

**Return to an address of the House of Lords, date 17th June 1853, for copy of a report on the state of small-pox and vaccination in England and Wales and oher countries, and on compulsory vaccination, with tables and appendices, presented to the President and Council of the Epidemiological Society by the Small-Pox and Vaccination Committee, the 26th day of March 1853 / H. Waddington.**

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## L I S T.

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REPORT on the State of SMALL-POX and VACCINATION in *England and Wales* and other Countries, and on COMPULSORY VACCINATION, with Tables and Appendices, presented to the President and Council of the Epidemiological Society by the Small-Pox and Vaccination Committee, 26 March 1853.

THE great extent of the inquiry entrusted to us by the Epidemiological Society induced us some time ago to express to the Council our determination to present the results of our investigations into distinct branches of the subject, from time to time as they might be completed; and at the commencement of the present session we felt ourselves justified in stating to the President that we had every reasonable expectation of being able, before it terminated, to lay one of these reports before the society. The particular portion of the subject on which we intended to report, comprised the statistics of small-pox in Great Britain and the various colonies and foreign countries from which we had received information, with a survey of the state of vaccination in each; an inquiry into the laws regulating vaccination in various countries; a special investigation into the causes of its neglect in Great Britain and Ireland, and an examination of the laws and practice respecting it, with a view to practical suggestions, leading, as we hoped, to the adoption of a general national system of vaccination. Some circumstances have, however, occurred which have rendered it desirable, in our opinion, to lay aside for the moment the extended survey we had originally contemplated, and to present at once to the Council a Report on the same subjects of a more limited nature.

A few weeks ago a Bill, intituled "An Act further to extend and make compulsory the practice of Vaccination," was presented to the House of Lords by the Lord Lyttleton, and our attention was naturally directed to it. While we could not but feel warm sympathy with any effort to promote an object we had so much at heart, and for which we conceived there was so much urgent necessity, as the extension of vaccination, we considered, on perusing the Bill, that it contained many provisions which were objectionable in themselves, and likely to excite hostility to the measure on the part of those whose support to it was most desirable. Thinking it our duty to lay these views before his Lordship, and convinced that we were in possession of information which could not but be valuable to any one undertaking to legislate on the subject, with the concurrence of the president of the society, and accompanied by him, we sought and obtained an interview with his Lordship, and subsequently, on the same day, with Her Majesty's Principal Secretary of State for the Home Department, the Viscount Palmerston. The result of these interviews was satisfactory.

The Lord Lyttleton stated distinctly that his only object was to get vaccination made universal, by making it compulsory; that, in order to get that principle admitted, he wished and intended to proceed with the Bill, but that he would gladly make any alterations in the particular provisions of it which should render it acceptable to the public and the medical profession, and that he would therefore postpone the second reading for three weeks, for the sake of receiving any information we might be able to give him, or any suggestions which we might offer.

It is in compliance with this wish of his Lordship that we have drawn up the statement we have now to lay before you.

But we would first desire to recall to your recollection the sources from which our information has been derived, both at home and abroad.

As soon as our committee was constituted, you will recollect that we put ourselves in communication with various authorities in this country likely to afford authentic information, especially with the Registrar-general, with the Poor Law Board (who have the superintendence of public vaccination under the Act now in force), and with the Board of Health, and we have much pleasure in being able to state, that we were permitted free and unreserved access to every document in their possession calculated to throw light on our investigations. We addressed queries to the public vaccinators throughout England and Wales, and to other members of the profession whom we knew to have paid particular

Reasons and object of this Report.

Sources of information.

As regards Eng-

attention

attention to the subject, or to have had unusual opportunities respecting it, and in this way we have been put in possession of the opinions of nearly 2,000 of our medical brethren; we have also corresponded with various public and charitable institutions.

As regards foreign countries.

Our inquiries into the state of foreign countries were in every instance addressed to the Government of each country, through its ambassador or representative for the time being at the Court of Her Majesty, and the replies we have received in many instances are of the fullest and most satisfactory description. There can be no doubt, therefore, of the authentic and trustworthy character of the information on which our conclusions are based, and we now proceed to state these conclusions, so far as it is necessary for our present purpose, together with various facts and documents in illustration of them.

Evils of unchecked small-pox.

I. Small-pox is a disease to which every person is liable, who is not protected by a previous attack or by vaccination. In its unmodified form it is fatal to about one in four or one in five of all whom it invades; and, when it does not destroy life, it in many instances disfigures and deteriorates the general health. Every case of it is a centre of contagion, and every unvaccinated or imperfectly vaccinated population is a nidus for the disease to settle in and propagate itself. To the two latter propositions, which do not admit of being controverted, we call your special attention, for it is on them we conceive must be based any enactment for rendering vaccination compulsory. If it admit of doubt, how far it is justifiable in this free country to compel a person to take care of his own life and that of his offspring, it can scarcely be disputed that no one has a right to put in jeopardy the lives of his fellow-subjects. The principle of so using one's own, so as not to injure another's, is one which has always been acted upon in our legislation as regards property and personal nuisances, and we submit that it is but an extension of this principle to apply it to the questions of life and health.

Vaccination a safe and efficient prophylactic.

II. We are ourselves satisfied, and it is the concurrent and unanimous testimony of nearly 2,000 medical men, with whom, as we have already stated, we have been in correspondence, that vaccination is a perfectly safe and efficient prophylactic against this disease.

This proposition we hold to be proved,—

Proved by the general immunity from small-pox enjoyed by the vaccinated.

1. By the general immunity with which it is found that those who have been vaccinated can mingle with small-pox patients, a fact so familiar that we do not feel that we need adduce any illustration of it.

By the gradual decrease in mortality from small-pox since the introduction of vaccination.

2. By the gradual decrease which has taken place in the mortality from small-pox, as compared with the mortality from all causes, since vaccination has been introduced and been generally received. This is illustrated in the following tables\*.

(A). Table showing the average of deaths from small-pox out of every 1,000 deaths from all causes, within the bills of mortality, for decennial periods, during the last half of the last century (the half century preceding vaccination).

For the 10 years ending 1760	-	-	-	-	100
" " 1770	-	-	-	-	108
" " 1780	-	-	-	-	98
" " 1790	-	-	-	-	87
" " 1800	-	-	-	-	88

\* For the authorities from which these Tables are compiled, and for further observations on the subject, see the "Tables, Illustrative of the Mortality from Small-Pox in Great Britain and Ireland, &c. &c.," printed at the end of this Report.

(B). Table showing the average of deaths from small-pox out of every 1,000 deaths from all causes, within the bills of mortality, for decennial periods, during the first half of the present century (the half century succeeding the introduction of vaccination).

For the 10 years ending 1810	-	-	-	-	64
" " 1820	-	-	-	-	42
" " 1830	-	-	-	-	32
" " 1840	-	-	-	-	23
" " 1850	-	-	-	-	16

The steady progression indicated in the second of these tables is very remarkable, and is strictly in accordance with what has been observed to take place in foreign countries. In further illustration of this subject, we have contrasted in the following Table the mortality from small-pox in various European States, for periods specified (generally of 10 years), before and after the introduction of vaccination. The returns from which this table is compiled, will be found in the "Tables exhibiting the Mortality, &c., from Small-pox, in various countries in Europe," printed at the end of this Report.

TABLE showing the Average of DEATHS from SMALL-POX out of every Thousand Deaths from all Causes, in various European Countries, for Periods specified, before and after the Introduction of Vaccination.

COUNTRY or PROVINCE, &c.	Before Vaccination was introduced.		After Vaccination was introduced.	
	Period.	Small-Pox Deaths per 1,000 Deaths.	Period.	Small-Pox Deaths per 1,000 Deaths.
Lower Austria - - - -	- - 10 year, ending 1786.	67	- - 10 years ending 1846	7
Upper Austria and Salzburg -	"	46	"	6
Styria - - - -	"	31	"	10
Illyria - - - -	"	21.75	"	7
Trieste - - - -	"	142	"	5
Tyrol and Vorarlberg - - -	"	42	"	4
Bohemia - - - -	"	58	"	1.33
Moravia - - - -	"	54	"	1.75
Silesia (Austria) - - - -	"	66	"	2
Gallicia - - - -	"	38	"	9.5
Prussia, Eastern Provinces - -	1776-80	111	1832-50	12.33
" Western Provinces - -	1780	75	"	10
Posen - - - -	"	71	"	22.50
Brandenburgh - - - -	1776-80	82	"	8.75
Westphalia - - - -	"	85	"	6
Rhenish Provinces - - - -	"	33	"	3.75
Berlin - - - -	1781-1805	77	"	5.50
Saxony - - - -	1776-1780	27	"	8.33
Pomerania - - - -	1780	74	"	7.50
Prussia - - - -	1776-80	82	"	7.50
Sweden - - - -	1790-1800	71	1840-50	2.7
Average - - - -		66.5		7.26

3. In those states and kingdoms in which, by compulsory legislation or otherwise, vaccination is most efficiently carried out, the mortality from small-pox is the least. On this point we have obtained most important and authentic information.

