreciate the value of the facts which they require from statistics—and which the Houses of Parliament require—to aid them in deciding questions of international policy. In steering the vessel of the State over the ocean our captains cannot now entirely rely upon their stars; they must consult their "Nautical Almanack."

Besides the problem of equilibrium, there remain others of equal difficulty. Aristotle, Comte, and other thoughtful theorists, looked with favour on the organization of mankind in small States. But while small States often exhibit great intellectual activity, and in Judea, Greece, Italy, Switzerland, Holland, Frankfort, Weimar, Würtemberg, and elsewhere, have nurtured men of transcendent genius—they exist now by sufferance; they exert little direct influence on the political affairs of mankind. Property is less secure in these dominions than it is in large States; and their defence is more difficult, and in proportion much more expensive. Thus, to say nothing of smaller States, Bavaria, to keep the same army in the field as Prussia, must draw four times as deeply on the resources of her people. Sweet are the charms of small Courts and local Government; yet the people of small States are, as in Italy, yielding by degrees to the soft compulsion of powerful neighbours; and the great continental powers, as their population increases, evince a passion for the sea, to which the small States upon the coasts may not for ever offer an effectual barrier. Still a valiant nation in

hearty cohesion, feeble in aggression, cannot be subjugated by a nation of four or perhaps ten times its magnitude; as was seen in the cases of Greece and Persia, of Prussia under Frederick—who with 5 millions of people fought 100 millions—in Austria and Switzerland, Spain and the Netherlands, England and America. The population of England was about 10,530,000, and that of the whites in the States 2,614,000, holding half a million slaves, in the war when the colonists resisted brave British armies, until the intervention of France and other European powers closed the unavailing contest.

In spoiling Poland three great powers participated; and Hungary in the war of 1848 was only recovered by Austria with the aid of Russia. Each of the great powers of Europe has fought—and is able to defend its existence for a time against—Europe in coalition, so long as the hearts of the people are loyal.

The solution of the problem—can 19 Free States conquer 15 Slave States—can 19 millions of people subjugate 8 millions of freemen holding 4 million slaves?—might have prevented a desolating war. And statistics supplies but one solution.

The census was taken in the United States in 1790, eleven years before the first English census; and the last report by Mr. Kennedy is one of the fullest of which statistics can boast. From this it appears that the 697,897 slaves of 1790 had multiplied so rapidly, that they amounted to 3,953,760 in 1860; and this increase proves that the physical condition of the slaves and their health are, as the Southerners tell us, good in a warm climate. They cannot possibly, in the aggregate, like the blacks in Cuba, be worked to death by the masters of English blood, and their conduct during the war confirms this inference. The present Southerners did not, as Sir George Lewis remarks of the Greeks, invent slavery; they inherited it under their laws, and are in the same uneasy situation as masters would be here, who had paid their servants wages for life in advance. With the growth of population, the equitable abolition of slavery in America, like the abolition of serfdom in Europe, is only a question of time, to be worked out in peace as the prosperity of the South increases; yet the institution of slavery is so much at variance with the principles of liberty and of the American constitution, that its speedy extinction was a sacred aspiration in the north, and was shared in England. The passionate war, which has a tragic interest, has shown that though the British race has undergone changes, such as Sir Charles Lyell pointed out, it has lost none of its valour, none of its endurance and none of its military genius in America since the days of Washington. It is rather exposed to the reproach Hume addressed to England, of fighting on uselessly in stubborn anger, when the object of the war is attained, or is unattainable,

than to that of imitating the new fashion set by the Emperor of the French in the Crimea and Lombardy.

As the war proclaims the power of two nations, Kennedy's ample statistics fill us with astonishment at their achievements in all the arts of life; and if Frederick in Prussia, and Peter in Russia, are justly, for founding two great powers, called Great, that title cannot be withheld from the two nations sprung from the men whom England sent over the waves of the Atlantic.

In Bath Abbey—I am reminded—lie quietly the ashes of Malthus, one of the fathers of statistics, and one of the founders of this Section of the Association at Cambridge. In his celebrated work he deduced from all the information then extant respecting the populations of the earth, the well known law that population increases in geometrical progression. The first philosophic naturalist of his age assures us that this law rules in every species of plant and animal; and that he derived from Malthus the conception of the struggle for existence, which, with the tendency to variations of form and natural selection always operating in favour of the best, through the millions of ages which our President unrolled before us last night, wrought those miracles of organization which we now regard with wonder and awe.

Malthus did not, however, sufficiently advert to one great characteristic of man, which distinguishes him from all his fellow creatures. The lion and the eagle prey upon the fawn and the lamb, but do not breed them; and even the busy bee only gathers honey from flowers existing. Man, by his industry, creates flowers, fruit, grain, and all products; his science places the forces of nature in his hands; his powers of transport give him the use of the lands of all climates; and hence subsistence has increased during the present century in a more rapid geometrical progression than the numbers of the people in England. Hence her numerous cities, her full ports, and her cultivated fields; hence the States of America, hence Canada and its sister provinces, hence the colony of the Cape, Australasia, and our Indian empire. If, like the power of Imperial Rome, whose ruined temples lie under our feet in the streets of Bath—England should ever decline and pass away—she will not have existed in vain; she will leave eternal traces of her life in the life of mankind; and our dry fossil figures, read by the Macaulay of a later age, will reveal the works—in America, in Australia, and India—of a great nation. But hitherto no signs of decay are visible; our population is to-day in its youth; it has proportionably more young men in it than any other people in Europe; who in no respect, take them in the ranks of the Volunteers or in the Sections of the British Association, need fear a comparison with their contemporaries: the English race—the

greatest of the nationalities—amidst all the coalescing nations, yields all the signs of being able to hold her own for ages to come. Yes—

Thou shalt be the mighty one yet!
 Thine the liberty, thine the glory, thine the deeds to be celebrated,
 Thine the myriad-rolling ocean, light and shadow illimitable,
 Thine the lands of lasting summer, many blossoming Paradises,
 Thine the North thine the South and thine the battle-thunder of God.*

Let us, gentlemen, work hard in that humble field allotted to us; and by doing our duty endeavour to make the statistics of our day worthy of the country in which we live. Above all, let us never forget at our meetings how much we are indebted to the men no more among us, who have made us heirs of their labours, and to whom we are bound by natural piety. Among those names this year to be especially remembered is that of Sir Alexander Tulloch, K.C.B. He was a Fellow of the Statistical Society, to whose Journal he contributed valuable papers; with Henry Marshall and Dr. Balfour he laboured successfully in army statistics; he organized the pensioners; his ability in administration induced the Government to send him with Sir John McNeil to the Crimea, where he rendered essential service to his country, helped to save the army, and afterwards endured a persecution which he merited only by honesty and endured with brave constancy. M. Villermé in France is a great name gone; we may place it after that of M. Quetelet. His contributions to statistics are clear, truthful, and practical. Like the Earl of Shaftesbury, he strove to do good to workmen by judicious regulations. In Germany Dr. Casper, a most amiable and excellent physician, has left works which are often cited in England. Let us strive, gentlemen, to continue the labours which these men began, and to imitate their virtuous love of statistical truth.

* Tennyson.

On the COMPARATIVE MORTALITY of LONDON and PARIS. By
 WILLIAM TITE, Esq., M.P., F.R.S.

[Read before Section (F), British Association, at Bath, September, 1864.]

In the course of last year I read a paper at the meeting of the British Association for the Advancement of Science, at Newcastle, on the cost of the Paris improvements, in which I was naturally led to notice the effects of those operations upon the health of the inhabitants of that city. It was reasonable to expect that the advocates of the French system of the management of public works should have been disappointed at what they might have considered the unfavourable conclusions that I then drew from the premises that were before me; but I was not prepared to expect that they would have gone so far in their admiration of that system, as to have contended that there was reason to believe the results of it had been to establish anything like an equality in the rates of mortality prevalent in the two cities of Paris and of London. A journal of some importance, however, has done so; and it has given some statistics to show the bearings of the improvements that have recently taken place on the salubrity of Paris, and, so far at least, to throw discredit upon the results that I had arrived at with regard to the effects of the recent changes made in that city. I therefore thought it would be worth while to institute a comparison between the mortality observed in the two cities in question; as much for the sake of clearly showing their present condition in this respect, as for the sake of establishing the facts that I had alluded to in the paper before referred to. The subject is in itself far too important to be allowed to remain in obscurity; and I also hope that the attempt that I am about to make, may succeed in drawing attention to the hygienic considerations that are involved in it.

I must, at the outset, observe that researches into the rates of mortality in Paris are enshrouded with a great deal of uncertainty and mystery, which is partly to be accounted for by the strict bureaucratic form in which they are drawn up, and partly by the natural desire of the *employés* of the French administration to associate their names with the publication of the statistical information that would be likely to influence the action of the Government in all the cases where they might seek for information. In France there is also a great confusion in the manner in which the *Etat Civil* is kept, in consequence of the interference which is there allowed to

prevail in the rights and duties of the Prefects of the Seine and of the Police, both of whom are indirectly responsible for the true statement of the various acts that form the subject of the *Etat Civil* to the Minister of Commerce. The yearly returns which are made by the subordinate administrations to the Minister of Commerce are prepared exclusively *after* the termination of each year; they then go through a kind of examination in the bureaux of the minister; and are afterwards published, by his authority, in the official journals. It follows, from this system of circumlocution, that it is at least two years before the public can obtain any information about the state of the population on any particular occasion, even if the returns were themselves of a character to be implicitly relied upon. But, unfortunately, this is not so in all cases with reference to the deaths of the citizens; for, although the law is very strict in requiring a certificate from the "*médecins des morts*," as the officers charged with the performance of that duty are called familiarly, there is no kind of guarantee that the strict cause of death should be accurately defined in the declaration the latter are obliged to make. It is true that this objection would only apply to the correctness of the returns so far as they might affect the causes of death; they would remain correct, so far as the numbers went, let the causes be as mistaken as they might; but this must always diminish the importance that would otherwise be attached to the returns, by causing them to be regarded as giving a false, or at least an equivocal, statement of the health of the city at the particular period. The making it necessary to have the cause of death certified by the police doctors is, in fact, a complete delusion. They can only know the causes of that event, in the majority of cases, from the representations of the friends of the deceased, and from the casual inspection of the last prescriptions by the medical attendants, and the danger of mistaking indications such as these must be evident to all who have followed this class of investigations. It is, however, mainly with regard to the long delay and the want of publicity that prevails in the neighbouring capital in this respect, that I, myself, have found my researches into the mortality of that city to be deficient. The Paris returns form, indeed, a marked contrast with the English returns, which are an honour to the care and skill with which they are published *weekly* by the Registrar-General.

The great changes that have recently been made in Paris, by the fact of the extension of the limits of the city to the fortifications, which took place on the 1st of January, 1860, has moreover introduced very great obscurity into the subject so far as regards the comparison with past epochs; because not only have the limits of the town itself been extended, but the *circonscriptions* of the several arrondissements have been altered in order to simplify the working

of the administration. This circumstance would naturally entail great difficulty in the identification of the deaths that are to be attributed to the various arrondissements of Paris; and this difficulty has been increased by the returns of the census that was taken in the month of June, 1861. The consequence is that the official statistics of Paris can only be compared with those of London with anything like a degree of certainty as far as the year 1860, insomuch as the mortality of the different quarters is concerned. The mortality since that period, it is true, has been given in the "*Annuaire du Bureau des Longitudes*," the "*Annuaire de l'Économie Politique*," in the "*Statistique Générale de la France*," and in the works of M. Legoyt and M. Trébuchet,* &c.; but in all these cases the character of the information which is given is very general, and therefore unsatisfactory; and it is, moreover, very much behind the requirements of the day, which certainly are such as to call for the prompt publication of these returns. The fact is, that although the French Government incurs a great annual expense in the publication of official documents, it is very badly served in this respect; for there can hardly be conceived a more ridiculous parody on official statistics than that which is published with respect to Paris, only appearing at intervals of two years after the returns are made up, does not make any allowance for the gradual increase or decrease of the population, and does not give any details in the meantime as to the state of the public health in the various arrondissements that are specially concerned.

It is always to be observed, with regard to the mortality of Paris, that the attempts to ascertain the laws that regulate the rate of deaths in that city, have been exposed to sudden causes of disturbance that have not prevailed in London, in the period that is usually considered to be the most likely to lead to correct views upon the subject. Thus it is evident that a comparison of the mortalities of Paris and London, would only be of value on the condition of extending over a considerable period of time; but the correctness of the average thus arrived at would be at once invalidated by the occurrence of a great social revolution of a character to influence the prosperity of the country. In the course of the present century there have been no less than four great revolutions of this kind in

* The "*Statistique Générale de la France*" is published under the superintendence of the Minister of Commerce, and it is drawn up by M. Legoyt from the papers communicated to him in his capacity of Chef du Bureau de la Statistique Générale. M. Legoyt is also the perpetual secretary of the Société de Statistique de Paris. M. Trébuchet is the manager of the Société d'Encouragement, and he was for some time connected with the statistical department of the Prefecture of Police; his works upon the mortality of Paris are principally to be found in the "*Annales d'Hygiène*," and in the "*Rapport Général sur les Travaux du Conseil d'Hygiène Publique*," for the years between 1849 and 1858 inclusive.

the neighbouring capital, that have totally changed the face of the political world, and have modified the comforts and the conditions of existence of the people exposed to their influence; whilst the cholera, the bad harvests, and the consequent dearness of food, the wars, and the street fighting, have combined to produce a higher rate of mortality than has fallen to the lot of our more favourably circumstanced capital. The uncertainty that is thus attached to the indications of the mortality of Paris, must always throw a great degree of doubt upon the comparisons that may be made between it and the rate observed in London; but this cause of uncertainty may be considered to have disappeared, to a great extent, in the period that is selected for examination, namely, the one between the year 1853 and 1862, and the period selected is, moreover, the better adapted to allow safe conclusions to be drawn from it, as it has witnessed the great operations that formed the subject of my previous paper. I wish it, however, to be distinctly understood that, in giving what seem to me the results of the London and Paris rates of mortality, I do not pretend to give them with all the accuracy which ought to prevail in such important documents. For the Paris rates, in my judgment, can only be regarded as close approximations.

The inquirer into the mortality of the two cities cannot but perceive, at the outset of his inquiries, that they are situated under very different hygienic conditions, and that these conditions are greatly in favour of Paris. Thus, the geological nature of the soil—the kinds of food, both solid and liquid, that are there consumed—the character of the materials used in house building—the climate—and, in fact, all that tends to make out-of-door life agreeable—are greatly superior in the case of Paris to what they are in London. Paris is situated upon the tertiary limestone formation; London is situated upon the impervious clays of the same formation; the one is dry, the other must be damp through a great part of the year; whilst the surface waters of the former are thus enabled to flow off from the ground or be absorbed in it, and the latter remain on it. The situation of Paris is higher above the level of the sea than that of London; and the strata that occur between the levels of the former city, are all of them highly permeable, being mostly calcareous, excepting where they are covered with the marls and clays of the gypseous formations, and where they are occasionally capped with the clays and gravels of the drift period. It would hardly be necessary for me to point out the advantages which Paris enjoys in the character of the building materials that enter into the architectural effect of that city to so great an extent; but I must be allowed to remark upon the advantage they offer in the hygienic conditions of the inhabitants in affording them rapidly absorbing media for any

dampness that may be in the air. The kind of food that the inhabitants of Paris can command is, moreover, better in many respects than that which can be met with in London, if it were only on account of the ease with which wine and fruits are obtained there; whilst the conditions of climate are as favourable to the production of animal food and the growth of cereal crops. Yet, with all these advantages, the mortality of Paris is greater than that of London.

For we find that in the "Statistique Générale de la France," and in the summary of the weekly returns of births, deaths, and marriages, issued by the Registrar-General, the mortality of Paris and London may be taken as being represented by the following figures:—

		Paris. Rate per Cent.	London. Rate per Cent.
In 1853	2.95	2.44	
" '54	3.51	2.94	
" '55	2.99	2.43	
In 1856	2.43	2.21	
" '57	2.73	2.24	
" '58	2.73	2.39	
" '59	2.86	2.27	
" '60	2.53	2.25	
In 1861	2.57	2.32	
" '62	2.49	2.36	
	10) 27.79	10) 23.85	
Average of 10 years	2.78	2.39	

But this rough way of ascertaining the average number of deaths can hardly give anything like a fair statement of their proportions. In the ten years thus chosen, we find, indeed, that in Paris the average above quoted has been exceeded in the years 1853, 1854, 1855, 1857, 1858, and 1859; the rate has been more favourable in the other years, that are respectively uninfluenced by the abnormal causes of mortality arising from the cholera, the Crimean and the Italian wars, and the scarcity that prevailed in 1859. The London mortality, it is to be observed, presents a much more steady rate; and this is the more remarkable, that the rate of the increase of births over deaths has always been much greater in the latter city than it has been in the former. Thus, we find that the proportions of the births to deaths in the two cities are as follows, in the years 1860, 1861, and 1862, which are purposely selected as being as nearly as possible average years of the general rate:—

	Paris.		London.	
	Births.	Deaths.	Births.	Deaths.
1860	51,056	41,201	92,825	61,617
'61	53,570	43,664	96,389	65,001
'62	52,312	42,185	97,418	66,950

The population being respectively taken at 1,696,141 in Paris, and at 2,859,778 in London, which represents the average of the above years, the excess of births over deaths in the former case would be represented by the following figures. Thus the rate of increase from this cause would be at the rate of 0·58 per cent. of the inhabitants of Paris; whilst it would be at the rate of 0·62 per cent. of the inhabitants of London. But this proportion does not in its effects stop here, as it is known that the mortality in the earlier ages of human life is considerably greater than it is in the subsequent stages. In Paris, it appears that about 15 per cent. of the whole number of children born, die in the first year of their existence; and there is little reason to believe that the hygienic conditions of London can be more favourable to the preservation of infantile life. Not only, therefore, has London to support this increased cause of mortality, but it has to compensate for the additional mortality that ensues from this cause: there are more children born in London, in proportion; they die in greater numbers, and their deaths, therefore, increase the average rate of mortality in an abnormal manner.

It may be said that more people die in Paris than in London, proportionally to the population, from the tendency of the inhabitants of the *banlieue*, in the former case, to resort to the hospitals of Paris in all cases that are likely to terminate fatally; but the same law holds good with London, and the mortality of the latter city is still further increased by the deaths of the children who are there brought up, whilst it is notorious that the Paris children are sent away to die where their numbers do not affect the town mortality. It may, however, be necessary to make an allowance for this cause, and for the number of women who resort to the hospitals of Paris to be there confined; but the proportion of those who die away from their residence, must always be small in comparison with the bulk of the population. In Paris, however, there were, in the year 1862, as many as 12,235 deaths recorded as having taken place in the civil and military hospitals, in the prisons, and bodies taken to the Morgue; when in London there were only in 116 public institutions as many as 11,313 deaths recorded. I have no means of com-

paring the numbers of women who resort to the means afforded them by public charity to avoid the expense, or the danger of exposure, that may attend childbirth in England, for our returns do not embrace that class of statistics; but in Paris there were as many as 6,522 births registered as having taken place in the hospitals, out of the total number of 52,312 registered in the year 1862. It may be that the facilities that are thus offered for the indulgence of the passions, have a tendency to promote immorality. In Paris, for instance, in the year above quoted, there were as many as 14,591 children born out of wedlock, or as many as $\frac{1}{36}$ ths of the total number of births. How far this may have influenced the rate of mortality, it is not my province to inquire; but the fact that a greater number of children die still-born, when they are conceived in an illegitimate manner, is well known; and the proportion of these births in Paris cannot be left out of account. The official authorities reckoned that as many as 4,041 infants died, either before they were registered, in Paris, or were not brought into the world alive in the year 1862.

I cannot help, for my own part, attributing great part of the excess of mortality, that I have thus shown to exist in Paris over London, to the dense crowding that takes place in the houses that the population of the former city occupy; to the bad hygienic condition of these houses, as far as ventilation, the removal of refuse, and the water supply are concerned; and to the bad laying out of the town originally. In Paris, there were as many as 35·17 persons per house, according to the statistics collected in 1856; and everything that has been done in that city has had a tendency to increase the number, by driving the poor from their lodgings, and forcing them to crowd themselves into the places left for them. In London, the number of inhabitants per house is certainly less than 7·72, and the consequence is that they attain much nearer the nominal conditions that are observed to take place in France in country districts. It is hardly possible to define the density of the population of London, so widely do its limits extend; but I do not think that I should err much if I said that the population of London occupied four times as much space as that of Paris. On this point, however, the official statistics fail us, and I am left to the indications of analogy and comparison, and to M. Legoyt's observations, which certainly are unsavourable for the inhabitants of Paris, who are crowded into lodgings that hardly allow of their breathing uncontaminated air.

The hygienic conditions of the houses of Paris seem to me to be very defective, in respect to the ventilation of the apartments that lie at the back of those fronting the streets, to which access is attained from a court-yard. It is notorious that the police regu-

lations on this score are very deficient, and that while they carefully prescribe the width and height to be followed upon the elevation towards the thoroughfare, the proprietor is left almost without control as to the buildings that he may erect away from public gaze. It is by no means rare to find blocks of houses that are 14 mètres high towards the street, separated from a back building by a court-yard of only 6 mètres wide, or even less, and the air of the inhabitants of the latter is forced to be renewed in this well. But the worst of this state of things is, that the ventilation that is thus provided (and be it remarked that the courts that are built upon these conditions are those of the best houses in the new quarters of Paris) is very far indeed from being of a nature that is conducive to health, as the courts or areas are always more or less tainted with the air of the places, or provisions, for removing the refuse of the population. The habits of the best classes in France, in this respect, are surprising, and I cannot but attribute much of the excess of mortality that prevails in Paris to this cause. In almost all the court-yards that it has been my fortune to have visited in Paris, or elsewhere in French cities, there has been a "*villanous smell*," that must interfere with the healthy exercise of some of the more important functions of the body. This is particularly the case with the houses in the quarters of la Villette, the Temple, the Faubourg St. Antoine, the quarters Latin and Moussetard; but the remark may be extended to all Paris. In the old parts of the city, too, the streets are narrow; they are badly planned; they want light and air; and though much has undoubtedly been effected in the way of improvement in these respects in the alterations that have of late been made, still much more remains to be done before Paris would be able to compare with London as to the ventilation or the salubrity of its houses. I wish it to be distinctly understood that it is not my intention, at present, to inquire into the manner in which house property is held in the respective cases of the two cities, though this must have a great influence upon the style of construction adopted in them. All that I am anxious to arrive at in this study are the causes of the increased mortality in Paris, and amongst these I place foremost the number of the inhabitants per house, and the bad conditions of the houses themselves.*

* I must be allowed here to remark, that I agree to a great extent with M. Leplay, the author of a remarkable work on the "*Réforme Sociale en France*," as to the influence of what he calls the *régime du partage forcé* in producing the state of things described in the text. The tenure of property in France is entirely freehold, and therefore there is every inducement for the landlord to derive the greatest possible returns from it; added to which, the fact that property of every description is divided equally on the occasion of the death of every individual holder, tends to destroy anything like a broad general view of the duties of the landlord. This is at least certain, that the tendency of the French law of inheritance has much to do with the crowding of the population in the town districts; although the precise wording of the law does not bear anything like that interpretation.

As to the drainage and water supply of Paris, it is, as I stated some time ago, still in a very rudimentary state. The sewers act simply to relieve the streets from the rain water and from the liquid portion of the house refuse; and the water supply is so managed, that in no case is it possible to command anything like what we would call "a high service." It is necessary to carry up by hand to the higher stories of the buildings all the water that is there consumed. It is calculated that there are about 700 kilomètres of roadway executed in Paris, but not more than one-half of this length has been sewer'd; and the system adopted *there*, is carefully to exclude all that we in London so anxiously throw into the sewers, and to retain it to rot under the houses in cesspools, to be emptied from time to time. On the north side of the Seine a very well-devised system of intercepting sewers has been lately executed, and the various subordinate sewers are, by this means, carried to a bend of the river by Asnières; but this measure does not deal with the whole of the city—it leaves, for the present, quite out of account the sewerage of the islands in the Seine, and it does not discharge any of the water that is brought down by the intercepting sewer on the south side of that river, which is poured into the Seine at Chaillot, a little above the "intakes" of the Chaillot waterworks. There may be reasons for retaining the solid *dejecta* of human beings in cesspools; but the system adopted in Paris cannot be regarded as a true solution of the social question of removing all such refuse from the houses in a manner that should be alike inexpensive and without inconvenience. I am far from thinking that Londoners have yet solved this question in throwing their refuse into the sea, or at least into the extremity of an estuary that communicates with it. But, at any rate, the system that has been adopted in London, removes from the houses themselves the evil that must attend cesspools; and it will enable us to study the best means of converting to some useful purpose the results of the plan adopted here. It is possible to lead the sewage matters that are collected on the south side of Paris to the north by means of a siphon; and to prolong the outfall from Asnières to the lower reaches of the Seine, beyond Argenteuil and Maisons, so as to employ the force of gravitation, to a certain extent, to distribute the matters brought down by the sewers upon the hungry soil that lines the course of the river. It is to be feared that it will be many years before this project can be entertained; but it must, I think, sooner or later, be brought forward. In the meantime, Paris labours under the disadvantage of being compelled to retain in cesspools the matters that are destined

to be removed.

to give fertility to the fields; all that can be got rid of by the sewers are the rain waters falling upon the high lands and upon the paved surfaces of the streets, and the liquid portion of the house refuse that is allowed to find its way into the sewers. All the details of the system adopted by our neighbours are admirably adapted to the discharge of the functions that they consider to be the proper ones to be performed by the sewers; the error has been, I think, in limiting them to the duty of drains, and not allowing them to be at the same time sewers. I should hesitate very much in questioning the arrangements that might be made by such men as MM. Belgrand, Rozat de Mandrè, Roussel, Nouton, Huet, &c., were I not convinced that we are much nearer the solution of the difficulty that attends the disposal of the house refuse than the French engineers; and were I not also convinced that much of the extra mortality that is to be observed in Paris over that observed in London, is greatly to be attributed to the imperfect manner in which the former city is sewered.

I alluded to the deficient water supply of Paris as a cause of the increased mortality that there prevails over that of London, and it is to be observed that this mainly depends upon the peculiar tenure of the house property in that country. There lodgings are held under the proprietor of the freehold by the tenant directly; and they are very seldom let on lease, though, of course, the landlords are glad enough to secure good tenants, by making the occupation of the house agreeable to them. The consequence of this is, that the landlords do not, as a general rule, provide their tenants with the means of receiving the water in their separate *appartements*; and the tenants do not go to the expense that would be necessary for laying on the water, which, after all, would be in the direct interest of the landlord. In Paris the custom is, therefore, to lay on water to the ground floor of the houses, and this is done for one-half of the town. There are 25,000 subscribers to the waterworks out of about 50,000 houses that exist in Paris. The rest are obliged to content themselves with the water supply from wells, with what they may be supplied with by the water carriers, or with what the inhabitants may themselves derive from the "*bornes fontaines*," or the ornamental fountains; in all cases the quantity of water must be limited, whatever it may be in quality. Doubtlessly the system that is adopted in Paris, of allowing the water to flow in the gutters for two hours in the course of the day, is conducive to the cleanliness and the salubrity of the town, by thus providing the means of washing the whole surface of the roadway at regular intervals; but this is a poor compensation for the absence of water in the private drains, which must be considered to be to a great extent owing to the number of the "*bornes fontaines*," that are so numerously dispersed in Paris. The quality of the waters now distributed is not, either,

of an irreproachable nature, for the Canal de l'Oure brings into the city its waters charged with the impurities that it receives from the active navigation carried on upon it, and those it may contract in the course of its passage through the Bassin de la Villette; the waters of the Seine are contaminated by the nearness of their points of supply to the population; the Eaux d'Arceuil and du Près St. Gervais are excessively hard, and they participate in the qualities that are remarked in some of the private wells that are likewise sunk in the upper members of the Paris basin; whilst the waters of the wells of Grenelle and Passy are variable in quality, and have all the inconveniences attached to their origin. M. Belgrand has proposed a scheme for supplying Paris with a copious distribution from the Oisne and the Marne, which is considerably advanced, and which bids fair to remedy the defects that are now apparent in this respect; but it is not less the fact that up to the present day the water service of Paris may be characterized as I ventured to describe it some time since, and the English consumer would laugh at the small size of the vessels there used for the purpose of cleanliness; they are emphatically such as could only be used in a country where water has to be bought by the pail.

But with all the causes of increased mortality of the city of Paris over London, the fact still remains that a great and marked decrease in this respect has taken place since the year 1853, or shortly after the Emperor began to urge upon the city the necessity of making better provisions for the sewerage, water supply, street ventilation, and the reform of the house system, which have characterized the recent changes that have been effected in Paris. Of late years, indeed, the difference in the rates of mortality that have respectively prevailed in the two cities has been very slight; and though it might have been expected to have been in the opposite direction, still the diminution in that of Paris cannot but be a source of congratulation to the advisers of the Emperor, and an encouragement to the French authorities to persevere in the course that has already produced such satisfactory results. To the philosopher there may be something repugnant in the system that substitutes the will of one man for the wishes and wants of a whole population; but the Frenchman's ways are not as our ways, and they look for the initiation of every great reform from that which they have agreed to make the representative of the intellect of their country—the central Government. There may be, and doubtless there are, many objections to the extension of the debt of Paris for the gratification of the esthetical fancies of the Emperor in laying out the lines of boulevards, and the creation of new *places* and squares in the interior of the city; but the results that have attended these works hitherto have been such as to make us seriously question whether there may not be a deeper question than the mere economical one involved in the solution of the problem

that is concerned in their execution. The inquiry into the rates of mortality, however, has thus far led to the ascertaining the fact that the mortality of London, with all its disadvantages (and they are manifold and manifest), is less than that of Paris by nearly 4 in 1,000, if the average be taken over the space of ten years; and of 13 in 10,000 if attention be only paid to the mortality of the year 1862.

There is a singular subject connected with the rate of mortality in Paris that I think merits careful analysis of the returns. It is that the population that would seem to be benefited by the changes that are being made in that city are apparently subjected to new forms of disease that go far to compensate for the mortality arising from the old forms they were exposed to, which are now disappearing. Thus there has been observed in Paris of late to have occurred many more deaths from intermittent fevers than were wont to take place in that city, and the number of fatal cases of pulmonary complaints has been considerably increased; the former are attributed to the exhalations that arise from the ground that is disturbed in erecting the new streets; the latter to the increased draught, and to the workmen breathing more dust than they were accustomed to. It would seem, then, that good and evil are very closely combined in this world; and the rate of mortality in large cities may be suspected to be subjected to certain laws that tend to re-establish the equilibrium that may for a time be disturbed. This reflection should not, however, induce us to delay the introduction of open avenues and broad streets; for, after all, the incidents I have referred to may be only temporary in their bad effects, whilst everybody knows that permanently the population must be benefited by everything that would tend to improve the sewerage, water supply, and ventilation of their residences. In all this reasoning upon the cause of the increased mortality proceeding from certain causes, it must be observed, however, that I have left entirely out of account that resulting from the overcrowding, which we have seen prevails still to a great extent in Paris. It is possible that much of the mortality that is to be observed in that city may be traced to that subtle cause, which I am convinced, for my own part, has much to do with the fact of the inferiority of the rate of mortality of London over Paris. This, however, is certain, that with all the advantages that Paris has unquestionably over her rival, the death-rate of the former is higher than that of the latter; and that so far as the hygienic conditions of the two capitals are concerned, that Londoners enjoy a great advantage over their apparently more favoured neighbours, which is expressed by the fact of the death-rate being about $1\frac{1}{2}$ in 1,000 higher in Paris than in London. Much as has been effected for the sanitary condition of Paris, still more remains to be done, before she can venture to compare with London as to the general conditions of the healthiness of the town.

In arriving at the conclusions that I have done, it must be observed that I have in all cases taken the figures to which I have referred, from the "Statistique Générale de la France" and the "Annuaire du Bureau des Longitudes," for all that relates to the Paris mortality; and to the returns of the Registrar-General for all that relates to our own. They differ slightly from those of M. Devinck,* as quoted by a writer in the "Builder;" but they do not exaggerate—nay, rather the contrary—the advantage of London in this respect. The principal difference is, however, to be found in this, that I have endeavoured to establish my average over a longer period than that gentleman has done. He has attempted to draw his conclusions from only three years' experience; I have thought proper to take ten years for that purpose, which will admit of a fairer average being drawn from the official reports. In fact, the conclusions of M. Legoyt, from the official documents to which he had access, may be taken as a correct statement of the case with respect to the populations of Paris and London. That gentleman stated that—First, Paris had more marriages, and a result, both general and of legitimate children, less than that of London; Second, that in spite of this lesser fecundity, and the well-known fact that a great number of the children born in Paris died in the country, Paris had a rate of mortality that was much greater than that of London; Third, that there was a greater preponderance of male deaths in London than in Paris; Fourth, that the proportion of births to deaths was greater in London than in Paris. It must have cost the national vanity of M. Legoyt a great deal to make these admissions, and they may very fairly be taken as representing the facts of the case.

I am bound, as on the occasion of my last year's report, to express my sincere thanks to his Excellency, Earl Cowley, and to Baron Hausmann, Prefect of the Seine, for the assistance they have afforded me in preparing this paper, and in obtaining for a friend the statistics which have enabled me to compare the mortality of Paris and London. This gentleman visited Paris expressly for the purpose of making these inquiries, and he informs me that it would be impossible to speak too highly of the kindness and consideration he met with from all parties to whom he was introduced, or of their desire to serve him. I would beg, therefore, to record publicly my sense of their politeness, and their willingness to assist in the objects of the comparison.

* M. Devinck is the secretary of the Committee of Finance of the Municipal Council of Paris; and it was in that capacity that he signed the report upon the results of the improvements which appeared in the "Moniteur" of January last.

Poor Law Administration, its CHIEF PRINCIPLES and their RESULTS in ENGLAND and IRELAND as COMPARED with SCOTLAND. By EDWIN CHADWICK, C.B.

[Read before Section B of the Social Science Congress, at Edinburgh, 1803.]

I HAVE to submit to the consideration of the Section the different leading principles of the legal provisions for the relief of the destitute in England, Ireland, and Scotland, and of the results of their conformity or divergence from what my colleagues of the Poor Law Commission of Inquiry agreed, upon the evidence, were the sound principles of legislation for such provisions.

Principles of a Compulsory Poor Law.

At the time of the appointment of the Poor Law Commission of Inquiry in 1833, there was prevalent the theory of population by Mr. Malthus, sustained by abstract and geometrical reasoning, which attributed the existence and increase of pauperism mainly to the inevitable pressure of population on the means of subsistence, and prescribed, as the necessary remedy, the absolute repeal and disallowance of any legal provision of relief. Eminent economists and statesmen, and, indeed, most persons of intellectual rank in society, adopted this opinion as a settled conclusion, and were of opinion that all measures for the amendment of the Poor Law in England, ought to tend to its discontinuance. The evidence elicited by my own examinations, conducted, as I trust, impartially, as to any preconceived opinions, appeared to me to negative this conclusion. Everywhere the increase of pauperism and of burthens on the rates appeared to be due to the mal-administration of the legal provisions for compulsory relief, to the imbecility, or to the sinister interests of ignorant local administrators, and to habits of the recipients of the rates induced by lax administration—nowhere to the assumed inevitable pressure of a willing working population upon limited means of subsistence. My colleagues, some of them of strong preconceived opinions, yielded to this, and to concurrent testimony of other investigators to the like effect. They agreed, nevertheless, that in all extensive communities, such as ours, circumstances will occur in which an individual, by the failure of his ordinary means of subsistence, will be exposed to the danger of perishing; that to refuse relief, and, at the same time, to punish mendicity, when it cannot be proved that the mendicant could have obtained subsistence by labour, is

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repugnant to the common sentiments of mankind; that it is repugnant to them to punish even depredation apparently committed as the only resource against want. But, whilst we adopted as a settled principle that a legal provision of compulsory relief should be made to the able-bodied, we did not propose that it should be extended to more than the relief of *indigence*—the state of a person unable to labour, or unable to obtain, in return for his labour, the means of subsistence. We did not propose to extend the provision to the relief of *poverty*—that is, the state of one who, in order to obtain a mere subsistence, is forced to have recourse to labour, nor did we propose any legal relief for poverty, strictly so called, and we thought it would be extremely mischievous if we did. We did not consider that a compulsory system of relief by the nation was available as a direct means, as some theoretical writers have assumed, of elevating the condition of the nation. But the evidence collected appeared to establish as a conclusion that a compulsory provision for the relief of the indigent can generally be administered on a sound and well-defined principle; and that under the operation of this principle the assurance that no one need perish from want may be rendered complete, and the mendicant and the vagrant repressed by disarming them of their weapons—the plea of impending starvation. It was assumed, however, that in the administration of a compulsory system of relief, we were warranted in imposing such conditions on the individual relieved as are conducive to the benefit either of the individual himself or of the community at large, at whose expense he is to be relieved. One primary condition is, that his situation on the whole shall not be made really or apparently so eligible as the situation of the independent labourer of the lowest class. Every penny bestowed that tends to render the condition of the pauper more eligible than that of an independent labourer is a bounty on indolence and vice. One further primary condition of a sound system of relief we considered was, that the relief given should be entire—not partial relief. Any partial relief, any relief in aid of wages, had, as respects the able-bodied, an inevitable tendency to substitute parish doles for wages, and to lower wages, and to destroy the independence of the labourer. We held that relief must be so given as to draw a clear and visible line between the paupers and the self-supporting classes. I found that the working classes, in the administration of their own funds, anxiously and laboriously applied this principle in the shape of a rule, that the recipients of relief should be either wholly on or wholly off the box, or the sick list. It is not absolutely necessary that, in the application of this principle, relief should be given, as commonly supposed, in the workhouse. The pauper may be on out-door work, and may receive out-door relief in return for work, provided that his whole time is occupied in working,

in return for this subsistence, under proper superintendence. They may be set on out-door work, as many of the able-bodied in Lancashire now are, strictly in compliance with the statute of Elizabeth, provided it be under proper superintendence and security that their whole time is occupied in working in return for relief.

Principles of In-door Relief.

The workhouse is the most convenient means of providing for fluctuating numbers of applicants, on occasions when they are too few, to make it worth while to provide out-door work or to employ officers to superintend it. The workhouse or poorhouse meets nearly all cases. The poorhouse serves, moreover, as an hospital, as a fever-ward, and an asylum in cases of sickness as well as of ordinary destitution.

Condition of Populations without Compulsory Relief for Destitution.

The state of things which prevails in the entire absence of any legal provision for the relief of the destitute is seen in Italy, in Naples, in Sicily, Spain, and other Roman Catholic countries, in voluntary relief by alms, and a sort of voluntary practice of out-door relief without any return of work. Whatever may be the merit in pious intention of relief by alms collected and distributed by ministers of religion, such an administration is always attended by this defect, that it is without means to ensure the funds from fraudulent misapplication, or secure a return of work from the able-bodied, or to enforce the conditions we specified as necessary thereto; in which our colleagues, the excellent late Archbishop of Canterbury, as well as the late Bishop of London, Blomfield, fully agreed with us. In the instances of the most abundant distribution of doles, the effects are seen in indolence, filth, squalid misery, vice, and discontent. The impression is created in the popular mind of the existence of an indefinite and inexhaustible fund apart from any sources in the labour of others, of wrong if there be any stint to them—of wrong for which, to the more active depredation, brigandage is a natural and proper means of redress, as a war to obtain a rightful share of wealth, and the means of subsistence without giving any work in return for it.

Uses of a Poor Law System as an adjunct to a Police System.

It is a one-sided and narrow view of a legal provision of the nature of the one in question to regard it as a measure simply for the relief of indigence. It has an important aspect, not commonly regarded, as a measure for the prevention of crime, as a measure of police, and of extended penal administration. In this view we contemplated that there should be a comity and concurrent action in England between the indigence relief service with a systematized

police service—when it could be obtained—for the suppression of juvenile mendicancy, delinquency, and vagrancy. In some of the improving provinces of Spain, where monasteries have been suppressed, and where brigandage has also been suppressed, it was found necessary, as I am informed, to precede these measures by provision for the relief of the able-bodied. In the districts infested by brigands, the course adopted was to require from each individual an account of his mode of livelihood, and to offer those who could show none subsistence at the public expence, but with the obligation of making a return of some work or service. Those of the indigent who refused to work or to accept the provision made for them were held to be living dishonestly, and treated accordingly. The indigence relief, as a police measure, has, I am told, proved to be effectual. When the late Count Cavour was Minister of Public Works, I had the honour of a special visit from him, to inquire as to the methods of dealing with the indigent classes in England. I directed his attention to the operations of the police upon the common beggars' lodging-houses in London, which he visited, as well as other institutions and model dwellings, and made himself acquainted with much of our Poor-law institutions. If he had been alive, I should have expected of him that he would have been prepared for the introduction of an extended Poor-law system on sound principles, as one of the measures for the improvement of the condition of the Italian population, that the conflict with the great plague of brigandage, as well as mendicancy, in which the Italian Government is now engaged, and that the measures of simple repression would have been preceded or accompanied by a well-organised system of legal relief, including a provision for the able-bodied, to be used as I am informed such a provision has been used in Spain.

Introduction of a Poor Law System into Ireland.

When our Government was pressed on the subject of a Poor-law for Ireland, I confidently advised the adoption of a provision for the relief of the able-bodied, which, by some statesmen, was deemed to be for Ireland a wild and dangerous provision, but my confidence in it was derived from observation of the working of analogous principles of relief upon able-bodied Irish labourers in England. Besides the deep-seated evil of mendicancy, such a provision might, I considered, be brought to bear on the evils connected with the occupancy of land and upon agrarian disturbances. Economically considered, whatsoever may be the importance of the freedom of change of the ownership of land obtained by means of the great measure—the Incumbered Estates Act—of which the late Sir Robert Peel said it was so good a measure that he really wondered how it had ever passed—of even greater importance is freedom of change of

the occupancy of the land, which should be facilitated and promoted in various ways, one of which is the assurance given to the cottier that he need not cling to the wretched mud hovel, for his children as well as himself, for that neither he nor they are now in any danger of perishing upon abandoning it, even if he fail to obtain a more productive occupancy. Under the Poor-law Amendment Act, extensive sales were made of cottages and plots of land, amounting, I believe, to a million or more in saleable value, which had fallen into the possession of the parishes, on account of the destitution of the cottier owners, but in a large proportion of cases, I believe, on their abandonment of them and the abandonment of the neighbourhoods for a higher return for labour to be obtained as wages elsewhere. The whole proceeding in this class of cases was one of benefit, in the greater return of produce to be obtained by their employment at the market rates of wages, as well as from the gain of produce to the country by superior or less expensive culture. Mr., now Sir George Nicholls, whose opinions were thought to be less extreme or more impartial than mine, was sent over to Ireland to examine and report on the measures of the nature of a legal provision which it was expedient to adopt. Upon a full and impartial examination, he reported decidedly in favour of a legal right being given to the able-bodied, and to a system of relief being instituted, in which entire and not partial relief should be given, and that relief in the workhouse should be the rule. By his exertions mainly, improved poorhouses have been constructed, and Ireland has had the advantage of an advanced system of relief, for which union chargeability in wide areas is substituted for the English law of relief under the law of parochial settlement.

Of Out-door Relief System in Scotland.

In relation to Scotland, we were not consulted, and an opposite system, founded apparently on the population theory, was adopted, under which the adult able-bodied persons, as such, have no right to relief whatsoever, and under which only one-fifth of the parishes are provided with poorhouses of any sort, and in which partial relief, or out-door relief, instead of being the rule, is the exception.

Defects of Poor Law Administration in England.