But we would first desire to give a summary of the laws respecting vaccination in some of the principal European states.\* Those from which we have already received replies to our inquiries, addressed to them on this head, are France, Belgium, Sardinia, Prussia, Lubeck, Hanover, Frankfort, Bavaria, the Grand Duchy of Oldenburg, Hamburg, Austria, and Sweden. From the following

By those countries being freest from small-pox in which vaccination is best carried out. Summary of laws in various countries.

\* For the Laws, Ordinances, &c. in full, see Appendix (A.).

lowing countries we have not yet received information: Holland, Naples, States of the Church, Parma, Tuscany, Spain, Portugal, Russia, and Turkey.

Indirect com-  
pulsion.

With regard to the kingdoms contained in the first category, we may state that, in most of them, with or without the aid of laws rendering the omission of vaccination penal, the performance of that operation is made essential to the enjoyment of so many municipal and other advantages, that the general diffusion of it is pretty certainly attained. In Austria, Bavaria, France, Prussia, Sardinia, Lubeck, Frankfort, and Hamburg, the production of a certificate of successful vaccination is an indispensable preliminary to admission to public schools, and in many instances to private schools. In Austria, Frankfort, Sardinia, Belgium, and Lubeck, no relief is given from public funds in case of poverty; there is no admission to almshouses or orphan asylums, without a similar certificate. In Frankfort, proof of vaccination is an indispensable condition of citizenship: nor is any person allowed to take a servant or apprentice who has not been properly vaccinated. The same rule, so far as apprenticeship is concerned, applies to Bavaria; in which country, as well as in Prussia, even the rite of matrimony is withheld until the proper certificates or other evidence of vaccination have been produced.

Direct compulsion  
by fine, &c.

In the kingdoms last named (Prussia and Bavaria), direct compulsion by fine is employed in addition to these means; the fine in Bavaria augmenting annually until the law is complied with. In Austria there is no fine, but if it be known to the police that a person is unvaccinated, they have authority to take him forthwith and see that the operation is performed.

Facilities for dif-  
fusion of vaccina-  
tion.

Two countries only, of those from which we have received information, appear to rely wholly on the system of fine, and do not employ any of those indirect measures which we have enumerated. In Hanover, the punishment is fine or imprisonment. In Sweden, a person who refuses to comply is taken before the magistrate and reprimanded in the first instance; he is afterwards fined, if he continues to disobey, and the fine is increased until obedience is obtained. It is right, however, to state, that in both these countries, as well as in Austria, Bavaria, and the Grand Duchy of Oldenburg, great facilities for vaccination are afforded to the population by the appointment of district vaccinators (paid generally by the State), whose duty it is to vaccinate at appointed times and at convenient stations, or even from house to house.

Rewards to vac-  
cinators.

In France and Belgium, rewards (prizes, and gold and silver medals,) are given to those vaccinators who have distinguished themselves by zeal in the discharge of their functions.

Voluntary system.

In Great Britain and the United States of America, vaccination (except for those who enter the military and naval services, and the like,) is entirely voluntary; nor are any inducements held out to medical men to encourage them to exertion.

Results.

The results of these opposite modes of proceeding will be seen in the following Tables:—

(A.)—TABLE showing the MORTALITY in various Places in *England, Scotland, and Ireland*, from SMALL-POX, as compared with the Total Mortality, for 10 Years, ending 1850 or 1851.

	Deaths from Small-Pox.	Deaths from all Causes.
London - - - - -	16· per	1,000
Birmingham - - - - -	16·6	"
Leeds - - - - -	17·5	"
Paisley - - - - -	18·	"
Edinburgh - - - - -	19·4	"
Liverpool - - - - -	21·	"
Dundee - - - - -	24·2	"
Perth - - - - -	25·	"
Greenock - - - - -	34·6	"
Glasgow - - - - -	36·	"
Dublin - - - - -	25·66	"
Cork - - - - -	39·5	"
Galway - - - - -	35·	"
Limerick - - - - -	41·	"
Connaught } 10 years ending 1841 {	60·	"
All Ireland }	49·	"
England and Wales (eight years) - - - - -	21·9	"

(B.)—TABLE showing the Mortality from SMALL-POX in various Countries in which Vaccination is directly or indirectly compelled, as compared with the Total Mortality for various Periods stated in the "Tables exhibiting the Mortality from Small-Pox in various Countries" at the end of this Report.

	Deaths from Small Pox.	From all Causes.
Westphalia	6 per	1,000
Saxony	8.33	"
Rhenish Provinces	3.75	"
Silesia (Prussian)	5.25	"
Pomerania	7.75	"
All Prussia	7.5	"
Lower Austria	6.	"
Trieste	5.15	"
Bohemia	2.	"
Lombardy	2.	"
Venice	2.2	"
Sweden	2.7	"
Bavaria	4.	"

On looking at these Tables we cannot fail to be struck with the fact, that the proportionate mortality from small-pox in England and Wales is considerably more than double what it is in any country in which vaccination is compulsory. So likewise, as will be seen by reference to the Tables printed at the end of this Report, the proportion of deaths from small-pox in London to the total mortality is three times, and in Glasgow as much as six times, what it is in Brussels, Berlin, or Copenhagen.

We are here desirous of stating to the Council our opinion that the results exhibited in the second of the Tables given above, favourable as they are to vaccination, would be still more so, if, in the countries comprised in it, proper regulations existed with regard to the age at which the operation should be performed. In some of those in which direct compulsion is employed, the public vaccinations being annual, it necessarily happens that a large number of the children are many months, a year, or more than a year, old, before the opportunity is afforded them of becoming protected; while in those States in which the compulsion is only indirect (as by requiring certificate of vaccination for school attendance, &c.), it is clear that the operation may be much longer deferred. The consideration is a very important one, for a large proportion of the mortality from small-pox occurs under the age of one year. We shall have to show by-and-by, that in England and Wales this proportion is as high as 25 per cent.; and though we have not facts for determining what is the per-centage in the various continental States, we may infer from the returns which we have from Paris (where it is found to be upwards of 14 per cent.) that this must be very considerable.

It is possible that to some difference in custom with regard to the age at which vaccination is performed, may be due a portion of the discrepancy found to exist in the amount of mortality in the countries comprised in the second Table, varying as it does from eight per 1,000 in Saxony to two per 1,000 in Lombardy. Much also will be due to the nature of the provisions of the various enactments, but probably still more to the zeal and energy with which these are enforced.\* For even in those countries in which the laws are most stringent, it is not to be denied that they may be and are sometimes evaded. If good laws could be so worked as to secure universal vaccination, there is little doubt that the mortality from small-pox might be reduced everywhere,

\* How much depends on this will be seen by referring to some Tables inserted in Appendix (A.), in which are given the vaccinations for 10 years (from 1841 to 1850) in the whole kingdom of Belgium and in the province of Luxembourg. From these it appears that while the vaccinations in the entire kingdom were to the births as 7 to 12 only, in Luxembourg they were as 10 to 11. The law in this province being, of course, the same as for the rest of the kingdom, the excellent state of vaccination must be mainly due to administrative zeal and activity.

where, even below what it is in Lombardy; if indeed it might not be wholly got rid of. In the kingdom of Hanover, in the year 1847, out of a total mortality of 45,850, there were but eight deaths from small-pox, or one in 5,728; and we find it stated on the highest medical authority, that in Denmark "variola had at one time disappeared before the defensive influence of compelled vaccination;"\* though it is added that, "chance, and a careless security engendered by the absence of the pest, have led to its re-introduction there."

The consideration we have just suggested is of the utmost importance, and well worthy of the best attention of our legislators, for we are firmly convinced that no law will be efficacious unless it holds out inducements to stimulate the zeal and energy of those employed to put it in action; while at the same time it is worked with a machinery and in a mode in accordance with the feelings of the people. In the course of our inquiries, we have had ample opportunities of seeing the value of administrative exertions, both with regard to the working of the Vaccination Act in this country by the Poor Law Board, and more especially in the extension of vaccination in Bombay on a purely voluntary system by energetic and indefatigable vaccinators.

By small-pox being kept out of towns, districts, &c. &c. or prevented spreading by the general vaccination of the inhabitants.

4. Many practitioners, in all parts of the country, have reported to us instances in which villages or districts, well vaccinated, have remained free from small-pox, while it was prevailing in surrounding ill vaccinated places; and also instances of the importation of small-pox into their districts (well vaccinated), which, though no particular isolation was observed, did not spread beyond the imported case; and, again, instances of epidemics which had already invaded a place, arrested by the prompt vaccination of all who were not protected. We will proceed to give a few illustrations.

*a.* In the year 1849 small-pox invaded the village of Road, near Chippenham, a wretched place, ill vaccinated; it attacked 48 out of 800 inhabitants. Four villages, all within two miles of it, with populations of 1,200, 230, 190, and 170, respectively, and all in constant communication with it, but where the poor are in better circumstances, and all vaccinated, entirely escaped.

*b.* Mr. Stapleton, of Trowbridge, informs us that, in 1838, the small-pox, while it prevailed in North Wilts generally, was excluded from some of the villages of the Devizes Union by the parish authorities vaccinating all persons in whom incontestable proof of successful vaccination did not present itself.

*c.* Mr. Livett, of Wells, instances the case of a village in which, by good vaccination, there has been no small-pox since 1837, though it has prevailed on several occasions in most of the villages round; as also in Wells, from which it is four miles distant. Although the village of which he speaks is somewhat isolated, that circumstance has not excluded other epidemics, such as measles, scarlatina, &c.

*d.* Mr. Godwin Johnson tells us that a clergyman in a village about five miles from Norwich became alarmed at the appearance of small-pox, and the reluctance of the inhabitants to have their children vaccinated. Mr. Johnson, however, succeeded in the course of four or five weeks in vaccinating nearly all the children and young persons in the parish, and the small-pox was extinguished, though prevailing in all the neighbouring villages.

*e.* Mr. Ceeley, of Aylesbury, informs us, "Since 1836, but few cases have occurred in Aylesbury and the adjoining villages. As soon as a case has been imported from London or elsewhere, prompt vaccination of the inhabitants has soon extinguished it. Twelve cases of small-pox only existed in Aylesbury during the past winter, from repeated importations from London, Wycombe, and other places adjoining. Extensive vaccination stopped it. In most of the adjoining villages the small-pox was promptly stopped during that period by the same means."

*f.* Mr. Wilks, of Charing, in a practice of 30 years, has seen many imported cases of small-pox, but never knew it extend beyond the house to which

\* Watson's Practice of Physic, vol. II. p. 797.

which it was brought, which he attributes entirely to his having kept all the neighbourhood well vaccinated.

*g.* Mr. Jones, of Tenby, relates the following instance: "In a village called Redburth there is a school containing about 100 children; of this number there were but four (members of the same family) unvaccinated. Three of these became the subjects of small-pox. The fourth was immediately vaccinated by Mr. Jones. This child, together with all the other children in this school, escaped, though no means were adopted to prevent free communication between the protected and the sick.

*h.* In a district in North Wales, comprising 11,000 inhabitants, in which house to house vaccination is carried on, there has been but a single death from small-pox since 1847, and that was an imported case. It is a proof of what may be done by an energetic vaccinator, that in this district, while the registered births in nine years have been 2,857, no fewer than 2,533 children have been vaccinated by Dr. Hughes, of Mold, in his capacity of public vaccinator.

For additional instances of the same kind, we must refer to the Appendix.\* We will content ourselves here with inserting two illustrations of the protective power of vaccination, communicated to us by correspondents in India, the one from the Bombay, the other from the Bengal Presidency.

Surgeon Don, quoting from Marshall's Literary Transactions of Bombay, vol. iii., gives the following illustration of what natural small-pox is in India: "Small-pox visits India about once in every three years; at each visit about two-thirds of those capable of receiving it are attacked, and of these nearly one-half die. Of the other half one-fifth are left unfit for the ordinary duties of life." Mr. Don says, that since vaccination was introduced in 1812 into the Purgunnah of Broach, small-pox has twice appeared; once very fatally, but it made very little progress in the vaccinated villages, and on an inquiry in 1817, not one of the vaccinated was found to have been attacked, although about 7,000 were inspected. At Keiria, vaccination was introduced in 1813, and there had been no epidemic for many years; at last it appeared in 1824, and only attacked the unvaccinated; at least there was no fatal case among the vaccinated. At Ahmedabad vaccination was introduced in 1817, became general in 1825, and since then small-pox has not been heard of.

Dr. Cannon, of Simla, states, that in June 1850, small-pox broke out along the left bank of the Sutlej. Dr. Cannon immediately set his vaccinators to work along the right bank. The results were that the disease along the left bank, where there was no attempt made to arrest it, destroyed from 50 to 60 per cent.; along the right bank from five to six per cent. only, and in many of these cases the proper performance of vaccination was doubtful.

We have already alluded to the remarkable immunity from small-pox enjoyed by the well vaccinated kingdoms of Hanover and Denmark; and it is a most striking fact, that in the 48 years which have elapsed since the opening of the Royal Military Asylum, Chelsea, out of an aggregate strength of 31,705 (all the children being protected by previous small-pox or by vaccination), there has not been a single death from small-pox after vaccination. Four deaths from small-pox have indeed occurred in the Asylum, but all these were from second attacks of the disease.

III. A conviction of the value and protective power of vaccination has induced the Legislature to pass Acts for its extension. The working of these enactments, and the present state of England and Wales with regard to vaccination, have been subjects of the most earnest inquiry by this Committee, and we now proceed to lay the results before you.

An exposition of this kind is the more urgently required, inasmuch as there is reason to believe that the most serious errors prevail respecting the extent and nature of the Legislative provisions made to secure the vaccination of the population, and especially because, as so many years have elapsed since the great discovery of Jenner, and as several Acts of Parliament have been passed to

Laws on vaccination, &c. in England and Wales.

Errors prevalent on the subject.

\* Vide Appendix (B.).

to promote vaccination, the notion might naturally arise that as small-pox still commits such ravages among us, this mortality must have been owing rather to a failure in the protective powers of vaccination, than to any want of its diffusion.

Vaccination Extension Acts of 1840 and 1841.

National Vaccine Establishment.

The only general provision for securing the vaccination of the population is the Act of 1840, entitled, "An Act to extend the practice of Vaccination," as amended by a second Act passed in 1841. We have reason to know that an idea prevails to some extent, and even in official quarters, that the National Vaccine Establishment has powers for insuring the vaccination of the people. This erroneous inference renders it incumbent on us to explain that that institution, although it has rendered great service to the community, is in virtue of its powers simply and exclusively engaged in supplying lymph, which, as the annual reports show, it has effected to a very large extent. As to the actual practice of vaccination, this is confined to London, and is only carried on there for the purpose of obtaining the necessary supply of lymph, not for securing the vaccination of the population.

There are two other institutions engaged in providing for the supply of lymph, the Royal Jennerian Society, and the Small-pox Hospital, both of which are supported by private contribution, and have no powers conferred on them by the Legislature.

Provisions of the Act of 1840-41.

The Act of 1840-41 applies to England, Wales, and Ireland, but not to Scotland, for which country no legislative provision has been made. The principal provisions are as follows :

1. Boards of Guardians are authorised and required to contract with their medical officers or other practitioners for the gratuitous vaccination of all persons resident in their respective unions or parishes, the expense being defrayed out of the poor-rates.

2. A copy of the contract so made is required to be transmitted to the Poor Law Board, who have power within the period of 14 days of the receipt of the contract to annul the same, if they see fit.

3. The Poor Law Board are empowered and required to issue regulations which are binding on the guardians.

4. The public vaccinators appointed as above, are required, from time to time, to report the number of persons vaccinated by them. The practice is, that the books of the vaccinators are laid before the guardians at each of their meetings, which are held weekly or fortnightly.

5. Inoculation with variolous matter is declared to be an offence, punishable by imprisonment for any term not exceeding one month.

6. Vaccination, as performed under this Act, is declared not to constitute parochial relief or alms.

Originally administered by Poor Law Commissioners,

Now by Poor Law Board.

When this Act was passed the Poor Law Commissioners were in existence, and to them was intrusted the administration of the measure in the whole of the United Kingdom (Scotland being, as above stated, excepted).

But in 1847 the constitution of the Commission was altered, and at present the Act is administered in England and Wales by the Poor Law Board, and in Ireland by the Poor-law Board of that country.

This enactment has now been in force 13 years; sufficient time has thus been afforded for judging how far it has realised the intention of the Legislature in securing the proper vaccination of the people of the United Kingdom. As regards England and Wales (to which the present Report more particularly relates), we have had ample opportunity of ascertaining the results, and we expect in a short time to be able to present to the Council an exposition of the existing state of vaccination in Ireland.