The opposite systems of relief have been in operation in Ireland and in England sufficiently long to enable a comparison to be made of the results which I now write; but, before I present the statistical results, I wish to submit some prefatory statements, chiefly bearing on the intermediate position occupied by the present Poor-law administration in England. Those only who have had experience of it can be aware how difficult it is, in the present state of political

information, to get any clear general principle appreciated, or to achieve its full practical application. In the present condition and practice of legislation, no measure based on administrative principles, partaking of science or system, goes into the House of Commons that, as a general rule, does not come out worse than it went in. The measure prepared by the Commission of Inquiry got through with less damage than most others of a systematic character, yet still it was largely and seriously altered; but nothing was taken from it that subsequent experience has not shown the necessity of having restored; and nothing was added that has not, in practice, proved to be obstructive. The supposed interests of the owners of close parishes proved to be too great for us, and we failed to obtain the repeal of the law of parochial settlement—that is, we failed to free the circulation of labour, and to improve the quality of the labour, and to improve production and wages to the extent which must have followed upon the measures proposed. We also failed to get the administration freed, as was intended, from action of those sinister interests which operate the most powerfully in narrow areas. Farmer guardians could still give, though indirectly, out-door relief, which in effect was frequently relief in aid of the wages of their own labourers. They as well as manufacturing guardians, as employers, could still apply relief in methods to effect their local stock of labour, and to keep down its price, cheating themselves, however, by impairing its quality and value. The owners of small tenements in towns could still, as guardians, give out-door partial relief, much of which was in payment of the high rents paid by their own tenants. Shopkeepers, as guardians in towns, might still give, as they often determinedly exercised their discretion in giving out-door and partial relief, wholly in money instead of in kind, much of which money was expended in their own shops, or in the shops of their class. Mal-administration of these descriptions was checked, but not extirpated, as it might have been, and, on the whole, scope was given for the operation of an aggregation of interests which made partial and out-door relief the rule, at the expense of the ratepayer, and really of the lower classes, instead of the exception. The administrative areas for much of the business were consolidated from fifteen thousand parishes to some six hundred unions. In rural and thinly populated districts these areas were commonly sufficient; but in urban districts, what may be called natural and proper administrative areas, comprising a whole city or town, or the connected aggregation of houses with their suburbs, were cut up at the expense of efficiency and economy. Thus the city of Manchester is really cut up into four independent districts (suburban) and administrations for relief, each acting without any necessary concert with the others, or any common principle with the others, each being too small to effect, at a moderate expense, those

executive arrangements of paid officers and means of providing and superintending work for meeting promptly, extraordinary as well as ordinary, destitution, which might be gained at a reduced expence, if they were made, as they ought to be, on the scale of the whole city, including its suburbs. I do not mean to say that such extraordinary destitution as has occurred in the cotton districts may be met without extraneous administrative or other aid; but our report under the Commission of Inquiry pointed out town drainage works and other such rude works for the employment of the adult able-bodied, as is now being resorted to with success: and I do mean to say, and experienced paid executive officers would agree with me, that on the due application of the principles therein laid down, such work might have been in full operation more than a year ago throughout all the districts, and that a large amount of demoralisation amongst the labourers might have been saved, and a great deal of severe pressure upon the smaller ratepayers averted, and far less extraneous charitable assistance needed to get over the crisis. I always contemplated that responsibility for the initiation as well as the execution of executive measures should mainly attach to those on whom only it can be charged—namely, the permanent paid officers, locally appointed and supervised; and not on changing, unpaid, and comparatively ill-informed officers, as respects whom any real responsibility for any ill they may do, even in the promotion of their sinister interests, is delusive. The system of entire or in-door relief, as laid down, impedes the action of such sinister interests as have been extensively prevalent during the late crisis in preventing immediate reductions of the masses or congestions of the unemployed, by emigration or by migration, or by changes of employment; it would also have prevented much abusive relief by the payment of rates in aid of labour which has been resorted to by employers who act as guardians, or by guardians who have acted in their supposed, but mistaken, class interests at the expense of other classes of ratepayers, shopkeepers, and others who derive no immediate benefit, if any, from the protected trade. It would take much time to describe the waste, the suffering, the demoralisation, and the permanent burdens which have been imposed on the ratepayers, which the combination of means and consolidated local administrative machinery originally contemplated would have prevented. In many urban districts, as in the metropolis, the profitable labour is given, in some wealthy sub-districts, without any contribution towards the relief of the casualties of destitution contingent on that labour, whilst the entire chargeability for them is thrown upon other and poor sub-districts, or places which the labourers inhabit, and which derive the least benefit from their industry. On the occasion of epidemic visitations, the hospital accommodation in the poorest part of a large town is overcharged,

and the officers overworked, and extra assistance needed, whilst the sick wards of another part of the town will have abundance of room, and a service of officers little occupied. In respect to medical relief, it may be observed that it is contrary to sound principle, and most injurious in its operation, that the public service should be mixed up with private practice, which necessarily withdraws the interest of the officer from his duty towards the destitute. It would be far more economical, instead of two men's half-time, half in public practice and half in private, to have one man's whole time, and that time directed to the work of mitigation as well as of cure.

Classification of Pauper Children and others in separate Establishments originally Proposed.

Our proposal in respect to existing pauperism and establishments was to have classified, by the appropriation of separate houses, each to one class of objects, as would have been extensively practicable in populous urban districts, with the existing tenements, assigning one house to the males, another to the females, one for the sick, and most especially one for orphan and destitute children, instead of putting all classes under one roof. The moral evils which have been inflicted on children—female children more particularly—from bringing them up in the same house with dissolute adults, from the influence of whose example, under the existing conditions of the single union houses, it has been found impracticable to protect them. These evils, so created, are the subject of the regular remonstrances of Miss Twining and the Ladies' Workhouse Visiting Committee, and are maintained in despite of the continued representations of school inspectors, and of the proof of the superior working of the half school time system and industrial training in the separate houses and district schools. It followed, on the principle of classification in separate houses laid down, that lunatics and idiots, the blind, the deaf, and the dumb, who are still scattered about solitarily amidst other classes, to their mutual annoyance and misery, should have been gathered together, and placed in distinct establishments, where they might receive their besetting treatment.

The improvement, which has been effected in Ireland as well as in England, stops short of one great result contemplated and practicable, with the aid of a well-directed compulsory system of relief—namely, the suppression of habitual beggary, and the entire clearance of those seed-plots of juvenile delinquency and adult crime. To effect this, to put a stop to hereditary pauperism, to cut off the vicious succession of those who live habitually as mendicants or depredators, society must be brought to appreciate and to act upon the profound old Hebrew maxim—that he who neglects to teach his son a trade brings him up as a thief.

Concurrent Action of Police originally Intended.

But, to effect this object, the concurrent service of a general and an organised police is needed, and this did not exist in England, nor does it now. On my representation, a commission was appointed to examine into the principles of the organisation of a general police force, and on its preventive as well as repressive action. We found that the estimated number of some hundred thousand persons living by depredation as well as by mendicancy, from whom the population of the prisons as well as of reformatories is kept up, was chiefly migratory, and that migration, from one end of the kingdom to the other, required the corresponding extent of action of a police force. For the protection of London or an inland town, it might be requisite to direct measures to be taken at Liverpool, or Holyhead, or Bristol, or for Edinburgh at Portpatrick, and that, too, with the aid of poor-houses, with their vagrant wards along the whole line. Isolated forces, for the most part, only divert the predatory lines upon each other. But what can be said to the state of intelligence which permits the population of one part of the metropolis itself, the city, to be charged with an extra expence for an inferior protection, and to be subjected to an extra amount of depredation at the expence and inconvenience of the rest of the metropolis, by impeding inter-communication and pursuit of depredators, who prey upon one district whilst they live and take refuge in another. Ireland, however, has an excellently organised general police, which may now be brought to bear, by concurrent action, with that of the Poor-law service, for the attainment of the great object. The provision of a Poor-law for Ireland was opposed by Mr. O'Connell; and, as a compromise, the intended provisions against mendicancy were given up to him: but, in 1847, mendicancy was for the first time made criminal in Ireland, and it is to be hoped that active steps for its repression, with the alternative of the workhouse, will not be longer delayed. Mendicancy has, nevertheless, been largely reduced by the indirect operation of the law. But by a due exercise of the police force, which, in deference to the feelings—the prejudices if I may so call them—not of the working clergy, but of the Roman Catholic clergy, has been kept back, it may at any time be applied to its complete extirpation.

Superior Economy of Paid and Responsible Administration.

With all the shortcomings which I have described as relates to the present English Poor-law, the imperfect organisation and partial consolidation has arrested large growing evils, and has given very general satisfaction to those whose knowledge of what was really practicable is limited. By the new Poor-law organisation of paid permanent officers, paid clerks, paid relieving officers, paid masters

and matrons of workhouses, paid district medical officers, paid school-masters, and, it may be added, of paid assistant-commissioners and inspectors, with the paid officers of a Central Board, together with a large expenditure upon new buildings throughout the country, all of which were the outeries as extravagancies; a large saving has, nevertheless, been effected upon the unpaid services, chiefly of one parish officer throughout the country—the unpaid parish overseer. I cite the statistics of Mr. Purdy, who shows that, in the 22 years preceding the reform of the Poor-law in England, 143 millions was the sum spent for relief, but in the 22 subsequent years it was only 129 millions, notwithstanding that the population averaged nearly 25 per cent. more in the latter than in the former period. This is equal to a total decrease of 33 millions, or yearly more than 21 per cent. on the service of parish officers, but the reduction is really much greater, as formerly there was very large expenditure in labour rates and otherwise, which did not enter into the parochial accounts. By a higher administrative organisation, and executive expenditure and complete action, on the principles originally purposed, the saving might be nearly doubled, apart from the difference of results. I have lately shown, for example, in respect to education that by a higher organisation for education, with a head master at double the ordinary salary, aided by a second and a third assistant master, with a staff of paid pupil teachers, with a drill master for physical training, as originally contemplated and realized on the half-time and industrial training in the district pauper schools, the cost is reduced to one pound per head per annum, and the work done in a superior manner, in half the time of the single competent master, at a charge of two pounds per head, and with vast differences in the comparative industrial aptitudes imparted, and in the moral and economic results achieved. The public economy would be considerably augmented in the directions I have indicated by the concurrent action of a general police. It has been proved, as respects the partial organisations of isolated county forces which followed our recommendations of a general force in England, that the services of paid privates, paid sergeants, paid superintendents, and paid county high-constables, under disadvantageous conditions for economy of the exclusion of the burghs, were brought immediately within the total expenses attendant on the services of the one officer—the unpaid parish-constable. In fact, we were prepared to ensure the services of an organised general police force of some twenty-two thousand men, for the whole of Great Britain, it might be said for nothing, or within the whole of the direct and collateral existing expenses attendant on the services of the parish constables, paid beadles, and isolated borough constables.

Greater Expense of the Scotch System of Out-door Relief, without Poorhouses.

The new Poor-law organisation in Ireland, I have no doubt, is, in fact, a large economy upon no previous organisation of the kind whatsoever. In respect to the provision for Scotland, I am apprehensive that, from the error of its principle, the change has been one of increased and seriously increasing charge. As showing the result of two different principles of administration, the experience of Ireland and Scotland present the best means of comparison, as having had no large growth of hereditary pauperism, as distinct from common mendicancy, generated under the long mal-administration of legal provisions for relief as in England. Scotland, then, with its three millions of population, had, in 1860, 120,000 paupers, or 4 per cent. on the population, an amount nearly equal to the accumulated pauperism of England, which was 4·7 per cent. Ireland, with upwards of six millions of population, had 95,000 paupers, or only 1·5 per cent. on the population. In Ireland the cost of the relief given was 2s. 2½d. per head on the population. In Scotland it was 4s. 2d., or approaching that of England, which was 5s. 7½d. per head on the population. The average cost of relief per case relieved was greater in Ireland, the relief being there more full, it being 9l. 18s. 6d. per case, whilst even in England it was less than 7l., and in Scotland it was only 5l. England, which ranks highest in wealth, is the deepest in pauperism; under the system of partial relief, six-sevenths of the relief is out-door relief; Ireland which is the lowest in wealth, and which gives entire relief, or relief in the workhouse, in twenty-nine cases out of thirty, is the least burdened with paupers; whilst Scotland, which stands between England and Ireland in respect to wealth, where nineteen-twentieths of the cases are relieved out of doors, is approaching to England in respect to pauperism. The influence of the erroneous system on the population appears to be such as we should have anticipated. Mr. Briscoe, General Superintendent under the Board of Supervision for Scotland, having given evidence of the demoralising effect of out-door relief in the population of the Highlands, was asked, as a concluding question, "Then the effect of this out-door relief has been very demoralising, and has broken down the spirit of independence?" and he answers, "Not the least doubt about it; it has deteriorated to a considerable extent, truth, industry, morality, self-respect, self-reliance, the natural affections and independence of character; it appears as if the whole of the humbler classes had completely changed character; there is no shame whatever in demanding relief even among some of higher station. The state of things in the Highlands of Scotland is perfectly deplorable, and every person admits it."

Advantages of In-door Relief as Displayed in Ireland.

Persons whose knowledge of the real condition of the classes who come within the range of a compulsory provision is not much better than that obtainable from seeing opera shepherds and shepherdesses, or the sketches of artists, treat out-door relief as a measure of severity; but those who have examined the fetid one-roomed tenement in which the members of a whole family, often more, are heaped together—in which children are born, and the sick are kept amidst the healthy—in which all die, and where the dead are retained amidst the living until the means of interment are found, know that every case of removal is an act of humanity, and sanitary relief to those who remain, as well as to those who are taken away. To the Irish cottier who may be persuaded to give up the wretched mud hovel, in which the pig has had its sty and its measles, with his children, in-door relief gives him a clean, well-ventilated lodging, a clean bed, and a dietary and condition of existence such as he never before had in his life, and gives him this freely for a moderate return of labour, until he can emigrate, or get labour in the open labour market. The existence of such a refuge relieves him from despair, and gives him courage to adventure far afield for the improved means of independent self-support. That it is resorted to as a refuge is shown by the fact that in-door relief is attended by a greater degree of fluctuation and change in ordinary times than out-door relief. Once on the out-door pauper roll no one voluntarily resigns his position, and consequently the permanent pension-list, by far the heaviest incumbrance on the English and Scotch poor-rates, undergoes comparatively little change in the course of the year. In Ireland, on the contrary, as the Commissioners state, the changes are continual, through discharges occurring voluntarily on the part of the paupers, and through admissions freely granted to the applicant for relief. Thus, the average duration of the cases little exceeds three months. The general workhouse provision enabled Ireland to weather through the horrors of the famine, which would without them have been enormously aggravated; and there can be no doubt that it has been one great aid to the improvement of the population now going on in Ireland.

Preventives of Pauperism, Sanitary and Educational, not intended.

After all, however, and at the best, the service for relief, like the police service of repression, is a melancholy service. It is a dreary prospect, if we view it as an inevitably perpetual condition. I have always, as my opportunities permitted, looked forward to the development and promotion of the means of prevention. The common cause of legislation at present for the relief of the destitute is like foundling hospitals, and making provision for the treatment of marsh diseases

—most necessary and humane so long as, from ignorance of sanitary science, the diseases were inevitable; but this is like going on without any conception or capacity to receive, or to act upon ideas, that the marshes admit of being drained, and being made, in place of fever nests, fields of healthful and inferior production. Of the existing causes of destitution and pauperism to which the class of independent labourers are subject, a larger proportion are those which do arise from localising causes, bad sanitary conditions, ill-drained, and cesspool-tainted, and over-crowded habitations; over-crowded, ill-ventilated schools, and unduly prolonged hours of sedentary constraint, without due physical exercise for the young; over-crowded and ill-ventilated places of work, and over-long hours in them for the adults; with the results—excessive sickness and mortality, and premature disability for work, premature chargeability on some fund, public or private, which fund the shortness of the workman's career commonly prevents him from providing for himself. These causes of disability and pauperism are everywhere gross and patent. It may be said, in the words of the Psalmist, that the earth is “filled “with the habitations of cruelty.” By partial sanitary appliances, these causes of misery and destitution have, in various instances, been reduced one third, and, it is proved, may be reduced one-half; and that the period of self-support and working ability of the labourer or the artisan may be extended, as I have estimated, ten years or more, so as to enable him to make those reserves, to ensure the ease and independence and respectable self-support which is the last mundane consolation of old age. The landowners in Scotland, who are apprehensive of the increasing pressure of pauperism, and especially the owners of the single-roomed tenements, in which a million of the population of Scotland reside, will best ward off future burthens by exertions in this direction; and next to it, in this other, in arresting juvenile mendicity and vagrancy, and in cutting off the vicious succession to pauperism and vice, by imparting to the young industrial aptitudes, by means of early physical, as well as intellectual, moral and religious training. The efficiency of this great means of prevention has been demonstrated. I may assume that I have elsewhere proved that on the half school-time system, the common elementary instruction may be imparted in half the hours of the day now occupied, in half the period of years now occupied to the detriment of productive occupation, and at half the expense that is now incurred for inferior mental instruction, divested of the physical training, which is so necessary to impart industrial aptitudes. If these great means of prevention, educational, and sanitary be duly prosecuted, pauperism must eventually be of comparatively unsrequent occurrence, and a charge of little public account.

The Statistics of Crime in Australia. By WILLIAM WESTGARTH, Esq., Author of “*Victoria and the Australian Gold Mines, 1857;*” “*Colony of Victoria, 1861,*” &c., &c., &c.

[Read before the British Association, at Bath, September, 1864.]

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I.—*Australia and Australasia.*

THE term Australia, used strictly, would limit my subject to the five colonies of our antipodal group that are situated upon the great southern mainland—New South Wales, Victoria, South Australia, Queensland, West Australia. But I shall find occasion, in the course of my remarks, to embrace also the two outside colonies of Tasmania and New Zealand, which belong to the wider circuit distinguished by the name of Australasia. These seven colonies comprise amongst them an area of very nearly three millions of square miles, of which more than two-thirds are still unoccupied. The occupants of the remaining area consist, at the present day, of about 1,300,000 colonists of English blood, in the wider national meaning of the word, besides a small proportion of European foreigners, chiefly Germans; about 40,000 Chinese, who are mostly upon the goldfields in Victoria and New South Wales; and the aboriginal natives. The latter affect, only in a slight way, the criminal statistics of the colonies, as, with one notable exception, that of the New Zealand natives, they are nowhere important in any sense. In the northern island of that colony, however, to which the

unfortunate native war is limited, the natives are still in numbers about equal to the colonists, and they have been very impressively teaching the latter for several years past to respect some at least of the qualities of savage life.

II.—*Local Circumstances affecting Ratio of Crime.*

In a view of the state of crime in Australia, the most important circumstance is the system of the transportation of criminals from this country—a system familiar to us by seventy-five years of uninterrupted duration, and that still survives, although in a diminished degree, in the colony of West Australia.

A variety of other circumstances, although in their effects of minor consequence to that just alluded to, tend to produce diversities in the ratio of crime in these different colonies. In South Australia, for instance, there is, comparatively with the other colonies, a settled population, extensively grouped into the family relationship, with the sexes nearly equalised—census 8th April, 1861, 126,830, viz., males, 65,048, females, 61,782—and where agricultural operations on a large scale have reproduced much of our English country life. New South Wales and Victoria, on the other hand, have been checked in their ameliorative progress by the gold discoveries, and the rude experiences of gold mining life for the last thirteen years.—In Victoria about 90,000, or one-sixth of the whole population, are “actual miners.”—Queensland and New Zealand are still in a socially unsettled state from an almost daily immigration of large numbers of new colonists, and the disproportion of females usual in the first peopling of remote colonies.* New Zealand is being further affected prejudicially, in a social sense, by the extensive gold mining in the southern districts during the last three years.

III.—*Crime in Australia as compared with England.*

We are curious to inquire, with regard to these colonies, what is the ratio of crime as compared with this country. We see that they are peopled mainly by the same race, but under happier circumstances as to the means of subsistence and general well being. Remembering how intimately crime is proportioned to destitution in this country,† we naturally anticipate that in the colonies, with diminished destitution, there will be diminished crime. If we do not find this to be the case—for on the contrary the average of crime is much greater—we must bear in mind that the effects of the transportation system have confused all the proper elements of our case. The inquiry can be fairly conducted only at some future day, when these effects have passed away. Meanwhile, however, we may reason-

* See Appendix B.

† See Appendix C for illustration of this point.

ably infer, from the favourable condition presented to us even now by some of the colonies that have happened to be the least exposed to the convict stream—South Australia, New Zealand, and particularly Queensland—that the entire group would, but for this cause, have compared to decided advantage with the mother country.

IV.—*Crime and Climate.*

Another point challenges our curiosity. These colonies pervade a wide diversity of climate, from the winter snows of southern New Zealand, and from the genial Tasmania onwards continuously to tropical Queensland. Does the difference of climate seem to make any difference in the ratio of crime amongst the same people? We know that our physical system is affected, and mostly for the worse, as we go towards the equator. Is it so with the moral system? and do our tropical colonies of the British people indicate more crime than those of temperate climes? This question cannot be answered any more than the previous one, and for the same reason. The data are all at cross purposes on the subject, for the chief determining cause as yet has been the incidence of the convict system. The colonies that indicate at present the highest crime ratio are, besides West Australia, which is still a convict colony, Tasmania and New South Wales, originally penal settlements, although now no longer such, and Victoria which is situated between them. Tasmania enjoys a mean yearly temperature of 53° or about 4° more than London; Victoria of 58° ; and New South Wales of 66° . South Australia, on the other hand, under a mean of 64° , is considerably better than any of the preceding. But the smallest ratio of crime is due to Queensland, whose ample area lies upon either side of the tropical line.

V.—*Crime in Australia Greater than in England.*

Australia, then, does not present us with the pleasant spectacle of an unusually small ratio of crime. On the contrary, in the chief colonies it is much, nay even enormously, greater than in this country. In the case of Victoria, as stated in a protest addressed last year to the home public by the Anti-transportation League of the colony, the cost of police and prisons for the year 1860 amounted to no less than 15s. per head of the whole population. We shall better apprehend the meaning of this statement when I add that the cost of police and prisons in England and Wales for the year 1863, according to the parliamentary papers on the subject lately published, is only 2s. $1\frac{1}{2}$ d. per head,—police 1,658,265*l.*, prisons 547,415*l.*; population about 20,440,000. No doubt these costs must be greater, in similar circumstances, to the thin population of a colony, than to the dense masses of a longer-settled country, and the cost of police service is greater in the colonies; but the difference in question far

exceeds any reasonable allowance to these causes, and thus supports the argument of the colonists, that the transportation system is to them a very costly heritage, to say nothing of its other evils.

But as to these other evils, of course this greater ratio of expense for the detection and repression of crime, means a greater ratio of crime itself. Thus the commitments, for felonies and misdemeanors, to the supreme court and sessions in England and Wales, taking the five years 1851-55, averaged yearly 1 in 668 of population, while in New South Wales the yearly average of the five years 1858-62, gives 1 in 433; and in Victoria (1859-61), the still worse result of 1 in 375.* Indeed, with respect to England and Wales, taking a subsequent period, namely, the six years 1856-61, the yearly average is so comparatively small as 1 in 1,093; but the comparison is to some extent unreliable, through the operation of the Criminal Justice Act of 1855, which extended to magistrates the power, with consent of the prisoner, of dealing summarily with certain cases of offence, instead of sending them to juries.

VI.—*Large Ratio in Victoria; the Cause.*

Let us here observe, that Victoria appears in this comparison more unfavourably as to crime than even New South Wales, notwithstanding that the latter was originally a convict settlement, and for a long time the head quarters of the system in the southern hemisphere, and that Victoria was free from the outset. The seeming anomaly requires explanation. Victoria is situated, as before stated, just between the two great seats of the convict system of past days—New South Wales and Van Dieman's Land—and was thus always exposed, upon either frontier, to the influx of the convict population, whether "runaways" or "expirees," as the bond and the freed of this unwelcome class of immigrants were respectively termed. Under these circumstances, a terrible experience awaited Victoria upon the discovery of the goldfields. The convict class streamed over in thousands from Van Dieman's Land, as from an open gaol; and crimes of the most shocking and alarming atrocity became of almost daily occurrence. During the year 1853, when this state of things was at its height, there were no less than 554 persons of this class convicted for fresh offences in the colony; the whole population at the time averaging about 200,000. We have thus 1 in every 361 of population, or nearly three times the proportion of the convictions in England and Wales; and we must further bear in mind, that, in addition to all this extraneously derived crime, as we may in some sense call it, the colony had still the crime proper to its own society to endure and dispose of.

* Mr. Rolleston, Registrar-General, New South Wales, for year 1862. The superior condition of South Australia is exemplified (year 1862) by 1 in 628.

Victoria, however, has improved since that date. Van Dieman's Land, called Tasmania since the cessation of transportation, presents us with the heavier category of crime. The convictions for felonies and misdemeanors, are 1 in 486 of the population. We graduate in the equatorial direction through the somewhat happier ratios of Victoria and New South Wales, and only reach the smallest proportions of crime, as already stated, in semi-tropic and tropical Queensland. There the proportion does not exceed, or is even more favourable than that of England. Queensland lies out of the way of the main convict stream. The "old hands," as the earlier assigned convicts were called, and who, in the penal days of New South Wales, were often the only servants procurable for the remote pastoral stations of the northern district that is now Queensland, have mostly long since died out; and the young colony, for its erection into a separate Government dates only from the year 1859, furnishes, approximately at least, an idea of the picture our southern colonies might have presented but for the convict system. New Zealand also has been in great measure exempted from the convict influence. The committals to the supreme court and sessions, and the convictions, are respectively in about the same proportion as those of England and Wales. This condition, however, refers to times preceding the mining of the great goldfields of Otago, which began in 1861. Already, indeed, there are symptoms of declension, for the year 1862 has shown a considerable increase in the proportion of convictions. There are 145 in that year, namely, 10 felonies and 135 misdemeanors, or about 1 in 690. There are above 20,000 miners now at work upon these fields; and if some of Victoria's gold mining experiences are to be reproduced in New Zealand, an unbroken continuance of the happy immunity of the latter colony from any marked excess of crime is hardly to be looked for of the future. But the future will also have its improvement, as Victoria herself exemplifies, whose chief goldfields are even now the seats of considerable municipal towns, communicating with each other by roads or railways and telegraphs, and drawing with facility from their seaports, in exchange for the all-negotiable gold, the choice of the world's market for their social amenity and progress.

VII.—*Great Crime Ratio the Effect chiefly of Transportation.*

I have thus shown that these colonies present considerable diversities in regard to crime; but that these diversities are quite intelligibly accounted for by a variety of local circumstances, chiefly according as they have been severally exposed to the effects of the convict system. On the average they present a ratio of crime very considerably higher than that of this country.

VIII.—*Improving Condition.*

But if this unsavourable view must still be taken, the condition is at all events an improving one, and by no slight gradations. Indeed there is no feature of these colonies more satisfactory than their progressive social improvement, as illustrated by the almost methodical yearly diminution of crime. I am to be understood as speaking of the whole group collectively, for, besides exceptional circumstances pointing in an opposite way, in some of the members, the case of West Australia is already presenting some of the worst features of the earlier convict settlements to the eastward, although happily on a scale less noticeable to the world and less hurtful to its neighbours.

I shall now examine some salient points of this comparative well-doing. If these colonies cannot yet take a high rank in the social scale in respect to their crime ratio, let us console ourselves in regarding the much lower position from which they have risen, and thus take reasonable assurance that the future will exceed the present, somewhat as the present has exceeded the past. The old convict leaven gradually dies out, and its diminishing influence is more and more overwhelmed by the tide of healthy immigration of the free colonists. One chief guide in our comparisons will be the proportion of convictions for the graver offences—the felonies and misdemeanors—at the supreme court and sessions.

1. *Retrospect of New South Wales.*

New South Wales ceased to be a convict colony in the year 1810. After that year transportation was concentrated upon Van Dieman's Land; but the former colony was left to digest, as it best could, the accumulations of more than half a century of convict immigration. The process was by no means easy, even in the superficial view of its mere pecuniary cost. The Imperial Government affected to bear its share of the burden bequeathed to the free colonists by continuing to defray the expense of convict establishments in the colony. But so inadequately did this arrangement meet the merits of the case, that one of the earliest acts of the first representative legislature, instituted at Sydney in the year 1843, was to draw up a bill of costs on the subject against the Home Treasury—a bill of such proportions that, as "no part thereof has as yet been paid or compensated," we must suppose it was too formidable to be encountered. But as to all this accumulated convict population, when and how would it be finally disposed of, for it was being continually immersed in fresh crimes? There were consignments to chain gangs, imprisonments by the thousand, lashes by the hundred to each back, executions by the half dozen of a morning. The colony has bled,

both literally and metaphorically, in the protracted warfare. But it has fought and conquered, and, after a quarter of a century, it emerges in comparative peace and security.

I say "comparative," for we must not suppose that the old condition is yet ended. The very last mail from Australia arrived but a few days ago, brings accounts of bushranging and highway exploits such as would, in point of coolness, audacity, and ferocity, rival those of Turpin or Wild, or the worst of Italian banditti. The perpetrators are mostly old British convicts or their descendants. Victoria, and especially New South Wales, have been of late a prey to such atrocities, which indicate that the convict leaven is still present, and is powerful to reappear at intervals in irrepressible outbreaks of this kind, which for a season defy alike the police and the Government.

Experience of this nature enables a colony to speak authoritatively on the merits of the transportation system, and to urge energetically the natural equity that prescribes to every society the duty to retain and control its own criminals. But, returning to the colony's statistics, we shall look at those of 1840. The convictions are 1 in 155 of the population;* the present proportion in England and Wales being 1 in 997.† The previous year is still worse, for it gives 1 in only 126, or worse by nearly eight times than the ratio of this country.‡ And yet even these deplorable results do not adequately represent the full measure of colonial crime, as the summary jurisdiction of the magistrates was specially enlarged so as to embrace many of the graver offences. This was the case also in Van Dieman's Land, as it is now the practice in West Australia, and it is perhaps a custom of indispensable convenience in dealing with unusual proportions of crime. From this gloomy picture of the past, we turn with pleasure to the present, to learn that the convictions of New South Wales are now in the relatively promising proportion of 1 in 715 of population.§

2. *Retrospect of Van Dieman's Land.*

Van Dieman's Land remained, for fourteen years after her sister, the great convict receptacle, and with few results to her social advantage, as may well be supposed. Let us, for example, take the condition arrived at in 1846. Disclosures of a truly awful character were at that time being transmitted from the colony to the Home Government and public as the result of convict settlements. In a total population of 60,000 of all ages in that year, there were 29,870

* 1840, convictions 832; population 129,463.

† Average for 1862-63, 20,409; population about 20,350,000.

‡ 1839, convictions 912; population 114,386.

§ 1862, convictions 514; population 367,495.

convicts, while many of the remainder were free only by pardon or servitude. In the same year no less than 17,338 cases of offence of some kind or other were proceeded with before the magistrates. After such a description, it is pleasant to be able to record that the colony has notably improved since that date. With the cessation of transportation, the old name of Van Dieman's Land has been buried, with all its convict associations; and fair Tasmania, beauteous in scenery and genial in climate almost beyond compare, has with her new name sprung into a new existence.

3. *Retrospect of Victoria, South Australia, and Queensland.*

But I must hasten over this part of my subject. Victoria, which we found so oppressed a few years ago as to show for the one year, 1853, reconversions of old British offenders to the number of 554 in a relatively small population of 200,000, is so much improved a few years after, as to exhibit only 24 such convictions for the year 1862, the population meanwhile having nearly trebled. The proportion of other convictions has also materially diminished. South Australia, by the same test of convictions, shows a decided diminution in the ratio of crime during the ten years 1853-62. During part of that interval, the colony remained stationary, or even retrogressive, in its crime-ratio, a circumstance attributable to the convict immigration from West Australia. But that source of crime being greatly restricted by the colony's measures of defensive legislation in 1857,* improvement is soon afterwards manifest, and the proportion in 1861-62, is nearly 50 per cent. less than it was about eight years previously. Queensland appears to have effected the same encouraging degree of progress during the shorter space of four years, 1859-62. In this last colony, however, where the increase of the population is so rapid, that about one-half consists of the new immigrants of the preceding two or three years, we can hardly as yet look for reliable data on this question.

IX.—*Case of West Australia.*

I now turn to a different picture—the colony of West Australia. The actual present condition of that colony, and the degree of social injury she inflicts on her eastern sisters by the continuance of the convict system, have been questions of differing and somewhat angry statement. The colony was not of convict foundation, like New South Wales and Van Dieman's Land; but it had comparatively few natural resources, and thus, poor and slow of growth, it accepted the convicts and the imperial expenditure that was to accompany them, on the business principle that all custom that pays should be made

* See Appendix A.

welcome. It is only fair towards West Australia to recall that similar views pervaded New South Wales and Tasmania in their earlier years, at a time when colonial interests were represented mainly by a handful of employers, who regarded the colonies as a field for gain rather than a home. West Australia has not yet emerged from a parallel condition. In the eastern colonies, so soon as a society was consolidated by free immigration, and a public opinion brought into action, the system was condemned. Australia had then become "home" to its increasing settlers, and even the children of the convicts were, in many instances, leagued with the other colonists against transportation.

What West Australia now actually is, and what it is likely to be at a further period, should the convict system be persisted in, is a subject of general interest—an interest not confined to Australia. The latest and most complete, and apparently the most authentic account of the colony, is from the correspondent of one of the Victoria newspapers, the Melbourne "Argus." The writer was sent specially from Victoria on this errand of inquiry, at a time when the colony was in strong agitation upon the convict question, and when its press and public condemned the system alike in Eastern and Western Australia. But while it is only proper to allude thus to a possible cause of bias on this account, the correspondent's communications, which were received and published at Melbourne so recently as June last, bear all the marks of fair and temperate representation, authenticated by ample official and other statistical data.

The result presents to us a darker picture than had been usually imagined of a settlement so remote and so little before our public, even by those opposed to the system. Indeed it might be well for the future interests of the south, if the French Government could be induced to give attention to the report in question, and thus learn some of the inevitable results of convict colonies, before proceeding further with their project of New Caledonia. Many doors are kept unlocked, but it is the security of a poor colony that presents little to tempt the thief, and no opportunity to dispose of any plunder. The official regulations are favourably alluded to. There is a strict surveillance and firm grasp of the convicts while undergoing sentence; but all this is at an end after they are freed by conditional pardon or servitude. They then instinctively turn their eyes to more prosperous and attractive spheres, and shoal off by hundreds annually to the eastern settlements.

Of this fact there was no room for doubt, and hence the fresh outbreak of crime and obstructed path of social progress in these settlements. Take, for instance, the state of the question at the date of 1st January, 1860; by that time 2,583 convicts had become free by pardon or servitude, and of these there were 1,410, or more than

half, unaccounted for. In other words the latter had, almost without exception, left for "the other side," as the common phrase is, and the local authorities had willingly let them go. It was estimated that for every five convicts who were arriving from Britain, three were re-emigrating for the eastern settlements. Indeed the colony possessed no resources to give these persons employment; and so evidently did this appear, that, as stated by the writer I have quoted, if the other colonies could but arrest this constantly relieving efflux of the convicts, the results to West Australia would become so insufferable as to cause a speedy end of the system.

The system began in the year 1850; and up to the 31st May of the present year, there had arrived in the colony 7,781 convicts. The imperial local expenditure on their account is at present about 98,000*l.* yearly; but besides this benefit, the colony had stipulated for an immigration of free colonists, at imperial cost, in numbers equal to the convicts. This last arrangement, which has been carried out, and has doubtless mitigated the evils of the system to the colony, permitted of prisoners' families being sent out to them, besides pensioners and other persons. A number of free females were also included, to assist in equalizing the sexes in the absence of female convicts, none of whom, happily for the colony, were ever transported there.

The colony, if it did not thrive socially and morally, took at once a new life of another kind. Up to 1850, after twenty-one years' existence, there were but 5,886 colonists over its wide expanse, with the most insignificant finances and commerce, the public revenue having been but 12,440*l.*, the imports 62,351*l.*, and the exports 22,135*l.* But in 1863 the population had increased to 18,700, while the revenue was between four and five times larger, the imports nearly doubled, and the exports quintupled. Many colonists, especially traders in the towns, had realized small fortunes, such as they could not have even dreamed of amid the virtuous poverty of the earlier times.

But returning to the other side of the picture, we shall find it very dispassionately set forth by the authority I quote from. One of the greatest evils of such a colony early appeared, namely, that the criminal class exceeded in numbers the class of the free. Five years ago, in 1859, the whole adult males of the colony were computed thus:—

21 years and upwards	{	criminal	3,842
		free	2,708
Excess of criminals			<u>1,134</u>

and this excess must since have been greatly increased, as the free labouring class, as well as other free colonists, have been gradually

leaving the colony, elbowed out, as it were, by the competition of the freed criminal class. The hand of fellowship is not extended to the latter by the former, and we cannot wonder at such reticence; for although, as my authority remarks, "many of the ex-convicts have 'acquired homes and property, the condition of the mass is most 'unsatisfactory. They remain wanderers on the face of the land; 'religion unknown to them, drunkenness an universal vice."

In a society so constituted, there is of course an incessant recommitting of offences. If unlocked doors will argue for a limitation of crime in some particular direction, there must yet, by the results before us, be a full compensation in many other ways. But in the first place, to show how this crime is restricted almost solely to the convict class, I may mention that out of 287 persons in actual confinement for fresh offences, as reckoned on one particular day, only 6 belonged to the non-convict class. With respect to at least the graver class of offences, a great misconception is apt to prevail outside the colony, from attention being directed merely to the records of the supreme court. Some 25 convictions yearly for the West Australian population shows proportionately no heavier criminal list than some of the eastern colonies. I have already alluded to the true explanation, which consists in the specially extended powers of the magistrates. In West Australia the summary jurisdiction of the bench seems to exclude only a sentence of death; as, for example, such sentences as seven years and 100 lashes are of common occurrence.

We shall appreciate more exactly the actual social condition of the colony in its criminal relations, by the grave fact that during the year 1863 the number of convictions, for all kinds of offences, was no less than 3,277 in a population—both sexes, and all ages included—of 18,700. This is a proportion of 1 offender to less than 6 of population. For purposes of comparison, we may, from this datum, assume about 1 in 4 for cases dealt with, as distinguished from convictions. In Victoria the proportion was lately 1 in 18; in New South Wales 1 in 19; in South Australia 1 in 36; and in England and Wales 1 in 45. We have already ascertained that the proportion in Van Dieman's Land, in its worst days, was 1 to rather less than 4. West Australia happily does not stand out the huge blot that was presented to the world by the larger scale of the senior settlement; and yet, judged by the proportions of this criminal test, the former is even now close upon the heels of her eastern prototype.

But to return for a moment to these 3,277 convictions in one year in West Australia, and their proportion of 1 to less than 6 of population. Many of these, no doubt, are cases of repeated offence on the part of the same individuals during the twelve months. But after making due allowance on this behalf, and on the other hand

deducting the young of those ages during which offence is rare, and the females, with all of whom we may hope, from the circumstance of their non-convict character, that it is equally rare, we are shut up to a most extraordinary conclusion—no other, in fact, than this, that well nigh every second man of the community is a yearly offender against society. Either of these parties—the offender and the offended—we may be sure, is an offence to the other; but which is society? Rarely indeed have the opposing kingdoms of the good Ormuzd and the evil Ahriman been so nicely balanced.

In conclusion, although the present condition of Australia as to crime is somewhat discouraging, yet it is a condition that is manifestly improving—a condition that in the present greatly transcends what it was in the past. We can understand from the foregoing, how much this condition depends, for good or for evil, for advance or retrogression, upon the abolition or continuance of the transportation system; and we can thus view in its proper light the strenuous opposition that is now being made by the colonists to even the lingering remnant of the system in West Australia. They mark with satisfaction the gradual wane of the old state of things, with the dangers and disgrace that have so long beset them; and we may readily suppose that when the dawn of a better order is fairly brightening upon them, the effect of any interruption, such as this persistent continuance of transportation to West Australia, must be intolerably vexatious.

There is indeed an argument against the colonists, as well as for them, in this question. England planted her convict colonies upon the desolate shores of Australia; and the free colonists who followed the movement, and who have since prospered and multiplied in the new scene, have now risen up against the convict system. But this argument, to the credit of the Imperial Government, is not used against the colonists. The question is argued on its substantial merits, and in this way those who are on the spot, and can see the practical effects, have totally condemned the system. The records of New South Wales, Van Dieman's Land, and Norfolk Island, stand out as an indelible stain on the fair face of the empire. But these records, and all pertaining to them, are at least receding into distance; they are on the eve of being memories instead of realities; and in another generation Australia may begin to rival the world in her relative freedom from crime, as she has already done in her marvellous commercial progress and general prosperity.

APPENDIX A.

Opposition to Transportation, and Defensive Legislation of the Colonies.

There was no combined movement in the colonies against the convict system until the year 1850, when the Australasian Anti-transportation League was commenced. It originated in Tasmania, and was inaugurated at Melbourne in the year following. This body was dissolved two years afterwards, under prospects that promised the full accomplishment of the object it had in view. In February, 1853, the then Secretary for the Colonies, the Duke of Newcastle, had intimated to Parliament that it was the intention of the Government to abandon the transportation system, which was to be given up at once as regarded Van Dieman's Land, and a few years later as regarded West Australia. But as these expectations have remained unfulfilled, the League has been reconstituted in Victoria; the colonists having been stimulated to this course by the Report of the late Royal Commission, which recommended, instead of the expected cessation, a greatly increased number of convicts being sent to West Australia. The League had met with general support in the colony, and has announced that it will fight out this battle with the mother country by the aid of all the weapons that English law and liberty allow it, and that the interests of the colonial societies demand.

Case of Victoria.

Already the colonies have exemplified this phraseology by their defensive legislation. Under the auspices of the earlier League, Victoria passed the Convicts' Prevention Act of 1852, an extreme measure, extemporised for the emergencies of the time with reference to the convict influx from Van Dieman's Land, that followed on the discovery of the goldfields. The Act was mainly designed to checkmate the "conditional pardon" system, by means of which the adjacent penal colony sought to relieve itself. Under that form of pardon, the convicts received permission to leave Van Dieman's Land, but not to return to England, and of course they went straight to Victoria. By the terms of the Act, the vessel bringing these persons was liable to heavy fine, and the persons themselves could be seized on board, and either imprisoned for three years or returned to the colony whence they came, notwithstanding the so-called Queen's pardon and the royal prerogative. The colony took the equitable ground that persons unfit to enter England had no right to enter Victoria.

This cauterising measure was afterwards extended so as to exclude from Victoria the convict class for three years after they had received even full and free pardons. Indeed, a recent inquiry in the colony into the present state of the law on the subject, seems to indicate that any two magistrates, on proof shown as to a felony committed elsewhere, may send the convict back to the place where his crime was committed. This law, indeed, had lately a near chance of being brought into actual exercise, as a proposition had been brought forward in the Victoria Legislature, and not without influential support, to retransport to England a number of West Australian convicts. It had been ascertained that the police of Victoria and of the adjacent colonies had their eyes upon a very considerable list; and the temptation was strong upon the colonists to refute, by so practical a demonstration, the oft-repeated assertion that West Australia and her convicts were too isolated and remote to endanger the eastern colonies.

Case of South Australia.

The preventive and extraordinary act which Victoria passed in order to secure herself against Van Dieman's Land, was passed five years afterwards, namely, in 1857, by South Australia, to protect that colony against the convict influx from West Australia. The latter colony had caused little alarm to its neighbours until towards the year 1855, by which time the convicts in considerable numbers were acquiring their freedom. In that year there were 269 arrivals of all kinds from

West Australia at Port Adelaide. In the following year the numbers rose to 438, and in 1857 to 629; making a total of 1,336, of whom probably one-half were, in colonial phrase, either "conditional pardons" or "expriees."^{*} The check administered by the Act was decisive, for in 1858 the number was reduced to 184; in the next year to 156; and the year after to 114. In consequence of the Victorian and South Australian Acts, the captains of traders were unwilling to take passengers to either of these colonies from West Australia, and generally preferred to go to Sydney, at which port no such Act was in operation. The South Australian Act did not, like that of Victoria, extend to expriees, but only to the conditional pardons. The Home Government have intimated, within the present year, that this "conditional pardon" expedient of convict colonies, which has been so vexatious to their neighbours, is to be entirely abrogated.

APPENDIX B.

Comparative View of the Inequality of the Sexes in the Population of the Australian Colonies, and of other Countries.

Colony or Country.	Date of Origin.	Last Census.	Total Population.	Males.	Females.	Females in 100 of Population.
New South Wales	1788	1861	3,58,478	202,099	156,170	40·6
Tasmania	1803	"	90,211	—	—	—
West Australia	'29	"	15,691	9,852	5,839	37·2
New Zealand	'40	"	106,315	67,335	38,980	36·7
South Australia	'36	"	130,627	67,251	63,373	48·4
Victoria	'51	"	541,800	321,721	220,026	40·6
Queensland.....	'59	"	34,367	20,811	13,556	39·4
Total	—	—	1,277,289	—	—	—
New Brunswick	—	1861	252,047	129,918	122,099	—
Nova Scotian.....	—	"	330,145	165,233	161,912	—
Prince Edward's Island	—	"	80,857	40,880	39,977	{ almost equal
Newfoundland	—	"	122,638	61,268	53,370	—
England and Wales	—	"	20,066,224	9,776,259	10,289,965	—

Note.—Several of the Australian colonies were settled more or less before they became separate Governments; as Victoria, which, as part of New South Wales, was first colonised in 1834-35, and Queensland, another part of the same colony, about 1840. New Zealand also had been partially colonised from Australia before being proclaimed a colony.

The excess of males in our younger colonies and of females in the mother country are mutually explanatory, as resulting from a continuous excess of male emigration from home to these colonies. The males born in England and Wales, as indeed in the world generally, are slightly more in number than the females, emigration in after life being the chief cause of reversing these original proportions.

* Mr. Newland to Royal Commission, "Minutes of Evidence," p. 223, &c.

APPENDIX C.

ENGLAND AND WALES—Crime Proportioned to Destitution. Increased Ratio with Unfavourable Years, and vice versa.—Committals for Trial.

Year.	London Metropolitan District.	England and Wales.	Remarks.
1813.....	4·6	—	} Cheap food and abundant employment
'44.....	4·9	26·5	
'45.....	4·3	24·3	
1816.....	5·1	25·1	} Dear food Bad business " French revolution
'47.....	5·9	28·8	
'48.....	5·5	30·3	
1819.....	4·6	27·8	} Generally years of cheap food and good business
'50.....	4·5	26·8	
'51.....	4·5	28·	
'52.....	4·4	27·5	
'53.....	4·4	27·1	
1854.....	5·2	29·4	} Dear food Foreign war High interest of money Severe crisis
'55.....	3·9*	*26·	
'56.....	3·2	19·4	
'57.....	3·1	20·3	
1858.....	2·7	17·9	} Cheap food Low interest Good business
'59.....	2·9	16·7	
'60.....	2·8	16·	
1861.....	3·	18·3	} Dear money and food Scarcity of cotton, American war
'62.....	3·6	20·	
'63.....	—	20·8	

* This year the Criminal Justice Law gave increased powers of summary jurisdiction to the magistrates, which caused the reduction in the committals of that and succeeding years. The results are still useful for purposes of comparison.

Note.—In opposition to the above home results, what are termed "good times" in these colonies usually indicate a greater ratio of crime than the "bad times." The explanation is, that the means of all classes in the colonies are generally, in all times, whether the so-called "good" or "bad," sufficient for healthful and even comfortable subsistence; and that the "good times" are often characterised by extravagance, particularly in a large consumption of alcoholic drinks, which has the usual result of increasing crime.

STATISTICS OF LIVE STOCK IN THE UNITED KINGDOM, 1853-63.
By ROBERT HERBERT.

[Read before Section (F) of the British Association, at Bath, September, 1864.]

In the consideration of the production of live stock for consumption in the United Kingdom, many features of special interest present themselves. Of late years, much has been written in reference to agricultural improvement, and, in some quarters, it has been affirmed that we are in a position to raise every head of stock necessary for consumption, without the aid of the foreign grazier. It might be considered an important matter to render ourselves independent of the producers in Holland, Denmark, Germany, and Spain; but the question here arises—how are we to accomplish so desirable an end? The rapid increase in the population of Great Britain during the last ten years, and the consequent increase in the consuming powers, added to the extraordinary progress of trade and commerce, and the improved monetary position of the great mass of the consumers of meat, prove beyond a doubt that the period has now arrived when strenuous efforts are absolutely necessary to meet a demand that must continue to have a most important bearing upon price. At the present time, both beef and mutton are selling at fully 1½d. per pound above the rates current twenty years ago. Prices are still tending upwards, and the prospect is, that the quotations will rule high for a considerable period, notwithstanding that we may continue to import liberally from abroad. Had it not been for a free importation from the continent, nearly all kinds of meat would, long ere this, have been selling at enormous prices. Consumption must of necessity have declined; and a certain amount of discontent must have been apparent amongst the labouring classes. But let us see what has been our actual dependence upon the foreigner. In 1853 we imported—

Beasts	125,253
Sheep and lambs.....	230,037

In 1863 the supplies received were:—

Beasts	150,898
Sheep and lambs.....	430,788

The increase in the ten years, therefore, is only about 25,000 of the former, and 200,000 of the latter. These supplies, however, though

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for the most part, in very middling condition, have materially assisted the consumption and prevented prices from advancing to dangerously high figures. We could all desire to see home production keeping pace with the demand; but if we closely examine the returns of the great Metropolitan Market—which has to furnish a supply for nearly 3,000,000 people—we shall find a state of things which would appear to shake confidence as regards our powers of production. In 1853 and 1863, the total supplies of stock disposed of in the above market were:—

	1853.	1863.	
Beasts	252,624	288,177	
Sheep and lambs	1,325,474	1,389,142	
Calves	20,395	23,291	
Pigs.....	34,677	53,985	

From the above figures, we must deduct the numbers of foreign stock offered, in order to see how far production has increased in the United Kingdom. Those numbers were:—

	1853.	1863.	
Beasts	52,311	72,907	
Sheep and lambs	220,429	285,296	
Calves	22,619	26,630	
Pigs.....	8,508	17,562	

It follows, therefore, that the increase in home-fed beasts in the ten years was trifling in the extreme, and that there was a falling off in the supplies of English sheep in 1863 compared with 1853. Here, it will be perceived, the question assumes more than ordinary importance, because the progressive nature of our home and foreign trade, and the increased power of purchase and consumption must, at no distant date, tell seriously against the consumers. Let us now see how prices have ranged in the ten years. In 1853 and 1863, they were as under:—

	1853.		1863.		
	s. d.	s. d.	s. d.	s. d.	
Beef, from	2 6	to 5	—	3 4	to 5 2
Mutton	2 6	„	5 4	3 6	„ 6 2

In the period here alluded to, then, inferior beef has advanced 10d., and all kinds of mutton 1s. to 1s. 2d. per 8 lbs., although, as I have shown, the arrivals from abroad have continued to increase. If we refer to 1842, and to the ten years prior to that period, we shall find even a greater difference in value. The best Scots were seldom worth more than 4s. 2d. to 4s. 6d., and the best Downs 4s. 6d. to 4s. 8d. per 8 lbs. There is, therefore, a much larger profit to the grazier, without a corresponding increase in the supplies.

We will now consider from what quarters London has derived its supply of stock. In 1853 and 1863, the arrivals were:—

	1853.	1863.
Lincoln, Leicester, and Northampton	56,650	66,980
Cambridge	60,490	70,790
Other parts	31,700	27,580
Scotland	18,116	12,823
Ireland	10,200	12,944

This statement shows that we received about 20,000 more beasts from Lincoln, Leicester, and Northampton in 1863 than in 1853; and that the arrivals from other parts of England, as well as from Scotland, have fallen off. Ireland exhibits a slight increase; but the quality of the arrivals from that country shows no improvement. In reference to the deficiency in the receipts of beasts from Scotland, a few observations are necessary, because we must not take the London market as a test of the productive powers of that country. Every year stock has increased in number, but the additional supplies have found their way to London and various parts of the country, in the shape of dead meat. In the ten years ending with 1853, about 20,000 carcasses of beef, and 200,000 carcasses of mutton, received from Scotland, were annually disposed of in Newgate and Leadenhall. In the ten years ending with 1863, the average number of the former received by railway and steam-boats was 27,000; of the latter 300,000. It follows, therefore, that the production of food in Lincolnshire, Leicestershire, Northamptonshire, Norfolk, Suffolk, Essex, and Scotland, has steadily increased during the last ten years. And were it not that the dead markets were from time to time heavily supplied with meat from Scotland, Yorkshire, &c., prices would have been unusually high; since it is evident that the quantities of stock exhibited in the cattle market are wholly inadequate to meet consumption. Again, we may remark that, at various periods of the year, large numbers of prime beasts and sheep are purchased in London for transmission to the various outports and watering places. It would be difficult to

ascertain the quantity of meat annually consumed in the Metropolis, but we may consider it about as follows:—

Beasts	250,000
Sheep and lambs	1,500,000
Calves	20,000
Pigs	400,000

The enormous supplies required year by year prove that great efforts will be necessary on the part of our graziers to meet the still increasing volume of trade. If, however, we consider the progress made in the rearing and feeding of stock in some parts of England, we shall find reason to apprehend that, to some extent, we are in a non-progressive state. We have shown that the great grazing districts, viz., Lincolnshire, Leicestershire, Northamptonshire, Norfolk, and Suffolk, continue to maintain their superiority; but what, it may be asked, is the barrier to progress in other quarters? Some remarkably fine Herefords and Devons are disposed of in London; but the number is too small to have much influence upon price. Lincolnshire and Norfolk, especially, continue to furnish the full quota of prime stock, and Scotland supplies us with animals of a first-rate character. But what are all other districts about? The consumers now offer a price which, it must be admitted, is highly remunerative; the wants of the country are increasing every year; and those who have succeeded in getting possession of prime stock for breeding purposes are making large fortunes. Some twenty or twenty-five years ago, Pembrokeshire furnished us with from 6,000 to 7,000 head of beasts every season. Now the number available for the Metropolis does not exceed 600 or 700. Again, the Metropolis could rely upon some 8,000 or 10,000 Romney Marsh sheep—one of the finest breeds in England. Now, very few find their way to London, although high prices are offered for them. Those two sources of supply have, therefore, been partly dried up, and we are compelled to look to the favoured districts and to Scotland for an adequate amount of food.

I have no desire to draw invidious comparisons, but it is well known that Lincolnshire, Norfolk, and most of what are termed the "crack" grazing counties in England, are farmed by rich men. Some of them have leases; their lands are, with very few exceptions, well drained, and they have succeeded in raising a highly valuable breed of stock. In Scotland, nearly the whole of the land is let upon a nineteen years' lease;—need I say that the Scotch grazier has an immense advantage over the English breeder, who is merely a tenant at will? Leases, I am aware, are common in England, but if we are to raise an increased supply of food, they must become more general, and their covenants must be of a liberal character. The grazing community in Norfolk, Leicestershire, and Scotland are now

raising stock of a first class character; and of late years they have adopted a system of breeding which has added materially to the supply of food. The famous short-horned breeds have been largely introduced into Scotland, and been used for crossing purposes amongst the best Scotch breeds. The result of this mixture has been early maturity—that is to say, Scots, or rather crosses, are now forwarded to London from Scotland weighing from 80 to 100 stones of 8 lbs. each, under 2 years' old. Formerly, so much weight and quality could not have been produced under from 3½ to 4 years. The result is, that very few really pure Scots are now to be met with either in Scotland or Norfolk, except for breeding purposes. This, perhaps, is one of the secrets why stock has not further advanced in price. But is there no possibility of carrying out the system further? I am aware that many graziers in England are opposed to the crossing system, and that they prefer the pure breeds to any other, on principle. There are, however, obvious difficulties in the way, which time alone will remove; clearly the soil of England, as a whole, is not half drained, and in too many counties it is badly farmed. Not a few of the farmers are labouring under the great disadvantage of the want of capital; and the majority of them are without leases. Inferior drainage, poor pastures, and a slothful attention to the wants and capacities of the land, would never meet the wants of lean stock from Scotland; and were the stock placed upon other than strong pastures, the losses would be serious. Again, the small grazier, with limited means, cannot give the enormous prices demanded for the short-horned bulls. The consequence is, that there is virtually a monopoly in the production of food; and nothing short of an enormous outlay of capital in other counties for drainage and other purposes, together with a more general system of letting land upon moderately long leases, will ever destroy it. At present, the prospect is, even with an increased importation of stock from abroad, that all kinds of meat will be very high in price for a long period. We must bear in mind that France, like ourselves, is suffering from a scarcity of stock compared with the consuming powers of the country. Last year, the imports into France, chiefly from Holland, Germany, Belgium, and Spain, amounted to nearly 600,000 head, and yet prices ruled high. From that country, therefore, we can expect no aid, because she is now competing with us for a supply of food.

Here let me remark that the Norfolk and Scotch graziers possess great advantages in the production of stock. They have wisely turned their attention to the cultivation of beet-root and turnips upon extensive breadths of land. They have succeeded in raising enormous crops upon a moderate description of land, and secured ample supplies of cattle food for winter consumption. It has become

imperatively necessary that the breeders in other counties should, if possible, follow their example.

To show more fully the great changes which have taken place of late years in the various breeds of beasts exhibited in London—and which may be taken as a fair index of the whole country—I may observe that, in 1853, the percentage of the short-horns was about 30; of Herefords, 13; of Devons, 11; of English crosses, 12½; of polled or Scotch cattle, 10; and of Scotch crosses, 1·50. Welch runts figured for 10 per cent. of the total supplies. Last year, the percentage of the short-horns increased to 35; Herefords declined to 9½; Devons to 5; English and Scotch crosses advanced to 20; but Welch runts figured for only 1·75. It will, therefore, be perceived that the short-horns and the various crosses are furnishing the Metropolis, so far as live stock is concerned, with a moiety of the supply.

In the production of sheep, equally important changes have taken place of late years; indeed, so extensive have they become, from the adoption of the system of crossing, that some breeds, once in great favour with the butchers, are becoming almost extinct. In 1853, the percentage of the pure Lincolns exhibited in the Metropolitan Market was 28; of Leicesters, 26; of South Downs and Hampshire Downs, 10; of crosses, 15; of Kents, 5. In 1863, Lincolns declined to 21½; Leicesters to 22; and Kents, to 3. South Downs and Hampshire Downs figured for 15½; crosses, 21. It is satisfactory to find that the new system, though it has failed to meet consumption, has been conducted on a good basis—that is to say, the best and most enduring breeds of both beasts and sheep have been selected by the breeders for crossing purposes. But the system of crossing may, without the exercise of great judgment on the part of those most interested, be carried too far. So long as care is taken that there is an ample supply of pure blood to breed from, so long will the system continue. Without pure blood, however, we shall raise only a mongrel and profitless description of stock of very little value either to the feeders, butchers, or consumers.

In conclusion, I may observe that there is no actual want of supply of stock in England. It would be impossible, in the absence of statistical details, to give an accurate statement of the numbers in each district; but my impression is, that the number of beasts is about 4,700,000; of sheep, 32,000,000 head. These numbers, however, are about the same as we had some twenty years ago; hence it follows, that even the new system of crossing has, from the enormous consumption going on of late years, failed to insure for us what may be termed an abundant supply of food. Meat, therefore, assuming that the country continues in a flourishing state, must of necessity continue high in price for some time.

On the "CIDER-TRUCK" SYSTEM in some parts of the West of ENGLAND. By EDWARD SPENDER.

[Read before Section (F) of the British Association, at Bath, September, 1861.]

A POPULAR English novelist has laid the scene of one of his tales in a Devonshire town, and has set his hero to achieve the arduous task of converting the inhabitants from the love of bad cider to that of good beer. Mr. Trollope confides to his readers his belief that Luke Rowan will be unsuccessful, and those persons who are well acquainted with Devonshire and the other cider-producing counties will be inclined to share in the opinion expressed by the author of "Rachel Ray."

The making of cider is one of the few manufactures of the West of England. The members of the British Association will find this district in most respects the very reverse of that in which they held their last meeting. Somersetshire and the adjacent counties are essentially agricultural, and this very manufacture, of which we have spoken, is carried on in the farm house, and within the very shadow of the orchard. It gives few tokens of its existence; no chimney stack or spoil bank indicates its presence; it scarcely appeals to the senses at all. It is quite possible that it may be overlooked altogether; and yet the writer who should attempt to do for the western counties that which Dr. Wilson did in his most interesting paper last year for the northern, would present a very imperfect picture if he did not describe the influence produced upon the labouring classes by what has been called the cider system, or, with less euphony and more precision, the cider-truck. The single fact, that the agricultural labourers in the cider-producing counties, and especially Herefordshire and Devonshire, receive from 20 to 50 per cent. of their wages in cider, is sufficient proof of the immense influence of this manufacture on their condition. Viewed as a question of political economy, one cannot but be surprised that, while the laws against the truck system in the mining and manufacturing districts are so stringent, the agricultural labouring class should be left so completely to the mercy of the employer. There is no article of consumption which is more liable to adulteration than cider, consequently there is none in which the purchaser under the truck system is more likely to be imposed upon by the seller. That the Act 1 and 2 William IV, cap. 37, for rendering the truck system illegal, was not extended to the agricultural districts, was no doubt due to political rather than

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to politico-economical considerations. Dread of the opposition of the landed gentry had far more to do with this limitation than any logical principle had. Moreover, while the miners and factory operatives loudly demanded this protective measure, the farm labourers, less sharp-sighted and alive to their own interests, took no part in the agitation;—more than that, a large number of them would feel aggrieved now if such a measure were extended to meet their case. To give them money instead of cider would displease many of them, even though they would still be at perfect liberty to buy the cider for themselves.

But what is cider? Is it food or poison? or both, or neither? According to an analysis made by Professor Voeleker, an imperial pint of cider drunk by Somersetshire farm labourers contained more than 94 per cent. of water, and a minute fraction of flesh-forming matters. Compared with wheaten bread, the difference of nutritive power is enormous. Thus—

	Cider Contains	Bread Contains
		Parts.
Water	94·21	36
Flesh-forming matters	·02	8
Heat-producing , ,	5·57	56
Mineral matters	·20	—
	100	100

Hence, according to Professor Voeleker, a person would require to drink nearly 8½ gallons of cider in order to take into the system the same amount of carbon, or heat-producing constituents, as is contained in a pound of wheaten bread; and in order to obtain the same amount of nitrogen, or flesh-forming constituent, he would have to swallow 32 gallons of cider. Compared with meat, the difference is of course far greater. Cider can, therefore, scarcely be called food. It would be going too far, on the other hand, to call it poison—that is to say, when it is pure—but the cider drunk by the lower classes is rarely pure. It is too often a noxious compound of chemicals which produce diarrhoea and colic. To make the cider given by the farmers to their labourers, the "cheese," as the apple-pulp is termed, having already given a first and a second quality, is expected to give a third; but the strength and the flavour of the cheese have long been exhausted. It is usual, therefore, to throw a cold decoction of hop over the cheese, and, by way of giving it acidity, to place a piece of blanket soaked in melted sulphur and lighted in the bunghole of the cask. By this means sulphurous and sulphuric acids are generated,

with very disagreeable results to the drinker. It has been stated that cider produces rheumatism, and that a large number of the patients at the Mineral Water Hospital in this city come from the cider districts. The case-books of the physicians and the surgeons to the hospital scarcely bear out this idea. There seems, however, to be one form of disease connected with cider drinking, which is due rather to the adulterations than to the cider itself. The symptoms of this disease resemble those of lead poisoning, and probably do actually arise from lead poisoning. If this be so, the circumstance must arise from the action of the sulphuric acid above-mentioned upon the lead vessels into which the cider is sometimes poured.

Whether pure cider be or be not wholesome is not the matter at issue in the present paper. The labourer does not get pure cider; he gets a beverage of such a kind that it does unquestionably injure his health. A medical man, long resident in the very centre of the chief cider district of Somersetshire, has stated that a failure of the apple crop has the same favourable effects on the health of the labourer as the good drainage of a parish has on the health of the inhabitants generally. The excessive quantity of cider drunk during harvest time is another source of illness, and often of accidents. Many farmers will give their labourers at such a time an unlimited supply of cider, under the mistaken notion that it will stimulate them to work better. With such licence given him a man will drink from 8 to 20 pints a-day. The effects are serious. This vast quantity of an alcoholic drink vitiates the blood, by preventing the removal of excretions at the very time that the excretions are being increased by the waste of the muscular tissue which the use of alcohol causes. Even if no serious effects follow the unlimited absorption of cider, the farmer makes a great mistake in permitting it. It cannot be too emphatically remembered that stimulants call forth strength, but do not give it. Supposing that the labourer, under the influence of large potations of cider, works more vigorously to-day, he will work much less vigorously to-morrow. He has been drawing upon his capital of strength, and all the cider in the world will never replace it. Had he chosen a diet of bread and meat and coconuts, he would have been keeping his capital intact. Nor is this mere theory. The question has been fairly tried. The late Reverend W. J. Connybeare relates a case, in which 80 acres of grass were mown, harvested, and stacked by men who abstained altogether from alcoholic drinks, and who accomplished their work far more quickly than any other mowers in the neighbourhood. Both practice and science, therefore, shew that cider is certainly not food, and it would seem that the adulterated cider commonly drunk is not very far short of being poison.

Leaving chemistry for political economy, we are at once struck

with the thoroughly unscientific nature of the cider-truck system. It is, in fact, more unscientific than that species of truck which is forbidden by the Act of thirty-four years ago. Under that system the employer did not sell his own produce at a certain fixed sum, not to be altered according to the changes in the money value of that produce. But, in this case, the farmer gives a fixed quantity of cider in lieu of wages, irrespective of the rise or fall in the value of cider, caused by the scarcity or abundance of the apple crop. The result is, that just as the farmer is receiving the least return, he is making the greatest outlay. When a poor apple crop reduces his profits, he is paying the highest wages; while when, on the contrary, the apples are abundant, and he could afford to pay his labourers highly, he is really paying them less than usual. Supposing the cider to be genuine, the farmer in a bad year may be paying wages at the rate of 18s. per week, while in a good year he will be paying at the rate of 12s.; this fact alone is a strong inducement for the farmer to adulterate the favourite beverage. He cannot afford to give good cider in bad times, and having once formed the habit of adulterating, he cannot lay it aside when there is no need to resort to it.

There is another strong objection to the system, derived from politico-economical considerations. While the ordinary truck system, improvident as it is, does allow the labourer a choice of articles to be received in lieu of money, the cider-truck permits no such liberty. The labourer is glutted with one article, and that article one which, considering the amount of his wages, he cannot afford to have at all, much less to have in such quantities as this arrangement forces upon him. In Herefordshire, it has happened that a farmer paid his labourers 9s. a-week in money, and during harvest time nine gallons of cider a-week. He was then selling similar cider for 1s. a gallon; so that the labourer was actually receiving 50 per cent. of his wages in cider. Were this beverage ever so harmless, it would have been an act of the most reprehensible extravagance for the man to have spent half his income in drink. A person of the upper classes, who squandered that proportion of his income upon his cellar, would run the risk of an inquiry into his sanity by the Lunacy Commissioners. Yet not only is nothing said in opposition to the extravagance of the labourer, but he is actually forced to commit it.

Even in less glaring cases, where the proportion of the wages paid in cider is 20 per cent., the principle is equally bad, and the results little less lamentable. The mere fact that a man, who is a husband and a father, forces a fifth of his earnings down his throat, and sees his family condemned, by the smallness of the money he brings home, to forego the taste of meat, this reflection must in time harden him and make him intolerably selfish. Were the labourer compelled to spend a fifth of his earnings on snuff or tobacco, the

hardship would be apparent at once; but as the farmers' interest consists in getting rid of the cider, the labourer's interest is altogether disregarded. He is made the receptacle for so much liquor, and he and his children are deprived of the animal food that wages paid entirely in money would have enabled him to procure.

It has been urged, in behalf of this system, that it prevents the labourer from resorting to the drink-shop. But it is of small advantage to the labourer to be drenched, *nolens volens*, by his master, instead of at his own option by the publican. The man who drinks 9 or even 5 gallons of cider a-week may perhaps have small inducement, so far as the drink is concerned, to enter the public-house; but the desire for companionship draws him thither, and once thero he must spend something for the good of the house.

As a matter of fact, in spite of the cider-truck, cider shops abound in the western counties, and are frequented by the agricultural labourers who, having already sacrificed from a fifth to a half of their wages by receiving a payment in cider, are now prepared to spend a portion of the money residue in fresh libations. It is absurd to suppose that a system so subversive of the first principles of prudence would teach the labourer economy and self-denial. The cider-truck *enforces* selfishness, and it is not to be wondered at if selfishness prevails. Under any circumstances, that professedly paternal system by which the employer undertakes to determine for the employed what he shall eat and drink, and wherewithal he shall be clothed, is highly objectionable, inasmuch as it destroys the independence of the employed; and when the only operation of that system is to provide that the employed shall spend from a fifth to a half of his earnings in drink alone, it has not even the recommendation of paternal consideration.

There are some ways in which the principle may be adopted almost without objection. The farmer who allows his labourer to purchase of him wheat or flour or bacon at cost price, or who lets him a piece of garden as a part of his wages, confers a real benefit. But for the advocate of the cider-truck not one good word can be said. He encourages improvidence and intemperance on the part of the labourer, and he virtually robs the labourer's wife and children of the necessities of life.

Great and obvious as are the evils connected with this system, they are by no means easily remedied. When men suffer from a wrong, the redressers of that wrong count upon the assistance of the sufferers. But in this case the sufferers acquiesce in the wrong, and resent redress. The great majority of the older labourers prefer the present usage to that of paying them the whole of their wages in money. The drinking habit becomes confirmed, and the drinker likes to drink with an easy mind. His conscience would perhaps

smite him were he to spend 5s. or 9s. a-week at the cider-shop when he was receiving 14s. or 18s.; but he has no compunction when this extravagance and selfishness are veiled under a custom which he did not originate, and for which he does not feel responsible. It is sadly illustrative of the baleful moral effects of this system, that while the young and newly-married labourer, whom custom has not rendered selfish, will generally prefer to have the whole of his wages in money, in order that he may take them home intact, the labourer grown old under the cider-truck system will prefer that system, though he has not only a wife but a family of children to support. The moral nature has been corrupted, and a factitious appetite for physical stimulants has been created, a craving that is remorseless in its selfishness. Hence the opponent of the cider-truck is told by its supporters, that they who are most concerned approve of it, and that it is absurd to make a grievance out of that which is generally approved.

Nor is this the only difficulty; while the reformer is deprived of the allies that he expected, he has to encounter very formidable antagonists in the advocates of the present state of things. A few years ago a series of questions with regard to the cider-truck were largely circulated amongst the farmers of the cider districts, and in the answers the farmers, to a great extent, supported the continuance of the system, some honestly and openly, and the rest probably secretly, "because," to use the words of the most outspoken, "a good deal of cider is made in the district." In a fruitful year the cider is made sometimes more rapidly than it can be disposed of. In Herefordshire, for instance, a few years ago the small farmers, not having casks for their new supply, made a cask or two at a time, and then drank it off as fast as they could for fear of the remaining apples being lost. Of course, under such circumstances as these, it would be difficult to persuade the manufacturers to deprive themselves of one of their chief markets. This objection would however be met, were the manufacturers more desirous of obtaining quality than quantity. There is no doubt that the quality of cider has degenerated during the last half century. This ought not to be, now that railways have opened distant markets, and now that greater wealth is available for the purchase of luxuries.

As in most things, the chief difficulty in abolishing the cider-truck is in the outset. When both employers and employed are wedded to the system, it is very hard to obtain even an experimental alteration. Where that preliminary difficulty has been overcome, the experiment has generally succeeded. Several influential agriculturists, especially in Somersetshire, have, *proprio motu*, substituted a money payment for cider, and, as a rule, the labourers have after a time approved of the change. But, to produce satisfaction, it is absolutely

necessary that the labourer should feel he is receiving a fair substitute. Although the political economist may see it would be for the benefit of the labourer if he were to receive only a penny even in cash for every shilling's worth of cider, it is not to be expected that the labourer himself will see this. The Englishman of all men will insist upon having his full money's worth. If he has engaged a vehicle for a journey, he will ride in it the whole way, although his inclination prompts him to walk a part of the road. So the farm labourer will, if his cider is commuted into money, expect the very uttermost farthing. This may lead to disputes, especially where the farmer has been putting a higher nominal value on the cider he supplied his labourers than the cider was really worth. But even this question is not so likely to be fertile of disputes as the present system, which gives rise to endless quarrels about quality and quantity, and often causes much enmity between employers and employed. Moreover, in the first case, the dispute once settled is settled for ever; whereas in the latter it is perennial. In fact, the substitution of the money payment is analogous to the settlement of the tithe question by the Tithe Commutation Act; and just as this Act put an end to the interminable heart-burnings between the clergy and the farmers, so the payment of wages in money instead of cider would get rid of the present wrangling between the farmer and his labourers. But while the monetary compensation was fixed by the legislature in the first case, it would be difficult, if not impossible, to make a similar provision in the second. All that the legislature can do is to extend the operation of the Truck Act to the agricultural districts, and the two parties interested must make some equitable agreement as to the details for themselves. That such a consummation should be obtained, is to be devoutly wished, on the score both of good morals and sound political economy.

The SANITARY STATISTICS of SALISBURY. The YEARS 1841-49 and 1856-61 Compared. By A. B. MIDDLETON, Esq., M.R.C.S.

[Read before Section (F) of the British Association, at Bath, September, 1861.]

HAVING been requested to furnish some account of improvements carried out at Salisbury, under the powers of the Public Health Act, I purpose—

1. To describe some local peculiarities, natural and artificial, of the site and city of Salisbury.
2. To make some remarks upon its past sanitary condition in ancient and in modern times.
3. To describe the works done for drainage, sewerage, and water supply, with the cost thereof.
4. To describe the condition of the city since the works were completed—for the last nine years.
5. To conclude with a few general remarks.

1. *Local Peculiarities.*—Rather more than 600 years ago, the inhabitants of Old Sarum, for various reasons—a chief one being want of water—descended from the old dry Down by the river, or Sorbiodunum, into the valley, more than a mile to the south, and in a field, according to tradition, called the Merryfield, near to the conflux of three rivers—the Avon, Wiley, and Nadder—built their new cathedral and city. The present parliamentary city or borough of Salisbury, includes the large suburb of Fisherton Anger on the west side of the River Avon, in addition to the Close and city proper, with a portion of Milford. The Close, Fisherton, and Milford, are in registration districts of the Alderbury Union. The city proper, consisting of three parishes, St. Edmund, St. Thomas, and St. Martin, is a registration district, with a population of rather above 9,000, and unless specified otherwise, the statistical and other remarks about to be made will refer to this district, the population of which is strictly *urban*, and but little changeable.

Surrounded by chalk hills, forming part of Salisbury Plain, the city of Salisbury is situated upon the east bank of the lower Wiltshire Avon, 140 feet above the level of the mouth of that river, where it joins the sea at Christchurch, about 30 miles distant. The city consists of about twenty streets, placed at nearly right angles; these streets covering about one-fifth of a square mile. This division of the ground into squares, called chequers, was made at the time of planning the new city, and evidently was intended to have

secured large yard-lands or open spaces free from buildings—a wise object, which has been frustrated by numerous buildings for a long time past. The ground is pretty nearly level, having a very gradual incline of about 1 in 300, towards the south, except on the east side, where it rises sharply towards Milford Hill, the city extending a short distance up that hill, but to little altitude. At the south side of the city, separated by a wall, and until lately by a ditch, is the Close, belying one usual meaning of its name, inasmuch as it is a large *open* space, one-half of the size of the city, containing the cathedral in its centre, and about 80 houses. West of the Close, the Avon is joined by the Nadder and Wiley—considerable streams—and the three united having passed under Harnham Bridge to the south of the Close, flow eastward, and then turn somewhat to the north, so that Salisbury and the Close are inclosed within a loop formed by these rivers; a straight line from the Avon at the north end of the city to a point at the south-east corner thereof, being only 1,500 yards, whereas the course of the river around the city and Close is 2 miles. This quasi-peninsulated position was found most useful in the drainage operations. All the rivers are very rapid; there is no marshy ground in, or near to, the city, except about a mile to the northward, where some land by the river Avon is made swampy, owing to the existence of a mill-leat. This might readily be remedied, and sound meadows be made, merely by the introduction of a tube of iron under the river. The east of the city is bounded by Milford Hill, and the north by arable land gradually rising to a considerable altitude at Old Sarum and Bishop Down. The rivers are little liable to floods, a rise of even 3 or 4 feet above the ordinary level very rarely occurring, and much of that appears to be owing to obstruction presented by the old stone bridges with very wide buttresses. The ground upon which the city and cathedral were built, as before said, was called the Merryfield, which perhaps would indicate it as one used for sports, therefore naturally dry at the surface. Apart from this tradition, an examination of the locality will show that, before a mill-leat was made, the ground upon which the city stands must have been several feet higher than the natural level of the Avon: how the subsoil of the city became saturated with water, almost to the surface, will presently appear. The subsoil is a black mould, for a depth varying from a few inches to some feet, this resting upon a mixture of variously-coloured clays and sands, and these upon a bed of gravel; this gravel is firm, piles cannot be made to penetrate it, and it exists all across the valley at the same level, as made apparent by the depth at which it has been reached in making foundations for railway bridges and in building the main drains; this depth is about 9 feet from the average surface. Water percolates very rapidly through this gravel, and the subsoil itself is

very porous, except in places where bunches of clay intervene. In making the drains it was found that these underground patches of clay formed basins, in many cases holding the water up within 2 or 3 feet from the surface.

A chief peculiarity of the city of Salisbury was, until lately, presented by certain canals or water courses, in nearly all the streets. As these water courses not only formed a strikingly peculiar feature of the city, but exercised a very detrimental influence upon the comfort, and, in my opinion, upon the health of the citizens, I will give some particulars about them, as to their state in ancient and in modern times. When it is remembered that one main cause of the migration from Old to New Sarum was the want of water in the old city, it is probable, though no documentary evidence exists to prove it, that the canals were cut through the streets for water supply; all of them were derived from the mill-leat, except the new canal, which was taken from the mill-tail. The Close ditch, derived from the Avon below the mill, was made with the wall for purposes of defence. The canals originally were in the middle of the streets, and evidently became used as cart roads; for in 1615 an order was made, the execution of which was to be enforced by penalty, viz., "that bars be set up at the sides of the streets to keep down 'brewers' and other carts in the rivers." There are occasional notices of these canals in old writers, which show that their original cleanliness had become neglected; but there is one particular notice in the council books which proves that the citizens were not altogether dead to the propriety of such cleanliness; indeed, they most probably had some idea of that truth which it has been found so difficult to impress upon their successors, namely, that dirty canals and disease were somehow intimately connected. This curious notice is in 1616, as follows: "Forasmuch as the Pudding Bridge hath always been repaired by the butchers of this city, and yet now the butchers refuse to do the same; and whereas the butchers do now sell their beasts' bellies to poor women and others, that pudding wives do empty these bellies in the rivers in the streets, it is, therefore ordered, that the butchers shall maintain the said bridge or some other place, not noisome to the city, and wash at that bridge, or at the great rivers, or some other back river, that runneth not into the open streets, upon pain of forfeiture for every offence 5 shillings."—(Ledger C, folio 251). How strange that 240 years after this careful attempt to keep things *noisome* out of the canals in the open streets, the authorities of this same city should have advocated the continuance of open channels as sewers, into all of which the contents of very numerous water-closets were being passed. In reference to the influence of corrupt air upon health of man, it may not be generally known that the "wisdom

"of our ancestors" was greater than that of some moderns, and that the press of Caxton himself was employed in the cause of "sanitary reform." In the third parliament of Henry the Seventh, the importance of the subject was fully recognised, as shown in an Act passed therein—which I am fortunate in being able to quote from one of Caxton's own printed copies of the "Statutes":—

T "Ayent Bochers.

"Item it was shewed by a petleyon put to the kyng our sayd souereyn lord in the sayd parliament by his subgettes and paryshens of the parishe of Saynt Feythes and Saynt Gregories in London, nygh adioynaunt unto the cathedral chirche of Powles, (that it was soo that grete concourse of peple as well of hys roiall persone, as of other grete lordes and astates, wylth other his true subgettes often tymes was had unto the sayd chathedral chirche, and for the most parte through onto the parishe aforesaid, the which often tymes ben gretly enuyed and innuenied by corrupt eires engendred in the sayd parishes by occasion of blode & other fowler thynges by occasion of the slaughter of bestes & scaldyng of swyne, had & done in the bocherie, of Seynt Nycholas fleshamels whos corrupeyon by violence) of uncleno and putrifysyd waters is borno downe through the sayd parishes and compasseth two partes of the palays where the kynges moost royale persone is wount to abyde whan he cometh to y^e cathedral chirche for ony aye there to be doon to the Jubardouse abyding of his moost noble persone, and to ouer grete enuiaunce of the parysshens there, and of other the kynges subgettes & straungers that pass by the same." It goes on to say that "in few noble citees and townes or none wythin cristendomo" is the slaugherting of "bestes wythin the walles" allowed, "least it myght engender sicknesse to the destruction of the peple." And further to enact that penalties be imposed for slaugherting within the city "for every oxe 12 pens and every kowe and for every other best 8 pens."

The canals of Salisbury seem always to have had great importance attached to them. Old Fuller thought them worthy of notice, as follows:—"As for Salisbury, the citizens thereof have derived the river into every street therein, so that the city is (like Venice) a heap of islets thrown together, according to the epitaph of Mr. Francis Hide, a native of this city, who dyed secretary to the English Leger in Venico:—

"Born in the English Venice, thou didst dye,
"Dear friend, in the Italian Salisbury."

To any one acquainted with these canals in recent times, this comparison with Venice must appear silly, but when the couplet was written, it was a trifle less ludicrous, for the canals were a few yards wide, and in the centres of the streets, having, as before said, been used as cartways. In an old map by Speed, dated 1610, this arrangement is clearly shown.

In recent times, as doubtless is remembered by most visitors to Salisbury, these canals were only about $1\frac{1}{2}$ to 2 or 3 feet wide, lined with bricks, the water therein flowing nearly level with the streets, and about a foot or 18 inches deep; in heavy rains often overflowing into the streets. When this confining of the watercourses to the

sides of the streets and building them with bricks took place is not known, but it must have been after 1625, for in that year a petition was presented by the citizens to the Privy Council, when the king was at Wilton, stating that their streets and waterbanks were in a dilapidated and ruinous condition, that the inhabitants were for the most part poor, and unable to contribute towards their repair, praying for the consideration of the Council. An order was made by the Council to ascertain the owners of property, and to rate them proportionately. Their lordships undertook to refer such as refused to pay to His Majesty's Courts of Justice. This extraordinary proceeding proves in a singularly clear way that local self-government, so much boasted of in these days, was not of any practical utility at that time, at all events not in Salisbury.

2. Past Sanitary State.—Facts to be relied upon as to the actual sanitary condition of towns, as evinced by the death-rate, even in recent times, before the Registration Act, are very difficult to get; much more difficult is it, indeed it is impossible, to ascertain them of places in ancient times, therefore any statement as regards Salisbury can be at best but approximative, compared with the accurate figures obtainable from the Registrar-General since 1837. In that wonderful book, the "Anatomy of Melancholy," there is an allusion to Salisbury worth quoting. Burton there writes, "The worst is a thick, cloudy, misty, foggy air, such as comes from fens, moorish grounds, lakes, muck-hills, draughts, sinks, whero any carcasses or carriion lies, or from whence any stinking, fulsome smell comes. Galen, Avicenna, Mercurialis, new and old physicians, hold that such an air is unwholesome, and engenders melancholy, plagues, and what not." After naming several towns abroad, "Salisbury with us, Hull and Lynn" are mentioned; and he goes on to say: "But let the site of places be as it may, how can they be excused that have a delicious seat, or pleasant air, and all that nature can afford, and yet, through their own nastiness, and sluttishness, immund and sordid manner of life, suffer their air to putrefy and themselves to be choked." Old Burton was evidently a worshipper of Hygeia.

In the history of Salisbury, Hatcher records no less than five visitations of plague within ninety years. Whether these visits were more frequent here than in other cities over a like number of years I have no means of judging, nor of the exact nature of the disease named plague, but about the actual severity of some of the attacks there can be no doubt. A few particulars may be interesting. The first mentioned was in 1579; no details are given of this, but it appears to have been chiefly in St. Edmund's parish, for to avoid infection by passing along the infected streets to St. Edmund's church, the mayor was that year elected in St. Thomas', and some rent was remitted to the landlord of the George Hotel, belonging to

the corporation, on account of his loss of custom owing to the plague frightening away travellers. In 1601 the plague, after prevailing in London, visited Salisbury; again the election of mayor was ordered away from St. Edmund's. Of this visitation some figures are given, which prove its alarming character:—

	Deaths in 1601.	Deaths in Ordinary Years.
St. Thomas's	358	60
„ Edmund's	501	141
„ Martin's	293	72
Total	1,152	273

Incidentally we here meet with the average number of deaths for ordinary years—276—which, taking the population at that period to have been about 6,000, gives the high ordinary mortality of 46 in 1,000.

In 1625 great pains were taken by regulations to prevent the plague arriving, as was expected, from London, where it was raging; these means were chiefly the appointment of watchers, to prevent people from London entering the city. No goods from London were allowed to be brought within three miles of the city until three months had elapsed. Persons were appointed as searchers and examiners, and others as buriers of the dead. Oaths were administered to these people, and when they went abroad they were obliged to carry coloured staves in their hands. These regulations were continued in 1626. In November of which year, John Ivie, a goldsmith, was elected mayor; a most remarkable man, whose heroic conduct entitles him to the grateful remembrance of posterity. His conduct suggests a parallel to that of Mompesson, the Derbyshire clergyman, during the plague at Eyam, forty years later. During Ivie's mayoralty the plague broke out with great severity at Salisbury. It commenced in March, 1627, and within four days the city became almost deserted, three-fourths of the citizens having left. The clergy, having in vain endeavoured to keep the populace out of the Close, partook of the reigning panic, and fled; the church service was suspended for nearly a twelvemonth. In a pamphlet published by Ivie, a copy of which is in my possession, I find him writing: "There was none left to assist me and comfort the poor in so great a misery; neither recorder, justice, churchwarden, or overseer in all the city; nor high constable, but only the two petty constables, that had no friend to receive them in the country, wherefore I got them to stay with me, and they did prove to me a great comfort both by night and day." The conduct of this brave man is described at

length in the "History of Salisbury." He provided storehouses, meted out the supplies raised by the contributions of the surrounding country, put down riots, personally grappled with the ringleaders of the watchmen, when they attacked him armed with bills and staves, demanding increase of wages. Finding the alehouses crowded with the people become desperate in their fear, he even attempted the hazardous expedient of suppressing them; there were then in the city 50 inns and 80 alehouses. The latter he abolished, except one kept by John Chappel, in spite of murmurs and threats. Even this exception tended ultimately to strengthen his authority. "Four weavers, having drunk up all that was in the house, agreed to go to one Mr. Payne's, an ale brewer, and buy one cowl of ale, the price 3s. 4d.; which they did, and brought it to this Chappel's house, and set the cowl upon the table, and another empty cowl by, and made a vow that they would, before they left, drink all that was in one and put their urine in the other, which they did with speed." The result was, that the four weavers, "the master, John Chappel, his wife, and maid, were all dead within three days and a few hours." Another case is related where one Stout, and five more tailors, would, in spite of the mayor's order, "keep a feast, and in a week they were all dead of the plague save one." These anecdotes prove that whatever the particular nature of the plague, it could be brought on by drunkenness and debauchery. From these facts it is clear that an effect similar to that described by Thucydides of the plague at Athens, and by Boccaceio in his "Decameron" of that at Florence, in 1348, was produced at Salisbury, namely, the utter recklessness of despair. The buriers of the dead, and the women who were sworn in as searchers, became callous to their loathsome task, and exulted with fiendish joy over the victims. One anecdote is remarkable. In his pamphlet the mayor writes: "I found the four bearers, each having on their shoulders a thurndel pot of ale, and the woman had on her head a thurndel* pot of ale. These five were dancing among the graves, singing 'Hie, for more shoulder work,' in a fearful manner, and when they saw me they ran away."

The deaths from plague upon this occasion, according to a manuscript chronicle of the city, were 369 from March to November. As the population of the city was probably not more than 7,000, three-fourths of whom had left, about one-fourth of the remainder must have died in the whole year 1627. It is worthy of note that a sum of 50*l.* weekly, was, *by order of the magistrates*, levied upon the county for the distressed citizens; also that the city of Bristol volunteered a valuable gift of 84*l.*, sent with a very kind note, in November, 1627. In 1665, Charles, to escape the plague then

* A thurndel, according to Skinner, in his "Etymologicon," was one-third of a gallon.

raging in London, visited Hampton Court, but thinking that too near, extended his journey to Salisbury, where the court remained during August and part of September, and then went to Oxford, the plague having followed in the royal train. The ravages, however, were then less severe than at the preceding times. No particulars are given of this visitation. In 1666, the city was more severely affected. The mayor was not elected in the city for fear of the plague, but in the Close, by virtue of a licence from the king, dated at Whitehall, 21st September. The burials for the year 1666 were 493.

In history, then, we find it recorded that the plague visited Salisbury five times in ninety years, and we obtain some figures as to the ordinary mortality for a portion of that period—about 46 in 1,000. In 1775, a census made by order of the corporation, gives a total of 6,856 inhabitants, and the deaths for seven years 30 in 1,000 per annum. It is evident that in ancient times, from the various facts related, the city of Salisbury must have been unhealthy, and in recent times, beyond dispute, that character remained applicable to it; for since the Registrar's reports have done away with all conjecture, and placed plain facts before the public, it will be found that a high rate of mortality has prevailed in Salisbury, when compared with London or the rest of the kingdom; for example, it was about 27 in 1,000, that of London being not quite 24, and of all England about 22.