The most important source of information to which we have had access, as illustrating the actual state of vaccination in this country, consists of the reports of the Poor Law Board, and of the annual returns forwarded to the Board from every union and parish in England and Wales.

Proceedings of the authorities.

But, before proceeding to detail this information, we will give a short sketch of the proceedings of the authorities charged with the administration of the Act of 1840.

The

The Poor-law Commissioners, on the introduction of the measure, and subsequently, issued sundry regulations with the view of giving it effect. The Boards of Guardians have entered into the contracts required by the Act, so that there is no union or parish in England or Wales, in which, at the present time, the enactment is not in operation. Various efforts, also, have been made to facilitate vaccination, and to induce parents to have their children vaccinated; stations have been established, where, at appointed times, the public vaccinators are required to give attendance; placards and hand-bills are periodically distributed in all the unions, and, whenever small-pox occurs, or vaccination appears to be neglected, these means of advertisement are more actively employed. When these measures fail, the vaccinators frequently call at the houses of the poor, and we are informed that this system of house to house visitation has increased of late years.

In the course of our examination of the official documents at the present Poor Law Board, we had ample proof of the great anxiety of that body to secure the blessings of vaccination to the population; and, as we shall have occasion to point out how much still remains to be accomplished, we feel it is but due to the Board, and especially to Mr. Thomas Austin, the gentleman charged with this department (to whom we are indebted for much valuable information, and for the great facilities he afforded us), to express our conviction that no efforts have been spared to give efficiency to the Act of Parliament.

In 1848, the Poor Law Board requested the guardians to supply notices, containing all necessary information, to the registrars of births and deaths, to be given to persons attending to register births, a plan which has been carried into effect.

Independently of issuing general regulations and instructions, other measures are adopted as occasion may require.

Thus, whenever from the annual returns it appears that there has been neglect of vaccination in any unions, letters of remonstrance are immediately forwarded by the Poor Law Board, asking for information as to the causes of the neglect, and urging increased exertions. The Board is also furnished by the registrar-general, as speedily as possible, with the returns showing the deaths from small-pox; and whenever it is thus found that the disease prevails in any union, a letter of inquiry as to the cause of the attack and the state of vaccination is immediately dispatched to the guardians. It will be necessary to recur to this subject, and to show the result of these measures.

The fee paid in England and Wales for each successful case varies from 1 s. to 2 s. 6 d., never falling below or rising above these sums: in some unions attempts have been made to fix a lower scale, but the Poor Law Board will not sanction such contracts. In the years 1842 and 1843, the Commissioners estimated the average fee at 1 s. 9 d. From our inquiries, it appears that in the large manufacturing towns the fee varies from 1 s. to 1 s. 6 d.; the larger sums of 2 s. and 2 s. 6 d. being paid for the most part in country towns. In Wales, the average is about 1 s. 5 d. per case; 1 s. being the sum in 16 of the more rural districts, and 1 s. 6 d. in the remaining unions, including the principal towns and manufacturing localities. In only one union, Llandoverly, is there a higher fee than 1 s. 6 d., and here 2 s. is paid for distant cases. In the metropolis, the more ordinary fee is 1 s. 6 d.; in several parishes 2 s. 6 d. is paid; and in one, 1 s. In some few unions a bad principle obtains of paying a larger sum for a certain number of cases, as 50, and a smaller sum for all above; the average payment, per case, for the whole of England and Wales, in the 11 years, 1841 to 1851 inclusive, was 1 s. 5 ½ d. In Ireland, the payment appears to be very low. The more general sum is 1 s., often 6 d.; in three or four instances, 3 d. and 4 d. The vicious principle just noticed, of paying a higher fee for a limited number of cases, seems to be almost universal. Thus, where 1 s. is the fee, this is paid for the first 200 cases, and 6 d. for all above. In one case, Nenagh, 1 s. is paid up to 200, and 1 d. for all above. In other cases, 3 d. and 4 d. are paid for all above a certain number. Whilst this pitiful remuneration exists, it is not surprising to find that in many districts the medical practitioners decline the appointment, leaving the people unvaccinated.\*

According

\* Twelfth Report of Poor Law Commissioners, p. 229, and Thirteenth Report, p. 332.

According to the information we have received, it is found, as might be anticipated, that on the whole vaccination is more efficiently carried out in those districts where the higher fee of 2s. 6d. is paid; or where, as in large towns, the number and proximity of children requiring vaccination compensate the vaccinator in some degree for a lower payment. Our inquiries also enable us to state that many public vaccinators deem the usual fee too low, and the consequence is, that vaccination is often delayed till a large number of cases have accumulated, or till small-pox has broken out in the locality, a mode of procedure which it is obvious must often lead to a sacrifice of life.

It is incumbent on us to state further, that from various quarters we have received information that the exertions of the public vaccinators are not unfrequently discouraged by members of Boards of Guardians remonstrating whenever any large number of vaccinations had been reported; and we cannot but record our apprehensions that objections such as these have a tendency to check the efforts of medical officers, and thus to act prejudicially on the public welfare.

State of vaccination in England and Wales.

Having given this sketch of the machinery for diffusing vaccination in the United Kingdom, we proceed to show, by the various means of information at our command, how it works in practice.

*Information received from the Official Documents of the Poor Law Board.*

Importance of attending to the age at which vaccination is performed, to enable us to judge of the efficacy of the system.

In examining these important documents showing the actual progress of vaccination, as carried on under the Act of 1840-41, it is especially necessary to consider the age when the operation ought to be performed; unless this distinction is kept clearly in view throughout, the most fundamental errors must arise as to the real efficiency of the existing system. It is the opinion of medical authorities, that unless under peculiar and exceptional circumstances, vaccination ought to be performed within four months of birth. This, to non-professional persons, may not appear to be a point of much consequence; but, as the period of infancy is particularly obnoxious to the ravages of small-pox, as of zymotic diseases in general, it is certain that every day during which vaccination is delayed beyond the right period, tends inevitably to the sacrifice of life. The amount of this sacrifice may be estimated by the following facts: the deaths from small-pox in 1839, amounted in England to 8,714, of which 202 occurred in the first month after birth; 181 in the second month; 162 in the third; and 456 in the fourth month; so that no fewer than 1,001, or 11 per cent. of the whole, died under four months,\* while 2,235, or 25 per cent., died under one year; and in 1847, of 4,227 total deaths, 1,074, or 25 per cent., were also under one year.† If, as often happens under the present system, vaccination is delayed till the second or third year, or still later, the sacrifice of life is proportionally increased. It is found, for example, as will be subsequently shown, that the deaths under three years, constitute from 51 to 57 per cent. of the whole mortality from small-pox; whilst under five years the proportion rises from 75 to 80 per cent. The enormous sacrifice of life thus caused, is placed in a striking point of view by the valuable statistics on small-pox published by William R. Wilde, Esq., in the Report on the Census of Ireland for 1841. From that document it appears that in the decennial period, 1831-41, there perished of small-pox in that country, 58,006 persons, of whom 45,826, or 79 per cent., were under the age of five years; all of whom, if they had been efficiently vaccinated, might, so far as this disease is concerned, have been now alive. These facts show the vast importance of early vaccination, which ought to be performed as soon after birth as possible, consistently with safety.

General proofs of neglect.

In order, therefore, to form an accurate judgment of the success that has attended the existing system, the official documents should indicate the numbers vaccinated under the age of four months; but no such returns exist. Up to 1845, it does not appear that any distinction as to age was made in the returns of the public vaccinators; but in that year, the Poor Law Commissioners framed the return so as to show the number vaccinated under, and the number

\* Second Report of Registrar-general. *Vide* Appendix (C.).

† Official Tables, published by authority of Registrar-general.

number above, the age of one year, a plan which has since been carried out. Although, for the reasons just stated, this can only be regarded as an imperfect improvement, it has doubtless rendered the annual returns much more valuable, by enabling us to compare the number vaccinated under one year with the total births of the year. In 1845, the official Return was as follows: number of unions and parishes, 580; vaccinated under one year of age, 154,031; vaccinated above one year, 204,242; births registered, 486,632.

In reference to this Table, the Commissioners thus express themselves: "Though the number of children vaccinated under one year of age is only 32 per cent. upon the number of births, we still think that the relation which the births bear to the number vaccinated, is a tolerably correct measure of the efficiency of the arrangements for promoting the object of the Vaccination Extension Act, as from the communications which we have received from Boards of Guardians and vaccinators, we learn that vaccination is very frequently deferred till the child attains its second or third year.\* Although with much reluctance, we deem it essential to enter our decided protest against the principle here assumed. No system of vaccination can be considered otherwise than fundamentally defective, under which a large number of children thus remain unprotected to the age of two or three; the subject is so important as to require illustration.