There was one disease very fatal at Salisbury—consumption—as some figures will presently show, and a most frequent disorder in the city was diarrhoea. The causes may have been various, but I am inclined to think that humidity and nastiness of atmosphere produced by the canals and cesspools, and the badness of the water used for domestic purposes, were mainly the causes. I place particular stress upon the badness of the water, for the impurities therein must have entered the systems, not of water-drinkers only, but of all people, in a culinary way, and even in the beer. This beer was, in some instances, brewed with water from the dirty canals, but that obtained from the wells must have been equally bad, contaminated as it was with cesspool filth. I am not aware of any process in brewing calculated to get rid of impurities therein contained. Whatever the cause, this was evident, the very common prevalence of diarrhoea amongst residents in Salisbury, especially in some houses where the well water was very bad.

The contrary effects of good and bad water were illustrated about four years ago, in the city workhouse. This house, previously supplied from wells on the premises, when waterworks were introduced, was supplied from them. A meter being out of order, whilst it was under repair, the old wells were resorted to; diarrhoea set in

throughout the house; of 100 inmates, scarcely one escaped a severe attack;—the waterworks water being resumed, diarrhoea disappeared. I am aware that this is nothing strange, but the extent of the experiment, as it may be called, proving positively the opposite effects of good and bad water, is worth recording.

It is not for me to go into the question of what part water plays in the animal economy—whether, as Pereira, Rumford, and others believed, being decomposed, it becomes a nutritive agent by assisting in the formation of the solids. However the fact may be, it is very certain that bad water and bad health are very frequently connected.

In 1849, as is well known, during the plague of cholera, Salisbury suffered nearly as much as any city in England. From that disease nearly 200 died within two months; these deaths occurred amongst people of all classes and of all ages, although doubtless the poor, resident in confined and dirty cottages, suffered most severely. As we have before seen that the clergy fled from a plague in time past, with such conduct it is right to contrast that of the modern members of that profession in this city, of whom none were more assiduous in kind attention to the poor, visiting them at their own houses, than the late Bishop Denison. The total mortality for the year 1849 was 455, so that in that year almost a double average mortality occurred. In 1850, the mortality, as usual after a fatal epidemic, was small, only 158 persons died. Does not this show that many people who succumb to an epidemic, are those in whom, although no active disease had previously manifested itself, yet some morbid seeds must have existed, which, absent the epidemic, would have added their names to the mortuary list of the ensuing year? Besides such cases, I am aware that several known invalids died off by the cholera.

3. *Works for Drainage and Water Supply.*—Before describing these works, it will be well to give a few details of the old modes of sewerage and water supply. A systematic inspection showed that, in addition to numerous privy vaults, many of enormous size—rarely, if ever emptied—there existed hundreds of cesspools, partly into which, and partly into the canals, the sewage was conveyed by means of brick drains. From the first and second were produced the bad effects usual in all towns destitute of proper drainage, but by the third, namely, the canals, an abomination quite peculiar to Salisbury was created. The canals being near the surface of the streets, and on one side only, the brick drains, in order to enter them, were necessarily very nearly level, and when the canals had water flowing in them, the mouths of the house-drains were submerged, so that in many instances water ran into them from the canals, and in all cases their contents could not escape. Filth was thus pent up, and the stench thereof was thrown back into the premises,—for in most cases

the drains were badly or not at all trapped at their origins. All this time, when the water was flowing, nothing very unsightly appeared in the streets, and by day most people viewed the canals as *clear running streams*; but at night, a very different state of things existed. In order to give the house-drains a chance of partially emptying their contents, the water was turned off from the canals, and then the stench was unmistakeable, and the sight presented in a morning before the water was again turned on was disgusting,—luckily for the writers who celebrated the English Venice, it was seen by few,—indeed the canals were then *filthy ditches*. Moreover the current of water when running was never strong enough to cleanse the canals, whence another nuisance peculiar to Salisbury arose. Periodically men with scoops lifted the accumulated filth from the canals, and this was placed in heaps under the eyes and noses of passengers, many tons within a short distance, where it lay for hours or even days before it was carted away. The composition of this filth needed no analysis; it has already been said that numerous water-closets were connected with the canals. Sir John Harrington, the inventor of those cleanly comforts, would never have suggested his "*Metamorphosis of Ajax*" (a jakes), if he could have foreseen such a perverse abuse of his invention as that of obtruding under the sight and smell in public streets those matters which were intended to be hermetically sealed from the senses. It may be mentioned, that Sir John was banished from Queen Elizabeth's Court, for writing the witty pamphlet alluded to, in which he recommended his invention to the notice of the Queen. Sir John first brought his cleanly comfort of the water-closet into use at his residence of Kelston, near Bath.

Water Supply.—This was partly from wells and partly from the canals. The wells were shallow—6 or 7 feet deep—and the water therein was liable to contamination from the soakage of cesspools. In hundreds of instances these cesspools were but a few feet from the wells, and as they received not only the sewage and contents of water-closets, but also rain-water from the roofs and yards, after heavy rains the neighbouring wells were influenced to such a degree that the water was both coloured and stinking; indeed, in several cases, upon going round with the inspector, we found people so ignorant of good water, that from custom they had been led to the belief of the water of their wells being excellent, even when upon examination it was found actually discoloured and stinking with cesspool filth. One ludicrous anecdote may be given. Some years ago, upon a well being sunk, the water yielded by it was of such colour and taste as to lead to the mistaken notion of a mineral spring having been discovered—the truth was, a cesspool had been tapped. Such was the well water of Salisbury in general. Of the canals,

enough has been said to indicate the kind of water obtainable from them; they were, however, to many hundreds of citizens, at once a fountain and a sewer. One more grievance was chargeable upon the canals. Not being water-tight, much water oozed from them and saturated the subsoil almost to the surface; the foundations of the houses near were wet, and, by capillary attraction, their walls became more or less damp; where cellars were attempted, they became occupied by water. By measurement of the inlets and outlets of the canals, it was calculated that 1,000 gallons a minute less passed away *from*, than entered *into* the canals. The saturation of the subsoil by them was thus a fact demonstrated.

The evils then were, wet subsoil, bad sewerage, bad water. The indications of treatment were, to dry the subsoil and to provide good sewerage and water. The remedial works were of a comprehensive kind, and embraced not only the city and the Close, but extended to Fisherton, a part of the borough over the River Avon.

For drainage and sewerage, the works consist partly of brick mains and partly of circular glazed earthenware pipes. The peninsular position of the city and Close became of the greatest importance in securing good drainage. It has been already seen, in their protest, that the opponents asserted the place to be too flat for any thing different from the old mode. This assertion about flatness was made by them, not only against facts plain to the most common observation, namely, the existence of a mill with a fall of 6 or more feet, and below that mill a very rapid run of the River Avon for more than a mile round the city to some hatches at which a further fall of several feet occurs, but it was made in direct opposition to the statement furnished by a competent surveyor after careful levelling, wherein was clearly shown a fall of 15 feet existing between points of the river above and below the town, not more than 1,600 yards apart in a direct line. With the lowest level a communication was made by means of a brick main, oval in shape, 4 feet 6 inches in height, and 3 feet wide; the bottom of this at its outlet is 1 foot above the lowest summer level, 1 foot below an ordinary level of the river, and its top is rarely, if ever, covered by the highest flood; this sewer is continued into the town with a gradient of 5 feet to a mile, as far as the White Hart Hotel, where its bottom is nearly 9 feet below the roadway. As this sewer is built upon the layer of gravel before mentioned, a rapid run of water always exists therein, an artificial brook being formed. From this point two branch brick sewers are continued, rather less, being 3 feet 6 inches high, and 2 feet 4 inches wide, one along New Street and High Street to Fisherton Bridge, and the other along Catherine Street across the Market Square, and up Endless Street; the gradient of these is 8 feet 3 inches in a mile. Into these brick mains circular earthenware tubes, of sizes varying

from 15 to 9 inches diameter, convey the sewage from the various streets; these circular pipes are carefully cemented, and at their sides are drain tiles, arranged to carry off the subsoil water. The ruling gradient of these pipes is 22 feet in a mile, a fall sufficient to keep them clear by the action of ordinary house-water. As the house-drains into the canals were found badly made with bricks uncemented, and at wrong levels, they were condemned, and earthenware pipes of 6 inches and 4 inches diameter substituted, at proper inclinations.

The sewage of Fisherton is conducted into the main at Fisherton Bridge, by means of an iron tube 2 feet diameter, placed under the River Aven. In various parts, slushing wells are placed at the corners of the streets, by means of which the pipes are flushed from the hydrants when needed. Ventilation is secured by many of the rain-water pipes being connected with the house-drains.

A great effort was made to retain the canals as clear running streams, when the sewage was diverted therefrom, even by some of those persons favouring the Act, and the inspector was led to view them as ornamental; but as it was admitted that they must be made water-tight, and this involved a great outlay—moreover, it being farther pointed out that whilst they existed on one side of the streets only, to carry off storm-water, the streets necessarily sloped towards that side, often becoming concave in the middle instead of convex—their obliteration was at last decided upon, and now having been accomplished, I must plead guilty to the destruction of the city as English Venice.* The streets have since been made of a proper shape, and storm-waters run off much more rapidly and completely than by the canals.

Waterworks.—These works are situated at the north side of the city, and consist of a very neat looking engine-house, containing a pair of double cylinder or Woolf's engines, of about 25 horse-power each, which are connected to the pumps in a well within the same building. The well is 68 feet deep; at its bottom is a tunnel excavated in the chalk, 70 feet long, in an eastern direction, which serves to increase the gathering surface of the well, and the body of water to pump from. The depth of water in the well is usually 18 feet, not often reduced to less than 9 feet by the daily pumping. The water is raised from the well to a covered brick reservoir on Bishop Down Hill, a height of 146 feet. This reservoir will hold 260,000 gallons, and is placed high enough for all the houses in the city to be supplied from it. The water is distributed to the houses in iron pipes at high pressure, and this pressure is so great, that copious

* One named the New Canal still remains—it is covered over, and at a much lower level than the others; but its obliteration, I hope, will ultimately be effected.

streams of water may be thrown from the hydrants, placed at 70 yards interval over the whole of the public streets, to a great height in nearly every part of the borough; on many occasions this has been proved in the extinction of fires, indeed, it is found to render fire-engines useless. The water supply is constant during greater part of the 24 hours, and if people would be careful, and have their taps in good order, it might be quite constant night and day. The quantity raised is upwards of 500,000 gallons daily, an enormous supply for the population, which for the whole borough is little over 12,000, thus giving over 40 gallons as the average daily supply for each inhabitant, a quantity nearly double that of many other towns.

The Cost for the whole Borough was, of drainage about 13,000*l.*, of waterworks 14,000*l.*, total 27,000*l.*; which sum was borrowed on the improvement rate system, to be repaid—principal and interest—in thirty years. The special rate for this purpose varies from 1*s.* 2*d.* to 1*s.* 4*d.* in the pound per annum. It will be remembered that the enemy prophesied the probable cost of inefficient works would be at least 5*s.* in the pound. This is the cost of public works contributed by all ratepayers (the rate named "general district rate," is mainly in place of the old "way rate," and does not quite equal the old rate): for supply of water there is an additional charge of 6*d.* in the pound, a mere trifle, for the advantages secured in good water, and saving of pumping and labour. It may here be specially noted, that hitherto the Local Board of Salisbury have sold, or rather almost given away, water for commercial purposes at only 8*d.* for 1,000 gallons; the serious injustice thus done to the body of ratepayers is glaring, when it is seen that 1*s.* 6*d.* and 2*s.* per 1,000 for like quantities is charged in several towns, even where the water is obtained by descent from hill reservoirs, and not by means of expensive pumping machinery, as at Salisbury. If the authorities were to charge a fair price for all the water sold for commercial purposes, very shortly the sixpenny supply rate would be reduced by one-half, and ultimately become nearly, if not quite annihilated.

The Quality of the Water from the well is excellent, it is very clear, colourless, of pleasant flavour, and may be called soft, when compared with other well water, or even with river water. Two analyses of this water, made at an interval of two years, give respectively, 12 grains and 8 grains of carbonate of lime, and a quarter of a grain and 2 grains of sulphate of lime to a gallon. This hardness of 10 or 12 degrees is very small, for that of eight old Salisbury wells, given in Mr. Rammel's report, from the analysis of Dr. Lyon Playfair, varied from 17½ to 45 degrees; and of 264 wells and springs, according to a report of the General Board of Health, the average hardness was 25·86. The water of the Salisbury well is not half as

hard as that of the average of wells, and much softer than that of rivers, e.g., of the Avon, which is $18\frac{1}{2}$ degrees. There is no organic matter mentioned in the analysis, and no *animaleculæ* are discoverable upon repeated examinations under a powerful microscope.

The works for drainage and water supply were planned by Mr. Rammel, C.E., who had inspected and reported upon the city, and carried out by Messrs. Parnell, of Rugby, under the superintendence of Mr. Botham, C.E., the present city surveyor.

When the canals were destroyed, and the roads re-constructed, most of the footways were paved with Caithness stone, at a cost of 3,000*l.*, to be repaid—principal and interest—in thirty years; this well illustrates the superiority of the modern mode over the old one of borrowing money for the same purpose. Forty years ago the pavement was done and paid for by bonds at 4 and 5 per cent.; that pavement is worn out, but the bonds are not—for ever requiring a 3*d.* rate for interest; whereas by the new mode, the pavement will probably wear after the debt is cancelled.

4. *Present Condition of the City.*—First, as to changes evident to the senses. Instead of dirty canals with dirty streets sloping towards them, the streets are now rounded in the centres and clean,—the foot pavement equal to that of any town in England, instead of being uneven and full of holes,—neither the eye by day, nor the nose by night, is now offended, as of old; the whole atmosphere is changed—dry, instead of moist; sweet, instead of stinking; drainage and good sewerage, and very dry subsoil, in place of a saturated subsoil and bad sewerage; plentiful supply of good water, available without labour, in place of a bad supply of bad water, with labour of pumping, or of carrying from the channels. Dry underground cellars can now be made. It may be remarked that the opponents of drainage, on account of its supposed impracticableness, were non-plussed at an early stage of the operations; for when the main sewer had advanced only a short distance into the city, quickly, one after another, many wells became dry in the Close and New Street, some hundreds of yards from the drain. This *experimentum crucis* staggered the enemy, and a builder became such a convert that, in New Street, where he was about erecting some houses, he made cellars of considerable depth, which, for more than nine years, have continued quite dry. New Street is in the flat part of the city. Many other cellars have been made in various parts; the cellar floors are several feet below the old water level in the subsoil. It may be stated, that the subsoil water has been lowered, on an average, 4 or 5 feet over the city. So much dry ground additional having been gained—perfectly dry since the canals have been destroyed. My own cellar is a good example of the perfectness of the change; it is in the Close, between the cathedral and Avon, a few feet below the natural level

of the ground, and in winter always had in it water from a few inches to more than 3 feet deep. Since drainage, the floor has been constantly dry. Nowhere is the beneficial change more evident than in the cathedral, where the subsoil water was used to lie close to, and sometimes actually rise above the floor; since drainage no such thing has occurred, and the whole atmosphere within the building is improved.

These changes are facts evident to the senses of all observers, and, irrespectively of any improvements in sanitary matters, I venture to state, that such changes in this city are well worth all the money expended, on the grounds of cleanliness, comfort, decency, saving of labour, and security against fire. But improvements have occurred in sanitary matters, and to these I propose to call the most serious attention of all sanitary reformers, and that term, I trust, will soon become synonymous with all thinking people.

Since drainage, in nine years, the population being of much the same average, 531 less people have died than in nine years before drainage, *excluding* the cholera year; that is, instead of 4 only 3. I do not propose to enter minutely into the causes of death assigned, and for various reasons, one of which is the uncertainty of any very accurate deductions therefrom; for, in many instances, different medical men would put different names as the cause of death in similar cases. Moreover, there is by far too much of fashion, ever changeable, in medical nomenclature, many similar diseases being called by different names in succeeding generations; but deaths are facts, and to their numbers I will chiefly confine my remarks. I will first show a comparison of *births* and *deaths* over two series of nine years before and after drainage, excluding the cholera of the year 1849:—

	Before Drainage.	After Drainage.
<i>Nine Years—</i>		
Births	2,470	2,624
Deaths.....	2,226	1,695
Majority of births....	244	929

The following table will show the total numbers of deaths in each of nine consecutive years before and after drainage, the years end upon 30th June, so that the cholera cases of 1849 are excluded. I will place the deaths in order of the highest numbers first, and contrast them in the two periods:—

Year.	Deaths before Drainage.	Year.	Deaths since Drainage.	Yearly Decrease.
1841	230	1856	182	48
'42	268	'57	194	74
'43	284	'58	213	71
'44	251	'59	200	51
'45	216	'60	201	15
1846	200	1861	132	68
'47	321	'62	230	98
'48	220	'63	192	28
'49	236	'64	151	85
Total	2,226	Total	1,693	533

The average annual mortality before drainage was about 27 in 1,000; for the nine years since drainage, 20 in 1,000. In excluding the cholera cases from this table, many persons, who believe that disease to have been peculiarly the result of removable causes, will think it extenuating the mortality before drainage; but as the inclusion of those cases would to others appear as a wish to aggravate the case, I have thought it better to treat the cholera as exceptional, and to deal in my comparison only with the ordinary mortality, in which the contrast before and after drainage is quite sufficiently remarkable.

It will be seen from this table that the highest rate of mortality since drainage is but two-thirds of the highest rate before, and itself below the old average. But when did that highest rate occur? In a year when epidemics were rife in the district, scarlatina, measles, and hooping cough were very fatal in the Wiltshire villages, and co-existed in Salisbury, yet its mortality did not reach even to its old average. It will further be observed, that the lowest rate of mortality, 132, is below the lowest rate of any year before drainage by more than one-third; and, when compared with the whole kingdom, is astonishing, namely, only 14 in 1,000, against an average for towns of 25 and for the kingdom of 22. It must be remarked that Salisbury city district consists of a population purely *urban*, whilst most country town registration districts include more or less suburban or rural portions. Furthermore, and the fact ought to be particularly noted, Salisbury in its population greatly lacks that element of wealthy residents so plentifully possessed by Bath, Cheltenham, Brighton, &c. Also, Salisbury having numerous small charities for the poor, this class is induced to linger about in expectation of them, and numerous *old* people are attracted to the city by them, who otherwise would have gone and remained elsewhere. Again, Salisbury not being a manufacturing town, numerous people emigrate there-

from in search of employment at the most healthy periods of life. Thus Salisbury is deficient in the wealthy* class, and abounds in the *elder* poor class, and in *young* children at the most precarious ages. Therefore, comparing like things with like, the case, as shown by the previous figures, is much more in favour of the salubrity of Salisbury than even at first sight appears. It would be unfair to require comparison with the towns before named, and with the Belgravian and other fashionable quarters of London; but such comparison can be ventured upon, and for several years past Salisbury will come out the victor.

Although it is not my intention to enter into details as to the assigned causes of all the deaths, I will give a few particulars regarding some.

Zymotic diseases killed 247 people in seven years, before drainage, or 3.88 in 1,000 per annum, *cholera cases being excluded*; in seven years, since drainage, zymotic diseases killed only 172, or 2.73 in 1,000, as an annual average. The zymotic deaths in the whole kingdom being at the rate of 4.45 in 1,000 per annum, a comparison therewith is very much in favour of Salisbury. Whilst 1 in 219 annually dies elsewhere, only 1 in 367 dies from that class of diseases in Salisbury.

Of these zymotic diseases, typhus fever, which commits such ravages throughout the kingdom, can scarcely be said to have occurred as a cause of death in Salisbury, in several years not at all. In the year 1862, out of 623 registration districts in England and Wales, only six were quite free from typhus; and of these, Salisbury was the only city, the others were small county districts. In seven years since drainage, 1857-63, only 12 cases of fatal non-eruptive fever has been registered, including typhus, typhoid, and infantile; in seven years before drainage, 1841-50, of those diseases 54 fatal cases occurred. As an annual average for all England, 1 in 1,071 of population dies from typhus and typhoid fevers; in Salisbury only 1 in 5,262. Of diarrhoea, in the last seven years, only 12 fatal cases have occurred, and of these 10 were children of and under 6 months old. In the seven years diphtheria is mentioned only four times by itself, and twice in conjunction with other causes of death. Dentition produced 31 deaths in place of 62 in the former set of seven years. Since drainage a great change has taken place in the number of deaths from the allied tubercular diseases, phthisis, tabes mesenterica, and hydrocephalus, as the annexed table will show:—

* In this allusion to the *wealthy* class, let me not be misunderstood to mean that such class is longer lived *on account of wealth*; but inasmuch as wealthy people occupy larger houses and better ventilated than poor people do, on that account they have the advantage in sanitary estimates.

	Phthisis.	Tuberculosis.	Hydrocephalus.
Before drainage, 1841-50	286	32	30
Since " 57-63	143	17	10
Diminution	143	15	20

This diminution in a class of diseases admitted to be intimately connected with dirty and moist atmosphere, is remarkable. For comparison, a few facts as to the past and present general statistics of that scourge of England, consumption, may be interesting. In the beginning of this century, one-fourth of the whole number of deaths was put down to it. Inglis, in his book on the Channel Islands, as lately as thirty years ago, makes the following remarks: "Of deaths from all causes, there die of phthisis, in London 25 per cent.; in France, 23 per cent.; at St. Petersburg, 17 per cent.; at New York, 17 per cent.; in Switzerland, Austria, Prussia, and Belgium, the mortality is not materially different from that in England, *i.e.*, 25 per cent., which seems to be its maximum mortality." Although, doubtless, obtained from the best available sources, these figures cannot be so accurate for England as those since obtainable from the Registrar-General's reports. One of those reports, quoted in the "Penny Cyclopaedia" in 1810, placed the proportion of phthisical at 19·55 per cent., or one-fifth of the whole number of deaths. This proportion during the last twenty years has much altered for the better; according to the Registrar's reports for some years past, about one-eighth instead of one-fifth of all the deaths are put down to phthisis. Some of this change may be owing to alteration of nomenclature, and nicer discrimination in diagnosis. At Salisbury, for the last seven years, about one-tenth of the deaths have been from phthisis; for the last three years, only one-thirteenth; and for the year 1863, only 11 deaths occurred from phthisis, or 1 in 818 of population, the proportion for London having been 1 in 363, and for all England 1 in 374. The average age at which the 143 deaths from phthisis occurred during the last seven years, was 34·8 years. The comparative number of deaths of children in Salisbury will be seen in the following table:—

Deaths of Children in Proportion to the Whole Mortality.

	In 1,000 Deaths.	
	Under 1 Year.	Under 5 Years.
All England	232	408
Lancashire	252	473
London	207	424
Salisbury { before drainage	161	354
Salisbury { since "	193	337

The actual number of deaths of children appear in the next table:—

	Seven Years before Drainage, 1838-44.		Seven Years Since Drainage, 1857-63.
Under 1 year	280	Under 1 year	253
" 2 years	131	" 2 years	91
" 3 "	95	" 3 "	62
" 4 "	44	" 4 "	30
" 5 "	36	" 5 "	22
Total under 5 years	586	Total under 5 years	458

It will be seen from these tables that, although the actual number of children's deaths is decreased since drainage, the decrease is not so great in ratio as of the whole mortality, or of some particular diseases as before described, whilst the proportion of deaths under 1 year old to the whole number is greater. This fully bears out what I have always imagined, that the deaths of very young children will be numerous in spite of public sanitary reform; the true remedy must be looked for in parental management, the improvement of which, I venture to suggest, will be brought about by education, and that domestic more than scholastic.

The Close of Salisbury, with a population not varying much over a long series of years, presents the following facts as to mortality. For many years, as shown in Mr. Rammel's report, that mortality was at the rate of nearly 20 in 1,000; for the last nine years, since drainage, it has been only about 14 in 1,000, thus showing a death-rate lower than that of the Isle of Wight, which is 17; of Cumberland, Westmoreland, and other rural districts, the most healthy in the kingdom; for the death-rate of seventy of the districts, selected as the most healthy in England, is 17 in 1,000. Only a portion of Fisherton parish being in the borough, figures as to its mortality would be with difficulty obtained, and inferences therefrom would be quite valueless for various reasons. Since the railways have concentrated there, for a few years past, its population has suddenly increased so much that comparisons with former periods would be impossible. For instance, that population in 1851 was 1,995, in 1861, 2,424. Moreover, there are in Fisherton a large lunatic asylum, containing nearly 500 inmates from all parts of the kingdom; also the county gaol and general hospital; all these circumstances make any useful sanitary deductions as to Fisherton out of the question. Such deductions would be as valueless as those given from time to time from the various watering-places, which appear to me worse than useless, for they produce only confusion in the minds of

readers, and tend to divert attention from true statistics of other places, the true being liable to become mixed up with the merely conjectural; thus a serious damage may result to the cause of sanitary reform.

There is yet one other benefit directly traceable to the drainage in Salisbury—the formation of a museum—which happened in this way. In the excavations for the sewers numerous articles were found; ancient cutlery, spoons, arrow heads, pilgrims' signs, tradesmen's tokens, rings, &c. These were found chiefly in the middle of the streets, evidently in the beds of the old rivulets. They were collected by a gentleman who since left the city, and, at his sale, were bought by myself and a few others, to form the nucleus of a local museum. A letter was put by me in the "Journal," asking "Why shall Salisbury not have a Museum?" The late Dr. Fowler, then 95 years old (I believe one of the first members of the British Association), immediately called upon me, and offered to co-operate; and ultimately he and Mrs. Fowler furnished the chief part of the funds to purchase and adapt a building for the purpose. This has been done, and a very considerable museum already exists.

I have now given what I undertook, a statement—I trust an intelligible one—of the alterations at Salisbury, done under the Public Health Act. In doing so, I have endeavoured to be liberal in facts, sparing in opinions. The great fact of 531 deaths, that is, nearly one-fourth of the whole number, having occurred over one period of nine years less than over another like consecutive period of years, naturally suggests the question, Did anything unusual happen between these periods? The answer has just been given. The next question is, Did the thing done *cause* the difference of mortality? In answering this question, I particularly wish to guard against dogmatically asserting the *post hoc* to have been wholly *propter hoc*. I do not claim that drainage and waterworks saved all the 531 lives, being quite aware that so many concomitant physical and moral causes exist to produce effects upon vitality—so many ways to the gates of death—that to make such claim would be as rash as to put the hand upon each of 531 persons and say, you and you were saved. But, holding the strong opinions which I do about the fostering causes of many diseases being removable, and seeing what I do see in Salisbury, it would be affectation on my part not to say that I believe the works done to have been one cause, and that the main cause, of the diminution of mortality; and although it may be objected that assertion is easy, proof difficult, in vital statistics; in this case, I do not think it would be easy, if possible, to suggest another even plausible cause of such a great alteration having continued for so many as nine years. The diminution of consumption certainly appears to be a demonstrated effect from an evident cause.

I look upon many of the figures derivable from Salisbury as peculiarly valuable in statistics, because the population is *urban* only, and varied little in numbers over a long period of years; also, because the bulk of it is stationary over the various months of the year.

5. *It remains for me to make a few General Remarks.*—My first is, to caution people against expecting too much from sanitary reform. I have heard it said during the present summer, "We shall have no "cholera now, owing to the drainage." This is being more sanguine than I have ever been; for, even if sanitary arrangements could entirely prevent it, that they ever will be so complete as to do so, I fear it is quite utopian to expect. My belief about cholera and other epidemics is, that their primary causes are atmospheric, and quite independent of human influences; that they may be ubiquitous, and, when not so, do prevail over a large extent of country at one time, or pass in determinate currents in quick succession. Whether such primary causes consist of a variable state of caloric, of electricity, or quantity of ozone, or other agent never yet thought of, as seeds of disease they become everywhere sown, and yield fruit where they find fostering circumstances favourable to their development; that such fostering causes in the case of cholera were proved to exist in dirty, badly-drained towns, and eminently in the most confined and dirty parts; and further, I believe that in so far as these circumstances are removable, and are removed, the chances of cholera attacking, or if attacking, of killing, human beings, is lessened. When it shall have been discovered exactly what special causes determine whether an epidemic shall be in form of influenza, scarlatina, or cholera, the question of the entire prevention of their future occurrence may be discussed; but at present conjecture as to them only exists, and I fear, should the causes ever become known, they will be found to be produced upon such a grand scale, that operations of the human laboratory will never be comprehensive enough to prevent such production being carried on in the laboratory of the atmosphere. Practically, then, we must be content to prevent, as much as possible, their deadly effects, by the removal of those fostering conditions which observation proves to be friendly, if not necessary, to their fatal development. For that purpose, I believe all known sanitary measures, cleanliness, ventilation, drainage, and good water supply, ought to be everywhere adopted.

There is another subject upon which I think many people have unreasonable expectations from sanitary reform, that is, the point to which the average annual mortality can be reduced. In one of the pamphlets printed during the drainage contest, I held out a prospect that, in case of drainage and waterworks being adopted, the mortality of Salisbury, instead of 27 in 1,000, would probably be one-third less. I am happy to find that such hope has been realized, for

the average of five out of the nine years since drainage, the mortality has been exactly one-third less, or 18 per annum in 1,000; but when I see 10 in 1,000 mentioned by some writers as an attainable minimum, I own not being sanguine enough to look for such a low figure in large populations over periods of years. Such a calculation is arrived at by excluding deaths from zymotic diseases, as in *all cases preventible*, which in practice is a perfection scarcely to be expected. Moreover, mental and other causes of disease appear to increase as civilization advances, and will in no small ratio counteract the good done by sanitary reformers, who can deal chiefly with mere physical causes, and with only some of these, for diet and clothing are beyond their control, although possibly lodgings may not always be.

There is a class of persons, including some medical men, who hold that atmospheric stenches from cesspools, privies, &c., do not produce disease, but that poverty is the true cause of the diseases alleged by sanitary reformers to be so produced. Now, as poverty and bad air arising from the sources named so often co-exist, this argument possesses a plausibility which requires the most careful collation of facts, in order to refute its dangerous tendency as regards all practical sanitary measures. Allowing poverty, as such, to be one predisposing cause of disease, I believe that it is infinitesimal when compared with bad air and uncleanness, and that these, with bad water, are mainly the producers of that state of body which renders people a prey to epidemics, whatever the primary causes of such epidemics may be. Further, I believe that were these things found as often to co-exist with the rich as with the poor, the rich and poor would be almost equally subject to fatal attacks of epidemics, *e.g.*, of cholera, which equality of attack amongst similar numbers certainly did not occur. Of 100,000 inhabitants of the west of London, and 100,000 in the east thereof, in 1849, the former suffered little in comparison with the latter; but this difference was not on account of the poverty of the latter. I believe that, if the 100,000 people had changed places, the rich would have suffered nearly if not quite as much in the east, and the poor have escaped in Belgravia as much as the rich did. This view is very far from imaginary, for its accuracy was fully borne out by facts, which happened to my own knowledge in Salisbury as regards cholera. A large proportion of fatal cases occurred amongst well-to-do people: there died one physician and several tradesmen. In localities where the fostering causes most abounded, rich and poor suffered pretty equally, as on the southern side of the Thames in London, and in other places. The Registrar-General's last quarterly report proves with singular force the correctness of this view of poverty, *per se*, not being chargeable with epidemic fatality. The writer remarks, "It is a singular circumstance that the mortality often augments

"with the increased prosperity of a district;" and he gives a remarkable illustration from the Ulverston district in Lancashire. The mortality at Dalton, in that district, for the last two quarters, was at the rate of 42 and 31 in 1,000 per annum; and the spectacle there presented was, "work plentiful, wages good, provisions cheap," with the prevalence of "destructive epidemics." He goes on to say, "impure water, impure air, their own exhalations, kill men, women, and children on the spot, and breed the leaven which devastates the towns and valleys in the vicinity."

The most determined sceptic about filth producing disease, has never yet gone the length of asserting that cleanliness causes disease, nor of suggesting a suspicion of its doing so. It then follows that, apart from sanitary considerations, as cleanliness is desirable for comfort and decency, it ought to be secured by all possible means. Thus it is a duty incumbent upon all those who do not believe in dirt producing disease, to drain their towns and to provide good water, on account of comfort and decency, whilst upon those who do believe dirt and bad water productive of disease, such duty becomes doubly incumbent.

The pollution of rivers by the sewage of towns is just now a very favourite topic of complaint, and rightly so in many, perhaps in most cases; but there is a danger of legislation upon the subject being made too general and sweeping. That many rivers are polluted injuriously to decency, if not to public health, is undoubtedly true, but that all rivers into which town sewage is conducted either are, or are likely to become, offensive to the public health, or even to that of the fishes which inhabit them, is not true. Where a large town is drained into a small river, as the Rea at Birmingham, or even into a large river, comparatively small with the town, as the Thames at London, a nuisance, doubtless, is created, and ought to be rectified; but where a small town is drained into a tolerably large and rapid river—that river not being a tidal one, especially when the outlet of the drain is at a good distance from the town, as in the Avon at Salisbury—no nuisance, present or prospective, is indicated—the public are in no way annoyed, and as for the fishes * they flourish exceedingly; for it is a remarkable fact, that enormous trout—the largest in the river—have been taken at and just below the outlet of the main drain; in which drain, as before shown, a considerable flow of subsoil water always exists. Any act of the legislature, then, compelling the diversion of the sewage of Salisbury

* Three hundred years ago Palladio wrote about the great common sewer of Rome. "Upon measuring I have found it to be 16 feet diameter. Into this all other sewers of the city do empty themselves, which is the reason that sturgeons taken between the Senatorian and Sublilian bridges are better than others, feeding on the filth coming out of this great sewer."

from the Avon, into which it is now harmlessly flowing, would be a very unnecessary interference, and productive of great inconvenience and cost. Of course, at a future day, if any ready way of collecting the sewage and of selling it should be found out, applicable to the locality, such diversion might be desirable as an act of municipal economy. In the meanwhile, the neighbourhood below Salisbury is not only not injured, but enormously benefited, inasmuch as the whole of the Avon water is used to irrigate meadows within a few miles below the city.

In conclusion, as regards the true position occupied by hygiene, or sanitary reform, I believe that the mortality and sickness of this country, I may add, of all countries, are excessive in proportion to what they might be, were sanitary measures generally adopted. If only half, or even a smaller part of such excessive disease and death can be prevented, sanitary reformers will have done more good for their fellow beings than the combined efforts of all medical men have achieved merely by means of drugs; for, however admirable it may be to combat and subdue diseases by medicines, there can be no doubt, but that to prevent many cases of disease occurring at all, and to modify others, with all their accompanying miseries, will be of much more benefit to mankind. For if it be desirable to prolong life, which few will deny, it is equally desirable to make life enjoyable by removing many ascertained evils which do not necessarily belong to it. Let me not be misunderstood. In saying this, I have no intention of decrying the immense utility of curative medicine, but of asserting, and fixing attention upon, the vast importance of hygiene; this dealing with whole communities, *that* administering only to individuals. Besides, the proverb, "Prevention is better than 'cure," in sustentation of my remarks, I can plead the following from Lord Bacon, in the dedication to "Posteritie" of his "History of Life and Death, or of the Prolongation of Life":—"For we have "Hope and wish that it may conduce to a common good, and that the "nobler sort of Physicians will advance their thoughts, and not "employ their times wholly in the sordidness of cures; neither bee "Honoured for necessitie only. But that they will become Coadju- "tours and Instruments of the Divine Omnipotence and Clemencie, "in prolonging and renewing the Life of Man; especially seeing we "prescribe it to be done by Safe, and Convenient, and Civil ways, "though hitherto unassayed."

There is yet one other class of objectors to sanitary reform, the fatalists; who, if not numerous, are most dangerous, because they work upon men's religious fears by representing cholera and other epidemics as judgments, and by more than insinuating that attempting preventive measures is flying in the face of Providence. To such objectors, I say boldly, that not to attempt the removal of now well-

known fostering causes of many epidemics, bad air, bad water, &c., but to stand by and attribute the diseases to fate, would be as heinous a crime in the sight of man or man's Creator, as to stand by and see a man drowning, without attempting to pull him out of the water. To all such fatalists I would say, "Become sanitary reformers;" for, in the words of Bacon, you will then be "Coadjutours and Instruments of the Divine Omnipotence and Clemencie, in prolonging and renewing the Life of Man."

On the NUMBER, OCCUPATION, and STATUS of FOREIGNERS in ENGLAND. By LEONE LEVI, Esq., F.S.A., F.S.S., of Lincoln's Inn, Barrister-at-Law, Doctor of Economic Science of the University of Tübingen, Professor of the Principles and Practice of Commerce in King's College, London.

[Read before Section (F) of the British Association, at Bath, September, 1861.]

ONE of the most prominent features of European society at the present time, is the blending of citizenship, the approaching of States, and the almost total annihilation of distances. Railways, steam communication, and telegraphs, and last, but not least, the abolition of passports, have succeeded in bringing nations together, and a close intimacy has been formed between the inhabitants of the European States, which is constantly being cemented by bonds of interest, bonds of family relationship, and bonds, too, of common aspirations, and common struggles after progress and advancement. As far as England is concerned, she is no longer circumscribed within the borders of this sea-girt isle. Above and below the mighty deep, body and mind now constantly cross and recross; and our thoughts, feelings, and manners are moulded and formed by the thoughts, feelings, and manners of other countries. A strong current of reciprocal influence thus runs through the whole range of European society, and religion, literature, commerce, politics, are all more or less affected by the enlarged and liberal sentiment which such a commerce of ideas inspires. Viewed from this aspect, a special interest attaches to the flux and reflux of foreigners in different countries, and it is gratifying to find that the Census of England and Wales for 1861 is fuller in information upon this subject than any previous one. Another evidence of that care and ability which are observable in the whole of this national survey, carried on under the guidance of our learned President Dr. Farr, and his worthy coadjutors. It appears, then, from this document, that on the night of the 7th April, 1861, there were in England and Wales 84,090 foreigners,* meaning by it persons born out of the United Kingdom, in a total population of 20,006,224, or in the proportion of 0.41 foreigner for every 100 native-born subjects; or that, in other words, there were in this country 261 British subjects for

* The number of foreigners in Ireland was 8,267, and in Scotland 3,969; making an aggregate for the United Kingdom of 96,326.

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every foreigner. This proportion is considerably less than in France and in the United States. In France, in 1861, there were 506,381 foreigners in a population of 37,386,313, or 1.35 foreigners for every 100 French subjects; or, in other words, there were 73 French born for every one foreigner. In the United States, in 1860, there were 4,136,175 foreigners in a population of 27,489,461, or 15 foreigners to every 100 American citizens; in other words, there were in the United States only 6.64 American born to every foreigner. In Spain, on the contrary, it appears, from the Census of 1860, just published, that there were only 34,912 foreigners, viz., 20,883 residents and 14,029 in transit, meaning probably naturalized and not naturalized, in a population of 15,638,569, or in the proportion of 0.22 foreigner for every 100 Spaniards, or that there were 447 Spaniards to every foreigner, being about half of the proportion between native and foreign subjects in this country.

Notwithstanding all the facilities of communication recently opened between this and other countries, and our increased commercial and social intercourse with almost every country in the world, it is a singular fact that France has three times the number of foreigners as there are in England. The central position of France, her easy and graceful language, the similarity of her climate to that of other continental countries, and more especially the absence of the dreaded Channel, all render France much more attractive to foreigners than this country. In the United Kingdom foreigners are birds of passage, for purposes of trade only. In France they remain for instruction, for amusement, and for agreeable society. The United States of America have been, till the present time, the El Dorado, the Land of Promise, to the industrious of all countries. We cannot, therefore, wonder at the large number of foreigners in that country. Even now, the lovers of adventure find the United States a most propitious soil where to exercise their skill. It is possible, however, that the excessive number of foreigners may be one of the causes of instability in the American institutions. With a population constantly shifting, consisting for the most part of foreign adventurers, we can scarcely expect to find the national principle vigorously at work. The United States of America, originally peopled by Europeans, and constantly fed by the surplus population of every country, is not a nation, but a cosmopolite body of men living together under republican institutions. So long as common interest bound them together they lived at peace; immediately as opposing interests disjoined them, they manifested all the hatred and passions of men alien to one another in race and nationality, and prompted by no other principle than that of sordid gain or love of conquest. As for Spain, the paucity of her industries, the absence of internal security, and, above all, her intollerant policy as regards religion, are

sufficient reasons why she should have so few foreigners. Spain may do much to rise once more in the scale of nations and to improve her economical condition. But she may be quite sure that the most luxuriating land, the most delightful climate, and the most inviting field for industry, will fail to attract strangers, where the most prized of all privileges, liberty of conscience, is denied. Let us be thankful that England offers in this respect the most exemplary liberality.

Whilst considering the influence of foreigners in this country, we are naturally led to consider the influence exercised by Englishmen in foreign countries. If we except the United States of America, where there were upwards of 2,000,000 British, the number of Englishmen in all other countries is 68,000, or less than the number of foreigners in this country. In comparing, however, the relative influence resulting from personal intercourse, not only the number but the language, national character, and rank of the individuals must be taken into account. It will be admitted, for instance, that French is a language much more extensively known than any other. Moreover, the sociability and frankness which distinguish continental nations, are more favourable to influence than the reserve and exclusiveness which form the substratum of the English character. But when we take rank into consideration the influence of the English is greater far than that of other nations. British travellers or residents abroad belong either to the aristocratic or to the mercantile classes. Few of the lower classes travel to foreign countries, and fewer still of British workmen ever think of crossing the Channel. But for our sailors, continental nations seldom see any but wealthy specimens of British nationality. Very different it is with foreign countries. There the higher classes generally remain at home, and it is principally the politician, the artist, and the merchant that move abroad. Though few comparatively in any one place or country, English influence abroad is great, especially among the educated and the governing classes.

And whom are we attracting to our shores? Of the 84,000 foreigners in England and Wales, 73,500 were Europeans, 9,500 Americans, 500 Africans, and 500 between Asiatics and natives of other countries not specified; and if to these we add the British colonists, which include men of so many races and colours, the mixture is indeed very remarkable. It is something agreeable when walking the streets of the Metropolis, to be constantly arrested, not only by the most discordant sounds of many tongues, but by the variety of costume, such as Chinese and Hindoos, Greek and Turk, Arab or Persian, often very gorgeous and bizarre. Amongst the Europeans, the Germans are certainly the most numerous. Of 73,000 Europeans more than 30,000 came from Germany, 13,000 from France, 5,500 from Holland, 4,500 from Italy, 5,000 from

Norway and Sweden, 5,000 from Russia and Poland, 2,000 from Spain and Portugal, 2,000 from Belgium, 2,500 from Denmark, and about 1,000 from Greece and Turkey. In France, the greatest number of foreigners consisted of Europeans. Of 506,381 foreigners, 205,000 were Belgians, 85,000 Germans, 76,000 Italians, 35,000 Spaniards, and 35,000 Swiss, 26,000 English, 13,000 Dutch, and the rest of other nations. In the United States of America, of 4,136,000 foreigners, 2,200,000 were British and Irish, 1,300,000 Germans, 250,000 British Americans, 110,000 French, 53,000 Swiss, 44,000 Norwegians, 35,000 Chinese, 28,000 Dutch, 27,000 Mexicans, and the rest of other nations.

As might be expected, the greater part of the foreigners in England are dwelling in the large shipping and manufacturing towns, such as London, Liverpool, Manchester, Birmingham, Newcastle-upon-Tyne, Tynemouth, Sunderland, Hartlepool, &c. It is the commercial, and not the agricultural, counties which mostly attract foreigners. London has, however, the largest number of foreigners. Fully one-half of all the foreigners in England are in London, and they are scattered in all her districts, in the most populous as well as in the most aristocratic. Fancy a single town possessing 2,500,000 English, 100,000 Irish, 36,000 Scotch, 15,000 colonists, 20,000 Welsh, and 40,000 foreigners. It is really a wonderful combination of nationalities. But what are 40,000 foreigners to a population of 2,800,000? only 1.42 per cent.; or, in other words, 70 native subjects to 1 foreigner. Compare it with New York. In 1860 there were there 813,669 inhabitants, and of these 429,952 were natives, and 383,717 foreigners, that is, 47 per cent. of the total population were foreigners, the natives being only 2 to 1 of the foreigners. In Paris (Département de la Seine) there were 94,658 foreigners in a population of 1,953,660, or in the proportion of 4.84 foreigners for every 100 natives, giving 20 natives for every 1 foreigner. It must be remarked, as regards the foreigners in England, especially the Europeans, that those who come to this country are not all of one sex, but they consist of men, women, and children. Of the 84,000 foreigners in England and Wales, about 57,000 were males and 27,000 females; whilst of 73,000 Europeans, 13,000 were under 20 years of age. Let us not fancy, however, that they are all organ boys. They comprise upwards of 4,000 children at home, 1,500 boys and girls at school, 3,000 boys in merchant vessels, and not quite 500 musicians.

An analysis of the occupation of foreigners is interesting. Very few can afford to live in England idle. This is a place for work, and foreigners are not an exception to the general rule. There is plenty, however, for them to do. Many industries are in the hands of foreigners. A good number of them, about 1,500, for instance, are

employed in sugar refining. This industry is itself of German extraction, and the Germans are still the best workmen in Whitechapel. Watch making and clock making also employ about 1,200 foreigners. Great many opticians and spectacle makers are foreigners. There are a large number of foreign tailors and shoemakers, of milliners and dressmakers. Upwards of 1,000 foreign bakers are to be found in this country. The figure and image makers are almost exclusively Italians. 1,400 governesses and some 3,000 domestic servants, principally females, are Swiss, French, or German. It is by German, French, and Italian teachers that the foreign languages are taught in the schools. Foreign musicians are numerous. To them is England indebted for the impulse given of late to the cultivation of music in this country, not only in theatres and public exhibitions, but in the drawing-room and family circle; and a large number of our seamen, nearly 16,000, are now foreign born. Up to a very recent time the navigation laws absolutely prohibited the use of foreign seamen in the manning of our ships. But since the restriction was abandoned, by the 16 and 17 Vict., cap. 131, and 17 and 18 Vict., cap. 120, the increase of trade and navigation has been such, that not only has there been ample employment for our ships and seamen, but we have been able to employ a large number of foreign ships and foreign seamen. There were, moreover, in this country, among foreigners, 127 Roman Catholic priests, 96 physicians, 109 interpreters, 15 advocates or barristers, and 14 solicitors and notaries, 164 diplomatic and consular officers, 287 artists, 68 sculptors, 82 engravers, 250 cooks, 1,600 merchants and bankers, and 3,000 more, between commercial clerks, travellers and brokers. Even in house-building there were many foreigners employed; and so in a hundred other occupations. It is gratifying to know that in the United Kingdom the whole field of industry is open alike to foreigners as to native-born subjects.

We have in such facts as these abundant evidence that the foreigners residing in this country are mostly, if not all, useful members of society, active labourers in this great workshop of the world. And though there may be a few political refugees—hommes de lettres, loungers in news-rooms or Leicester Square—they must be very few indeed, and even they must obtain a livelihood in some manner by their writing or otherwise. It is gratifying, indeed, to think that foreigners are not a burden to the country. It was suggested on one occasion that Lord Holt had laid down that they were not even entitled to relief, and that they might be left to starve. But Lord Ellenborough denied that Lord Holt ever uttered such a sentiment. "The law of humanity," he said, "which is anterior to all positive laws, obliges us to afford them relief to save them from 'starving.'" It is very rare, however, that a foreigner enters a

workhouse. In the prisons they are to be found in a fair proportion. In an average there are about 1,700 foreign prisoners to a total of about 120,000, or in the proportion of 70 British to 1 foreigner. Among those guilty of murder there is a limited number of foreigners. Of 92 persons who suffered the penalty of death, from 1857 to 1863, 6 were foreigners—3 Spaniards, 2 Greeks, and 1 Italian. Recently as many as 5 South Americans were executed for murder and piracy at sea, and a most heinous murder in the railway is supposed to have been committed by a German.

That the free admission of foreigners is most beneficial to a nation is sanctioned by universal experience. We almost imagine that without the foreign element engrafted upon it the native element would soon lose its energy; and blind indeed is that country which shuts out the skill, the enterprise, and the capital which foreigners are apt to introduce. "When Frederick William became Regent," said the King of Prussia, in his history of Brandenburg, "the country 'neither made hats, stockings, or any woollen stuff. The industry of the French enriched us with all these manufactures.'" It was to the unlimited freedom granted to foreigners that Holland owed her ancient grandeur; whilst France cut off her own right arm by the revocation of the Edict of Nantes, and Spain destroyed her best interests by the expulsion of the Moors and the Jews. As for England, she has been rather slow in appreciating the benefit of attracting foreign industry. In the Middle Ages foreigners were looked upon with an evil eye by the bulk of the people, and in cities and corporate towns especially, the antipathy against them became so strong that they were not even endured within their precincts. For a long time foreigners met all manner of discouragement and ill-treatment in this country; and, strange to say, the merchants of London were foremost in endeavouring to procure the expulsion of foreign traders. Gradually a better feeling obtained. Sir Josiah Child, Algernon Sydney, Sir William Petty, and Sir William Temple endeavoured to disabuse the public mind respecting the bad influence of foreign traders; and after a time they met a better reception. Unfortunately, however, the politico-religious influence of the Reformation greatly paralysed this policy of freedom. When the exclusion of the Roman Catholics from the realm became a question of State, the expedient was resorted to of refusing naturalization to foreigners unless they consented to receive the Sacrament of the Lord's Supper, and took an oath of supremacy and allegiance. And when William III. was firmly seated on the throne, the State was protected from the introduction of Roman Catholics to any influential post in the Government, by enacting that no person born out of the United Kingdom or any of the Colonies, even though naturalized or denizens, unless born of English parents, should be a member of

the Privy Council or of either House of Parliament, nor fill any office of trust, civil or military, nor receive from the Crown any grant of land, &c. Subsequently the necessity of taking the sacrament in case of naturalization was removed; but when, in 1813, the many disabilities which were in force against aliens were abolished, the exceptions regarding their becoming members of the Privy Council and of either House of Parliament, were allowed to remain; not as formerly, as a protection from the introduction of Roman Catholics, but in deference to national susceptibilities. The original bill introduced by Mr. Hutt proposed to put naturalized subjects on the same footing in every respect with native subjects; but Sir James Graham, speaking on behalf of Her Majesty's Government, took objection to that, and said that it was undesirable to repeal a provision in the Act of Settlement which he considered most wholesome. "He was convinced," he said, "that it was the general feeling of the country; it might be a vulgar prejudice, but still he confessed he partook of it, and he believed that the people of the United Kingdom felt, that it was fitting that the members of their legislature should be native-born subjects, and persons capable of taking into consideration their habits, their feelings, and their associations. He was for British subjects being the legislators for Britain." It would ill become the writer, himself a naturalized subject, to complain of the exclusion thus established, having regard especially to the liberal spirit which pre-eminently distinguishes British legislation as regards aliens, whether naturalized or not. Yet it is very doubtful whether it is worth the while to maintain such exclusion. The chances that a foreign-born subject may be elected to represent any constituency in Parliament must be very rare; but should such a case ever arise, are not the electors the best judges of the character and qualifications of the candidates for election? If fear be entertained that the British Parliament be made the arena for foreign polities, or that political refugees, who have no stake in this country, may too readily be elected, would it not be sufficient to impose a condition that such alien born shall either have resided ten years in this country, or be connected by marriage with a British wife?

In some foreign countries a more liberal principle is adopted. In the United States of America, seven years' citizenship are sufficient as a qualification for a representative to Congress, and nine years' citizenship for that of senator. In France, by an ordinance of 1814, a special act, confirmed by both Chambers, was made necessary, in order that a foreigner might be able to sit either in the Chamber of Peers or of Deputies. In 1848 this law was revoked, but in 1849 a similar law to that which previously existed was re-enacted.

The fact that the disability now affecting aliens in England consists only in the exclusion from the highest civil privileges, indi-

cates the great advance made in liberal principles upon this subject. It is, indeed, indisputable that, for all practical purposes, foreigners in England enjoy the same rights and the same privileges as the natives; and that both in our courts of justice, and in the great marts of merchandise, no distinction whatsoever is now made on account of nationality or religion. That in the face of such an equality of rights and privileges I should have occupied the valuable time of the Association on any subject relating to foreigners especially, my only apology is, that the place of birth of the component parts of the population is often an important element in the ascertainment of many social and moral problems. However much a high and liberal tone of public opinion makes us regard all nations alike, it is a fact that each has its own idiosyncrasy, that each is endowed with especial talents and industry, and that each has its own manner of life. There is something inherent in man which attaches him to the country of his birth, and which he cannot shake off wherever he may dwell; and we may derive solid and valuable instruction from the study of those who are constantly around us, and who in their own persons exhibit to us all the peculiarities, habits, and manners of the many distinct races and nations which people this great wide world.

*On the RATES of MORTALITY and MARRIAGE amongst EUROPEANS
in INDIA. By SAMUEL BROWN, F.S.S.*

[Read before the British Association, Section (F), at Bath, September, 1861.]

In a paper which I had the honour of reading before the Instituto of Actuaries in December, 1862, an inquiry was made into the rates of mortality and marriage amongst Europeans in India, but was principally confined to the experience amongst military officers, as recorded in the books of the Madras Military Fund, and compared with the records of similar funds in the other Presidencies. The data—which I was favoured with an opportunity of collecting during an elaborate investigation into the position and prospects of the fund,—extended over the long period of fifty years, from 1808 to 1857, and related to more than 5,000 officers who had entered the fund in that period, and had either died, or withdrawn, or were living at the close of the observations, on the 1st January, 1858. The subdivision of the facts into two periods, of those who entered from 1808 to 1822, and from 1822 to 1857, showed a very marked diminution at every quinquennial period of age in the rate of mortality up to the age of 50, after which, in the latter period, the numbers were not sufficient fairly to carry on the comparison. On the average of all ages the rate in the former period was 3·92 per cent., and in the latter 2·69 per cent., though allowance must be made for the fact that some of the latter had not attained such advanced ages.

Another conclusion, clearly arrived at, was, that at all ages below 65 the mortality amongst married officers, was considerably less than amongst bachelors, being seldom more than 60 or 70 per cent. of the latter. The average rate of mortality at all ages was amongst bachelors 3·44 per cent., married officers 2·83 per cent., and widowers 4·45 per cent.

Amongst retired officers the rate of mortality in each class, whether bachelors, married men, or widowers, was found to be always highest at the younger ages, and to diminish with great regularity to the ages 55 to 60. After this age it seems to exceed generally, by about 25 per cent., the rate of mortality by Dr. Farr's healthy life table for males.

In regard to the marriage-rates, the observations were minute enough to afford some interesting deductions. A paper then recently read by Mr. Archibald Day, before the Institute of Actuaries, "On "the Statistics of Marriages amongst the Families of the Peerage,"

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extending for a period of 100 years preceding 31st December, 1855, and comprising the marriages amongst 2,721 bachelors, enabled me to make comparisons with those amongst military officers in the Madras army.

The marriages amongst the aristocracy, as compared with the general population, were observed to take place at a much later period of life, and still more so amongst widowers. This peculiarity was even more strongly observable amongst bachelors, being military officers in India, and to a certain extent amongst the widowers, the rates of marriage of the latter between 50 and 55 being double that of the peerage. It should be noticed that this period of life is nearly approaching that which shows the maximum rate of retirement, and may perhaps be connected in some way with the return of officers to Europe. Of officers in India, the average rate of marriage at all ages was 3·75 per cent. amongst the bachelors, and 9·25 per cent. amongst widowers, whilst in the peerage of Great Britain the rates were respectively 3·63 per cent. and 5·55 per cent.

In my former paper a table was also given, showing amongst 1,526 first marriages, 164 second, 17 third, and one fourth marriage, the number which were contracted amongst officers of the Madras army, at each quinquennial age of the husband with wives of the same or any other quinquennium of age, from which the conclusion was clearly drawn, that as the husband married later in life, the greater was the discrepancy of age between himself and his wife.

The average age at which bachelors marry appeared to be about 30, and of their wives 23, a difference of about seven years. Under 20, the bachelors marry wives about three years younger than themselves, and from 20, the discrepancy in favour of a younger wife steadily increases each five years, till at 60-65 years of age for the husbands, it is twenty-five years younger for the wife. For widowers, the average age of marriage appears to be about 41, and their wives 27, a difference of fourteen years—just double that of bachelors. Under 25, in widowers' marriages, the average age of the wife is five years older than her husband, but afterwards the discrepancy of age in favour of a young wife increases till it is much higher than that of bachelors, being from 30 to 34 years when widowers marry at 60 and upwards.

Since the publication of that paper, the interest in the subject has by no means diminished. The vast impulse given to the commercial undertakings of India, railways, telegraph, and financial, land and trading companies, must have led to a great increase in the European population, an increase which, there is every reason to believe, will become annually greater as European skill and capital find profitable employment in those wide fields of enterprise. At the same time it will be many years before a proper organization can

be given to the collection of the statistics of life and health amongst a population so scattered or migratory as this is likely to be. Young men, sent out as engineers for commercial, telegraph, and other companies, will, in most cases, have to proceed to new and unsettled districts, and frequently move about from one station to another. It would be well if all public companies, as well as the Government services, were to keep a careful register of their employés, their ages at admission, date of withdrawal or death, and, as far as possible, of their marriages, families, &c. In the meantime the most precise information on these subjects at present available will be found in the records of the annuity, provident, and pension funds for widows and children, which have been for many years established in the different Presidencies, both for the military and civil services of the Government. They require for their own purposes that the date of the birth, marriage, withdrawal, or death of each member should be furnished, as well as the date of birth of his wife, and of her second marriage or death, and of the births or deaths of all his children. If these registers had been as carefully kept from the beginning as they are at present, there would have accumulated by this time the materials for working out several important problems in population statistics. It is desirable, at any rate, to gather together what has hitherto been made public, for comparison with more complete data which may be given hereafter.

It was from the records of these funds that the facts stated in my former paper were drawn relative to the rates of mortality and marriage amongst military officers in India, and I propose now to extend the inquiry to European civilians resident there.

The most important sources of original facts, in reference to the mortality and marriage amongst European civilians in India, will be found in the following reports, with some incidental notices in the publications which were enumerated in my former paper:—

- In 1836 (20th February), Mr. Griffith Davies' "Report on the "Bombay Civil Fund."
- In 1842, Mr. Davies, for the Bengal Uncovenanted Civil Service Pension Fund, deduced a table of mortality from the Bengal Civil Service.
- In 1850, "Report of the Committee on the Bengal Civil Service "Fund."
- In 1850, Mr. Davies' "Report on the Madras Civil Fund."
- In 1851, Mr. Davies' "Report on the Bengal Civil Fund."
- In 1852, Mr. Neison's "Report on the Bengal Civil Fund."
- In 1852, Mr. Neison's "Report on the Madras Civil Fund."
- In 1855, Mr. Neison's "Report on the Madras Civil Fund" (in which he introduces the mortality according to years of service).

In 1861 (26th June), Mr. W. Grant's "Report on the Subsidiary "Branch of the Madras Civil Fund."

In 1861 (18th November), his "Report on the Charity Branch "of the above Fund."

In 1861 (24th June), Mr. Neison's "Report on the Bombay "Civil Provident Fund."

In addition to the above, the following reports on the medical funds contain much interesting matter:

Madras Medical Fund, Mr. Neison's Reports, 16th February and 29th May, 1856.

Bombay Medical Fund, Mr. G. Davies' Report, 15th February, 1847.

Bombay Medical Fund, Mr. Neison's Reports, 2nd January, 1851, and 7th November, 1855.

Bengal Civilians.

In Mr. Davies' "Report on the Bengal Civil Fund," in June, 1851, he states that not having the means of forming mortality tables from their own experience, he had been obliged to examine the other Indian reports for original data to guide him. In 1842 he had formed for the Bengal Uncovenanted Service Family Pension Fund, a table of mortality amongst the Bengal Civil Service, from the lists of Dodwell and Miles. Such table gave the mortality below the age of 40, somewhat lower than the Northampton Table, and higher afterwards. But on examining Mr. Neison's table for the Bengal Military Fund, and considering that soon after the age of 40 the members of the Civil Service Fund begin to return to this country, he had determined to adopt the Northampton Table from the age of 40 and upwards, and continue it below that age by his own table from the Bengal Civil Service, above alluded to.

Mr. Neison, in his report of 14th December, 1852, following this, still regrets that he has not the actual experience of the Fund to refer to, but objects to the lists of Dodwell and Miles, which he considers worthless for the purpose of deducing the rates of mortality amongst the servants of the Company, since they were not compiled with this object in view, and can only be regarded as ordinary directories. Major Hannington, however, had pointed out a most important document, and one more trustworthy for the purpose. It is a "Register of the Honourable East India Company's Civil "Servants of the Bengal Establishment, from 1790 to 1842, &c., "compiled under the direction of the Honourable H. T. Prinsep, late "Member of the Council of India, by Ramehunder Doss."

The rate of mortality for each quinquennial period of age, as given

by the compiler in the introduction, and also the rates from an adjusted table deduced by Major Hannington, are as follow:—

Ages.	Exposed to Risk.	Died.	Rate per Cent.	Adjusted by Major Hannington. Rate per Cent.
20.....	231	8	3.47	2.55
21 to 25	4,782	93	1.95	1.98
26 „ 30	4,010	81	2.09	1.83
31 „ 35	3,177	48	1.51	2.01
36 „ 40	2,172	60	2.76	2.45
41 to 45	1,496	41	2.94	3.00
46 „ 50	818	29	3.55	3.82
51 „ 55	392	23	5.87	4.55
56 „ 60	152	5	3.30	5.31
61 „ 65	57	3	5.26	6.20
66 to 70	14	1	7.20	7.17
71 „ 75	2	—	—	9.15
76 „ 80	—	—	—	11.63
81 „ 85	—	—	—	17.86
86 „ 90	—	—	—	21.83
91 to 95	—	—	—	37.03
96.....	—	—	—	100.
	17,302	398	2.30	3.39

But it had been clearly shown by the records of the military funds that the rate of mortality in India had diminished of late years, and, as the above table did not afford the means of a similar comparison, Mr. Neison recomputed the rates according to different decennial periods after the members' arrival from Europe. It is probable, however, that by this minute subdivision, the facts at some of the ages are too few to admit of averages for a fair comparison, and it will be quite sufficient to give Mr. Neison's rates for the two periods 1790-1819 and 1820-42:—

Bengal Civil Service—Members Arriving in India in the Years

Ages.	1790-1819.			1820-42.		
	Exposed to Risk.	Died.	Mortality per Cent.	Exposed to Risk.	Died.	Mortality per Cent.
21-25 ...	2,898	51	1.76	2,006	41	2.04
26-30	2,550	50	1.96	1,528	30	1.96
31-35	2,248	40	1.78	975	10	1.03
36-40	1,937	48	2.48	285	4	1.40
	9,633	189	1.96	4,794	85	1.77

At the younger ages it would appear that the rate has somewhat increased, or remained the stationary, but at quinquennial ages above 30, the diminution in mortality is considerable, which Mr. Neison accounts for by supposing that persons of the most experience will be the first to take advantage of the precautions suggested as best calculated to preserve health. These observations, however, relate only to the members of the civil service, whilst actually employed in India. A very important question arises as to the rate of mortality amongst the members after retirement. Without the actual experience of the fund, which he thinks would be in this case so valuable, Mr. Neison argues, from the official documents to which he had access in the India House, relating to the retired officers of the Bengal Military Service, that the rate of mortality amongst them does not differ widely from that of the general population of England and Wales at corresponding ages; and further, that the rates of mortality amongst retired members, both of the civil and military services, are almost identical. He therefore constructed a new table for the valuation of the fund. Admitting that Mr. Davies' table, up to the age of 40, agreed very nearly with the ratio of deaths pointed out by the preceding facts, he had taken the same rates up to that age, but continued the table from the age of 45 by his own table, given in his report on the Bengal Military Fund in 1849; and between the ages 39 and 45, the terms were interpolated. The effect of this is to show at ages above 40, a considerable improvement in the duration of Indian lives, in fact to approximate after that period to the general rate of mortality in this country.

In the course of an investigation now proceeding into the Bengal Civil Fund, I have been favoured by the secretary not only with a table which enables me to bring down the observations of the Bengal Civil Service to a very recent date, but with the means of collecting the experience of the fund itself for the thirteen years 1850 to 1862 inclusive. These data are important, as they show the mortality of the members in each class, bachelors, married men, and widowers, as well as the mortality amongst females and children, and the rate of marriage amongst both sexes. The experience of the Bengal Civil Service has been divided into two periods, 1800 to 1830, and 1831 to 1858, showing at the middle ages, 20 to 40, a considerable diminution in the rate of mortality in the latter period.

The number who entered in the former period was 647, of these 283 died, 238 became annuitants, 60 withdrew, and 66 were living to 1859. The number exposed to risk was 13,887, and the rate of mortality 2.04 per cent. In the latter period 568 entered, of whom 96 died, 4 became annuitants, 26 withdrew, and 442 were living to 1859; the number exposed to risk was 5,621, and the rate of mortality 1.70 per cent.

The following table shows the rate of mortality at the quinquennial ages in the two periods referred to, and in the whole period 1801 to 1858 inclusive, compared also with Davies' table used in 1850 (which Mr. Neison also followed up to age 40), with Neison's table for the Bengal army, 1800 to 1847, and with Farr's healthy life table for males. The total rates per cent. also are given for the Bengal Civil Fund, thirteen years' experience, terminating 1st January, 1863, but the numbers are scarcely sufficient to divide the latter into the three classes, bachelors, married men, and widowers, except by grouping periods of 10 years of age together. The column for the Madras Civil Service, 1760 to 1853, is added from the comprehensive "Report on the Sanitary State of the Army in India," in which Dr. Farr has brought together such varied information from every available source.

Rates of Mortality per Cent.

Ages.	Bengal Civil Service.			Bengal Civil Fund.		G. Davies. Used in 1850.	Neison. Bengal Army, 1800-47.	Madras Civil Service, 1769 to 1853.	Farr's Healthy Life Males.
	1801-30.	1831-58.	Retired, 1801-58.	Active and Retired, Total, 1801-58.	Thirteen Years to 1863.				
14—	2.19	2.44	—	2.24	—	—	1.19	—	7.2
20—	1.78	1.48	—	1.65	1.07	.41	1.41	2.19	1.40
25—	2.20	1.73	—	2.02	1.80	.64	1.59	2.31	1.52
30—	1.57	1.24	—	1.47	1.51	.44	1.77	2.62	1.55
35—	2.00	2.81	8.00	2.19	1.88	.55	1.94	2.63	1.63
40—	2.02	3.01	1.08	2.08	1.08	.32	2.24	2.55	1.79
45—	2.19	—	1.14	1.76	2.16	.23	2.52	2.02	2.01
50—	4.29	—	1.81	2.54	2.46	.16	3.04	2.23	2.52
55—	3.77	—	2.55	2.71	2.07	—	3.59	2.54	2.81
60—	18.18	—	3.70	4.26	4.26	—	4.32	3.03	2.97
65—	—	—	6.25	6.22	7.79	—	5.43	1.52	3.57
70—	—	—	6.34	6.34	—	—	7.46	—	5.05
75—	—	—	20.93	20.93	14.29	—	10.81	—	8.50
80—	—	—	—	—	100	—	—	—	—
	2.04	1.70	3.05	2.10	1.76	.41	—	2.28	—
Exposed to Risk	13887	5,631	3248	22,766	7625.5	—	—	88,630	—
Died	283	96	99	478	131	31	—	2,019	—

The records of the Bengal Civil Fund show the number of members killed in the mutiny, and the mortality is considerably altered thereby, the large proportion of 31 out of 134 deaths being due to this cause, and principally affecting the ages 25 to 30, at which ages they amounted to nearly one-third of the total deaths; being all on active service, the ages above 55 remain unaltered.

From the thirteen years experience of the Bengal Civil Service Fund, I was enabled to trace the rates of mortality and marriage amongst bachelors and widowers, or of mortality and the chances of becoming widowers amongst married men at each age. The inquiry is too minute to be pursued here, but the summary may be given.

Of bachelors 213 were living on 1st January, 1850, and 386 entered since. Of these 14 were killed in the mutiny, 31 died, 23 withdrew, 245 married, 42 retired, and 244 were living on 1st January, 1863. The number exposed to risk was 2,919, of whom 1.54 per cent. died, including 48 per cent. who were killed in the mutiny, and 8.39 (a very large proportion) married.

Of married men, 249 were living 1st January, 1850, of whom 29 were married to second wives; since then, 245 bachelors married, and 6 entered the fund as married men, 18 entered into a second marriage, and 1 for the third time. Of the total number 519, 60 died (of whom 15 were killed in the mutiny), 9 withdrew, 47 became widowers, 120 retired, and 283 were living 1st January, 1863. The number exposed to risk was 3,539.5, and the rate of mortality was 1.69 per cent., including 42 per cent. killed.

Of widowers, 24 were living 1st January, 1850, and 47 became widowers since, of whom 9 died (2 of them being killed), 27 remarried (of whom 1 married for the third time), 14 retired, and 21 were living 1st January, 1863. The number exposed to risk was 274.5, and the rate of mortality was 3.28 per cent. (of whom 73 per cent. were killed in the mutiny).

These facts all relate to service in India. The retired members might be traced in the same way under each class.

Marriage-Rate.

The rates per cent. of marriage at each quinquennial age, both amongst bachelors and widowers, are very irregular, but they seem in nearly all cases to be unusually high. It would be well to continue the observations a few years longer. In the following table I have compared together the rates in the Bengal Civil Fund, in the Madras Military Fund, as given in my former paper, in the peerage of Great Britain, and in the general population of England and Wales, as shown in the Registrar-General's reports.

	Bachelors.							
	Bengal Civil Fund, 1850-62 inclusive.		Madras Military Fund, 1808-57 inclusive.		Per cent of Great Britain. (Day.)		General Population. (Farr.)	
	Active.	Retired.	Active.	Retired.				
15—	—	—	17	—	19	46		
20—	8.16	—	2.61	1.60	4.21	11.21		
25—	8.74	—	4.82	3.48	7.70	12.21		
30—	13.67	—	6.26	2.67	7.11	7.85		
35—	7.50	—	5.40	2.67	5.47	4.56		
40—	2.60	14.29	4.06	2.94	3.95	2.80		
45—	2.99	5.61	3.60	1.18	1.98	1.45		
50—	3.92	1.67	4.85	1.51	1.07	.71		
55—	—	12.50	3.49	1.20	1.05	.35		
60—	—	—	—	—	—	.15		
65—	—	—	—	—	—	.05		
70—	—	—	—	—	—	.03		
75—	—	—	—	—	—	.06		
	8.39	4.11	3.75	2.23	3.63	—		
Number living..	2,919	135	45,439	2509.5	—	—		
Number who married ...	245	6	1,706	56	—	—		

From 244 cases in which the ages both of husband and wife were given, it may be concluded that the average age of a bachelor member of the fund on marrying is 28, and of his wife about 22; the difference is six years, and the age at marriage is a little below the age at which the bachelor members of the Madras Military Fund marry, which appears to be 30, and the wife 23, a difference of age of seven years.

In the following table is shown, for bachelors who marry at any quinquennial period of age, the number of wives at each quinquennial group of ages, whether older or younger than the husband.

Bengal Civil Fund. Bachelors Married in Thirteen Years, 1850-62 inclusive.

Age of Hus- band.	Age of Wife.					Total.	Per Cent. of Total Marriages. Age of Wife.					Total.
	17—	20—	25—	30—	35-40.		17—	20—	25—	30—	35-40.	
20—	26	53	7	1	—	87	10.6	21.7	2.9	.4	—	35.7
25—	18	47	11	2	—	78	7.4	19.3	4.5	.8	—	32.0
30—	12	25	6	5	3	51	5.0	10.2	2.5	2.1	1.2	20.9
35—	2	6	5	—	—	13	.8	2.5	2.1	—	—	5.3
40—	3	—	2	1	—	6	1.2	—	.8	.4	—	2.5
45—	—	—	2	3	1	6	—	—	.8	1.2	.4	2.4
50—	—	1	—	1	—	2	—	.4	—	.4	—	.8
55—	1	—	—	—	—	1	.4	—	—	—	—	.4
	62	132	33	13	4	244	25.4	54.1	13.6	5.3	1.6	100.

1864.]
of Marriage.

amongst Europeans in India.

Widowers.							
Bengal Civil Fund, 1850-62 inclusive.		Madras Military Fund, 1808-57 inclusive.		Per cent of Great Britain. (Day.)		General Population. (Farr.)	
Active.	Retired.	Active.	Retired.				
—	—	—	—	—	—	—	—
—	—	13.56	—	17.86	30.77	15—	20—
22.64	—	11.45	—	14.91	35.79	25—	25—
14.28	—	13.19	28.56	12.49	28.63	30—	30—
13.68	—	8.66	40.	10.46	20.31	35—	35—
—	—	—	—	—	—	—	—
11.11	—	9.90	17.39	9.95	14.08	40—	40—
3.85	10.00	9.01	16.67	7.72	8.86	45—	45—
—	9.81	10.98	16.50	5.91	5.71	50—	50—
5.26	—	4.35	7.23	4.25	3.20	55—	55—
—	—	3.90	—	3.27	1.75	60—	60—
9.84	5.85	9.25	13.71	5.55	—	—	—
274.5	85.5	1,936	197.	—	—	—	—
27	5	179	27.	—	—	—	—

Number living
Number who
married

Bombay Civilians.

The first report of Mr. Davies on the Bombay Civil Service Fund is dated as far back as 20th February, 1836. He collected the experience of the fund for 29 years, from its commencement to May, 1833, on the assumption that all the members were 20 years of age on their arrival in India, and then compared the results with Mr. Prinsep's table of the Bengal Civil Service from 1790 to 1831, as given in the first volume of the "Journal of the Asiatic Society." His own facts are but few in number, but they show a remarkable uniformity at all ages under 50, fluctuating between 2.35 and 2.60 per cent., and at the younger ages considerably exceeding the rates of mortality in Bengal. The following is the summary:—

Experience of the Bombay Civil Fund, Twenty-Nine Years, to 1833.

Ages.	Exposed to Risk.	Died.	Mortality per Cent.
20—	954	25	2.60
25—	724	17	2.35
30—	570	15	2.63
35—	410	10	2.44
40—	294	7	2.38
45—	193	5	2.59
50—	110	5	4.57
55—	23	1	4.26
60-62	8	1	12.50
	3,287	86	2.62

From a paper which was furnished by two of the East India Directors, Messrs. Ravenshaw and Loeh, comprising a summary of the years 1805 to 1822, for the civil services in Bengal, Madras, and Bombay, it appeared that there were, on an average of each year, 431 living in Bengal, 226 in Madras, and 103 in Bombay, and the rates per cent. of deaths during the period were respectively 2.34, 2.30, and 3.08 per cent.

The experience of the Bombay Civil Fund bore out the observation generally made, that married life is subject to less mortality than single life, the rate of the former being only 2.51 per cent., compared with 2.62 per cent., above given.

As to retired members, he proposed to recommend the use of the Northampton Table at advanced ages, as allowing for the deterioration of health in Indian lives; though the experience of the fund really showed only 9 deaths above 47, whilst 10 $\frac{2}{3}$ might have been expected by the use of that table. The table he used for the valuation, was constructed from the actual experience before 47, and from that age continued by the Northampton Table. By this table for a constant community of 170 persons living, at ages 20 to 45, 9.20 would have to be sent out annually, 4.86 would retire, and 4.34 would die.

Mr. Neison, in his report on this fund, 24th June, 1861, after referring to his other reports for information on the rate of mortality amongst European lives in India, copies word for word his own observations, tables, and comparisons in his report on the Bengal Civil Service Fund in 1852, and finally adopts the same table as he there gives, both for the active and retired services, starting only with the number 79,792, instead of 100,000, as living at 20.

It does not appear, therefore, that we have any original data from the experience of the Bombay Civil Fund since the small table furnished by Mr. Davies in 1836.

Madras Civilians.

In the first report of Mr. Davies, dated 9th March, 1850, on the Madras Civil Fund, he seems to have been unable to obtain the ages of the retired members or of their wives, or the numbers and ages of their children. He appears to have used the tables in his report of the Madras Military Fund for the valuation of the pensions, till death or marriage of the widows and daughters; and the single life table for females; and the joint life table for husband and wife, from the tables of the Bombay Civil Fund, in his report of 1836. No original data are here obtained.

Following this was Mr. Neison's report, dated 27th December, 1852, in which he repeats word for word his remarks on mortality which appear in his report for the Bengal Civil Service, dated a few

days earlier, namely, on the 14th December in the same year. He, in conclusion, uses the same table both for active and retired service which we have before described, going back, however, to the basis of 100,000 as entering at age 20, and on which his subsequent monetary tables are computed.

But a subsequent report, bearing date the 20th July, 1855, furnishes some original data which are worth examining, relating to the mortality which was observed according to years of service, having the opportunity to compare with them a similar return which I have drawn up from the records of the Bengal Civil Service, from 1790 to 1842, amongst the members who were on service in India.

Years of Service.	Bengal Civil Service, 1790-1842.			Madras Civil Fund, 1792-1851.	
	Exposed to Risk.	Rates per Cent.		Exposed to Risk.	Per Cent. Died.
		Died.	Resigned.		
0—.....	4,110	2.16	.51	—	3320. 1.39
5—.....	4,178	2.08	.79	—	2863.5 1.64
10—.....	3,366	1.37	.59	—	2444. 1.31
15—.....	2,338	2.61	.98	.04	2052. 1.85
20—.....	1,628	2.95	1.90	.06	1675.5 1.91
25—.....	944	3.49	.95	5.82	1326.5 1.81
30—.....	464	4.31	1.51	7.51	1069. 2.53
35—.....	183	5.46	—	10.38	836. 2.75
40—.....	72	2.78	2.78	11.12	613.5 3.26
45—.....	18	11.11	—	—	425. 2.59
50—.....	4	—	—	—	285.5 4.55
55—.....	—	—	—	—	150.5 8.64
60—.....	—	—	—	—	39.5 17.72
65—.....	—	—	—	—	7. 14.29
70-75....	—	—	—	—	1. 100.
	17,1305	2.30	.84	.69	17108.5 1.96
Total number	—	398	146	119	335

In the Bengal Civil Service the average age of arrival in India on the whole period, 1790 to 1842, was about 18 $\frac{1}{2}$; but since 1820, it appears to have increased, and latterly may be taken as nearer age 20. By assuming the latter age for the commencement of observation, the rate of mortality in the above table will be found to correspond very nearly with the table under ages compiled under Mr. Prinsep's instructions, but after the first fifteen years is much higher than the rates observed in the most recent data from 1801 to 1858. There are scarcely any retirements under 25 years' service, then they increase rapidly up to 40-45, when they are upwards

of 11 per cent. per annum, and the mortality diminishes in proportion.

In Mr. Neison's facts from the Madras Civil Fund, it will be noticed, from the very long periods of service of some of the members, that those who have retired up to 1st January, 1851, are included under observation. [The mortality, therefore, should only be compared for the first 25 years of service, and it will be found generally in Madras to be about 70 per cent. of that in Bengal.

In reference to the mortality amongst civilians in India, the general conclusions at which we arrive, are—

1. That a considerable diminution has taken place of late years in the mortality at the middle ages, 20 to 35, and at all ages, if we compare it with the earlier observations of the present century.

2. That a very marked distinction may be observed in favour of married life.

3. That as compared with Farr's English healthy life table, the difference varies from $\frac{1}{2}$ to 1 per cent. higher between the ages 20 and 55, after which it fluctuates, but is generally scarcely higher than the English rates.

In reference to the rate of marriage—

1. That the rate of marriage amongst bachelors is much higher at every age than in the peerage of Great Britain, and though at ages under 30, it may be about 25 per cent. less than that of the general population, yet at all other ages it is considerably more.

2. That marriages take place at a much earlier period than in the military service, and on the average of all ages under 40, is nearly double.

3. The same remark applies to widowers, whose marriage-rate under the age of 45 is considerably higher amongst the civil than the military service, though not more than 70 per cent. of that of the general population of England and Wales.

I trust that the few statistics here recorded may lead to a more careful collection in the books of the Indian Annuity and Pension Funds, from which so much information on the families of members can be readily obtained. They may throw light not merely on the relative mortality of India and this country—both subjects at the present time of the highest interest—but to the elucidation of many novel questions, which an accurate register of family statistics could not fail to afford us.

The facts recorded in the previous tables may be compared with those given in Mr. Tait's interesting paper, read during last session, on the mortality amongst Eurasians, as being a mixed race of Europeans and Asiatics, and connected with the Uncovenanted Civil Service.

If space permitted me to make a full comparison with the mor-

tality of natives of India—soldiers and civilians—we should have to consult the admirable reports with which Colonel Sykes has from time to time for more than twenty years enriched the pages of the *Statistical Journal*.

I could not, however, conclude this part of the subject without a brief allusion to the recent and very elaborate "Report of the Commissioners appointed to enquire into the Sanitary State of the Army in India," in which our distinguished President of this Section, Dr. Farr, took so conspicuous a part. The fullest evidence was taken upon every subject that affects the health or mortality of the Indian army, the causes of the excess of the death-rate amongst Europeans as compared with natives, and the remedies suggested for the almost entire disappearance of such excess. The recommendations will be principally effective in bettering the condition of the common soldier; but some of them, such as the selection of hill stations, the improvement of barracks, &c., would no doubt incidentally benefit the European officers also. In the report and appendix the summaries of the facts relating to Europeans in the civil or military services are compared. The general tenor of the report leads irresistibly to the conclusion that the great mortality, which formerly decimated the Indian armies, might, by judicious arrangements, be reduced to the ordinary rate amongst European civilians there; whilst the mortality amongst the latter has for many years undergone so great an improvement, as to present at some ages no very striking contrast with that of similar classes in this country; a remarkable proof that the science of statistics is not (as it used to be thought) a mere dry and tedious marshalling of figures, but an eminently practical and useful study, leading, even in the small part of its domain which we are now exploring, to suggestions which may be the means of preserving thousands of lives, and substituting the enjoyments of healthy existence for the uncontrolled ravages of disease and death.

BRITISH ASSOCIATION, 1864.

THIRTY-FOURTH Meeting of the British Association for the Advancement of Science, held at Bath, 15th—20th September, 1864.

Section (F).—Economic Science and Statistics.

President.—WILLIAM FARN, M.D., D.C.L., F.R.S.

Vice-Presidents.—Sir John Bowring, F.R.S.; James Heywood, F.R.S.; the Mayor of Bath, Right Hon. Joseph H. Napier; Colonel W. H. Sykes, M.P., F.R.S.

Secretaries.—Frederick Purdy; Edmund Macrory; and E. Turner Payne.

Committee.—A. Ansas; Samuel Brown; H. G. Bohn; C. H. Bracebridge; J. Bonomi; E. B. Elliott; W. Ewart, M.P.; Professor Fawcett; F. P. Fellowes; Major-General Hannington; Professor Hennessy; Edwin Hill; Pearson Hill; Dr. Hodgkin; Rev. Dr. Hume; Sir Willoughby Jones, Bart.; W. Gore Langton, M.P.; Dr. Lee; Professor Levi; A. J. Macrory; Horace Mann; The Bishop of Natal; Dr. Orpen; Rev. W. C. Osborn; The Recorder of Birmingham; The Recorder of Bath; George Senior; R. J. Spiers; Colonel Torrens; Thomas Webster; Robert Wilkinson; James Yates.

The following Papers were read in the Section:—

Thursday, 15th September, 1864.

The President's Address.

The Recorder of Bath.—Statistics of Crime and Criminals.

Professor Levi.—Statistics of the Number and Occupations of Foreigners in England.

Friday, 16th September, 1864.

James Heywood.—Report of a Committee of the British Association, on Uniformity of Weights and Measures.

[A Deputation from the Chemical Section attended on the Presentation of this Report.]

Colonel Torrens.—On the Land Transfer System of Australia, as applicable to Ireland.

Samuel Brown.—On the Mortality of Europeans in India.

Edward Spender.—On the "Truck System" in some parts of the West of England.

J. Chetwynd.—On the Progress of Postal Banks (Post Office Savings Banks)

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Saturday, 17th September, 1864.

A. B. Middleton.—Sanitary Statistics of Salisbury.

Dr. J. A. Symonds.—Sanitary Statistics of Clifton.

R. T. Gore.—On the Mortality of the City of Bath.

Monday, 19th September, 1864.

Major-General Hannington.—Some Remarks on the French Calculating Machine. (The machine itself was exhibited.)

The President.—Life Tables by the Swedish Calculating Machine (with photographs of the machine, by A. Claudet).

Professor Fawcett.—On the Causes which Produce the present High Rate of Discount.

Professor Levi.—Statistics relating to the Royal Navy.

E. B. Elliott.—Military Statistics of certain Armies, especially of those of the United States.

J. Wilson.—Registration of Births and Deaths in Ireland.

Handel Cossall.—Statistics of the Coal Trade: Colliers Employed, Wages Paid, and Social Condition of the Miners Employed in the northern portion of the Bristol Coal Field.

Tuesday, 20th September, 1864.

T. Webster and J. E. Bateman.—Report on Scientific Evidence in Courts of Judicature.

Dr. Wilson.—Sanitary Statistics of Cheltenham.

Rev. Dr. Hume.—On the Locality of the various Religious Bodies in Ireland.

Frederick Purdy.—On the Quantity and Value of Grain Imported into the United Kingdom since the Repeal of the Corn Laws.

M. Guerry of the Institute of France.—On Crime in England and France.

James Heywood, F.R.S.—On the Recommendations of the Public School Commissioners for the Distribution of School Time.

Lieut.-Colonel Kennedy.—On the British Home and Colonial Empire in its Mutual Relations.

W. Tite, M.P.—Health Statistics of the City of Paris.

W. Westgarth.—Statistics of Crime in Australia.

R. Herbert.—Statistics of Live Stock.

PROCEEDINGS OF THE STATISTICAL SOCIETY.

SESSION 1863-64.

First Ordinary Meeting, Tuesday, 17th November, 1863.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

J. W. Bone, Esq., B.A. | J. W. Maclure, Esq.

The following Papers were read:—

"On Dutch Statistics." By Mr. Hendriks.

"On the Industrial Progress of Victoria as connected with its Gold Mining." By H. S. Chapman.

Second Ordinary Meeting, Tuesday, 15th December, 1863.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidate was elected a Fellow of the Society, viz.:—

W. H. Charlton, Esq.

The following Papers were read:—

"On the Continuous Price of Wheat for 102 Years (1380 to 1481)." By Professor J. E. T. Rogers.

"On Edibles and Potables for 1506." By the President.

Third Ordinary Meeting, Tuesday, 19th January, 1864.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

Goldwin Smith, Esq., M.A. | John Ely, Esq.
Walter Bagehot, Esq. | A. Wyatt-Edgell, Esq.

The following Paper was read:—

"On the Commercial Progress and Resources of Central British North America." By Professor Hind, M.A., Toronto.

Fourth Ordinary Meeting, Tuesday, 16th February, 1864.

William Newmarch, Esq., Vice-President, F.R.S., in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

J. D. Logan, Esq. | W. E. Williams, Esq.
W. White, Esq. | C. Capper, Esq.

The following Paper was read:—

"On Some Defects and Results of the Registrar-General's Reports." By Mr. W. L. Sargent.

Fifth Ordinary Meeting, Tuesday, 15th March, 1864.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

M. N. Adler, Esq., M.A. | T. McCombie, Esq.
Alfred Tyler, Esq.

The following Papers were read:—

"On some Statistics Relating to Shipping Casualties." By Mr. Jeula.

"On Shipwrecks in the Royal Navy." By Mr. W. B. Hodge.

Sixth Ordinary Meeting, Tuesday, 19th April, 1864.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

S. R. Solly, Esq., F.R.S. | W. Hickman, Esq., R.N.
F. B. Williams, Esq. | H. Reed, Esq.

The following Paper was read:—

"On the Resources of Brazil." By Mr. James Heywood.

Seventh Ordinary Meeting, Tuesday, 17th May, 1864.

James Heywood, Esq., M.A., Vice-President, in the Chair.

The following Candidates were elected Fellows of the Society, viz.:—

J. McClelland, Esq. | G. Patmore, Esq.
T. Pain, Esq. | S. Raleigh, Esq.
Rev. A. Hume, LL.D., &c.

The following Papers were read:—

"On the Statistics of Roman Catholics in England." By Mr. W. G. Lamley.

"On the Mortality of Eurasians." By Mr. P. M. Tait.

Eighth Ordinary Meeting, Tuesday, 21st June, 1864.

Colonel W. H. Sykes, M.P., President, in the Chair.

The following Candidate was elected a Fellow of the Society, viz.:—

W. Thomson, Esq.

The following Papers were read:—

"On the Statistics of Aberdeen." By the President.

"On the Statistics of Crime in Russia." By Mr. Michell.