According to the reports of the Registrar-general, the deaths in London from small-pox were as follows: †

Y E A R .	TOTAL DEATHS FROM SMALL-POX.	DEATHS UNDER THREE YEARS.	PER-CENTAGE OF DEATHS UNDER THREE.
1845 - - - - -	909	433	47
1846 - - - - -	257	141	54
1847 - - - - -	955	528	55
1848 - - - - -	1,620	808	49
TOTALS - - -	3,741	1,910	51

The proportions for 1847 in all England were as follows ‡ :

Total Deaths.	Under Three Years.	Per-Centage.
4,227 - - -	2,420 - - -	57

From these and the preceding statements it appears that whilst 24 or 25 per cent. of all the deaths from small-pox take place under the age of one year, no fewer than 57 per cent. of all the deaths occur before the end of the third year, or within that period during which, according to the Report of the Poor Law Commissioners, "vaccination is very frequently deferred." That this practice, destructive as it is of infantile life, continues to prevail very extensively in this country, appears from the following Returns, made by the Guardians of the Poor, showing the progress of vaccination in 1851 and 1852 in England and Wales: §

	NUMBERS OF UNIONS AND PARISHES.	VACCINATED UNDER ONE YEAR.	VACCINATED ABOVE ONE YEAR.	BIRTHS REGISTERED.
1851 - - - - -	639	186,539	162,552	592,347
1852 - - - - -	"	194,089	203,039	601,839

From

\* Twelfth Report of the Poor Law Commissioners, p. 25.  
 † Eighth and Ninth Reports of Registrar-general, p. 82 *et seq.* Tenth Report, p. 304. Eleventh Report, p. 288 *et seq.*  
 ‡ Tenth Report of Registrar-general, p. 288.  
 § Fourth Report of Poor Law Board, p. 149.

From this Table it is seen that whilst only about 31 per cent. of the persons born were gratuitously vaccinated under one year of age, no fewer than 162,552 in 1851, and 203,039 in 1852, were vaccinated above one year of age, a number which, after making allowance for the limited re-vaccinations, is indicative of great neglect, to whatever cause attributable. In the evidence subsequently adduced, it will be seen that this defective system, although in very various degrees, prevails in all parts of the country. That it is in any respect a necessary evil is disproved, irrespective of other evidence, by the following facts:

In 1844, in consequence of the increased mortality from small-pox, the Poor Law Commissioners addressed a letter to the several Boards of Guardians, urging them to take immediate steps to insure vaccination. It is of great consequence to consider the results of this proceeding. In the year ending March 25th, 1843, the Commissioners estimated by the sum paid that the number of persons vaccinated was 183,074, and as the births in 1843 amounted to 527,325, the vaccinations were to the births registered in the ratio of 34 per cent. In 1844 the vaccinations were to the births, in 542 parishes, as 100 to 156; and in 1845, as 100 to 134. This great increase is rightly attributed by the Commissioners to the efforts consequent upon their appeal; and it is in itself highly encouraging, as showing where the main obstacle to a satisfactory result lies. But the Table for 1845, inserted above, still shows the inherent defects of the system; for, out of the whole number vaccinated only 154,031 were under one year of age, the remaining 204,242 being above that age, indicating precisely the great previous neglect.

Again, one of the first acts of the present Poor Law Board, after their formation in 1847, was to issue a circular to the Boards of Guardians, calling attention to the small number of persons who had been vaccinated in some of the unions during the official year ending September 29th, 1847, the births in 621 unions and parishes being 523,682, whilst the number vaccinated amounted to 267,895; of whom 147,146 (or 28 per cent. of the births) were under one year, and 117,833 above that age.\* The results of this appeal were as follows: The births in 627 unions and parishes in the year following, ending September 29th, 1848, were 532,046; the vaccinations under one year of age were 176,828 (or 33 per cent. of the births), the vaccinations above one year of age amounted to 213,301, and the total vaccinations were 390,129. It thus appears that whilst, as compared with the year 1847, the proportion of vaccinations under one year had only increased from 147,146 to 176,828, or five per cent. upon the births, the number of those vaccinated above one year of age had, with nearly the same number of births in each year, increased from 117,833 in the year 1847 to 213,301 in 1848. These facts amply prove, that even under the existing defective system, great improvement may be effected by sustained exertions, for it is obvious there could be no real reason why the 213,301 persons who had been left unprotected after the first year, might not, if sought out, have been vaccinated earlier.

Neglect in particular unions, &c.

The preceding instances may suffice to indicate in a general way the inefficiency of the existing provisions; but we deem it essential to show that owing to inherent defects in the system, vaccination is constantly neglected in all parts of the kingdom; though, as will immediately appear, there are important differences as to the extent of this neglect, the population in some districts being much more protected than in others.

In order that there should be sufficient data, we have carefully examined the individual Poor Law Returns for the year 1851 from some hundreds of unions in England, and all those from Wales.

We have also examined the returns from a large number of unions for 1850; in this place sufficient instances only will be adduced for the purposes of illustration, fuller details being given in the Appendix.†

On

\* Fourteenth Report of the Poor Law Commissioners, p. 139.

† See Appendix (D.). The data for all these Tables were extracted from the Official Tables at the Office of the Poor Law Board; and, although we have no knowledge of any errors having been committed, it is possible that some few may have crept in, either in originally transcribing the figures, or in the copy subsequently made. It is also probable that some of the Returns of the numbers of vaccinations and births made to the Poor Law Board may contain errors. But every allowance being made for possible trifling defects of this kind, the Tables may be regarded as substantially correct.

On reviewing these Returns, the first thing that strikes the inquirer is the extraordinary difference in the several unions and parishes, especially in the agricultural districts, as to the numbers vaccinated in proportion to the numbers born. These differences cannot be explained by peculiarities connected with one set of unions as contrasted with another set; they do not, for example, depend essentially on the poverty or wealth of a population; nor on the character of a district, whether it is manufacturing or agricultural; nor even on the fee paid to the vaccinator for each successful case. All these may, and doubtless do, operate to a considerable extent, but they are not the determining causes of the relative condition of vaccination. We have found, for instance, that unions under the same general conditions of wealth, employment, and remuneration to the vaccinator, present marked differences as to the vaccination of their population, manufacturing districts compared with manufacturing districts, rural unions compared with rural unions, &c. &c. There are doubtless modifying peculiarities in some unions, such as the practice of vaccinating at dispensaries, at ironworks, in clubs, and so on, where other than the public vaccinators are employed; but these circumstances can have but a limited influence in the kingdom at large. Still, on the whole, it will appear that vaccination is more neglected in rural districts than among town populations.

It has been stated already, that the only sure test of the successful progress of vaccination is obtained by comparing the number vaccinated under one year with the number of births for that year.

This test we have applied in the following Tables, showing the state of vaccination in certain manufacturing and agricultural districts, for the year 1851. Comparison of manufacturing and agricultural districts.

MANUFACTURING TOWNS.

For the Year ending September 1851.

TOWNS.	Under One Year.	Above One Year.	Births.	Per-Centage of Vaccinations under One Year to Births.	Per-Centage of Vaccinations above One Year to Births.
Birmingham - - - -	3,768	2,573	7,159	52	37
Chorlton - - - -	2,137	538	4,959	43	10
Manchester - - - -	5,920	1,489	9,122	64	19
Bolton - - - -	2,624	753	4,997	52	15
Burnley - - - -	881	507	2,516	35	20
Leicester - - - -	739	281	2,437	30	11
Loughborough - - - -	61	122	997	6	12
Belper - - - -	421	433	1,636	25	26
Derby - - - -	355	301	1,597	22	19
Chesterfield - - - -	717	762	1,713	41	44
South Shields - - - -	726	56	1,470	49	3

AGRICULTURAL DISTRICTS.

For the Year ending September 1851.

DISTRICTS.	Under One Year.	Above One Year.	Births.	Per-Centage of Vaccinations under One Year to Births.	Per-Centage of Vaccinations above One Year to Births.
Bideford - - - -	22	47	557	3.9	8
Teesdale - - - -	70	24	654	10	3
Cirencester - - - -	6	83	679	9	12
Witham - - - -	84	300	491	17	61
Hitchin - - - -	85	434	896	9	48
Royston - - - -	120	329	944	12.7	34
Barnet - - - -	166	79	347	44	22
Watford - - - -	174	741	612	28.4	126
West Ashford - - - -	42	71	475	8	14
Seven Oaks - - - -	166	285	690	15	40
Bromyard - - - -	94	585	342	27	171
Winchcomb - - - -	9	18	296	3	6

Although all these instances indicate great neglect, inasmuch as in the 11 towns enumerated, no fewer than 7,815 persons in 12 months were vaccinated above the age of one year, still the balance, as indicated by the per-centage of vaccinations under one year to the total births, is much more favourable than in the case of the 12 rural districts.

The inspection of the Tables in the Appendix will reveal instances of the inefficiency of the present system in individual unions in every part of the Kingdom. We shall here insert a few examples for the sake of illustration, in considering which, it must be borne in mind that the numbers in the second column, those showing the vaccinations above one year of age, are all indicative of previous neglect.

TABLE Illustrating Neglect in INDIVIDUAL UNIONS, for the Year ending 29 September 1851.

UNION.	NUMBER VACCINATED.		BIRTHS.
	UNDER ONE YEAR.	ABOVE ONE YEAR.	
Launceston - - - - -	27	58	537
Camelford - - - - -	1	13	308
Amphill - - - - -	139	542	454
Wallingford - - - - -	13	24	467
Caxton - - - - -	16	20	387
Bochnin - - - - -	37	58	391
Rednith - - - - -	378	404	1,925
Depwade - - - - -	14	83	850
Docking - - - - -	79	221	607
Erpingham - - - - -	21	57	711
St. Faith's - - - - -	59	188	353
East and West Flegg - - - - -	7	41	302
Swaffham - - - - -	10	94	505
Great Yarmouth - - - - -	46	133	906
Kettering - - - - -	12	17	644
Wellingborough - - - - -	0	0	801
Brackly - - - - -	36	494	417
Northampton - - - - -	33	178	1,180
Bromyard - - - - -	94	585	342
Thornbury - - - - -	35	48	433
Northleach - - - - -	4	84	339
Romney Marsh - - - - -	4	7	168
Staines - - - - -	91	190	369
Ashby-de-la-Zouch - - - - -	51	83	987
Blaby - - - - -	29	40	593
Rhayader - - - - -	0	2	254
Pwllheli - - - - -	85	562	581
Newcastle Emlyn - - - - -	15	49	528
Lampeter - - - - -	26	105	224
Builth - - - - -	0	19	253
Bula - - - - -	14	141	171
Cardigan - - - - -	34	224	531
TOTAL - - - - -	1,410	4,764	17,718

It thus appears that in 32 unions, in various parts of England and Wales, in which the births were 17,718, there were only vaccinated altogether in 1851, 6,174; and that of these only 1,410, or less than eight per cent. of the births, were under one year of age.

The results of such a condition of things are exactly what might be anticipated. When small-pox is imported into a locality thus situated, it finds and carries off a number of unprotected victims; the people are then roused from their apathy, and active exertions are made to obtain that protection which, had it been timely secured, would have altogether prevented the spread of the pestilence. The consequence is, that under these circumstances we frequently find the vaccinations, in a given year, largely in excess of the number of births; and we have thus at once a proof and a measure of the previous neglect. It is

Previous neglect shown by the excess of vaccinations over births in particular years.

so important that this subject should be comprehended in all its bearings that we here subjoin some instances selected from the Returns to the Poor Law Board.

In 1850, in consequence of the small number of persons vaccinated in the St. Alban's Union, the Board wrote to the guardians, and at the same time called attention to the fact that some 20 deaths from small-pox had taken place. The state of things will be best understood by the following figures:—

ST. ALBAN'S UNION.	VACCINATED.		BIRTHS.
	UNDER ONE YEAR.	ABOVE ONE YEAR.	
In 1850 - - - - -	73	84	562
In 1851 - - - - -	267	1,483	581

In King's Norton Union, small-pox prevailed to a considerable extent; and this induced the guardians to make great exertions. The results were as follows:

KING'S NORTON UNION AND PARISH.	VACCINATED.		BIRTHS.
	UNDER ONE YEAR.	ABOVE ONE YEAR.	
Union: In 1850 - - - - -	159	83	766
Union: In 1851 - - - - -	259	884	952
Parish: In 1850 - - - - -	12	8	167
Parish: In 1851 - - - - -	62	720	182

In 1849, a severe attack of small-pox broke out at Windsor, and great efforts being made by the authorities and the medical officers, a large number of persons, above the age of one year, were vaccinated:—

WINDSOR UNION.	VACCINATED.		BIRTHS.
	UNDER ONE YEAR.	ABOVE ONE YEAR.	
In 1850 - - - - -	212	1,295	480

It is not necessary further to multiply examples. The Tables last adduced conspicuously illustrate one of the worst defects of the present system, to which we would call the particular attention of the Council, with a view to its rectification. It has already been stated that the Returns showing the progress of vaccination in each union are only forwarded to the Poor Law Board once a year; the consequence is, that the information designed to protect the population from the ravages of small-pox comes too late; that is, after the pestilence has appeared and gathered the year's harvest. True it is, the Board receives information from the Registrar-general of any occurrence of small-pox; but even in regard to this, the intelligence only reaches the central authority after death has taken place; and, consequently, when the disease has become so far established that preventive measures can be of little avail. In any improved system it is, therefore, obvious that provision should be made to insure Returns of cases vaccinated at short intervals, a point to which we shall subsequently recur.

Importance of more frequent returns of the state of vaccination, &c., to the central authorities.

The state of vaccination in the metropolis, as will be seen by referring to the

Vaccination in the metropolis.

Appendix, where the Returns for each union and parish are inserted, as might be anticipated, is somewhat more satisfactory than that of the provinces, though even here very great neglect exists. A few selections are inserted in this place.

UNION OR PARISH.	Number Vaccinated in 1851.		BIRTHS.
	Under One Year.	Above One Year.	
St. Matthew, Bethnal Green - - - -	817	324	3,589
St. George's-in-the-East - - - -	678	175	1,763
Holborn - - - - -	504	310	1,427
St. Mary, Islington - - - - -	925	473	3,057
St. James, Westminster - - - - -	38	6	973
City of London - - - - -	61	140	1,311
Marylebone - - - - -	2,357	1,113	4,798
Shoreditch - - - - -	1,605	773	4,273
Greenwich - - - - -	1,384	1,134	3,139

The total number of successful vaccinations in the metropolis in 1851 amounted to 36,487, of which 26,854, or about one-third of the total births, were under one year of age; so that 9,633 were vaccinated above that age. In this and other similar cases, it is proper to explain that in all large towns there is a considerable influx of unprotected persons, strangers to the locality, who on being vaccinated are of course entered in the second column; this circumstance, however, only changes the neglect from one district or part of the kingdom to another.

Importance of watching the course of the disease in persons vaccinated, and necessity of further steps to ensure this.

We cannot quit this part of our subject without stating to the Council, that the numbers returned to the Poor Law Board as successfully vaccinated tend, to a certain extent,—we cannot say to what extent,—to give a more favourable view of the actual state of efficient vaccination in England and Wales than is really the case, and that they do not represent, in every instance, the numbers which have been really ascertained to have passed regularly through all the stages of the vaccine disease. It is quite needless to remind them that, in conformity with the doctrine laid down by Jenner, and confirmed by all subsequent experience, unless these stages have been passed through in the normal way, the recipient of vaccination cannot be held as protected against a future attack of small-pox; and in determining that payment should be made only for successful vaccinations, the Legislature doubtless intended that the success should be ascertained in every instance by the personal inspection of the vaccinator, or of some competent person. Generally speaking, this is done; but in consequence of the difficulty in many cases of inducing poor people to give a second attendance, and the impossibility that the vaccinators, hard worked and underpaid, should follow them to their own homes, the practice prevails in many places and districts of entering all as successfully vaccinated who do not return to have their arms inspected. We have ourselves conversed with vaccinators who pursue this plan, and who justify it on the ground that they have almost invariably found, when they have instituted an inquiry into the reason of a person not returning for inspection, that it has been because the operation was successful; and they have said, that if they were to pursue the opposite course, and report those only whom they saw a second time, the returns would give a far more inaccurate view of the state of the population, as to protection from small-pox, than they do at present. These statements may be perfectly correct, but do not take away at all from the argument for the necessity of inspection; for though it may be quite true that in the majority of cases of this kind the vaccine influence has had its complete effect, there is as little doubt that in many it has failed entirely; while in still more it has produced only a spurious result, a vesicle running an irregular course, sufficiently like the genuine disease to lull the parents of the child into a false security, but perfectly inefficient as a prophylactic against small-pox. Under any circumstances there is doubt, where there ought to be certainty; and we are ourselves so convinced that the security of the public entirely depends upon their having passed through the genuine vaccine disease, that we think the inspection of the vaccinated at the proper period one of the most essential

essential points to be provided for, and the want of due provision to secure it, one of the greatest defects of the present system.