MISCELLANEA.

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I.—Comparative Education in 1862.

UNDER this title Mr. W. L. Sargent recently addressed a letter to the Editor of the Birmingham *Daily Post*. The subject is important, but the accuracy of the test of education by marks in the marriage register was contested, so far as the cotton manufacturing towns of Lancashire were concerned, by the Rev. W. N. Molesworth, of Rochdale, when this topic was under discussion by Section F of the British Association, at Manchester, in 1861, on the ground that from causes which he stated many persons of both sexes who could write tolerably well were led to make their marks on the marriage registers.

"For the first time we are able to ascertain the state of education in our towns; the Registrar-General, in his last report (for 1862), having given the number of signatures and of marks to the marriage registers in every district. Hitherto we have had the information for counties only. I have calculated the percentage for the principal towns.

"I believe these figures to be unusually trustworthy. It is alleged indeed, that some nervous persons sign with a mark although they can write, and that some young women who can write decline to do it when their bridegrooms cannot do the same. But such peculiarities will be found as much in one town as in another, and therefore do not disturb the proportions, nor injure the results for the purpose of comparison.

Arranged according to Excellence. Of 100 Persons Married, there Signed their Names—

	Men and Women together.	Men only.	Women only.		Men and Women together.	Men only.	Women only.
	72	76	67		Leicester	73	81
In England and Wales	89	88	89	Coventry	71	79	63
Cheltenham	89	90	88	Sunderland	71	80	63
Portsmouth	88	95	81	Nottingham	70	78	62
Chester District	86	90	83	Birmingham	69	74	63
London	86	86	87	Manchester	69	82	55
Brighton	86	83	90	Leeds	68	77	59
Preston	86	83	90	Yarmouth	68	69	67
Southampton	86	86	86	Liverpool	67	75	58
Bath	85	85	85	Macclesfield	67	77	57
Derby	80	85	74	Sheffield	66	74	57
York	80	85	75	Gateshead	65	74	57
Bristol	78	83	74	Salford	62	74	49
Hull	76	84	69	Stockport	60	73	46
Newcastle-on-Tyne	75	82	69	Bradford	59	75	43
Norwich	74	79	69	Bolton	56	71	41
Plymouth	74	79	70	Wolverhampton	55	60	49
				Oldham	53	70	36
				Blackburn	52	70	34

"The difference of education among the women is far greater than among the men. The men only vary from 60 in Wolverhampton to 95 in Chester (58 per cent.), while the women vary 160 per cent., viz., from 34 in Blackburn to 90 in Preston, and 89 in Cheltenham.

"The textile districts are worst as to women, Blackburn having only 34, Oldham 36, Bolton 41, Bradford 45; and if we omit Wolverhampton, they are worst as to men also. It is disappointing to find that the Factory Act, which shortens the children's hours of labour, and exacts education, should have done so little. Still it may be asked—What would have been the state of things without the Act?

"It is agreeable to see that the pleasure-seeking places are high, as Cheltenham, Brighton, Bath. Many old historical towns are high, as Portsmouth, London, Preston, Southampton, Derby, York, Bristol, Hull. More modern places, with a fast increasing population, have great difficulties to meet. Churches and schools are not built in advance, but always lag behind, and in the meantime the children are neglected.

"The hardware towns have no Factory Act to compel attendance at school; yet their position is at least as good as that of the Lancashire and Yorkshire towns; for Birmingham equals Manchester, and is just above Leeds; Sheffield is above Salford, Bradford, and others; and even Wolverhampton surpasses Oldham and Blackburn. There is one great difference, however—that in the textile districts the women are strikingly below the men, Blackburn having only 34 women for 70 men, a difference of 36; and even Manchester having only 55 women for 80 men, a difference of 25; whereas, in Birmingham the difference between the sexes is only 9; in Wolverhampton, 11; and in Sheffield, 17.

"Liverpool is higher than we should have expected, remembering its bad condition as to mortality and crime. It has been suggested that the lowest people there—the Irish—have been educated at home under the National System.

"Chester and Portsmouth are singularly high; so is Coventry, as a place employing great numbers of women; and Leicester and Nottingham are in the same category.

"Preston we are accustomed to think of as a mere manufacturing place. We should not, therefore, have anticipated its position near the head of the list; but should have rather looked for it at the other end, near Bradford and Bolton. Preston, however, is an ancient place, recorded as formerly 'the gentlest town in Lancashire,' and has not increased very fast." * * * * *

II.—Post Office Savings Banks.

The subjoined extract from the last report of the Registrar of Friendly Societies in England, affords satisfactory evidence of the favour which the Postal Banks have been looked upon by the public.

"The Post Office Banks continue to progress most satisfactorily. Commencing on the 16th September, 1861, with 301 banks, their number has gradually increased until it has now reached 3,064. These banks are spread over all parts of the United Kingdom, and they are open daily for from six to eight hours, for the transaction of business.

"From their commencement, in September, 1861, these banks have opened accounts with more than 500,000 depositors, and they have closed about 112,000 accounts.

"They have received 2,130,000 deposits, amounting (with interest) to 6,940,000*l.*, and they have repaid 2,452,000*l.* in 460,000 sums.

"Out of nearly 7,000,000*l.* sterling paid into these savings banks, only 1,100,000*l.* has been transferred from the older savings banks, so that it is obvious that the post office banks have created an almost entirely new business, and by the facilities which they have provided for the public in every town and village in the

United Kingdom, they have induced large numbers of people to become depositors who had no opportunity of doing so before the establishment of the postal banks.

"The following document is a remarkable one, exhibiting the enormous amount of business transacted in so short a space of time by these banks; but it is especially remarkable for exhibiting the fact that this gigantic organisation has been established and carried on at a profit, after paying and providing for all its expenses.

"An account of all deposits received and paid under the authority of the Act 24 Vict., cap. 14, during the year ended 31st December, 1863, and of the expenses incurred from the commencement of business, on 16th September, 1861, to 31st December, 1863, together with a statement of the total amount due at the close of the year 1863 to all depositors."

(A.)—Account of all Deposits received and paid from 1st January to 31st December, 1863.

	£		£
Balance brought forward	1,698,302	By repayments from 1st January to 31st December, 1863, viz.:—	
To cash received from depositors from 1st January, to 31st December, 1863	2,649,919		
	4,348,221	Cash paid	1,017,494
		Warrants issued but not cashed at date	8,713
To interest thereon up to 31st December, 1863, computed according to 7th and 8th sections of the above-cited Act, and added to the principal money of the said department....	54,814	Balance due, at the close of the year 1863, to all depositors, inclusive of interest to 31st December, 1863	1,026,207
			3,376,828
	4,403,035		4,423,035

(B.)—Explanation of Balance.

	£
Balance due at the close of the year to all depositors	3,376,828
Moneys remitted to the Commissioners for the Reduction of the National Debt, from 16th September, 1861, to 31st December, 1862	1,634,967
Ditto ditto from 1st January to 31st December, 1863	1,611,945
	3,246,912
Amount transferred from Post Office Savings Banks, and which has been written off the account of Post Office Savings Banks at the National Debt Office, during the period from 16th September, 1861, to 31st December, 1862.	267
Ditto ditto during the year ended 31st December, 1863	1,039
	1,306
Net amount lodged with the Commissioners for the Reduction of the National Debt for investment	3,245,606
Add—	
Interest accruing to depositors up to 31st December, 1863, including the interest which accrued up to the 31st December, 1862	76,826
Balance remaining on 31st December, 1863, to be paid over for investment	54,396
	3,376,828

(C.)—Account of Charges of Management and of Expenses incurred for Post Office Savings Banks, from their Establishment on the 16th September, 1861, to the 31st December, 1863.

Charges and expenses for the period, from 16th September, 1861, to 31st December, 1862	} 20,591
Charges and expenses for the year ended 31st December, 1863	25,401*
	45,992

Since this report was published, a very full return, moved for by Mr. Baines, has been laid before Parliament. This brings the information down to the end of March last. An abstract taken from this paper follows:—

	Number of Depositors' Accounts open on the 31st March, 1861.	Deposits.		Withdrawals.		Amount of Balances remaining at Credit of Depositors' Accounts.
		Number.	Amount.	Number.	Amount.	
England	327,316	1,556,202	5,352,250	315,595	1,652,074	3,700,176
Wales	11,551	65,420	174,325	8,964	53,295	121,029
England and Wales }	338,897	1,621,622	5,526,575	324,559	1,705,369	3,821,205
Islands.....	736	3,797	10,829	579	3,230	7,598
Scotland	18,683	91,386	168,444	16,126	60,512	107,931
Ireland	14,639	78,369	219,926	16,212	89,170	160,756
Total.....	372,955	1,795,174	5,955,774	357,476	1,858,282	4,097,492

III.—Strikes in the Manufacturing Districts.

The history of Strikes continues to be the history of hopeless struggles, engendered of that ignorance of the plainest economic laws which the working classes of this country usually betray when they engage in these wasteful conflicts. The narrative of the recent Staffordshire Strike is written by one of the correspondents of the *Manchester Guardian*, and appeared in that paper upon the 26th October last; and the extracts which follow it have been taken from letters to the *Manchester City Press*, written by Dr. John Watts:—

"Much confusion exists in the minds of many persons as to the cause of this strike. During last winter the trade of South Staffordshire and East Worcestershire in coal and iron improved very rapidly, and the masters at once put up the

* This sum does not include the allowances to postmasters, letter-receivers, and others, for conducting savings bank business during the year ending 31st December, 1863, the rate of remuneration not being finally settled.

prices of their respective commodities. Three advances took place in the price of thick coal, making a total rise of 3s. a ton. Following the usual custom, wages were increased 6d. a-day simultaneously with each rise of 1s. a ton in coal. The first advance took place in September, and the second in October of last year. The third occurred in January of this year, when the price of thick coal stood at 11s. a ton, and wages at 5s. a-day; thin coal 10s. a ton, and wages 3s. 6d. At this level coal and wages stood, until a little beyond the middle of last June, when it was found that the market would no longer bear such high rates, and that iron also must come down. In consequence, notice was given to the workers in thick coal, announcing that their wages would be brought back to the point at which they stood before the rise in January, namely—thick-coal workers, 4s. 6d., and thin-coal workers, 3s. 3d. At the same time the price of thick coal was declared down 1s. and thin coal 1s.—making the former 10s. and the latter 9s. a ton. Simultaneously, also, by the independent action of one firm (Mr. W. O. Foster, M.P.), known by the trading title of John Bradley and Co., finished iron was declared down 1s. a ton; and Mr. Foster was enabled to take this course because certain of the pig makers had also reduced the price of the raw material. It had always been customary for the wages of the miners to follow the direction taken by the prices of finished iron, in the proportions, for the workers in the thick and thin coal respectively, which we have just given.

"It had, however, been the usual practice to reduce at the same time the wages of the puddlers, rollers, and others employed in the making of finished iron, in the proportion of 1s. a ton with every fall of 1s. in finished iron. This practice was not adopted on this occasion. Notice for a reduction in wages was given to the miners, but no notice was given to the ironworkers. This was thought to be the more extraordinary, inasmuch as the proportion between the wages of the ironworkers and the price of iron had recently gone up 1s. a ton in favour of the men. They would now, therefore, be left with an advantage of 2s. a ton, whilst it was proposed that the miners' wages should be kept rigidly within the rule which had long prevailed. At the time high prices were being obtained for coal supplied to the domestic market and to the hardware manufacturers in Birmingham and elsewhere. Further, the men asked why the masters could not as well afford to give 5s. a-day now as in 1818, when coal was, they said, selling at as low a figure as now. It was further maintained that if the masters, while able to afford the loss of the ironworkers' 1s., were not able to afford the additional loss of the colliers' 6d. and 3d. respectively, they ought in strict justice to have spread the reduction of the two smaller sums over both trades, and not to have confined it solely to one, and that the poorer of the two. Complaints were made of hardships to which they were exposed, arising out of the method of getting the coal by charter-masters, locally termed 'butties.' Many of these men keep beer-houses or public-houses and provision shops, and require their men to trade with them. Certain of these practices, it is alleged, are winked at by the masters. All these circumstances were discussed at the different Union lodges of the men, and the thick-coal workers resolved that they would not consent to the new terms which their masters proposed.

"On the 4th of July, just six years after they came out at the last general strike in 1858, the fortnight's notice that the masters had given them was up, and the thick-coal men all turned out. For a time they were joined by the working engineers and by the men employed at the blast furnaces in the making of pig iron, but these, after a short struggle, gave up the contest, and resumed on the reduced terms, which were a reduction of 10 per cent. The thin-coal workers in the Bilton and Wolverhampton districts did not at first join the movement, for they accepted the reduction and were at work, when, by repeated entreaties on the part of the thick-coal men, they too were induced to come out, some of them without giving notice. This naturally led to magisterial proceedings, and the thin-coal men ultimately all went in, and gave notice. On the expiration of that notice they all came out; but they did not remain out more than a week, and three-fourths of them are now at work on masters' terms. There are, however, many thin-coal men in the Brierley Hill district who remain on strike. It will therefore be seen, that the thick-coal men were the

first to object to the terms which the masters offered; and the objection became most powerfully displayed among the men who were employed in the domestic trade at West Bromwich, and in the general trade about Dudley and Tipton. In the two latter districts the chief employer is the Earl of Dudley. Other masters took a similar course; and, seeing that the men intended to stoutly contest the point, they began at once to make arrangements for getting supplies of coal, for carrying on the pig iron and the finished iron works respectively, from other districts. Lancashire, Derbyshire, North Staffordshire, and North and South Wales were at once applied to. The application met with a ready response, and so great was the demand that every description of wagon had to be used in which to bring the coal from those districts. The railway companies were ready to run as many special trains as the ordinary traffic would allow, and soon the enormous quantity of 10,000 tons of coal were being brought into Staffordshire every day. The Strike Committee attempted to cut off the supplies by sending delegates into the districts we have named, with a view to induce the colliers to refuse to get coal to be used in an attempt to defeat the men in Staffordshire. But the attempt was unsuccessful. The colliers at a distance did not believe that they had a right to dictate to their masters as to what market they should send their coal to, but were ready to contribute to the support of their brethren on strike. Simultaneously with this refusal on the part of the colliers at a distance, there were evidences at home of a want of unanimity. Men who felt that their masters would ultimately win the day returned to work in small numbers throughout the whole of the district. There were 30,000 out when the strike was at its height in the middle of September, but that number had fallen to about 18,000 in the middle of this month. To prevent these from going to work, morning meetings, at between four and five o'clock, were determined upon, and thence detachments moved off in different directions, headed by drums and whistles. Wherever men were met on the road going to work they were sure to be prevented from going down that day. Usually it did not require much persuasion to bring about such a result, but when that failed other means of a less agreeable character were resorted to, and when men succeeded in getting to work unobserved, they were met as they returned, and assailed with the usual epithets of 'black-leg,' and the like, the presence of the police as their guard notwithstanding. A few of the more desperate resorted, for the first time in the history of a colliers' strike in Staffordshire, to the throwing of rough hand grenades into the houses of a few of the men who had gone to work. As the threats became more and more vehement, the police had to interfere at the morning meetings, and such gatherings are now prohibited. As a result, the number of men who are going in is increasing, encouraged as they are by the presence of two troops of Lancers in the district; who, headed by the Lord Lieutenant of the county, and by the stipendiary magistrate for South Staffordshire, made a second circuit of the leading roads round Dudley and Kingswinford yesterday morning, when a serious attack had been threatened upon some of the pitmen who have resumed work. The determination of the masters to defeat this combination is shown in the fact, that where they have to carry on their works with coal brought from a distance, they are paying between 4s. 6d. and 5s. more per ton than for the coal of their own district. This is brought about not so much by the difference in the price per ton, as in the difference in the weight at which the coal of both districts is respectively sold. In South Staffordshire the coal is sold in 'boats long weight,' and boats that are gauged to hold 22 tons not unfrequently carry from 24 to 29 tons, yet the buyer pays for only 22 tons. Nor is the 'butty' or the colliery proprietor paid for more; and, notwithstanding the flagrant injustice of this practice, no stand has yet been made against it by the colliery proprietors as a class. All the coal brought by railway is bought 'short weight.' The great extra cost of making iron in South Staffordshire which results from using the coal of other districts will be seen more clearly when we state that, at the lowest computation, 2½ tons of coal are required to make 1 ton of pig iron, and another 2½ tons to convert that pig-iron into finished iron. Many of the ironmasters are, however, getting some little coal from their own district, and so are reducing the serious difference which would otherwise exist."

The following extracts have been taken from the *Manchester City Press*, to which a series of letters has been recently addressed by Dr. John Watts, under the title of "Trades' Unions and Strikes." That gentleman has sedulously laboured for some years to expose the ruinous proceedings followed by working men in the manufacturing districts to enforce their own views upon the masters in trade disputes; and everything which comes from his pen upon these topics is well deserving of attention.

The first illustration of the wastefulness of strikes, which Dr. Watts brings forward in his recent letters, is that at the building of the new prison, Manchester. It arose out of an alleged infringement of trade regulations on the part of the master's foreman:—

"The dispute commenced on the 11th of April, and on the 18th of June the bricklayers' society issued an advertisement to justify its own proceedings, and expressed a hope that their explanation would 'bespeak public sympathy and support.' The explanation of the bricklayers ends thus: 'While condemning every act of despotism or unwarrantable tyranny on the part either of employers or employés (friends or foes), we are yet determined to exhaust our every resource and unquestionable power in order to achieve the legitimate objects of our organisation, and preserve intact the true interests and privileges of our members, which are the indisputable interests of the working men of England.' Not being in possession of the rules of the bricklayers' society, we cannot, of course, say whether its objects are legitimate, but if the rules sanction the present proceedings, we have no hesitation in saying that they are very contrary to the interests of working men.

"In this case there have been only two matters in dispute—the question whether the employer, who engages and pays the labourers, shall assign their places at the work, and whether bricks shall be carried on men's shoulders or wheeled in barrows; and these two questions, as it seems to us, resolve themselves into one, and that one whether, by keeping up a full supply of material and by keen oversight, it is possible to get a little more than ordinary work per day accomplished."

The following is Dr. Watts' account of the pecuniary sacrifice which the men inflicted upon themselves by this strike:—

	£ s. d.
14 bricklayers have been out of employ for 13 weeks, whose wages } would amount, at 33s. per week, to	300 6 -
16 labourers, at 21s.	218 8 -
59 joiners, at 28s. for 7 weeks	573 4 -
And they have been supported at an expense to their various } societies of not less than	300 - -
 Total	 1,391 18 -

"They have cost the contractor a large sum in loss of time, and much more to supply their places; and now they have to go and seek work elsewhere, thus doubling the expense at which their places have been supplied. A reasonable estimate of the money loss makes it not less than 1,800l."

The "Leeds and Low Moor Lock-out" occurred in the iron trade; upon the fiscal loss of this struggle Dr. Watts remarks:—

"Now, let us direct attention to the pecuniary costs of this struggle, which has lasted twelve weeks. We are told that the persons engaged at Low Moor were 750, at Bowring 350, and at each of the other three places upwards of 150 each, making a gross total of 1,560. We are also told that hammermen earn from 2l. to 3l. per

week, and their labourers from 8s. to 16s. each; that puddlers earn from 30s. to 50s., and middle hands 18s., and boys from 7s. to 8s. each; that rolling mill men earn from 30s. to 80s. each per week. We are told that the Bowring men averaged from 56s. to 58s. each per week all round, and youths about 12s. The balance-sheet issued by the workmen up to 25th June states 936 men as then in receipt of relief. Let us assume the average wages at 28s., and we shall get the following result:—

£ s. d.
936 men, at 28s. per week for 12 weeks.....
Contributions from unions and the public to June 25th.....
Allow same proportion to July 16th.....
 Workmen's loss up to date, being 2,063l. 6s. per week
Loss to employers, assuming capital at 150l. per man, at 20 per cent. per annum, one fourth of a year to date
Loss to shopkeepers on 15,764l. 16s. at 20 per cent gross
Ditto on three-fourths of proprietors' profits
 Total immediate loss to society (being 3,016l. per week so long as the strike lasts)

Add to this the loss to the future employment fund, being one-fourth of proprietors' profits (1,800l.), which is equal to the employment of 12 men for ever, and would pay 28s. per week wages each, which sum, capitalised at twenty years' purchase, is 17,472l. further loss to the workmen. The same process applied to one-fourth of shopkeepers' profits (which, if saved, would also increase the future employment fund), gives for result 10,192l., making a total future loss of 27,664l. Or, put in another form, the proportion of lost profits which must have gone to the future employment fund is, in twelve weeks, equal to the permanent employment of nineteen men; and therefore every week of the strike lessens the demand for workmen by one seven-twelfths for ever. We need not pursue the calculation further. We know it is much below the mark, but the above loss is surely sufficient to put to the debit of John Marshall (the man whose folly caused the strike), who we see is not much less important than his namesake's (the great flax spinners of Leeds), although his results occupy a different side of the ledger, and people will not bless him for his work.

"But the serious man will not rest here; but will follow out the consequences to the colliers and iron-miners thrown idle by the lessened demand for their labour; and to the consequent reductions in wages and the strikes in those departments; and to the lessened demand for all textile fabrics to clothe the people thus thrown idle, until he will get an exemplification of the fact that any act, whether good or evil, exercises an influence wide as the world, and long as time. And if these men leave the country, the public loss goes on until another set of men have completed their education at the iron manufacture, and can efficiently supply the vacated places. If we had any influence with the employers we would beg of them to withdraw the 'hated declaration,' and to trust to other arguments to reform the workmen's trade societies; and, in the meantime, we beg to assure them that, whatever other success they may achieve, they will not get what they now aim at, however long the contest lasts."

With regard to the great lock-out of the Yorkshire colliers, Dr. Watts has furnished particulars of the men's loss in wages in detail. Thus:—

* This strike lasted about 18 weeks, and therefore cost nearly 50 per cent. more than the total above named.

Losses by the Colliers' Strike and Lock-out.

Workmen's Losses.

	£	s.	d.	£	s.	d.
504 men, 23 weeks, at 2s. per week	12,751	4	-			
223 youths, 23 weeks, at 9s. per week	2,308	1	-			
2,736 men, 18 weeks, at 2s. per week	54,172	16	-			
1,210 youths, 18 weeks, at 9s. per week	9,801	-	-			
			-	79,033	1	-

Subscriptions—Societies and Public.

504 men, 23 weeks, at 5s. per week	2,898	-	-
2,736 men, 18 weeks, at 5s. per week	12,312	-	-
			-
	15,210	-	-

Employers' Losses.

Capital, at 100 <i>l.</i> per workman, 394,600 <i>l.</i> , 18 weeks, at 15 per cent. per annum	20,488	16	9
72,700 <i>l.</i> , at 5 per cent. per annum	1,848	11	1
Rent and other payments out of capital, say 19 weeks, at 5 per cent. per annum	7,209	-	9
		28,746	8

Shopkeepers' Losses.

On workmen's wages, at 15 per cent. gross	11,855	-	-
On three-quarters of employers' lost profits	2,422	19	-
		14,277	19

Public Loss by Artificial Price of Coals.

272 getters, at 15 tons each per week, 23 weeks, being 93,840 tons, say at 3 <i>d.</i> per ton	1,092	-	-
1,480 getters, 18 weeks, 399,600 tons, at 3 <i>d.</i> per ton	4,995	-	-
		6,087	-
	143,354	8	7

"The above figures may admit of some modification, but not to lessen the total. They are based on Mr. J. Holmes' paper on the Yorkshire Strike and Lock-out, read at the Social Science Meeting, 1859; the numbers of men being increased in accordance with the increased trade, as shown in the reports of the colliery inspector. We have assumed the wages of men 2*s.* and of youths 1*s.* per week less than given by Mr. Holmes, and have taken his proportions of men and youths employed. We applied to the workmen for facts, but learned through a friend that they were too busy finding food for hungry women and children to attend to the collection of statistics. Now that the lock-out has terminated, and left them only the workpeople of the Oaks and High Royd collieries to provide for, probably a commentary on our statement will enable us to test its accuracy; meanwhile it will illustrate our principle. Society has lost 143,000*l.* experimenting on the possibility of securing 10 per cent. more out of the results of combined capital and labour to the workmen. Nineteen weeks' wages and profits are gone in the attempt to get one-tenth more per week! Three years and forty-four weeks to work at the improved rate, if it had been secured, before there would have been a single penny gained! Where will hundreds of those workmen be before that time has elapsed? How many changes will have occurred to alter the state of the labour market and the rate of wages before that time? Wages were altered in 1853, and again in 1854, in the district of the lock-out. They then rested until 1858, when an attempted reduction of 15 per cent. produced a strike, which lasted from 3rd April till 7th October, and a lock-out from that time till the end of November. There was a six weeks' strike in the Methley district in 1862, and a lock-out of sixteen weeks, affect-

ing about 1,500 men and youths, from June to November, 1863, followed by the present lock-out and strike of 23 weeks. Four general modifications of wages in eleven years, or one alteration in every two years and nine months on an average. Is it not clear that if the present strike had been won instead of lost, even winning would have been losing? If the future compares with the past, there would be another alteration above a year before the raised wages would make up the loss, without any reckoning for interest. But the battle is lost. The Oaks and High Royd pits are filled sufficiently for the present purposes of the employers, and the net immediate results to the workmen are 79,000*l.* lost wages, 23 men and one woman in prison, and some hundreds of men left to wander the country in search of employment; wives and children are in rags; the shop scores will necessitate dearer goods for years to come, and in many cases death alone will pay the debts; whilst half a year of schooling in the streets will have done irremediable evil to the children. We do not expatiate on the losses of the masters, for capital can take care of itself; but we say boldly that this game of social warfare is a hazard which the workman cannot afford to play, for the odds are fearfully against him. First, he loses his present wages, and is reduced from independence to beggary, and thus loses his character also; then he injures his employers and the tradesmen with whom he deals, and these injuries return again upon himself. In this struggle, the employers and shopkeepers have lost 43,024*l.* Now, apart from this lock-out, it is probable that one-fourth of this amount would have been saved and added to the permanent working capital of the country, and in that case, at 100*l.* per man, would either have called into employment 94 additional workmen, or would have increased the competition amongst the employers for existing men, and thus have given a fair chance for a rise of wages. So that beyond the present loss to the workmen, the demand for 'hands' is less by 94 now and for ever than it would have been if the strike had not occurred."

Dr. Watts concludes the statistical portion of his labours with an account of the strike at the Durham Collieries in 1863-64, followed by a compendious summary of the losses entailed in this and the other conflicts which he has recently criticised.

Hunwick, West Hartlepool.—"One third of the men at this pit were thrown out by a rise in the floor of the pit, and refused to work in relays with the others, except at an extra price of 2*d.* per ton (afterwards reduced to 1*d.* per ton); they were offered 6*d.* per score (about three farthings per ton), but declined it. Fresh places were found for them at old prices, and they still refused to work because two men who had formed a delegation to the manager had been discharged. These two found work elsewhere, and after ten days' idleness, and the loss of some 30*s.* per man, they returned to work."

*Staffordshire Colliers.**—"On 23rd May about 1,500 colliers near Wolverhampton struck against a reduction of 3*d.* per day (about 7*1/2* per cent.), and we believe

* This strike increased in proportions to about 10,000 men, and lasted about four months, when they returned to work on the masters' terms.

Let us assume 10 weeks for the whole number. Then—

6,932 men, at 2 <i>s.</i> per week, for ten weeks	76,252
3,068 youths, at 9 <i>s.</i> " "	13,806
Employers' loss, 100 <i>l.</i> per man, eight weeks, at 15 per cent.	23,076
Shopkeepers' losses on wages and three-fourths profits, 15 per cent.	16,104
	129,238

without reckoning for subscriptions to the men or loss to the public by extra price of coal.

they still remain out. If the strike was settled in favour of the men to-day, they would have to work 120 weeks to replace their present loss; but as the principal demand for coal is for the manufacture of iron, which is 10s. per ton lower than in January last, and in which trade there is also a pending strike against reduction, the chance for success is small indeed."

Wolverhampton Builders.—"On 20th June, the bricklayers' labourers were locked out on a demand for a rise of 2s. per week, and as the bricklayers refused to work with non-society labourers, they also came to a stand. We have not heard of any termination of the strike, and assuming the total number of men at 500, in a population of upwards of 100,000, and the average wages at 22s. each per week, the loss to society up to date will be 5,270l.

"Besides the strikes and lock-outs dealt with in our former articles and those above enumerated, there have been during the first seven months of this year strikes of the joiners at Liverpool and Huddersfield, the bricklayers at Stockton, the iron-moulders at Stockport, the wheelwrights and blacksmiths at Oldham, and of weavers at one or two mills at Blackburn. Of these we have not learned particulars, except of the joiners' strike at Huddersfield, which, tested by results, seems to have been the most sensible of all; for we are told that 140 men have left the town and got work elsewhere, leaving only ten men chargeable on the funds. The strike was for a reduction in the hours of labour from 58*1*/*2* to 52*1*/*2* per week, a little over ten per cent. in time, which is equal to 10 per cent. rise in money, so far as the employers are concerned. Now, if the 140 men who have left Huddersfield have gone direct into employment elsewhere on the improved terms, they have practically secured their object without a strike, and thereby proved the reasonableness of the demand. The element of folly is reduced to the ten men who remain chargeable, and who ought either to have followed the example of the 140, or to have remained at work at home. The difference in the effect upon the employers between the loss of 140 and 150 men would have been inappreciable, and the wages of ten men and the society's contribution would have been saved. We propose now to sum up the debit of seven months, so far as it has come under our observation, and we direct attention to the following table, which is modelled upon the plan illustrated and explained in previous articles:—

Manchester New Prison.

To the attempt to settle which labourer should head the procession, and whether bricks should be carried or wheeled	£	s.	d.
(To which sum add the capital necessary to employ 1 <i>1</i> / <i>2</i> men and their increase for ever.)	1,800	—	—

Leeds and Low Moor Lock-out.

To pay for the zeal of John Marshall in hunting up grievances....	36,192	11	6
(And the employment for 12 men and their increase for ever.)			

The South Yorkshire Colliers.

To a failing attempt to get 10 per cent. rise in wages	143,349	—	—
(And the employment for 94 men and their increase for ever.)			

The Durham Colliers.

To the strike against "big filling and rocking" of tubs	50,860	10	—
(And the employment for 33 men and their increase for ever.)			

North Stafford Colliers and Ironstone Getters.

	£	s.	d.
To resistance to reduction and demand for increase of 12 <i>1</i> / <i>2</i> per cent. payment on account.....	15,488	—	—
(And the employment for 11 men and their increase for ever.)			

Northop Hall Colliers.

To the gain of 12 <i>1</i> / <i>2</i> per cent. in wages.....	3,059	7	—
(And the employment for 2 <i>1</i> / <i>2</i> men and their increase for ever.)			

Newcastle Painters.

To a lost strike for 12 <i>1</i> / <i>2</i> per cent. rise	3,212	—	—
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South Staffordshire Colliers.

To resistance to 7 <i>1</i> / <i>2</i> per cent. reduction, payment on account	52,746	13	—
(And the employment for 17 men and their increase for ever.)			

Wolverhampton Bricklayers and Labourers.

	£	s.	d.
To a strike for 11 per cent. rise to the bricklayers' labourers, payment on account	5,270	5	—
(And the employment for 4 <i>1</i> / <i>2</i> men and their increase for ever.)			
<hr/>			
	284,978	6	—

"In round numbers, society has lost, from causes immediately within view, 285,000l. in seven months, and the future demand for labour is lessened by 175 men and their natural increase for ever, in these foolish disputes about the proportion in which the results of the application of labour and capital shall be divided.

"If the above picture be not attractive enough for working men, let us try another. The struggles alluded to in our former articles have involved 10,478 men and youths for an average of fifteen weeks, and have cost the nation directly 285,000l. One-half of this sum would have been paid in wages if the men had remained at work. Now, suppose it had been possible for the men to have continued at work—to have made the same sacrifices for economy which they have made to the folly of strikes—then these 10,478 workmen would, in fifteen weeks, have accumulated a fund which, at 100l. per head, would have given permanent employment at average wages to 1,425 men; and assuming profits to average 15 per cent., would have given them also 21,375 per annum in addition to their wages; or enough to add 214 men annually to the list of those who would thus have become their own employers. And this is the proper view for working men to take of the cost of a strike; ten thousand five hundred men in fifteen weeks voluntarily and recklessly throw away the independence of 1,425 men at once, together with the addition of 214 men annually for ever, simply because they are not pleased with their masters. And yet they imagine it possible to snatch an advantage thereby. It is a frenzy equalled only by that of the victim who throws himself under the car of Juggernaut to be crushed to death to please God, but is without the excuse arising from religious frenzy, and without a shadow of advantage in any way."

IV.—*The Cost of the Cotton Famine in Relief to the Poor.*

The *Manchester Guardian* has very recently shown, from documents published by the Central Relief Committee, the extraordinary expenditure for maintaining the operatives and their families during two and a half years of the distress. The principal portion of that article is here reprinted:—

"Mr. Maclure has performed a public service by issuing a very complete statement of the sums expended from the poor rates and from public subscriptions, in the cotton manufacturing districts, during the four parochial years ending at Lady-day last. We can now give something like a satisfactory answer to the question so often asked—What has been the entire cost of supporting the operatives in Lancashire through the famine? At least, for two years and a half, or so, of the distress. Beyond the in-maintenance and out-door relief administered by the guardians, Mr. Maclure informs us that there are other charges which go to make up the sum termed in the official accounts 'relief to the poor,' such as the maintenance of paupers in lunatic asylums; repayment of workhouse loan, salaries of officers, and other purposes immediately connected with relief. Remembering this, the whole charitable expenditure during the four years can be shown thus, for the twenty-eight distressed unions:—

Year ended Lady-day.	Total Expenditure. £
1861—Relief to the poor.....	313,135
'62 " 	355,160
'63 " 	£823,788
Expended by local committees	809,167
	— 1,632,955
1864—Relief to the poor.....	758,980
" committees.....	563,287
	— 1,322,267

The figures tell us that the maximum distress was attained in the parochial year 1863, which exceeded the following year, comparing the expenditure from both sources, by 310,000*l.*

A more precise measure of the distress is obtained by using the figures which represent the cost of *personal* relief, i.e., of supporting the poor in the workhouse, or in assisting them at their own abodes, because these charges fluctuate directly with the number of recipients. This *personal* relief, so to speak, and the sums distributed to the poor by the local relief committees, Mr. Maclure has exhibited in his fifth table for each union. With respect to fiscal pressure, the unions fall conveniently into three sections:—Two, Ashton-under-Lyne and Glossop, forming the first and most burdened; seven, Preston, Blackburn, Stockport, Haslingden, Oldham, Rochdale, and Burnley, constituting the second; and the remaining nineteen the third and least burdened section. On this principle the following table has been compiled. The year 1861, being entirely free of the cotton famine, is taken as a standard or average year; 1862 follows; the distress raised the guardians' expenditure 40,000*l.* over 1861; in 1863 and 1864 the relief committees were in operation, and the excess of those years, 1,288,000*l.* and 950,000*l.* is supplied from the rates and from private charity; the total excess for the three years being no less than 2,277,000*l.*

	Expended for In and Out-door Relief. 1861.	Excess of Expenditure over the Amount of 1861.			
		1862.	1863.	1864.	Total.
<i>First Section of Unions:</i>					
Ashton-under-Lyne.....	6,311	2,089	194,487	174,240	370,816
Glossop.....	1,089	350	28,211	43,180	71,741
<i>Second Section of Unions:</i>					
Preston.....	12,312	7,277	129,221	102,937	239,435
Blackburn.....	9,247	4,578	107,244	58,456	170,278
Stockport.....	6,655	2,355	93,128	67,626	163,109
Haslingden.....	3,627	555	46,907	24,449	71,911
Oldham.....	7,976	1,238	67,155	47,867	116,260
Rochdale.....	8,674	1,439	76,851	48,492	126,782
Burnley.....	6,149	751	46,024	15,910	62,985
<i>Third Section of Unions:</i>					
Manchester.....	28,878	8,871	164,582	84,808	258,261
Wigan.....	9,146	561	49,188	41,878	91,627
Todmorden.....	3,417	170	15,614	9,186	24,970
Chorley.....	4,414	793	22,584	14,656	38,033
Salford.....	9,057	1,882	44,386	31,709	77,977
Warrington.....	5,861	736	4,612	2,896	8,214
Bury.....	8,351	990	41,535	53,619	96,153
Chorlton.....	11,142	602	58,536	59,746	118,882
Bolton.....	12,198	1,416	32,952	29,487	63,855
Macclesfield.....	8,197	1,828	15,943	8,455	26,226
Saddleworth.....	1,382	140	4,159	5,331	9,630
Barton-upon-Irwell.....	3,411	215	9,792	3,645	18,652
Clitheroe.....	2,799	173*	5,186	2,095	7,281
Prestwich.....	2,210	465	12,924	9,029	22,418
Skipton.....	6,503	534	5,138	1,845	7,517
Leigh.....	3,216	245	4,942	3,110	8,297
Lancaster.....	3,354	30*	3,146	1,998	5,144
Garstang.....	2,850	140	1,169	1,126	2,435
The Fylde.....	3,230	197	1,981	1,768	3,946

* Less.

Note.—In 1863 and 1864, the local committees' expenditure is added to the maintenance and out-door relief by the guardians.

"Mr. Maclure has computed for the first four tables of his report the rate in the pound of the guardians' expenditure on in-door and out-door relief, and in addition for 1863 and 1864 the rate, upon the same basis (the parochial assessments of 1861), of the expenditure of the local relief committees. By this method we ascertain the pressure which has been removed from the ratepayers by the public subscriptions, on the supposition that the whole sum could have been raised from the rates.

"In the subjoined list the unions are placed according to the rate attained in the maximum year 1863. In two unions the rate exceeded 10*s.* in the pound; in nine it ranged between 5*s.* and 10*s.*; and in nineteen under 5*s.*; the lowest being only 1*10d.* The assessment of each union is set out in Mr. Maclure's report with a total of 6,030,000*l.* We believe this amount is by no means exaggerated. In some of

the new valuations we observe the sums are over those here given. For example, the Fylde union is 24,000*l.*, and the Warrington union 26,000*l.* beyond the figures upon which Mr. MacLure's ratios are calculated. Though 1862 felt the insipient calamity of the cotton famine, it was not sufficiently marked to destroy it as a standard year, for which purpose it is employed in the next table.

Rate in the Pound of Guardians' Expenditure for In and Out-door Relief, and of Local Committees' Disbursements.

	1862.		1863.		1864.	
	s.	d.	s.	d.	s.	d.
<i>Two Unions over 10<i>s.</i> in the pound:</i>						
Ashton-under-Lyne	12	10 <i>½</i>	11	6		
Glossop	10	9 <i>½</i>	16	7		
<i>Seven Unions over 5<i>s.</i> and under 10<i>s.</i> in the pound:</i>						
Preston	8	6 <i>½</i>	6	11 <i>½</i>		
Blackburn	8	6 <i>½</i>	4	11 <i>½</i>		
Stockport	8	1 <i>½</i>	6	1 <i>½</i>		
Haslingden	7	—	3	10 <i>½</i>		
Oldham	6	7 <i>½</i>	4	11 <i>½</i>		
Rochdale	5	11 <i>½</i>	4	6 <i>½</i>		
Burnley	5	7 <i>½</i>	2	4 <i>½</i>		
<i>Nineteen Unions under 5<i>s.</i> in the pound:</i>						
Manchester	11 <i>½</i>	4 10 <i>½</i>	2	9 <i>½</i>		
Wigan	8 <i>½</i>	4 5 <i>½</i>	3	10		
Todmorden	9 <i>½</i>	4 3	2	9 <i>½</i>		
Chorley	8 <i>½</i>	3 7 <i>½</i>	2	6 <i>½</i>		
Salford	7 <i>½</i>	3 4 <i>½</i>	2	4 <i>½</i>		
Warrington	10 <i>½</i>	3 2 <i>½</i>	1	2		
Bury	6 <i>½</i>	3 1 <i>½</i>	3	9		
Chorlton	8 <i>½</i>	2 11 <i>½</i>	2	11 <i>½</i>		
Bolton	9 <i>½</i>	2 6	2	4 <i>½</i>		
Macclesfield	1 <i>½</i>	2 5 <i>½</i>	1	8 <i>½</i>		
Saddleworth	6 <i>½</i>	2 4	2	5 <i>½</i>		
Barton-upon-Irwell	6 <i>½</i>	1 11 <i>½</i>	1	2 <i>½</i>		
Clitheroe	6 <i>½</i>	1 8 <i>½</i>	1	1 <i>½</i>		
Prestwich	3 <i>½</i>	1 7 <i>½</i>	1	2 <i>½</i>		
Skipton	—	1 7 <i>½</i>	1	2		
Leigh	7 <i>½</i>	1 6 <i>½</i>	1	2		
Lancaster	7 <i>½</i>	1 2 <i>½</i>	1	—		
Garstang	8 <i>½</i>	1 2 <i>½</i>	—	11 <i>½</i>		
The Fylde	7	— 10 <i>½</i>	—	9 <i>½</i>		

"The expenditure of 1862 was entirely defrayed by the rates, and that of 1863 and 1864 by the local relief committees as well as the rates. Looking to the rates in the pound during the two famine years in separate unions, we notice that the *proportionate* alleviation to the ratepayer greatly varies. In the eight unions named below the proportion obtained from voluntary funds exceeds one-half in all cases, and in some approaches two-thirds of the full rate, taken upon an average of the two years.

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The Average Rate in the Pound for In-door and Out-door Relief, and for the Local Committees' Disbursements in 1863 and 1864.

		Average Rate in the Pound from both sources.		Whereof was the Rate in the Pound of Voluntary Disbursements.	
		s.	d.	s.	d.
Glossop	13	8 <i>½</i>		8	8 <i>½</i>
Ashton-under-Lyne	12	2 <i>½</i>		8	— <i>½</i>
Stockport	7	1 <i>½</i>		5	— <i>½</i>
Blackburn	6	0		4	2 <i>½</i>
Preston	7	9		3	11
Oldham	5	9 <i>½</i>		3	5 <i>½</i>
Haslingden	5	5 <i>½</i>		3	2
Wigan	4	1 <i>½</i>		2	7 <i>½</i>

"The rate in the pound for the 'relief of the poor,' which is administered by the boards of guardians during the famine, is thus given for each year:—

			Excess over the Rate of 1861.	
			s.	d.
1861	1	— <i>½</i>	—	
'62	1	2 <i>½</i>	—	1 <i>½</i>
'63	2	9 <i>½</i>	1	9 <i>½</i>
'64	2	6 <i>½</i>	1	5 <i>½</i>

"Under this aspect, the rates over the whole district were 175 per cent. higher in 1863, and 150 per cent. in 1864, than in 1861. These measure the increased liabilities of the ratepayers arising from the distress."

* * * * *

"The excess for the half-year ended at Michaelmas last is estimated at 300,000*l.*; this, added to the sums for which there are actual returns, makes, in the words of the report, 'a total excess of expenditure of 2,577,372*l.* in the three years and six months during which the present exceptional state of distress has continued.' Besides this, it is stated upon estimate, 'that no less a sum than 220,000*l.* was locally distributed in private charity, beyond the large amount voluntarily remitted by manufacturers and property owners for cottage rents.' We may, therefore, consider that up to the present time the support of the poor thrown by the American war upon charity for their daily maintenance has caused an outlay of *three millions sterling.*"

* * * * *

In connexion with the expenditure for the support of the distressed during the cotton famine, the state of the Savings Banks accounts of Lancashire may be examined:—

Year ended 20th November	Number of Depositors.	Amount Due to Depositors at the end of each Year.
1860.....	142,894	£ 4,084,772
'61.....	142,730	4,125,151
'62.....	133,931	3,852,023
'63.....	134,701	3,842,891

But in comparing the two last years with the two first, the operations of the Post Office Savings Banks must not be overlooked. These are the figures with respect to Lancashire :—

Years ended 31st March.	Number of Depositors.	Amount Due to Depositors at the end of each Year.
1863.....	17,291	£ 125,602
'64.....	22,731	193,226

If these amounts be added to the sums in the old banks in 1862-63, it will be found that those years were only on the average, below 1860-61 by 98,100*l.* each.

The twenty-eight cotton manufacturing unions contained at the Census of 1861, a population of 2,060,000 souls. The highest degree of pauperism was reached in the first week of December, 1862, when the total number of persons relieved from the poor's rate was 274,860. But the *maximum* of both classes of recipients, that is to say, those who were relieved from the subscriptions as well as from the rates, was not attained till three or four weeks subsequently, when the total, according to Mr. Maclure's Monthly Report, was 468,610.