*Other Sources of Information.*

The view we have been able to present of the state of vaccination in England and Wales from the official documents of the Poor Law Board, has been so full and comprehensive, that we need hardly refer to our other sources of information. It may be interesting, however, for the sake of comparison, to state the results of the examination of the recruits entering the British Army for eight years, from April 1st, 1844, to March 31st, 1851, inclusive, as given by Dr. Balfour, in a paper\* read before the Royal Medical and Chirurgical Society of London. From this it appears, that, of 90,092 recruits examined, there were 64,096 who bore marks of previous vaccination, or about 71 per cent.; a number which, making allowance for those vaccinated by private practitioners, is very nearly corresponding with the proportion returned to the Poor Law Board.

Evidence confirmatory of foregoing statements;

From examination of recruits,

The following short extracts from the voluminous correspondence with which we have been favoured on the subject by our medical brethren will serve to illustrate the neglect of vaccination in particular places, and some of the special evils to which we have called attention :

From private correspondence.

a. Dr. Welch, of Heckington, says, "Unfortunately one half of the poor from ignorance refuse to have their children vaccinated."

b. Mr. Williams, of Truro, complains of the great neglect of vaccination in his neighbourhood by the lower orders, and their little faith. "Small-pox has been very prevalent during some months past, and the unvaccinated have been the sufferers."

c. Mr. Brookman, of Chipping Sodbury, can state from his own experience, in a rural district, that fully one half of the lower classes are not vaccinated, from foolish prejudice.

d. Mr. White, of Taunton, says, "Vaccination has become almost extinct in this part of the country." In his district of six parishes, with a population of between 4,000 and 5,000, not one case has offered for vaccination for the last two-and-half years.

e. Mr. Winchworth, of Horsham, says that the prejudices of the poor are great, and it is only when small-pox is in the district that you can persuade many of them to have their children vaccinated.

f. Mr. Sainsbury, of Romsey, finds the poor so ignorant and prejudiced, that it is impossible to induce them to have their children vaccinated, unless under the influence of a panic from a small-pox epidemic.

g. Mr. Garlick, of Halifax, says that vaccination is most grossly neglected owing to carelessness, ignorance, and lamentable prejudice.

h. Mr. Vulner, of Bury St. Edmunds says, that in some villages it is impossible to get the children vaccinated except under the alarm of impending small-pox. In the village of Lackford, six miles from Bury, a case of small-pox occurred last winter in an unvaccinated person; having the opportunity, he immediately spread the alarm and offered vaccination. In two weeks he vaccinated 39 children, a large number for quite a small village. They were brought eagerly. About three years previously, with great pains he had not been able to get more than four or five vaccinated. The small-pox did not spread beyond the person attacked.

i. Mr. Kinnell, one of the medical officers of Warwick Union, complains of the inefficiency of the Vaccination Act, in consequence of the inadequate remuneration. No medical men will take any trouble; the consequence is that thousands who are vaccinated are never inspected afterwards, and numbers never pass through the disease at all.

k. Mr.

\* Medico Chirurgical Transactions, vol. 35.

k. Mr. Monekton, of Brenchley, and his son, have vaccinated in two country parishes more than 1,000 patients, at least half of whom would have gone unvaccinated if not sought out and solicited.

l. Mr. Robinson, of Bodmin, gives the following example of the mode in which vaccination was carried on in a large district a few years ago: "The Board of Guardians appointed a medical man, at a very low fee, to vaccinate in 21 parishes (statute acres 87,410, population 20,790). Stations were appointed, and the hour fixed for mothers to bring their children, and there was an end of it; little attention being paid to the eighth day, either by the doctor or the mother; the former could not go to see his patient on account of the remuneration, and the latter could not attend at the station with her child because it was washing-day. Such was the way vaccination was carried out in our district, for the truth of which my medical brethren will vouch."

m. Mr. Evans, of Dolgelly, complains of the difficulty of getting parents to bring their children for inspection after vaccination: great evils result from this. Spurious vaccination is put down as effective: on one occasion he saw as many as nine spurious cases in one day. He desired the parents to meet him again some months afterwards, that the operation might be repeated; not one of them has done it, though this was some years ago. These children, he observes, are as amenable to small-pox as though they had never been touched.

n. Dr. Star, of Brighton, on a recent outbreak of small-pox at Hove, inquired as to the unvaccinated; and, in a population of 5,000, found 230 to do. What was worse, he found how carelessly and ineffectually many of those reputed to have been vaccinated had been done. He found several families of five or six, from ages of four to 11 or 12, who had been done and registered, but whose arms presented not the least marks of a cicatrix. On his vaccinating them again, the vesicles ran a regular course, and proved perfectly genuine.

Consequences of neglect of vaccination.

IV. If from this survey of the state of vaccination in this country we now proceed to consider its results, we find them in the fact, which we have already stated, that the proportion of deaths from small-pox to the total mortality is several times as great in this as it is in most of the other European countries. From the annual and other Reports of the Registrar-general, and from various documents with which we have been favoured by him, it appears, as will be found stated more at length in the Tables on Small-pox in Great Britain and Ireland appended to this Report, that the average mortality from small-pox in London on a period of 13 years, has been 913 per annum, and that it is the seventh of all diseases in the order of fatality. In Ireland, for the 10 years ending 1841, it was the second in the order of fatality; typhus fever alone carried off more victims. During this period, as we have already mentioned, it destroyed in that country 58,006 persons. In England and Wales the deaths in eight years were as follows:—

Mortality from small-pox in England and Wales.

In 1838	-	-	-	-	-	-	-	16,268
In 1839	-	-	-	-	-	-	-	9,131
In 1840	-	-	-	-	-	-	-	10,434
In 1841	-	-	-	-	-	-	-	6,368
In 1842	-	-	-	-	-	-	-	2,715
In 1847	-	-	-	-	-	-	-	4,227
In 1848	-	-	-	-	-	-	-	6,903
In 1849	-	-	-	-	-	-	-	4,645
TOTAL of 8 years								60,691

or, on an average, 7,586 deaths annually.

Neither the Returns of the Registrar-general in England, nor those of the Census Commissioners in Ireland, enable us to state what proportion of these deaths occurred in the vaccinated and what in the unvaccinated; but with regard to a large portion of them, varying from 75 to 80 per cent. of the whole, there can be no doubt that, with scarcely an exception, they must have occurred

occurred among the unprotected, for they all took place under the age of five; and it is allowed by all authorities that nothing is more rare than a death from small-pox in a vaccinated child under that age. Of the portion (20 to 25 per cent.) in which death took place above that age, there can be as little doubt that the vast majority were unprotected, but we have no sufficient data to determine what the exact proportion may have been.

But it is not the fatality only which is to be regarded; every one of these deaths is the representative of a certain number of cases, in which the disease, with all its attendant anxieties and perils, may have suffered the patient to escape indeed with life, but may have left him in many instances disfigured, and often not without having developed the seeds of strumous and other diseases in his system. If the modified as well as the unmodified form of small-pox be taken into account, it is a very moderate estimate that there must have been six cases for every death; a computation which would give us 34,800 cases as occurring annually in Ireland, and 45,516 in England and Wales; and if some addition be made for Scotland, for which country there are no official Returns, the annual average of cases of small-pox for the United Kingdom will not fall short of 100,000. Such is the humiliating result of our own apathy 50 years after the discovery of vaccination.

Estimated number of cases.

V. For when we come to investigate causes, we find that this indeed it is, combined with ignorance and prejudice, which has led to the deplorable neglect we have demonstrated to exist, and which is still the great obstacle to the universal diffusion of vaccination; and we believe we may state it as a positive fact, that these causes exist only among the lower and uneducated classes of the community. We have heard it alleged, and in a few instances it has been communicated to us by correspondents, that some object to vaccination on the ground that it is not a sufficient safeguard, and that more think that it is the means of introducing other diseases into the system. The first objection we have already shown to be untenable; and with regard to the second, we desire to express our strong and unequivocal opinion that there is not the smallest foundation for it. Indeed, in the majority of instances in which these objections are expressed, we doubt whether they are really held by the parties who allege them, and are not rather the pretexts whereby they would excuse their own indolence and indifference. Sufficient proof that these are the real obstacles, and that there is no rooted objection to vaccination in the minds of the people, is afforded by the zeal and eagerness with which, under the influence of alarm (as when a small-pox case is imported into an unvaccinated neighbourhood), they run to the vaccinators (a fact of which we have already given several illustrations, and one indeed so familiar that everybody must have met with instances of it); and further, by the readiness with which nearly complete vaccination is ensured when, as was seen in the case in Mold, in North Wales, vaccinators are encouraged to proper exertions by adequate remuneration. And we submit that it is a most important point to have established, that these are the difficulties which have to be contended against, because they are of a kind which admit of being met by legislative measures.