From the most recent statement laid before the Central Relief Committee of Manchester, the succeeding table has been abstracted :—

	Number Relieved by Guardians (Out-door) only.	Number Relieved by both Guardians and Local Committees.	Number Relieved by Local Committees only.	Number Relieved by Guardians (In-door) only.	Total Number Relieved.
1863					
January.....	82,156	138,889	235,741	11,824	468,610*
1864					
January.....	90,730	22,965	69,657	12,764	196,116
February	89,975	40,431	73,238	12,604	216,248
March	80,387	37,288	61,177	11,849	193,701
April	70,062	28,837	49,730	11,086	159,715
May	63,646	19,992	29,980	10,641	124,459
June	61,648	16,495	22,718	10,485	111,346
July	55,865	13,522	16,523	10,385	96,295
August	56,625	11,808	14,630	10,298	93,361
September.....	61,083	14,475	16,821	10,623	103,002
October.....	75,538	19,299	41,431	11,558	147,826
November.....	79,562	17,335	53,026	12,067	161,990

* Maximum number relieved during the distress.

The distress showed itself early in 1862, and by Easter of that year had assumed very serious dimensions. Four or five of these unions are not in Lancashire ; the principal one is Stockport. The cotton factory statistics of Lancashire and Cheshire which follow, have been compiled from a return prepared for Parliament by the inspectors of factories. It relates to the spring of 1861 :—

Cotton Factories.	Number.	Number of Spindles.	Number of Power Looms.	Amount of Moving Power.	Total Numbers Employed.
Employed in spinning	853	12,599,751	—	86,605	91,210
, weaving	590	—	119,605	14,573	58,289
" spinning and weaving	621	12,303,691	219,671	139,205	200,266
Other factories	127	—	—	2,335	6,731
Total	2,191	21,903,615	1,339,276	242,718	356,496

During the latter part of the distress, Mr. Maclure has collected returns of the state of employment in the mills ; the results, from July, 1863, to the present time, are given below :—

	Full Work.	Short Time.	Out of Work.*
1863			
July.....	235,827	121,718	178,205
August	242,446	118,900	171,535
September	267,962	104,198	160,835
October	266,401	106,857	154,219
November	248,824	116,615	159,117
December	238,278	116,412	149,038
1864			
January	210,739	125,856	158,653
July	292,448	67,660	101,568
August	299,229	59,074	102,090
September	212,520	102,017	135,821
October	155,170	125,296	171,568
November	210,554	91,084	153,295

* A large number of these persons are earning considerable, though irregular, wages from out-door and various casual occupations.

In ordinary times the burden of pauperism in the cotton manufacturing district is very light ; the usual amount may be taken as 50,000. The number of in-door and out-door paupers on the 1st January, 1861, when the mills were at full work, was 49,156.

In his last report to the Central Relief Committee, Mr. Maclure has shown the ratio of distressed persons, *i.e.*, those relieved by the guardians or by the local relief committees, or by both, for November, 1864 and 1861. The first column of ratios exhibits the proportion of recipients from both sources on the population of the respective unions ; the second column that of paupers only, as no other than the ordinary indigence of the district

had to be provided for in 1861. At the present time the distress has shrunk generally to one-third of its maximum amount.

Unions, &c.	Percentage of Distress in November, 1861.	Percentage of Pauperism in November, 1861.	Unions, &c.	Percentage of Distress in November, 1861.	Percentage of Pauperism in November, 1861.
Ashton	15.3	1.4	Leigh	2.7	1.9
Barton	3.1	1.7	Macclesfield	2.5	3.5
Blackburn	8.3	3.4	Manchester	4.9	2.5
Bolton	5.0	2.4	Oldham	8.2	1.5
Burnley	8.0	1.9	Preston	11.0	4.3
Bury	14.0	1.8	Prestwich	1.0	2.9
Chorley	5.9	3.2	Rochdale	6.8	2.2
Chorlton	3.4	1.2	Saddleworth	5.3	1.3
Clitheroe	5.5	3.05	Salford	3.4	2.4
The Fylde	3.0	2.5	Skipton	6.1	6.7
Garstang	6.5	4.6	Stockport	9.1	1.8
Glossop	15.4	1.44	Todmorden	9.1	2.7
Haslingden	10.2	1.4	Warrington	3.3	2.6
Lancaster	3.8	3.8	Wigan	6.2	2.5

Those who had watched the police returns of Lancashire, during the pressure of the cotton famine, must have been gratified, though not surprised, by Mr. Justice Blackburn's remarks at the Manchester assizes.*

In his charge to the grand jury, he observed that—

"The charges which would be brought before the grand jury were certainly lighter in number and quality than he expected they would be. There was one other circumstance he might mention, as it had given him very great pleasure, and he was sure it would be a matter that the grand jury would be glad to hear. The factory operatives of this district had for a considerable time been placed under circumstances of great distress and privation. So far as he had observed the calendar, he had not seen a single charge connected with any of the distressed factory operatives. Though that class had been long suffering, so far as could be perceived by the calendar, no crime had been committed by them, a circumstance which led him to think highly of their respectability. He was prepared beforehand to find them a respectable class; but he nevertheless expected to discover that they had committed a few crimes; he, however, found that they had committed none."

ED. S. J.

* 5th December, 1861.

MARRIAGES, BIRTHS, AND DEATHS IN THE UNITED KINGDOM.

NO. I.—ENGLAND AND WALES.

MARRIAGES IN THE QUARTER ENDED 30TH JUNE, 1861; AND BIRTHS AND DEATHS IN THE QUARTER ENDED 30TH SEPTEMBER, 1861.

This Return comprises the BIRTHS and DEATHS registered by 2,200 Registrars in all the districts of England during the summer quarter that ended on September 30th, 1861; and the MARRIAGES in 12,692 churches or chapels, about 5,081 registered places of worship unconnected with the Established Church, and 641 Superintendent Registrars' offices, in the quarter that ended on June 30th, 1861.

The marriages in the spring quarter were very numerous; the births in the succeeding quarter rose in a still more remarkable degree. The aspect of the return was less satisfactory as regards the deaths, the number of which was greater than any previous summer number, except that of 1863, since the period of the last great cholera epidemic. The same statement is applicable to the deaths considered relatively to the population, as it was estimated for the successive summer quarters in which the deaths occurred.

ENGLAND:—MARRIAGES, BIRTHS, and DEATHS, returned in the Years 1858-64, and in the QUARTERS of those Years.

CALENDAR YEARS, 1858-64:—NUMBERS.

Years	'64.	'63.	'62.	'61.	'60.	'59.	'58.
Marriages No.	—	173,388	164,030	163,706	170,156	167,723	156,070
Births	—	729,309	712,684	696,406	684,048	689,881	655,481
Deaths	—	475,582	436,566	435,114	422,721	440,781	449,656

QUARTERS of each CALENDAR YEAR, 1858-64.

(I.) MARRIAGES:—NUMBERS.

Qrs. ended last day of	'64.	'63.	'62.	'61.	'60.	'59.	'58.
March No.	37,948	35,454	33,953	33,274	35,150	35,382	29,918
June ,	41,556	41,058	40,853	42,012	43,777	42,042	39,890
Septmbr. ,	—	41,902	40,600	39,884	40,541	39,803	38,599
Decmbr. ,	—	51,974	48,624	48,536	50,688	50,496	47,663

QUARTERS of each Calendar Year, 1858-64

(II.) BIRTHS:—Numbers.

Qrs. ended last day of	'64.	'63.	'62.	'61.	'60.	'59.	'58.
March No.	192,926	186,653	181,990	172,933	183,180	175,532	170,939
June ,,	188,611	189,611	185,554	184,820	171,028	175,861	169,115
Septmbr. ,,	180,752	173,125	172,709	172,033	161,121	168,391	157,415
Decmbr. ,,	—	180,010	172,431	166,620	162,719	170,091	157,962

(III.) DEATHS:—Numbers.

Qrs. ended last day of	'64.	'63.	'62.	'61.	'60.	'59.	'58.
March No.	143,030	128,521	122,019	121,215	122,617	121,580	125,819
June ,,	116,899	118,375	107,392	107,558	110,869	105,631	107,142
Septmbr. ,,	112,133	112,381	92,381	101,232	86,312	101,216	98,142
Decmbr. ,,	—	116,299	114,774	105,109	102,923	109,354	118,553

MARRIAGES.—In the three months that ended June 30th the marriages were 41,596. In the same period of 1862 they were 40,853; in that of 1863 the number was 41,058. The increase in the present year is due chiefly to South Wales, Monmouthshire, Yorkshire, Cheshire, Lancashire, and Durham. It was for the most part in the more northern divisions of England.

London returned 7,694 marriages in the quarter; the north-western counties, which comprise Cheshire and Lancashire, and contain a population rather larger than that of the Metropolis, returned 7,117 marriages. This difference in the results is perhaps less than might be expected in two populations which present much dissimilarity in many and important points of view. The south-eastern counties and the south-western contain nearly equal populations, that of the latter division being rather less; and their marriage returns also closely agree, the numbers being respectively 3,618 and 3,583. But though the south midland counties have a larger population than the north midland, the marriages in the former are 2,159; those in the latter show a considerably higher number, namely, 2,931.

The marriage-rate in the quarter (viz., proportion of persons married to 100 living) was 1.724, against an average of 1.689. In the June quarter of 1860 it rose to 1.766; in that of 1862 it fell to 1.614.

BIRTHS.—In the quarter that ended 30th September, 180,752 children were born, a number which exceeds that of the same period in 1862 by about 8,000, and that of 1863 by nearly the same amount. All the eleven divisions contributed to the increase. In London the births were about 25,000; in Cheshire and Lancashire about 28,000. In the south midland counties they were 10,815; in the north midland, with a less population, they were 11,314.

The births in Islington were 1,515, and those in Kensington were almost exactly the same number; but in 1861 the population of the former district was 155,000 while that of the latter was 186,000. Apparently the facts may be accepted as an indication of the rapid growth of building and population in Islington. The most populous of all the London districts is Pancras, in which about 200,000 persons are now living; and in the quarter it placed 1,826 births on the registers. The district of Marylebone returned 1,226 births, almost the same number as Halifax in Yorkshire, which, however, contained at the census a population less by 32,000 than the metropolitan district.

ENGLAND:—Annual Rates per Cent. of Persons MARRIED, BIRTHS, and DEATHS, during the YEARS 1858-64, and the QUARTERS of those Years.

Calendar Years, 1858-64:—General Percentage Results.

YEARS	'64.	Mean '64-'63.	'63.	'62.	'61.	'60.	'59.	'58.
Estmtd. Popln. of England in thousands in middle of each Year....	20,772	—	20,554	20,336	20,119	19,903	19,687	19,471
Persons Mar- ried Per ct.	—	1.661	1.688	1.614	1.628	1.710	1.704	1.604
Births ... ,,	—	3.450	3.519	3.504	3.461	3.437	3.504	3.366
Deaths ... ,,	—	2.214	2.314	2.147	2.163	2.124	2.239	2.309

QUARTERS of each Calendar Year, 1858-64.

(I.) PERSONS MARRIED:—Percentages.

Qrs. ended last day of	'64.	Mean '64-'63.	'63.	'62.	'61.	'60.	'59.	'58.
March....Per ct.	1.472	1.379	1.404	1.360	1.346	1.422	1.464	1.252
June..... ,,	1.724	1.689	1.722	1.614	1.678	1.766	1.716	1.646
Septmbr. ,,	—	1.597	1.616	1.582	1.570	1.614	1.602	1.570
Decmbr. ,,	—	1.964	1.998	1.890	1.906	2.012	2.026	1.934

(II.) BIRTHS:—Percentages.

Qrs. ended last day of	'64.	Mean '64-'63.	'63.	'62.	'61.	'60.	'59.	'58.
March....Per ct.	3.740	3.605	3.698	3.644	3.500	3.707	3.631	3.576
June ,,	3.647	3.611	3.705	3.665	3.690	3.512	3.588	3.488
Septmbr. ,,	3.447	3.309	3.337	3.365	3.388	3.267	3.389	3.204
Decmbr. ,,	—	3.273	3.461	3.350	3.272	3.230	3.414	3.205

(III.) DEATHS:—Percentages.

Qrs. ended last day of	'64.	Mean '64-'63.	'63.	'62.	'61.	'60.	'59.	'58.
March....Per ct.	2.773	2.490	2.546	2.443	2.453	2.481	2.515	2.631
June..... ,,	2.260	2.187	2.313	2.121	2.147	2.237	2.155	2.210
Septmbr. ,,	2.139	2.000	2.166	1.800	1.994	1.718	2.097	1.997
Decmbr. ,,	—	2.180	2.236	2.230	2.064	2.043	2.195	2.406

The birth-rate was 3.417 per cent., against an average of 3.309. This result is very remarkable, for in the ten years 1851-63, there is no example of the birth-rate attaining a point as high as 3.4 per cent. in the summer quarter.

INCREASE OF POPULATION.—The deaths in the quarter ending 30th September were 112,133; and as the births in the same time were 180,752, the natural increase of the population was 68,619. People died at the rate of 1,219 daily; 1,965 children were born daily; and if the result were not continually subject to modification by immigration and emigration, the population would be augmented daily by 746 persons.

The number of emigrants in the quarter who left ports in the United Kingdom where emigration officers are stationed was 46,467.* The emigration, not only to the United States, but to all parts of the world, was less by nearly 12,000 than it had been in the same quarter of last year. To the United States there went 28,853 persons, and to the Australian colonies 11,211. Less than a fourth part of the emigration to the United States was of English origin; the Irish element constituted more than a half; Scotchmen and foreigners the remainder. The number that embarked at Liverpool, and which included persons of various origin, was to that which sailed from all other ports in the proportion of 27 to 19.

PRICES, PAUPERISM, AND THE WEATHER.—The average price of consols was as low as 89*1*. The price of wheat was 42*5*, 3*d*, per quarter, which is less than it was in the September quarter of 1863, and less by 1*s*. 7*d*. than it was in that of 1862. But beef and mutton showed no disposition to fall; and best potatoes at the Waterside Market, Southwark, were 5*l*. per ton, and were dearer than in the summer of 1863.

During the thirty-nine days which closed the spring quarter, the weather was cold, and it continued cold for the first sixteen days of July. A warm period then set in, and lasted twenty-five days; but again a cold period, extending from the 9th to the 28th of August, succeeded, during which, though the days were warm, the nights were very cold, almost to frost. Thereafter, warmth alternated with cold till the end of September.

The most remarkable feature in the meteorology of the quarter is the low degree of humidity of the air in August; it was only 65, the average being 77, and saturation being represented by 100. There is no previous instance on record of a humidity in August less than 69.

The mean temperature of the air in the quarter was 59°.4, which is slightly below the average. The pressure of the atmosphere was in excess in July and August, and slightly in defect in September. The rain-fall amounted to 4.5 in. in the three months, viz., 0.3 in. in July, the average being 2.7 in.; 1.4 in. in August, the average being 2.4 in.; and 2.8 in. in September, the average being 2.4 in. The whole quantity was 3 in. below the average.

In one instance only, viz., in 1817, has the fall of rain from the beginning of the year to the end of September been smaller in amount than it has been this year.

And if the period of twenty-one months ending 30th September is adopted as the basis of comparison, it will be found that the period which terminated on that date in the present year is the driest on record.

Mr. Glaisher, from whose remarks on the Greenwich observations the above facts are derived, adds: "The season was remarkable for its great dryness, particularly in August; for its ranges of temperature in that month, which extended in many inland places to 50°; and for its cold nights. Pastures were mostly bare at the end of that time; many ponds and wells dried up, and water sold in many places from 1*d*. to 3*d*. per bucket."

* Return with which the Registrar-General has been favoured by the Emigration Commissioners: of 46,467 emigrants the origin was undistinguished in 1,465 cases, which have been distributed by calculation.

CONSOLS, PROVISIONS, PAUPERISM, and TEMPERATURE, in each of the Nine QUARTERS ended 30th September, 1864.

1 Quarters ending	2 Average Price of Consols (for Money).	3 Average Price of Wheat per Quarter in England and Wales.	4 Average Prices of Meat per lb. at Leadenhall and Newgate Markets (by the Carcase), with the Mean Prices.	5 Average Prices of Potatoes (York Regents) per Ton at Waterside Market, Southwark.	6 7 Pauperism.	8		9 Mean Tem- pera- ture.
						In-door.	Out-door.	
1862 30 Sept.	93 <i>1</i>	56 10	d. d. d. 4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	d. d. d. 5 <i>1</i> -7 6 <i>1</i> 115	s. s. s. 100-130	119,592	789,914	58.7
31 Dec.	93 <i>1</i>	48 2	4-6 <i>1</i> 5 <i>1</i>	5 <i>1</i> -6 <i>1</i> 6	90-110 100	132,663	907,493	45.0
1863 31 Mar.	92 <i>1</i>	46 7	4-6 <i>1</i> 5 <i>1</i>	5-7 6	120-130 125	143,661	948,212	42.6
30 June	93 <i>1</i>	46 2	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	110-130 120	127,852	879,241	53.0
30 Sept.	93	45 7	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	70-105 87	120,189	819,795	58.8
31 Dec.	92 <i>1</i>	40 6	4-6 <i>1</i> 5 <i>1</i>	5-7 6	60-80 70	130,072	804,941	46.8
1864 31 Mar.	91	40 4	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	5 <i>1</i> -7 6 <i>1</i>	55-70 62	139,606	855,728	37.9
30 June	91 <i>1</i>	39 7	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	5 <i>1</i> -7 6 <i>1</i>	40-60 50	122,717	785,825	53.1
30 Sept.	89 <i>1</i>	42 3	4 <i>1</i> -6 <i>1</i> 5 <i>1</i>	5 <i>1</i> -7 6 <i>1</i>	80-120 100	115,698	739,341	59.4

DEATHS; AND THE STATE OF THE PUBLIC HEALTH.—The deaths registered in the quarter were 112,133, of which 18,008 occurred in London; 13,831 in the west midland counties, which include Gloucestershire, Herefordshire, Shropshire, Staffordshire, Worcestershire, Warwickshire; 18,159 in Cheshire and Lancashire; 12,508 in Yorkshire. Those four divisions are the most important, in respect to population, of the eleven groups of counties or parts of counties into which England and Wales are divided with a view to a general comparison of the returns.

The total number of deaths was almost the same as that of the September quarter of last year, but considerably more than in that of 1862. But though the last two summer quarters present the same aggregate result, they do not exhibit the same uniformity in detail. The returns of the late summer, as compared with those of 1863, are heavier in London, the west midland counties, Monmouthshire, and Wales; lighter in the north-western counties, Yorkshire, Durham, Northumberland, Cumberland, and generally in other parts of England. In Suffolk the deaths declined from 1,850 to 1,425; in Cornwall from 2,037 to 1,680; in Gloucestershire from 2,606 to 2,254; in Lincolnshire from 1,953 to 1,764.

The annual rate of mortality for the quarter in England and Wales, was 2.139 per cent., against 2.000 as the average. With the exception of the summer

of last year, the death-rate was higher than in any previous corresponding season since the cholera summer of 1851.

The causes which operated to produce this excess were not confined to cities, but attacked town and country, and raised the deaths in both, in equal amounts, above their respective averages. The town and country rates of mortality were 2.374 and 1.831 per cent., against their averages 2.253 and 1.713.

Average Annual Rate of Mortality to 1,000 of the Population in the Eleven Divisions of England in the Ten Years 1851-60, and in the Winter, Spring and Summer Quarters of 1861.

Divisions.	Average Annual Rate of Mortality to 1,000 Living in the			
	Ten Years, 1851-60.	Winter Quarter, 1861.	Spring Quarter, 1861.	Summer Quarter, 1861.
I. London	23.63	30.88	23.53	24.06
II. South-Eastern counties	19.55	21.18	19.41	18.66
III. South Midland	20.44	26.53	21.61	20.43
IV. Eastern counties	20.58	21.51	21.25	19.05
V. South-Western counties	20.01	25.07	20.90	18.20
VI. West Midland	22.35	27.57	22.32	21.55
VII. North Midland	21.10	25.81	21.45	19.23
VIII. North-Western	25.51	30.97	24.70	23.22
IX. Yorkshire	23.09	28.31	24.55	23.60
X. Northern counties	21.99	25.18	21.95	21.14
XI. Monmouthshire and Wales	21.28	26.28	22.97	20.17

ANNUAL RATE of MORTALITY per Cent. in TOWN and COUNTRY DISTRICTS of ENGLAND in each Quarter of the Years 1861-62.

	Area in Statute Acrea.	Population Enumerated.	Quarters ending	Annual Rate of Mortality per Cent. in each Quarter of the Years				
				1861.	1862.	1864.	Mean '54-'63.	
				1861.	1862.	1864.	Mean '54-'63.	
In 142 Districts, and 56 Sub-districts, comprising the Chief Towns.....	3,287,151	9,155,964	10,930,841	March June... Sept... Dec....	2.974 2.369 2.374 —	2.678 2.332 2.253 2.411	2.705 2.478 2.404 2.462	2.655 2.267 1.984 2.525
				Year	—	2.426	2.512	2.358
In the remaining Districts and Sub- districts of Eng- land and Wales, comprising chiefly Small Towns and Country Parishes	34,037,732	8,771,645	9,135,383	Year	—	1.974	2.064	1.890
				March June... Sept... Dec....	2.508 2.110 1.831 —	2.280 2.023 1.713 1.880	2.343 2.102 1.864 1.946	2.184 1.940 1.572 1.864

Note.—The three months January, February, March, contain 90, in leap year 91 days; the three months April, May, June, 91 days; each of the last two quarters of the year 92 days. For this inequality a correction has been made in the calculations, also for the difference between 365 and 365.25 days, and 366 and 365.25 days in leap year.

The mortality is lowest in the summer quarter. This rule holds invariably in England in ordinary seasons, and only fails to assert itself when malignant cholera, favoured by the heat of summer, rages over the country. But it is matter of interest to notice in the above table, that while it obtained as usual in ten of the great divisions of the kingdom, the rule did not hold good in London, where the mortality of the summer quarter was 2.406 per cent., and exceeded that of the preceding spring, when it was 2.353. The undue prevalence of diarrhoea or English cholera in London, from whatever cause it may arise, has made summer more fatal to children than spring. The deaths from that disorder last quarter in the Metropolis were 2,210; and in the ten years 1851-60, it was much more fatal there than in any other division except the north-western counties, Cheshire and Lancashire. The districts of the cotton manufacture have suffered greatly in former times from the complaint in question; and it may perhaps be accepted as a symptom of comparative exemption from it, and of improved sanitary condition, that the mortality per cent. was 2.322 against 2.476 in the spring months, Lancashire was at least as healthy as Yorkshire, in which the mortality of last summer was 2.360.

The healthiest of all the divisions was the south-western counties (Wiltshire, Dorsetshire, Devonshire, Cornwall, and Somersetshire), in which the death-rate was 1.820. It was but slightly higher (1.866) in the south-eastern portion of the island, or that which lies south of the Thames. From its minimum it ranged over the country, through various gradations, to its maximum, which was 2.406, and which prevailed in London.

It may be presumed that emigration from the north-western counties during the continued depression of their staple industry has confined the registration of deaths in those parts within narrower limits than it would otherwise have attained. That cause has no doubt had its effect; but the fact that the registration of births, simultaneously conducted, was not inactive, proves that it did not operate to an important extent.

The summer quarter of 1860 was distinguished by its wet, its cold, its want of sunshine, and generally by what is known as "bad weather;" it was distinguished also by a singularly low rate of mortality. In each month the mean temperature of the air was four degrees below its average, and 10 inches of rain fell. In the summer of the present year the monthly temperatures were near their averages; the amount of rain was less than 5 inches; and extremes of diurnal temperature were suffered, which had not been experienced in 1860. This brief statement of differences of meteorological constitution in the two seasons probably does not embrace all the influences that were at work; and when the records of the two entire years are completed, both for England and Scotland, an examination of the facts in more detail will be instructive; but the main result has been ascertained, and is sufficiently striking, namely, that under a higher but less uniform temperature, and an unusual defect of humidity, the deaths of last summer, which were 112,133, would have been only 89,336 under the rate of mortality that prevailed in 1860; and therefore 22,797 deaths occurred in England which would not have occurred if the season, in all its circumstances, had been as favourable to health as the summer of 1860.

Glendale in Northumberland is a model district in statistical tables; with Farnborough, Bellingham, and Rothbury, it stands a monument of salubrity, to which a sanitarian immediately turns, when he seeks a comparison or would direct an aim. In the ten years 1851-60, the average mortality of Glendale was only 15 deaths to 1,000 living. But the Registrar of Ford, one of its sub-districts, gives in his report a striking example of the natural advantages of a situation defeated by the opathy or ignorance of its inhabitants. When a village community abuses the patrimony which heaven has bestowed, and begins to suffer the effects, it is well if the minister, the surgeon, or other intelligent monitor, will step in to warn and advise.

ENGLAND:—MARRIAGES Registered in Quarters ended 30th June, 1864-62; and Births and Deaths in Quarters ended 30th September, 1864-62.

DIVISIONS. (England and Wales.)	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	MARRIAGES in Quarters ended 30th June,				
			'64.	'63.	'62.		
			No.	No.	No.		
ENGLD. & WALES.... <i>Totals</i>	37,324,883	20,666,224	44,596	44,058	40,853		
i. London	77,997	2,803,989	7,694	7,790	7,209		
ii. South-Eastern	4,065,935	1,847,661	3,618	3,657	3,328		
iii. South Midland	3,201,290	1,295,497	2,159	2,092	1,976		
iv. Eastern	3,214,099	1,142,580	1,699	1,661	1,551		
v. South-Western	4,293,660	1,835,714	3,583	3,607	3,512		
vi. West Midland	3,865,332	2,436,568	3,373	3,362	4,950		
vii. North Midland	3,540,797	1,288,928	2,931	2,811	2,653		
viii. North-Western	2,000,227	2,935,510	7,147	7,000	6,401		
ix. Yorkshire	3,654,636	2,015,511	4,642	4,532	4,159		
x. Northern	3,492,322	1,151,372	2,866	2,750	2,590		
xi. Monmthsh. & Wales	5,218,588	1,312,834	2,884	2,796	2,494		
7		8 9 10	11 12 13				
DIVISIONS. (England and Wales.)		BIRTHS in Quarters ended 30th September.		DEATHS in Quarters ended 30th September.			
		'64.	'63.	'62.	'61.		
		No.	No.	No.	No.		
ENGLD. & WALES.... <i>Totals</i>		180,752	173,125	172,709	112,133	112,384	92,381
i. London	24,955	24,254	23,253	18,008	17,105	15,418	
ii. South-Eastern	15,553	14,877	14,068	9,067	9,080	7,310	
iii. South Midland	10,815	10,566	10,411	6,781	7,014	5,353	
iv. Eastern	9,391	8,738	8,976	5,532	6,014	4,692	
v. South-Western	14,515	14,426	14,173	8,472	8,738	7,131	
vi. West Midland	22,524	21,566	21,488	13,831	13,152	10,617	
vii. North Midland	11,314	10,862	11,163	6,371	6,908	5,328	
viii. North-Western	28,199	26,679	28,029	18,159	18,700	15,291	
ix. Yorkshire	19,927	18,837	18,887	12,508	12,781	10,161	
x. Northern	11,996	11,200	11,046	6,500	6,820	5,458	
xi. Monmthsh. & Wales	11,563	11,120	11,215	6,904	6,042	5,592	

REMARKS ON THE WEATHER

DURING THE QUARTER ENDING 30TH SEPTEMBER, 1864.

By JAMES GLAISHER, Esq., F.R.S., &c., Sec. of the British Meteorological Society.

For a period of 39 days preceding the close of the last quarter there was an average daily deficiency of $2\frac{1}{2}$ ° of temperature, and the present quarter opened with a continuation of the same weather, with somewhat increased intensity; the deficiency of temperature to the middle of July being as large as 3° daily on the average. On the 17th July a warm period set in and continued for 25 days, and the daily temperature was in excess to $3\frac{1}{4}$ °; this was succeeded by 20 days of very cold weather, viz., from 9th August to 28th August, whose average daily temperature was 4° in defect; and it is remarkable that this deficiency of temperature fell on the nights only, the days were of their average warmth, but the nights were very cold, causing the extremes of temperature to range from great heat by day to almost frost at night, and quite to frost on vegetation. A period of 12 days followed of warmth, the average daily temperature being $2\frac{3}{4}$ ° in excess; then the 10 days from September 10th to 20th, the temperature of the air was daily 2° below their average values, and the last 10 days of the quarter were in excess to $1\frac{1}{2}$ ° daily.

The mean temperature of July was $61\frac{3}{4}$ °, being $\frac{1}{4}$ ° above the average of the preceding 23 years, and but slightly different from that in 1863.

The mean temperature of August was $59^{\circ}6$, being $1^{\circ}8$ below the average of the preceding 23 years, and $1^{\circ}8$ colder than in 1863.

The mean temperature of September was $56^{\circ}9$, being of the same value as the average of preceding 23 years, and exactly the same as in 1863.

The temperature of the air increased from June to July by 3° or 4° generally over the country. August was colder than July by 2° generally; and the decline of temperature from August to September was from 1° to 3° at most places.

The mean high day temperatures in the months of July, August, and September were $51^{\circ}3$, $72^{\circ}8$, and $67^{\circ}3$, being $1^{\circ}7$ above in July, and of the same values as the average in August and September.

The mean low night temperatures in the months of July, August, and September were $51^{\circ}2$, $48^{\circ}5$, and $49^{\circ}1$, being $1^{\circ}7$ below in July, $4^{\circ}8$, below in August, and $0^{\circ}3$ above in September.

Therefore the days were of a little higher than their average temperature in July, of the same as their averages in August and September, whilst the nights in July were a little lower than the average temperature, were remarkably cold in August, and differed but little from their averages in September.

The mean temperature of the dew points were $2^{\circ}1$, $6^{\circ}3$, and $1^{\circ}2$ below their respective average. That in August was $47^{\circ}8$. The lowest before recorded was $51^{\circ}8$ on two or three occasions.

The degree of humidity of the air was very remarkable; it was 76, 65, and 77 for these three months; the averages are 76, 77, and 81, saturation being represented by 100. There is no other instance on record in the month of August of a humidity less than 69, which took place in 1819. In 1813 it was as high as 85.

The pressure of the atmosphere was in excess in the months of July and August, and slightly in defect in September. It increased from June to July by 0.02 inch at southern, increasing gradually in amount to 0.14 inch at northern stations; increased at all places from 0.06 inch to 0.08 inch from July to August, and decreased from August to September by 0.1 inch at southern stations, to 0.3 inch nearly at northern stations.

The fall of rain was in defect in July and August, and slightly in excess in September. It was 0.3 inch in July, being 2.4 inches in defect; 1.4 inch in August, being 1.0 inch deficient; and 2.8 inches in September, being 0.4 inch in excess.

In July, 1863, the fall was 0.0 inch; 1856 was 0.9 inch; 1847 was 0.7 inch; 1855 was 0.3 inch; 1832 was 0.7 inch; 1825 was 0.1 inch; and in 1818 was 0.8 inch. In all other Julys since 1815, the fall has exceeded 1 inch, and amounted to 7 inches in 1828. In August the fall in ten instances back to 1816, was less than in this year; the smallest was 0.1 inch in 1818, and 0.4 inch in 1810.

The mean temperature of the air at Greenwich in the three months ending August, constituting the three summer months, was 69°.6, being 0°.5 below the average of the preceding 93 years.

1861.	Months.	Temperature of						Elastic Force of Vapour.	Weight of Vapour in a Cubic Foot of Air.					
		Air.		Evaporation.		Dew Point.	Air—Daily Range.							
		Mean.	Diff. from Average of 93 Years.	Mean.	Diff. from Average of 23 Years.	Mean.	Diff. from Average of 23 Years.							
		Mean.	Diff. from Average of 93 Years.	Mean.	Diff. from Average of 23 Years.	Mean.	Diff. from Average of 23 Years.	Mean.	Diff. from Average of 23 Years.					
July	61.8	+0.4	+0.2	56.3	-1.0	51.6	-2.1	21.1	+3.4	64.1	In. 382	-0.32	Gr. 4.2	Gr. -0.4
Aug.	59.6	-1.1	-1.8	53.3	-1.2	47.8	-6.3	24.3	+1.8	63.8	-0.59	3.7	-1.0	
Sept.	56.9	+0.6	0.0	53.2	-0.6	49.7	-1.2	18.2	-0.3	60.6	-0.22	4.0	-0.9	
Mean.....	59.4	-0.1	-0.5	54.3	-1.0	49.7	-3.3	22.2	+2.6	62.8	-0.19	4.9	-0.5	

1864.	Months.	Degree of Humidity.	Reading of Barometer.	Weight of a Cubic Foot of Air.	Rain.	Reading of Thermometer on Grass.								
		Mean.	Diff. from Average of 23 Years.	Mean.		Mean.	Diff. from Average of 23 Years.	Amnt.	Diff. from Average of 47 Years.	Daily Horizontal Movement of the Air.	Number of Nights it was			
		Mean.	Diff. from Average of 23 Years.	Mean.		Mean.	Diff. from Average of 23 Years.	Amnt.	Diff. from Average of 47 Years.	At or below 30°.	Between 30° and 40°.	Above 40°.		
		Mean.	Diff. from Average of 23 Years.	Mean.		Mean.	Diff. from Average of 23 Years.	Amnt.	Diff. from Average of 47 Years.	At or below 30°.	Between 30° and 40°.	Above 40°.		
July	70	- 6	29.850	+0.55	529	Gr. +1	In. 0.3	-2.4	217	0	8	23	35.8	57.7
Aug.	65	-12	29.918	+1.29	533	+ 5	1.4	-1.0	195	4	12	15	27.2	51.2
Sept.	77	- 4	29.777	-0.12	533	- 1	2.8	+0.4	233	1	10	19	29.0	62.0
Mean.....	71	- 7	29.850	+0.17	532	+ 2	Sum 4.5	-3.0	Mean 215	Sum 6	Sum 30	Sum 67	Lowest 27.2	Highest 62.0

Note.—In reading this table it will be borne in mind that the sign (—) minus signifies below the average, and that the sign (+) plus signifies above the average.

ENGLAND:—Meteorological Table, Quarter ended 30th September, 1864.

1	2	3	4	5	6	7	8	9
NAMES OF STATIONS.	Mean Pressure of Dry Air reduced to the Level of the Sea.	Highest Reading of the Thermometer.	Lowest Reading of the Thermometer.	Range of Temperature in the Quarter.	Mean Monthly Range of Temperature.	Mean Daily Range of Temperature.	Mean Temperature of the Air.	Mean Degree of Humidity.
Guernsey	29.630	72.5	50.0	22.5	20.0	9.1	58.5	85
Ventnor	29.668	72.0	45.0	27.0	33.3	10.0	60.8	77
Barnstaple	29.596	86.0	40.0	46.0	36.5	18.5	60.0	81
Royal Observatory	29.658	88.6	38.1	50.5	41.6	22.2	59.4	71
Royston	29.686	86.9	36.1	50.8	42.8	22.8	58.9	70
Lampeter	29.665	—	—	—	—	23.2	57.2	84
Norwich	29.622	83.7	41.5	41.2	31.3	15.6	59.6	75
Diss (Norfolk)	29.666	88.5	32.5	56.0	46.7	23.0	59.8	75
Liverpool	29.668	76.8	44.8	32.0	24.3	10.4	57.8	74
Belvoir Castle	29.538	85.0	33.0	52.0	42.3	21.2	57.5	77
Wakefield	29.593	82.7	30.0	52.7	45.7	21.0	57.4	82
Stonyhurst	29.582	80.0	36.0	44.0	37.9	17.7	51.9	82
York	29.561	80.0	35.5	44.5	35.0	15.3	53.7	77
North Shields	29.682	75.5	37.0	38.5	32.6	13.5	53.7	77
10	11	12	13	14	15	16	17	18
NAMES OF STATIONS.	WIND.					RAIN.		
	Mean estimated Strength.	Relative Proportion of				Mean Amount of Cloud.	Number of Days on which it fell.	Amount collected.
	N.	E.	S.	W.				in.
Guernsey	1.2	8	6	6	11	3.8	34	8.0
Ventnor	—	2	8	5	16	—	37	3.6
Barnstaple	—	5	6	7	13	3.1	41	7.4
Royal Observatory	0.2	6	4	9	12	6.0	24	4.4
Royston	—	9	2	8	12	5.1	34	2.8
Lampeter	0.5	5	6	9	11	4.3	—	—
Norwich	1.4	—	—	—	—	5.8	31	3.6
Diss (Norfolk)	1.6	4	5	4	13	5.0	27	2.9
Liverpool	—	5	4	9	13	5.6	—	—
Belvoir Castle	1.4	6	2	8	15	4.7	21	2.6
Wakefield	1.8	6	3	7	15	5.6	40	3.9
Stonyhurst	0.6	6	4	7	14	6.7	53	10.0
York	—	4	7	7	13	—	35	4.0
North Shields	1.9	8	4	6	13	5.4	54	4.0

No. II.—SCOTLAND.

MARRIAGES, BIRTHS, AND DEATHS IN THE QUARTER
ENDED 30TH SEPTEMBER, 1861.

BIRTHS.—27,063 births were registered in Scotland during the quarter ending 30th September, 1861, being in the annual proportion of 317 births in every 10,000 of the estimated population. This is the highest birth-rate which Scotland has ever exhibited during the corresponding quarter of the nine previous years, and is greatly above the mean average birth-rate of the quarter, which is only at the rate of 332 births in every 10,000 persons.

The town and rural districts exhibited the usual difference in the proportion of the births. Accordingly, the 126 town districts (which embrace all the towns with populations of 2,000 and upwards), registered 15,616 births, while the 881 rural districts (embracing the remainder of the population of Scotland), registered 11,447 births; thus indicating an annual proportion of 377 births in every 10,000 persons in the town districts, but only 313 births in a like population in the rural districts.

Of the 27,063 births, 24,351 were legitimate, and 2,712 illegitimate; being in the proportion of one illegitimate in every 9·9 births, or 10 per cent. of the births illegitimate. During the past quarter, the proportion of illegitimate births in the town and rural districts was exactly the same, viz., 10 per cent. of the total births. Table I. exhibits the proportion of the illegitimate births in the several divisions and counties of Scotland, and generally accords with previous returns, the counties included in the north-eastern and southern divisions of Scotland exhibiting a much higher proportion of illegitimate births than any of the other divisions. Thus, while in the northern and north-western divisions respectively, only 6·7 and 6 per cent. of the births were illegitimate, and in the south-western division, the great centre of manufactures and mining, only 8·7 per cent. were illegitimate, 14·2 per cent. of the births were illegitimate in the southern, and 14·6 per cent. in the north-eastern division.

Of the children born during the quarter, 13,922 were boys, and 13,141 girls; being in the proportion of 106 boys for every 100 girls. 9,135 births were registered during July, 9,216 during August, and 8,682 during September,

TABLE I.—*Rates per Cent. of the Illegitimate Births in the Divisions and Counties of Scotland during the Quarter ending 30th September, 1861.*

Divisions.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.	Counties.	Per Cent. of Illegitimate.
SCOTLAND	10·0						
Northern	6·7	Shetland	5·6	Forfar	13·7	Lanark	8·3
		Orkney	6·2	Perth	11·5	Linlithgow ..	9·8
North-Western	6·0	Caithness	8·6	Fife	6·9	Edinburgh ..	9·9
North-Eastern	14·6	Sutherland ..	4·7	Kinross	13·2	Haddington ..	7·0
East Midland ..	11·0	Ross and Cromarty }	5·8	Clackmannan- man	5·9	Berwick	6·9
West Midland ..	8·6	Inverness	6·3	Stirling	9·6	Peebles	9·4
South-Western	8·7	Nairn	11·3	Dumbarton ..	8·7	Selkirk	2·1
South-Eastern	9·2	Elgin	15·6	Argyll	7·0	Roxburgh ..	13·0
Southern	14·2	Banff	15·9	Bute	7·1	Dumfries	12·8
		Aberdeen	14·5	Renfrew	8·7	Kirkcudbright ..	15·2
		Kincardine....	12·7	Ayr	10·6	Wigtown	19·2

DEATHS.—16,131 deaths were registered in Scotland during the quarter ending 30th September, 1861, being in the annual proportion of 206 deaths in every 10,000 persons of the estimated population. The average proportion of deaths during that quarter for the nine previous years was only 184 in every 10,000 persons, so that the mortality during the past quarter, like that of the previous one, has been excessively high.

Rather more than the usual difference in the mortality in the town and rural districts was observed. Thus, in the 126 town districts (embracing all the towns with populations exceeding 2,000 persons), 10,417 deaths were registered; whereas in the 881 rural districts (including the rest of Scotland), only 5,714 deaths occurred; giving the high proportion for the quarter of 251 deaths in every 10,000 persons in the towns; but only 156 deaths in a like population in the rural districts.

5,461 deaths were registered in July, 5,608 in August, and 5,062 in September; thus giving the proportion of 176 deaths daily during July, 181 daily during August, and 169 daily during September.

INCREASE OF THE POPULATION.—As the births numbered 27,063, and the deaths 16,131, the natural increase of the population during the quarter, through the excess of births over deaths, amounted to 10,932 persons. From a return furnished to the Registrar-General by the Emigration Commissioners, it appears that 46,467 persons emigrated from the ports of Great Britain and Ireland during the quarter ending 30th September, 1861. Of these 4,757 were ascertained to have been of Scottish origin; and if 151 be added to that number as the proportion of persons whose origin was not ascertained, the total ascertained Scottish emigrants during the quarter would amount to 4,911 persons. That number deducted from the excess of births over deaths would leave 6,021 as the increase of the population during the quarter, making no allowance, however, for migration to England or Ireland, nor for drafts to the army, navy, and merchant shipping.

TABLE II.—*Number of Births, Deaths, and Marriages in Scotland, and in the Town and Country Districts during the Quarter ending 30th September, 1864, and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

	Population.		Total Births.			Illegitimate Births.		
	Census, 1861.	Estimated, 1864.	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
SCOTLAND	3,062,294	3,118,701	27,063	3·47	28	2,712	10·0	9·9
126 town districts	1,603,875	1,656,132	15,616	3·77	26	1,563	10·0	9·9
881 rural "	1,458,419	1,462,569	11,447	3·13	31	1,149	10·0	9·9

	Population.		Deaths.			Marriages.		
	Census, 1861.	Estimated, 1864.	Number.	Per Cent.	Ratio. One in every	Number.	Per Cent.	Ratio. One in every
SCOTLAND	3,062,294	3,118,701	16,131	2·06	44	4,993	0·64	156
126 town districts	1,603,875	1,656,132	10,417	2·51	39	3,546	0·85	116
881 rural "	1,458,419	1,462,569	5,714	1·56	61	1,417	0·39	252

TABLE III.—Number of Births, Deaths, and Marriages in Scotland, and their Proportion to the Population, Estimated to the Middle of each Year, during each Quarter of the Years 1855 to 1864 inclusively.

	1855.		1856.		1857.		1858.		1859.	
	Number.	Per Cent.								
<i>1st Quarter—</i>										
Births	19,605	2·64	25,129	3·37	20,010	3·47	20,022	3·45	25,088	3·42
Deaths	19,559	2·64	16,018	2·15	16,684	2·22	17,321	2·29	17,102	2·25
Marriages ..	3,931	0·53	4,499	0·60	4,988	0·66	4,480	0·59	4,890	0·64
<i>2nd Quarter—</i>										
Births	25,402	3·43	26,818	3·60	27,381	3·65	27,846	3·69	28,510	3·76
Deaths	15,324	2·06	14,684	1·97	15,526	2·07	15,637	2·07	15,053	2·06
Marriages ..	5,131	0·69	5,211	0·70	5,135	0·72	4,927	0·65	5,150	0·67
<i>3rd Quarter—</i>										
Births	23,818	3·21	24,636	3·30	21,856	3·31	21,905	3·30	25,056	3·42
Deaths	12,968	1·75	12,861	1·72	11,713	1·96	11,012	1·85	13,310	1·76
Marriages ..	4,195	0·56	4,519	0·61	4,170	0·59	4,091	0·54	4,626	0·61
<i>4th Quarter—</i>										
Births	21,524	3·31	25,208	3·38	25,168	3·35	25,245	3·34	20,089	3·44
Deaths	14,153	1·91	14,966	2·00	14,983	2·00	16,519	2·19	15,019	2·06
Marriages ..	6,423	0·86	6,451	0·86	6,476	0·86	6,161	0·81	6,535	0·86
<i>Year—</i>										
Population.	2,962,500		2,979,855		2,997,210		3,014,565		3,031,921	
Births	93,349	3·15	101,821	3·41	103,415	3·45	101,018	3·45	106,543	3·51
Deaths	62,004	2·09	58,529	1·96	61,906	2·06	63,539	2·10	61,714	2·03
Marriages ..	19,680	0·66	20,710	0·69	21,369	0·71	19,655	0·65	21,201	0·69

MARRIAGES.—4,993 marriages were registered in Scotland during the third quarter of the year 1864, being in the annual proportion of 64 marriages in every 10,000 persons of the estimated population. This is a proportion greatly above the average of the quarter during the nine previous years, which only gives a proportion of 58 marriages in every 10,000 persons. This high proportion of marriages speaks well for the general commercial prosperity of the country; though it must also be taken into account that the high mortality which has prevailed during the whole of the year, by making way for new families, would also tend to increase the number of marriages.

The increase in the proportion of marriages was most remarkable in the towns. Thus, in the 126 town districts 3,546 marriages were recorded, but only 1,147 in the 884 rural districts;—thus indicating a marriage-rate in the towns equal to 85 marriages in every 10,000 persons of the estimated population, but only 39 marriages in an equal population in the rural districts.

HEALTH OF THE POPULATION.—To whatever cause it may be attributed, the health of the population has been below the average, while the amount of sickness and the proportion of deaths have been high, and seem to be on the increase. The increase of sickness and of death seems to have been most marked in the town districts; it has not, however, been confined to the past quarter, but has extended to every month of the present year. This increase, so far as it can be traced, has not been caused by the special prevalence of any epidemic, but by the general increase

Proportion to the Population, Estimated to the Middle of each Year, during 1855 to 1864 inclusively.

	1860.		1861.		1862.		1863.		1864.		
	Number.	Per Cent.									
	27,118	3·55	25,425	3·31	27,107	3·51	26,720	3·44	28,177	3·61	
	20,223	2·65	17,920	2·33	19,412	2·51	19,227	2·47	22,576	2·89	
	4,802	0·63	4,010	0·60	4,750	0·61	5,000	0·65	5,333	0·68	
	29,292	3·71	29,200	3·80	28,745	3·73	29,651	3·82	29,992	3·84	
	18,182	2·38	15,934	2·07	17,382	2·25	17,917	2·31	18,415	2·36	
	5,329	0·69	5,310	0·69	5,172	0·67	5,657	0·71	5,710	0·73	
	21,014	3·26	26,146	3·41	25,798	3·34	26,362	3·40	27,063	3·47	
	13,875	1·82	13,402	1·74	14,227	1·84	16,219	2·09	16,131	2·06	
	4,514	0·59	4,463	0·58	4,658	0·59	4,863	0·62	4,993	0·64	
	25,305	3·31	26,265	3·42	25,481	3·30	26,583	3·42	—	—	
	15,890	2·08	15,022	1·95	16,145	2·09	17,998	2·32	—	—	
	6,580	0·86	6,436	0·84	6,066	0·78	6,577	0·84	—	—	
	3,049,277		3,066,633		3,083,989		3,101,345		3,118,701		
	105,629	3·46	107,036	3·49	107,138	3·47	109,325	3·52	—	—	
	68,170	2·23	62,287	2·03	67,159	2·17	71,421	2·30	—	—	
	21,225	0·69	20,828	0·67	20,544	0·66	22,087	0·71	—	—	

of deaths from all diseases; and as the mortality seems to have been on the increase for a few years back, its probable causes merit a searching inquiry.

WEATHER.—The weather has been in many respects anomalous, and presented a striking contrast to that which has prevailed over Scotland for some years back. During the first ten days of July, cold east winds prevailed, and exhibited the striking fact, that they commenced daily shortly after the sun rose, increased in strength till about three o'clock, died away to a perfect calm in the evening, and continued calm during the night. From the 11th till the close of July, the days were delightfully warm, the thermometer rising frequently above 80° during the greatest warmth of the day between the 17th and 23rd. During August the weather was delightful, and unlike many Augusts which preceded it, was a dry, warm month. In almost all the southern half of Scotland not a drop of rain fell till the last two days of the month. The temperature, however, never attained the same height as in July, thus presenting the anomaly, in Scotland, of July being the warmest month.

The mean barometric pressure, corrected and reduced to the sea level, was 29·934 inches during July, 30·018 inches during August, and 29·731 inches during September. The mean temperature of the quarter was 54°·5, being 56°·7 in July, 54°·4 in August, and 52°·4 in September. The mean daily range of temperature amounted to 14°·7 during July, to 16°·1 in August, and to 13°·8 in September.

SCOTLAND:—MARRIAGES, BIRTHS, and DEATHS Registered in the Quarter ended 30th September, 1864.

1 DIVISIONS. (Scotland)	2 AREA in Statute Acres.	3 POPULATION, 1861. (Persons.)	4 Marriages.	5 Births.	6 Deaths.
SCOTLAND..... <i>Totals</i>	19,639,377	3,062,294	4,993	17,063	1,6131
i. Northern	2,261,622	130,422	83	919	542
ii. North-Western	4,739,876	167,329	130	1,223	650
iii. North-Eastern	2,429,594	366,783	492	3,123	1,459
iv. East Midland	2,790,492	523,822	787	4,116	2,893
v. West Midland	2,693,176	212,507	294	1,879	1,184
vi. South-Western	1,462,397	1,008,233	2,286	10,215	6,465
vii. South-Eastern	1,192,524	408,962	691	3,687	2,045
viii. Southern	2,069,696	214,216	230	1,601	893

No. III.—IRELAND.

MARRIAGES IN THE QUARTER ENDED 30TH JUNE, 1864;
AND BIRTHS AND DEATHS IN THE QUARTER ENDED
30TH SEPTEMBER, 1864.

This return includes the number of BIRTHS and DEATHS registered in the 718 Registrars' districts of Ireland during the months of July, August, and September; and the number of MARRIAGES registered during the months of April, May, and June, 1864. These districts are co-extensive with the dispensary districts of the several Poor Law Unions.

MARRIAGES.—The number of marriages registered in Ireland during the three months ending the 30th of June last, amounted to 6,029, being equal to an annual rate of 1 marriage to every 240 of the population. The number returned during the previous quarter amounted to 9,578, which afforded an annual ratio of 1 in every 151 of the population. Although it is probable that many of the marriages may not have been registered during either period, still the great disproportion between the numbers may be readily accounted for by the fact that the greater proportion of Roman Catholic marriages take place before the Lenten season. As has been stated in the return for the preceding quarter, the districts for the registration of marriages under the Act 7 and 8 Vict., cap. 81, differed from the districts for the registration of marriages, under the Act 26 and 27 Vict., cap. 90. The Registrar-General has, with the sanction of His Excellency the Lord-Lieutenant, arranged that from the first day of July last the districts shall be coextensive.

BIRTHS.—The number of births registered during the quarter ending September the 30th was 33,892, representing an annual ratio of 1 in 43 of the population, according to the Census of 1861. The number returned during the first quarter of the year amounted to 30,330, or an annual ratio of 1 in 48 of the population,* and the number returned during the second quarter amounted to 38,701, or an annual birth-rate of 1 in 37.

The total number of births, therefore, registered in Ireland during the first three quarters of the year amounted to 102,923, yielding an annual ratio of 1 in 42 of the population, according to the Census of 1861.

DEATHS.—The number of deaths registered during the quarter ending the 30th of September last was 19,259, or an annual ratio of 1 death in every 75 of the population in 1861.* The number registered during the first quarter of the year amounted to 28,510, or an annual death-rate of 1 in 51; and the number registered during the quarter ending the 30th of June amounted to 24,418, or 1 in 59 per annum.

The total number of deaths registered during the nine months from the 1st of January to the 30th of September, 1864, amounted to 72,247, being equal to an annual ratio of 1 death in every 60 of the population in 1861.*

METEOROLOGICAL OBSERVATIONS.—The following meteorological observations, taken at the Ordnance Survey Office,† Phoenix Park, Dublin, during the months of July, August, and September, 1864, have been furnished by Captain Wilkinson, R.E., by direction of the Superintendent of the Ordnance Survey.

The mean height of the barometer for the quarter was 29.804 inches; the highest reading was 30.371 inches, which occurred on August 15th, at 9:30 A.M., the wind E.S.E.; the minimum reading (29.081 inches) was on September 16th, at 3:30 P.M., with a southerly wind blowing at the time.

The mean temperature during the three months was 57.8°; the maximum height of the mercury (81.4°) was in August, and the minimum (33.0°) was also in August. The mean of the dry bulb for the quarter was 58.8°; the mean for the month of July being 61.6°; for August 58.7°; and for September 56.2°. The rainfall during the quarter measured only 3.566 inches, being less than one-half the fall during the corresponding quarter in 1863, which was 7.591 inches. The prevailing winds during the three months were westerly and south-westerly.

During the three months the wind blew on 7 days from the north, 11 days from the north-east, 10 days from the east, 1 day from the south-east, 6 days from the south, 27 days from the south-west, 21 days from the west, and 6 days from the north-west.

July.—During this month the mean height of the barometer was 29.796 inches; the highest reading (30.097 inches) occurred on the 7th at 9:30 P.M., the wind N.W.; the lowest reading (29.301 inches) was on the 2nd at 3:30 P.M., the wind at the time blowing from the west. The mean temperature of the month was 60.6°. 80.9° to 40.5°); the 18th was the warmest day, and the 13th was the coldest. The greatest rainfall in 24 hours (2.72 inch) was on the 2nd. Rain fell on 9 days. The greatest amount of ozone (7) was on the 2nd, and the least amount (1) was on the 19th and 26th; the mean ozone for the month was .2.

August.—The mean height of the barometer during the month of August was 29.936 inches; the maximum reading (30.371 inches) was on the 15th at 9:30 A.M., the wind E.S.E.; the minimum (29.333) was on the 30th at 9:30 P.M., the wind S.W. The mean height of the thermometer was 57.1°, varying from 81.4° to 33°; the warmest day was on the 14th, and the coldest was on the 21st. The greatest rainfall in 24 hours (3.14 inch) was on the 27th; it rained on 13 days. The greatest amount of ozone (9) was on the 27th; the least amount (0) was on the 11; the mean for the month was .3.

On the 21st, the minimum temperature on the grass was 28.7° (nearly 3½ degrees of frost), and the maximum in the sun's rays was 84.2°, thus showing a range for the day of 55.5.

* According to the Census of 1861.

† Latitude 53° 21' 41" 65 north. Longitude 6° 21' 6" 35 west. Height above the sea, 158.8 feet.

September.—The mean height of the barometer during this month was 29.670 inches; the highest reading (30.210 inches) was on the 28th, at 9.30 p.m., it being at the time "calm;" the lowest reading (29.081 inches) was on the 16th, at 3.30 p.m., the wind blowing from the south. The mean temperature was 55.8°, varying from 71.2° to 37.1°; the warmest day was on the 6th, and the coldest night was on the 15th; the maximum heat in the sun (90.5°) was on the 26th, and the minimum on the grass (33.3) was on the 15. The greatest rainfall in 24 hours was .379 of an inch; it rained on 22 days. The maximum amount of ozone was .8; the minimum was .2, and the mean for the month was .4.

Meteorological Observations taken at the Ordnance Survey Office, Phoenix Park, Dublin.

1864.	Barometer.			Thermometer.			Mean of Dry Bulb.	Rain-fall.	
	Months.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.		
July.....	Inches.	29.307	29.304	29.706	80.0	40.5	60.0	61.0	.964
August		30.371	29.383	29.930	81.4	33.0	57.1	58.7	1.301
September		30.240	29.081	29.670	71.2	37.4	55.8	56.2	1.301
Mean		30.236	29.256	29.804	77.8	37.0	57.8	58.8	Total. 3.560

1864.	Direction of the Wind at 9.30 A.M.							
	Number of Days the Wind blew from the							
Months.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
July.....	2	7	1	—	3	6	10	2
August	4	3	7	—	2	6	6	3
September	1	1	2	1	1	15	8	1
Total	7	11	10	1	6	27	24	6

COMPARISON OF RESULTS BY DIVISIONS.—*Births.*—Comparing one division with another as to the number of births registered in proportion to their population in 1861;* the following is the result for the quarter of the year ending 30th September last:—The "Eastern" division ranks first, with an annual ratio of 1 in 39; the other divisions come in the following order:—The "North-Eastern," 1 in 40; the "South-Western," 1 in 42; the "Western," 1 in 43; the "South-Eastern," 1 in 44; the "North-Midland," 1 in 46; the "South-Midland," 1 in 48; and the "North-Western," 1 in 49.

Taking the number of births registered during the nine months ending 30th September last, the divisions range thus as to annual birth rate:—The "South-Western," 1 in 37; the North-Eastern" and the "South-Eastern," 1 in 40 each; the "Eastern," 1 in 41; the "South-Midland," 1 in 45; the "Western," 1 in 46; the "North Midland," 1 in 47; and the "North-Western," 1 in 49.

The following statement shows the annual birth-rate and the order of the eight divisions for the quarters ending 31st March, 30th June, and 30th September, respectively, and for the three quarters taken together:—

* According to the Census.

	Quarter ending			Nine Months ending 30th September, 1864.
	31st March, 1864.	30th June, 1864.	30th September, 1864.	
I. South-Western....	1 in 39	1 in 32	1 in 42	1 in 37
II. South-Eastern....	" 42	" 30	" 44	" 40
III. South Midland....	" 48	" 41	" 48	" 45
IV. North Eastern....	" 48	" 34	" 40	" 40
V. Eastern.....	" 48	" 37	" 39	" 41
VI. North Midland....	" 53	" 42	" 46	" 47
VII. Western.....	" 55	" 42	" 43	" 46
VIII. North-Western....	" 56	" 45	" 49	" 49

Deaths.—Comparing the divisions, with regard to the number of deaths registered in each during the quarter ending 30th September last, in proportion to the population therein in 1861;* the following is the result:—The "Eastern" ranks first, with an annual ratio of 1 in 61; the others follow thus:—The "South-Eastern," 1 in 67; the "North-Eastern," 1 in 69; the "South-Western," 1 in 73; the "South Midland," 1 in 74; the "North-Western," 1 in 82; the "North Midland," 1 in 92; and the "Western," 1 in 100.

	Death-rate, Quarter ending			Nine Months ending 30th September, 1864.
	31st March, 1864.	30th June, 1864.	30th September, 1864.	
I. South-Eastern....	1 in 43	1 in 50	1 in 67	1 in 52
II. Eastern.....	" 43	" 51	" 61	" 52
III. North-Eastern....	" 46	" 52	" 69	" 54
IV. South Midland....	" 50	" 60	" 74	" 59
V. South-Western....	" 53	" 60	" 73	" 61
VI. North-Western....	" 56	" 61	" 82	" 65
VII. North Midland....	" 58	" 73	" 92	" 72
VIII. Western.....	" 67	" 77	" 100	" 79

No. IV.—GREAT BRITAIN AND IRELAND.

SUMMARY OF MARRIAGES, in the Quarter ended 30th June, 1864; and BIRTHS and DEATHS, in the Quarter ended 30th September, 1864.

COUNTRIES.	AREA in Statute Acres.	POPULATION, 1861. (Persons.)	MARRIAGES.	BIRTHS.	DEATHS.
England and Wales	37,324,883	20,066,224	44,596	180,752	112,133
Scotland	19,639,377	3,062,294	5,710	27,063	16,131
Ireland	20,322,641	5,798,967	6,029	33,892	19,259
GREAT BRITAIN AND IRELAND	77,286,901	28,927,485	56,335	211,707	147,523

* According to the Census.

Trade of United Kingdom, 1864-03-62.—Distribution of Exports from United Kingdom, according to the Declared Real Value of the Exports; and the Computed Real Value (Ex-duty) of Imports at Port of Entry, and therefore including Freight and Importer's Profit.

Merchandise (excluding Gold and Silver), Imported from, and Exported to, the following Foreign Countries, &c. [000's omitted.]	First Six Months.					
	1864.		1863.		1862.	
	Imports from	Exports to	Imports from	Exports to	Imports from	Exports to
I.—FOREIGN COUNTRIES:						
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	6,089,	2,317,	5,146,	1,770,	4,773,	1,673,
Central Europe; viz., Prussia, Germany, the Hanse Towns, Holland, and Belgium	13,268,	11,313,	11,544,	9,161,	10,131,	9,173,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	17,091,	7,017,	14,564,	7,589,	12,667,	7,132,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,715,	3,928,	1,914,	3,566,	2,121,	3,229,
Levant; viz., Turkey, with Wallachia and Moldavia, Syria and Palestine, and Egypt	13,633,	7,026,	10,249,	4,538,	7,452,	2,787,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	160,	79,	197,	51,	206,	101,
Western Africa	372,	212,	561,	315,	648,	474,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooris Islands	28,	24,	26,	28,	—	51,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	358,	961,	843,	424,	671,	750,
South Sea Islands	—	44,	19,	83,	—	—
China, including Hong Kong	9,508,	2,471,	8,496,	1,858,	7,136,	1,883,
United States of America	8,509,	12,027,	9,519,	7,001,	11,221,	6,450,
Mexico and Central America	2,132,	823,	769,	1,058,	461,	271,
Foreign West Indies and Hayti	2,582,	1,537,	2,444,	1,281,	1,865,	1,287,
South America (Northern), New Granada, Venezuela, and Ecuador (Pacific), Peru, Bolivia, Chili, and Patagonia (Atlantic) Brazil, Uruguay, and Buenos Ayres	872,	1,079,	370,	784,	492,	418,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, & Falkland Islands	25,	12,	12,	6,	14,	9,
Total.—Foreign Countries	83,385,	56,488,	72,932,	43,179,	65,191,	39,384,
II.—BRITISH POSSESSIONS:						
British India, Ceylon, and Singapore	22,837,	10,229,	16,461,	8,116,	10,314,	7,909,
Austral. Cols.—New South Wales and Victoria	2,580,	3,602,	2,285,	3,928,	2,451,	3,907,
" " So. Aus., W. Aus., Tasm., and N. Zea.	1,170,	1,522,	1,128,	1,510,	764,	1,159,
British North America	1,251,	2,385,	923,	1,839,	1,539,	1,175,
" W. Indies with Btsh. Guiana & Honduras	5,306,	1,853,	3,550,	1,709,	3,318,	1,629,
Cape and Natal	814,	921,	835,	662,	592,	949,
Brt. W. Co. of Af., Ascension and St. Helena	116,	142,	57,	175,	61,	207,
Mauritius	960,	338,	1,250,	215,	809,	256,
Channel Islands	388,	567,	300,	381,	345,	380,
Total.—British Possessions	35,423,	21,559,	26,789,	18,835,	20,193,	17,931,
General Total	£ 118,807,	78,047,	99,721,	62,014,	85,384,	57,315,

IMPORTS.—(United Kingdom.)—First Eight Months (January—August), 1864-03-02-61-60.—Computed Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.

(First Eight Months.)	{000's omitted.] FOREIGN ARTICLES IMPORTED.	1864.	1863.	1862.	1861.	1860.
RAW MATLS.—Textile.	Cotton Wool ...	50,504,	26,862,	11,655,	30,809,	28,941,
	Wool (Sheep's)...	10,789,	7,921,	7,333,	6,455,	7,797,
	Silk	7,434,	9,502,	9,764,	5,428,	6,243,
	Flax	3,856,	2,262,	2,664,	1,474,	2,256,
	Hemp	2,934,	1,796,	1,336,	909,	835,
	Indigo	1,777,	1,926,	2,151,	1,993,	1,893,
		77,294,	50,269,	34,903,	47,068,	47,965,
" " Various.	Hides	1,604,	1,868,	1,681,	1,104,	2,085,
	Oils	1,849,	2,512,	2,161,	1,937,	2,259,
	Metals	2,828,	2,345,	2,807,	2,106,	2,460,
	Tallow	711,	853,	995,	1,174,	1,586,
	Timber	5,523,	5,669,	4,908,	5,214,	4,513,
		12,515,	13,247,	12,555,	11,835,	12,903,
" " Agreml.	Guano	756,	2,022,	518,	1,395,	923,
	Seeds	2,138,	1,880,	1,413,	1,679,	1,850,
		2,894,	3,902,	1,931,	3,074,	2,773,
TROPICAL, &c., PRODUCE.	Tea	5,435,	6,670,	5,652,	4,219,	5,081,
	Coffee	2,254,	2,557,	2,379,	1,491,	1,428,
	Sugar & Molasses	11,336,	9,707,	8,892,	9,487,	9,005,
	Tobacco	1,390,	1,059,	673,	713,	463,
	Rice	588,	772,	1,266,	1,024,	473,
	Fruits	115,	153,	185,	354,	320,
	Wine	3,731,	2,874,	2,468,	2,829,	3,096,
	Spirits	1,544,	1,207,	1,078,	1,084,	1,420,
		26,393,	24,999,	22,593,	21,201,	21,286,
FOOD	Grain and Meal..	12,601,	17,605,	23,233,	24,693,	15,819,
	Provisions	5,753,	5,230,	5,090,	4,404,	3,693,
		18,354,	22,835,	28,323,	29,097,	19,512,
	Remainder of Enumerated Articles	3,562,	2,806,	2,379,	2,312,	2,455,
	TOTAL ENUMERATED IMPORTS....	141,012,	118,058,	102,684,	114,588,	106,894,
	Add for UNENUMERATED IMPORTS (say)	35,253,	29,514,	25,671,	28,647,	26,723,
	TOTAL IMPORTS.....	176,265,	147,572,	128,355,	143,235,	133,617,

EXPORTS.—(United Kingdom.)—First Nine Months (January—September), 1864-63-62-61-60.—Declared Real Value, at Port of Shipment, of Articles of BRITISH and IRISH Produce and Manufactures Exported from United Kingdom.

(First Nine Months.) BRITISH PRODUCE, &c., EXPORTED.		1864.	1863.	1862.	1861.	1860.
MANFRS.—Textile.	Cotton Manufactures..	£ 35,648,	£ 27,192,	£ 24,769,	£ 28,683,	£ 30,917,
	Yarn.....	7,278,	5,463,	5,297,	7,137,	7,378,
	Woollen Manufactures	14,915,	10,973,	9,698,	8,009,	9,463,
	Yarn.....	4,214,	3,702,	2,753,	2,656,	2,893,
	Silk Manufactures ..	1,605,	1,503,	1,517,	1,593,	1,607,
	Yarn.....	199,	215,	231,	214,	205,
	Linen Manufactures....	6,123,	4,555,	3,666,	2,912,	3,166,
	Yarn.....	2,387,	1,775,	1,353,	1,127,	3,169,
		72,369,	55,378,	49,337,	52,361,	57,328,
.. Seized.	Apparel	1,801,	1,935,	1,609,	1,462,	1,528,
	Haberdy. and Millury	3,793,	3,131,	2,689,	2,630,	3,113,
		5,594,	5,066,	4,298,	4,092,	4,641,
METALS	Hardware.....	3,082,	2,669,	2,391,	2,196,	2,768,
	Machinery	3,363,	3,031,	2,951,	2,120,	2,644,
	Iron	10,393,	9,676,	8,361,	7,909,	9,229,
	Copper and Brass.....	2,677,	3,072,	2,141,	1,743,	2,283,
	Lead and Tin	2,241,	2,138,	2,130,	1,350,	2,006,
	Coals and Culm	3,100,	2,768,	2,892,	2,745,	2,531,
		24,856,	23,354,	20,869,	19,372,	21,465,
Ceramic Manufcts.	Earthenware and Glass	1,620,	1,537,	1,359,	1,292,	1,595,
Indigenous Mftrs.	Beer and Ale	1,283,	1,285,	1,124,	1,105,	1,571,
	Butter	234,	302,	262,	379,	465,
	Cheese	113,	106,	87,	95,	82,
	Candles	100,	156,	169,	215,	184,
	Salt	225,	235,	248,	297,	277,
	Spirits	447,	318,	368,	332,	230,
	Soda	686,	666,	682,	436,	753,
		3,088,	3,159,	2,940,	2,859,	3,562,
Various Manufcts.	Books, Printed.....	327,	323,	296,	330,	364,
	Furniture	185,	216,	183,	179,	166,
	Leather Manufactures	1,756,	1,674,	1,850,	1,545,	1,626,
	Soap	178,	193,	174,	170,	193,
	Plate and Watches	302,	314,	353,	331,	396,
	Stationery.....	253,	246,	199,	494,	572,
		3,001,	2,996,	3,064,	3,049,	3,317,
Remainder of Enumerated Articles		7,238,	6,404,	6,181,	3,309,	2,951,
Unenumerated Articles		5,638,	6,403,	5,624,	7,461,	6,865,
TOTAL EXPORTS		123,404,	104,296,	93,672,	93,795,	101,724,

SHIPPING.—FOREIGN TRADE.—(United Kingdom.)—First Nine Months (January—September), 1864-63-62-61.—Vessels Entered and Cleared with Cargoes, including repeated Voyages, but excluding Government Transports.

(First Nine Months.) ENTERED:—	1864.			1863.			1862.			1861.		
	Vessels.	Tonnage (000's omitted.)	Average Tonnage	Vessels.	Tonnage (000's omitted.)	Vessels.						
<i>Vessels belonging to—</i>												
Russia	536	182,	310	301	91,	323	95,	307	91,			
Sweden	1,008	156,	155	803	126,	714	117,	786	129,			
Norway	3,017	631,	209	2,632	577,	2,360	483,	2,278	477,			
Denmark	2,129	207,	97	2,305	218,	1,915	184,	1,821	176,			
Prussia and Ger. Sts.	1,529	395,	258	2,992	716,	2,751	669,	2,777	637,			
Holland and Belgium	1,380	193,	140	1,320	188,	1,279	177,	1,184	162,			
France	1,784	143,	80	1,982	162,	1,415	118,	1,344	107,			
Spain and Portugal.....	344	103,	299	284	87,	295	87,	354	84,			
Italy & other Eupn. Sts.	608	171,	281	703	200,	611	172,	724	198,			
United States	349	383,	1,097	563	566,	975	848,	1,572	1,342,			
All other States	13	5,	381	11	3,	77	21,	10	3,			
United Kingdom. & } Depds.....	12,697	2,569,	202	13,896	2,936,	12,715	2,973,	13,157	3,406,			
	18,407	5,070,	309	17,139	5,209,	15,840	4,700,	15,491	4,681,			
<i>Totals Entered</i>	31,104	8,248,	265	31,035	8,145,	28,555	7,673,	28,648	8,087,			
<i>CLEARED:—</i>												
Russia	425	162,	381	291	86,	308	91,	304	89,			
Sweden	885	134,	151	789	121,	712	116,	799	132,			
Norway	1,818	318,	175	1,451	252,	1,535	262,	1,519	247,			
Denmark	2,166	209,	96	2,600	247,	2,347	225,	2,377	232,			
Prussia and Ger. Sts.	2,298	490,	213	4,179	829,	4,122	792,	3,832	707,			
Holland and Belgium	1,385	214,	155	1,438	220,	1,743	257,	1,505	213,			
France	3,333	330,	99	3,438	326,	3,768	363,	3,957	372,			
Spain and Portugal.....	330	99,	300	290	94,	300	93,	317	84,			
Italy & other Eupn. Sts.	854	256,	299	713	214,	622	80,	834	233,			
United States	326	353,	1,083	515	531,	897	795,	1,225	1,071,			
All other States	23	8,	348	19	6,	111	31,	20	6,			
United Kingdom. & } Depds.....	13,843	2,573,	186	15,723	2,926,	16,465	3,205,	16,689	3,386,			
	22,250	6,657,	298	21,707	6,083,	21,434	5,759,	20,730	5,252,			
<i>Totals Cleared</i>	36,093	9,230,	256	37,430	9,009,	37,899	8,964,	37,419	8,638,			

GOLD AND SILVER BULLION AND SPECIE.—IMPORTED AND EXPORTED.—(United Kingdom.)—Computed Real Value for the First Nine Months (January—September), 1864-63-62.

[000's omitted.]

(First Nine Months.)	1864.		1863.		1862.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
Imported from:—						
Australia	2,422,	—	4,510,	—	4,630,	—
So. America, and W. Indies	4,183,	5,779,	3,136,	5,095,	1,226,	4,606,
United States and Cal.	5,168,	101,	5,149,	616,	6,836,	83,
	11,773,	5,880,	12,823,	5,711,	12,712,	4,689,
France	118,	897,	183,	690,	89,	983,
Hanse Towns, Holl. & Belg.	210,	2,062,	309,	1,211,	402,	1,735,
Prtgl., Spain, and Gbrltr.	114,	68,	10,	66,	23,	91,
Malta, Trky., and Egypt	35,	1,	114,	3,	8,	13,
China	—	—	—	—	—	—
West Coast of Africa	68,	16,	47,	3,	80,	3,
All other Countries....	263,	133,	984,	118,	1,075,	69,
Totals Imported	12,581,	9,057,	11,174,	7,802,	14,389,	7,583,
Exported to:—						
France	5,425,	1,935,	2,203,	833,	3,900,	515,
Hanse Towns, Holl. & Belg.	78,	635,	1,023,	703,	155,	501,
Prtgl., Spain, and Gbrltr.	1,566,	29,	1,574,	3,	1,872,	7,
	7,069,	2,599,	4,890,	1,539,	5,927,	1,023,
Ind. and China (via Egypt)	1,638,	5,188,	1,608,	6,161,	—	6,534,
Danish West Indies....	—	—	—	—	—	—
United States	183,	5,	35,	10,	36,	1,
South Africa	111,	—	—	5,	—	—
Mauritius.....	—	—	—	—	—	—
Brazil	916,	115,	1,234,	50,	227,	19,
All other Countries....	375,	206,	3,213,	119,	5,010,	1,024,
Totals Exported	10,294,	8,113,	10,980,	7,884,	11,201,	8,601,
Excess of Imports ...	2,289,	944,	3,493,	—	3,188,	—
<i>" Exports ...</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>82,</i>	<i>—</i>	<i>1,018,</i>

1864.] Quarterly Returns.—July, Aug., Sept., 1864. 627

REVENUE.—(UNITED KINGDOM.)—30TH SEPT., 1864-63-62-61.

Net Produce in YEARS and QUARTERS ended 30TH SEPT., 1864-63-62-61.

[000's omitted.]

QUARTERS, ended 30th Sept.	1864.	1863.	1864.		Corresponding Quarters.	
			Less.	More.	1862.	1861.
Customs	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.
	5,624,	5,872,	248,	—	6,201,	5,982,
Excise	4,352,	3,922,	—	,430,	3,604,	4,221,
Stamps	2,267,	2,191,	—	,76,	2,180,	2,013,
Taxes	168,	176,	8,	—	166,	160,
Post Office	1,045,	905,	—	,140,	895,	870,
	13,456,	13,066,	,256,	,646,	13,046,	13,246,
Property Tax	782,	866,	84,	—	974,	991,
	14,238,	13,932,	,310,	,646,	14,020,	14,237,
Crown Lands	69,	68,	—	,1,	67,	66,
Miscellaneous	485,	411,	—	,74,	513,	298,
Totals	14,792,	14,411,	,310,	,721,	14,600,	14,601,
			NET INCR. £350,085			

YEARS, ended 30th Sept.	1864.	1863.	1864.		Corresponding Years.	
			Less.	More.	1862.	1861.
Customs	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.
	22,573,	23,771,	1,198,	—	23,863,	23,488,
Excise	19,096,	16,992,	—	,2,104,	17,430,	18,624,
Stamps	9,538,	9,146,	—	,392,	8,824,	8,426,
Taxes	3,252,	3,193,	—	,59,	3,160,	3,130,
Post Office	3,960,	3,760,	—	,200,	3,560,	3,470,
	58,419,	56,862,	1,198,	,2,755,	56,837,	57,138,
Property Tax	8,551,	10,605,	2,054,	—	10,532,	11,133,
	66,970,	67,467,	3,252,	,2,755,	67,369,	68,271,
Crown Lands	307,	301,	—	,6,	296,	292,
Miscellaneous	3,097,	2,726,	—	,371,	2,019,	1,243,
Totals	70,374,	70,494,	3,252,	,3,132,	69,684,	69,806,
			Net Decr. £120,438			

REVENUE.—UNITED KINGDOM.—QUARTER ENDED 30TH SEPT., 1864:—

An Account showing the REVENUE and other RECEIPTS of the QUARTER ended 30th September, 1864; the APPLICATION of the same, and the Charge of the Consolidated Fund for the said Quarter, together with the Surplus or Deficiency upon such Charge.

Received:—

Surplus Balance beyond the Charge of the Consolidated Fund for the Quarter ended 30th June, 1864, viz.:—	£
Great Britain	—
Ireland	£707,020
	707,020
Income received in the Quarter ended 30th September, 1864, as shown on preceding page	14,702,480
Amount raised per Acts 23 and 26 Victoria, cap. 78, and 26 and 27 Victoria, cap. 80, on account of Fortifications, &c.	183,000
Amount received in the Quarter ended 30th September, 1864, in repayment of Advances for Public Works, &c.	627,183
	£10,302,292
Balance, being the Deficiency on 30th September, 1864, upon the charge of the Consolidated Fund in Great Britain, to meet the Dividends and other charges payable in the Quarter to 31st December, 1864, and for which Exchequer Bills (Deficiency) will be issued in that Quarter	2,695,910
	£18,998,211

Paid:—

Amount applied out of the Income for the Quarter ended 30th September, 1864, in Redemption of Exchequer Deficiency Bills, for the Quarter ended 30th June, 1864, viz.:—	£.
Total Deficiency	£031,412
Deduct—Redeemed by Sinking Fund	688,169
	903,248
Amount applied out of the Income to Supply Services in the Quarter ended 30th September, 1864	9,018,807
Charge of the Consolidated Fund for the Quarter ended 30th September, 1864, viz.:—	
Interest of the Permanent Debt	£5,424,257
Terminable Debt	908,513
Principal of Exchequer Bills	231,900
Interest of " "	81,886
" Deficiency "	—
The Civil List	101,472
Other Charges on Consolidated Fund	481,758
Advances for Public Works, &c.	460,105
Sinking Fund.....	612,471
	8,308,752
Surplus Balance in Ireland beyond the Charge of the Consolidated Fund in Ireland for the Quarter ended 30th September, 1864.....	407,849
	£18,998,211

1864.] Quarterly Returns.—July, Aug., Sept., 1864. 629

CORN.—Gazette Average Prices (ENGLAND AND WALES), Third Quarter of 1864.

[This Table is communicated by H. F. JADIS, Esq., Comptroller of Corn Returns.]

Weeks ended on a Saturday 1864.	Weekly Average. (Per Imp. Quarter.)					
	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
July 2	40 0	27 2	20 0	31 2	30 2	31 —
" 9	41 0	27 8	21 10	28 0	30 1	32 8
" 16	42 0	27 10	21 7	31 5	30 11	31 3
" 23	43 —	27 3	21 —	31 —	37 8	35 7
" 30	41 —	27 7	23 4	30 2	38 4	35 11
Average for July	42 4	27 6	21 6	31 1	37 —	34 6
August 6	41 1	28 3	22 10	33 —	39 2	35 3
" 13	43 0	28 1	22 —	32 0	39 8	30 0
" 20	42 7	28 7	22 11	31 6	40 9	35 6
" 27	42 6	29 1	22 —	32 8	41 1	35 0
Average for August	43 1	28 6	22 5	32 6	40 2	35 9
September 3	42 3	31 1	22 5	31 1	40 9	35 9
" 10	42 4	32 1	21 9	31 7	41 10	36 11
" 17	42 —	32 —	20 11	35 6	41 2	36 5
" 21	40 11	31 5	20 11	31 7	40 7	37 1
Average for September	41 10	31 8	21 6	34 8	41 1	36 6
Average for the Quarter ..	42 3	29 2	21 8	32 0	39 4	35 7

RAILWAYS.—PRICES, July—Sept.;—and TRAFFIC, Jan.—Sept., 1864.

Total Capital Ex- pended Millions.	Railway.	For the (£100). Price on			Miles Open.	Total Traffic first 39 Weeks. (£000 omitted.)	Traffic pr. Mile pr. Wk. 39 Weeks.	Dividends per Cent. for Half Years.					
		1st Sept.	1st Aug.	1st July.				30 Jun. '64.	31 Dec. '63.	30 Jun. '63.			
		£	No.	No.	£	£	£	s. d.	s. d.	s. d.			
51,0	Lond. & N. Westn.	112 1	117 1	114 1	1,271	1,232	4,110	3,681	90	86	57 6	60 —	42 6
45,0	Great Western	69	70	67	1,222	1,169	2,561	2,389	61	57	30 —	30 —	20 —
16,3	" Northern	131	140	135	387	351	1,269	1,121	93	91	55 —	87 6	42 6
21,7	" Eastern	47 1	49	48	663	663	1,219	1,130	51	49	12 6	25 —	12 6
12,2	Brighton	103	108	104	267	261	761	745	83	80	50 —	50 —	50 —
17,2	South-Eastern	85 1	93 1	93	308	306	927	886	86	83	42 6	58 4	45 —
14,9	" Western	96 1	99 1	98	463	454	913	870	59	53	45 —	55 —	45 —
178,3		92 1	96 1	96 1	4,581	4,436	11,760	10,822	75	71	41 9	52 3	36 9
23,8	Midland	132	139	133	641	641	1,782	1,609	75	70	70 —	70 —	57 6
20,1	Lancsh. and York.	116	121	116	403	395	1,545	1,358	103	93	57 6	47 6	42 6
13,0	Sheffield and Man.	66	67	60	242	242	676	601	75	68	27 6	15 —	—
31,4	North-Eastern	106 1	112	106 1	1,095	1,095	2,303	2,058	59	52	55 —	55 —	42 6
88,3		105 1	110	103 1	2,381	2,373	6,306	5,626	78	71	52 6	46 10	47 6
10,2	Caledonian	125 1	125 1	119 1	262	244	733	656	77	73	65 —	62 6	52 6
5,6	Gt. S. & Wn. Irld.	92	92	92	387	354	331	321	25	27	45 —	45 —	42 6
812,4	Gen. aver.	98 1	102 1	99	7,611	7,407	19,130	17,425	72	68	47 1	50 10	41 3

Consols.—Money Prices, 1st Sept., 88 1/2 to 1/2 do., and 88 1/2 to 1/4 ac.—1st Aug., 89 1/2 to 90 de.—1st July, 90 1/2 to 1/2 de., and 90 1/2 to 1/4 for 8th July.

Exchequer Bills.—1st Sept., 25s. to 15s. dis.—1st Aug., March, 10s. to 6s. dis.; June 7s. to 2s. dis.—1st July, March, 8s. to 3s. dis.; June, 5s. dis. to par.

BANK OF ENGLAND.—WEEKLY RETURN.

Pursuant to the Act 7th and 8th Victoria, c. 32 (1844), for Wednesday in each Week, during the THIRD QUARTER (July—Sept.) of 1864.

[0,000's omitted.]

1 Liabilities.	2 DATES. (Wednesdays)	3 ISSUE DEPARTMENT.			4 COLLATERAL COLUMNS.		6 Assets. Government Debt. Other Securities. Gold Coin and Bullion.	7 Notes in Hands of Public, (Col. 1 minus col. 10.)	8 Minimum Rates of Discount at Bank of England.			
		Notes Issued.	Government Debt.	Other Securities.	Gold Coin and Bullion.							
£ Mins.	1864.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	1864. Per ann.			
27,90	July 6	11,01	3,63	13,23	21,38	16 June 0 p. ct.						
27,63	" 13	11,01	3,63	13,00	21,57							
27,11	" 20	11,01	3,63	12,46	21,70							
26,95	" 27	11,01	3,63	12,30	21,63	25 July 7	"					
26,82	Aug. 3	11,01	3,63	12,17	21,93	5 Aug. 8	"					
26,57	" 10	11,01	3,63	11,92	21,35							
26,59	" 17	11,01	3,63	11,93	21,02							
26,73	" 24	11,01	3,63	12,08	20,51							
26,88	" 31	11,01	3,63	12,23	20,74							
26,88	Sept. 7	11,01	3,63	12,23	20,81							
26,81	" 14	11,01	3,63	12,16	20,42	9 Sep. 9	"					
27,07	" 21	11,01	3,63	12,42	20,34							
27,01	" 28	11,01	3,63	12,39	20,24							

8 Liabilities.	9 DATES.	10 Deposits.			11 Assets.			12 Totals of Liabili- ties and Assets.	13 14 15 16 17 18
		Capital and Rest.		13 Deposits.	14 Securities.	15 Reserve.	16 17 18		
		Capital.	Rest.	Public.	Private.	Government.	Notes.	Gold and Silver Coin.	
£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	1864.
14,55	3,67	9,49	13,47	,51	11,12	23,07	6,52	,68	41,39
14,55	3,41	4,68	15,08	,59	11,17	20,37	6,08	,70	38,32
14,55	3,47	4,46	13,41	,61	11,09	19,28	5,11	,71	36,50
14,55	3,50	4,96	13,72	,52	11,07	20,18	5,32	,69	37,26
14,55	3,62	5,15	13,52	,56	Aug. 3	11,05	20,76	,89	37,41
14,55	3,65	4,96	14,42	,53	" 10	11,10	21,11	,22	38,11
14,55	3,67	5,14	13,95	,53	" 17	10,89	20,60	,57	37,84
14,55	3,64	5,23	13,71	,54	" 24	10,80	19,97	,22	37,73
14,55	3,86	5,81	13,07	,55	" 31	10,80	20,16	,14	37,85
14,55	3,88	6,02	12,90	,56	Sept. 7	10,80	20,31	,07	37,91
14,55	3,90	6,70	12,72	,54	" 14	10,80	20,49	,39	38,42
14,55	3,92	6,81	12,39	,50	" 21	10,80	19,90	,73	38,18
14,55	3,99	7,08	12,59	,51	" 28	10,80	20,40	,80	38,73

1864.] Quarterly Returns.—July, Aug., Sept., 1864. 631

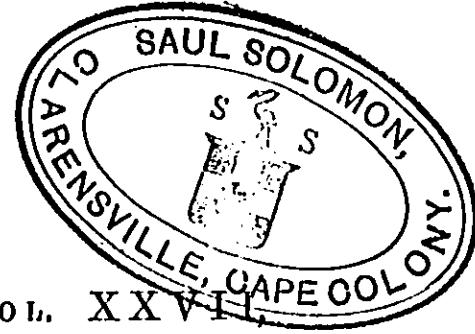
CIRCULATION.—COUNTRY BANKS.

Average Amount of Promissory Notes in Circulation in ENGLAND and WALES on Saturday, in each Week during the THIRD QUARTER (July—Sept.) of 1864; and in SCOTLAND and IRELAND, at the Three Dates, as under.

DATES.	ENGLAND AND WALES.			SCOTLAND.			IRELAND.		
	Private Banks. (Fixed Issues, 4,25.)	Joint Stock Banks. (Fixed Issues, 8,27.)	TOTAL. (Fixed Issues, 7,52.)	Four Weeks, ended	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2,75.)	£5 and upwards.	Under £5.
1864.	£ Mins.	£ Mins.	£ Mins.	1864.	£ Mins.	£ Mins.	£ Mins.	£ Mins.	£ Mins.
July 2	3,10	2,87	5,97						
" 9	3,15	2,92	6,07						
" 16	3,11	2,91	6,02						
" 23	3,07	2,88	5,95	July 23	1,55	2,70	4,25	2,76	2,58
" 30	3,05	2,85	5,89						
Aug. 6	3,01	2,82	5,86						
" 13	3,02	2,82	5,83						
" 20	2,97	2,79	5,76	Aug. 20	1,52	2,67	4,19	2,63	2,57
" 27	2,95	2,78	5,73						
Sept. 3	2,96	2,78	5,75						
" 10	2,98	2,79	5,77						
" 17	2,99	2,79	5,78	Sept. 17	1,46	2,71	4,17	2,66	2,52

FOREIGN EXCHANGES.—Quotations as under, LONDON on Paris, Hamburg & Calcutta; and New York, Calcutta, Hong Kong & Sydney, on LONDON—with collateral cols.

1 DATES.	Paris.				Hamburg.				9 New York.	Calcutta.				14 Standard Silver in bars in London.	
	London on Paris		Bullion as arbitrated.		London on Hamburg		Bullion as arbitrated.			India Council		At Calcutta on London.		Hong Kong.	
	3 m. d.	Agst. Engd.	For Engd.	Prem or Dis- on Gold	per mille	3 m. d.	Agst. Engd.	For Engd.		60 d. s.	60 d. s.	6 m. d.	6 m. s.	30 d. s.	
1864.	25·65	·2	—	2½ p	13·9	pr. et.	·3	pr. et.	234	23½*	24½	57½	pr. et.	61½	
July 2	"	"													



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