Causes of neglect and obstacles to diffusion of vaccination.

VI. We desire, then, to state it as our unanimous conclusion, from the facts we have laid before you, and as the general result of our inquiry, that no measure which does not render vaccination compulsory, in some form or other, will be sufficient to ensure the efficient protection of the population of this country from the ravages of small-pox: a conclusion which is fortified by the fact, that a very large majority of those medical practitioners who, in their replies to the queries issued by the Society, have proposed any remedy for the prevention of small-pox, have urged the necessity of compulsory vaccination. The mode of rendering vaccination compulsory, it must be for the Legislature to determine: but in the event of its being deemed desirable to introduce a system of fines, we would suggest that the commencing fine be a small one, and that it be augmented from time to time until the requirements of the Act are complied with.

Suggestions.

We have already stated that in our opinion all vaccinations ought to be performed within three, or at most within four, months of birth, and that great risks are occasioned by delay beyond that period. We admit, however, that there are cases in which, from special circumstances, it is necessary or desirable that vaccination should be delayed beyond this time, and we approve of that

clause in the proposed Bill which permits such delay on medical certificate ; but we submit that the period of three months therein specified for the certificate to remain in force is too protracted, and that it should be renewable every month.

It occasionally happens that children are found to be insusceptible of the vaccine disease ; and though we have reason to believe that this is extremely rare, and much more rare than is generally supposed, it will yet render it necessary that some clause should be introduced whereby a person, having submitted to the operation a given number of times, shall be deemed to have been so far vaccinated as to be exempt from the penalties of the Act.

We highly approve of the principle in the Bill which makes the registration of births the foundation of the machinery for ensuring vaccination ; but we must suggest that, to render even this efficient, the registration of births should be made compulsory.

We deem it desirable that the registrar of births should also be the registrar of vaccinations, and that a column should be provided in every register for that purpose.

We do not perceive that any provision is made in the Act, rendering it the duty of any special officer to proceed against parties for non-compliance with its injunctions ; and we submit that without some such provision the Act will be partially inoperative.

We approve of that clause of the Act which requires children born in Scotland, Ireland, and abroad to be vaccinated within a certain time after their arrival in England and Wales.

We think it will be necessary to introduce some clause to meet the case of a child removed from one part of the kingdom to another, between the time of the registration of its birth and that at which its vaccination should be registered.

We deem it our duty to protest against the seventh clause entirely, as unjust towards the already underpaid public vaccinators ; and we suggest that the wording of the first clause must be so altered as not to interfere with the rights of private practitioners.

We trust that the whole subject of the remuneration of the public vaccinators will receive the earnest attention of the Legislature. Such attention is the more called for, inasmuch as, first, the payment for their present services being already inadequate, it is contemplated by the Act to impose upon them additional and onerous duties ; and secondly, because it is obvious that no provisions, however penal, can secure the desired object, unless the pecuniary remuneration be in some degree commensurate with the importance of the services demanded.

We have already stated our strong conviction that proper means should be taken to ensure the inspection, at the proper period, of all who have been submitted to the operation of vaccination.

We are of opinion, in order to ascertain the actual progress of vaccination in all points of the country, that more frequent periodical returns to the central authorities than are at present furnished will be indispensably requisite.

It is needless to add, that children who have had small-pox must be exempted from the operation of the Act.

In conclusion, we have to apologise to the Council for imperfections in this Report, due to the haste with which it has necessarily been prepared. We have many facts in our possession illustrative of the efficacy of vaccination, and of the evils of the present system in this country, which we hope at some future time to lay before them ; in the meanwhile, we would remind them that the suggestions we have offered are merely such as are called forth by the occasion, and do not contain any exposition of what, in our opinion, should constitute a national system of vaccination. We also intend, at no very distant period, to present a Report on the pathological questions connected with our inquiry.

(signed)	<i>R. D. Grainger</i> , Chairman.	<i>W. B. Kesteven</i> .
	<i>J. F. Marson</i> .	<i>C. A. Aikin</i> .
	<i>Thomas Hunt</i> .	<i>Edward C. Seaton</i> , M. D.,
	<i>Waller A. Lewis</i> , M. B.	Hon. Secretary.

TABLES Illustrative of the Mortality from SMALL-POX in Great Britain and Ireland, &c.

SMALL-POX IN ENGLAND.

BEFORE drawing up a statement of the past and present condition of England as to small-pox, it is necessary to show what are the authorities we have referred to, and what are the records made use of.

Previous to the year 1594, we have no records of population, christenings, or burials in this country. Parish registries of marriages, births, and deaths appear to have had their origin here in 1538; and it was on the 21st December 1592, that the parish clerks of London first made a weekly return to the head of their fraternity, and first published the same in 1594, in consequence of the plague which prevailed in 1593. This publication, however, was discontinued after the 18th December 1597, as the plague had then ceased. The first of the uninterrupted series of weekly bills commences on the 29th December 1603. In 1625, the bills of mortality are stated to have acquired a general reputation. The report of diseases and casualties was first published in 1629, and it is from this date that the work principally referred to, and whence the statistics of this metropolis previously to the year 1831 have been obtained, commences. It is a work of great labour and study, although merely a compilation from the old bills of mortality admirably arranged. Its title is "Mortality of the Metropolis;" and it presents a statistical view of the number of persons reported to have died of each of more than 100 kinds of diseases and casualties within the bills of mortality in each of the 204 years 1629—1831. "London: Treuttel, Würtz, & Co., 30, Soho-square, 1832. By Jas. Marshall, Esq."

The work has now become extremely scarce, although published as recently as 1832. Its size is royal quarto.

In the preface to this work, among many other valuable remarks, Mr. Marshall says, "According to an enumeration, which seems to have been carefully made in 1631, the total population of the whole City of London, both within and without the walls, was 130,178, which in 1700 is represented as amounting to 208,300." As we have no enumeration of the population of London previous to 1801, these numbers are worthy of attention.

In the year 1837, the office of the Registrar-general was first established; and it is only from this time that we have access to documents that are as accurate as it is in the nature of such things to be.

Your Committee cannot let this opportunity pass without publicly expressing their thanks for the great kindness and urbanity with which they were uniformly received by the Registrar-general and Mr. W. Farr in the numerous visits their researches in this department of their inquiries necessitated. Every information was afforded them, and every document they required was immediately laid before them.

In 1603, the Bills of Mortality comprehended only 96 parishes within, and 13 parishes without the walls of the city; in 1626 there were added the following, St. James's, Duke's-place, and three parishes in the city of Westminster. In 1636, 12 more were included. More parishes were continually added till, in the year 1838, the old Bills of Mortality included—

Within the walls of the City	-	-	-	-	-	-	97
Without	"	"	"	"	"	"	17
Out Parishes in Middlesex and Surrey	-	-	-	-	-	-	24
In City and Liberty of Westminster	-	-	-	-	-	-	10
							148

The weekly Tables of Mortality, published by the Registrar-general, were commenced January 5th, 1840, and included returns of the deaths registered in all the places comprised within the limits of the old Bills, as well as in the following parishes, added by the late Mr. Rickman.

London within the limits of the old Bills of Mortality; Chelsea, St. Luke; Kensington; St. Marylebone; Paddington; St. Pancras.

In 1840, the following parishes were included in the limits of London, as adopted by the Registrar-general: Hammersmith; Fulham; St. Mary, Stoke Newington; St. Mary, Stratford-le-Bow; Camberwell, &c.

In 1843 and 1846 additional parishes were included, till in the year 1847 there were 281 parishes included in the London Tables of Mortality.

The following Table shows the difference of the amount of population and area in the parishes included in the old Bills of Mortality, at the commencement of the regular series in 1603, and in those included within the limits of the Tables of Mortality by the Registrar-general.

	POPULATION.					Area.
	1801.	1811.	1821.	1831.	1841.	Acres.
Old Bills of Mortality	201,233	265,793	297,896	306,110	319,494	1,000
Tables of Mortality	958,603	1,138,815	1,378,947	1,654,004	1,948,360	74,070

In compiling the Tables of the population, total mortality, and small-pox deaths for the different countries, provinces, and towns, wherever such information could be obtained, we have given these particulars from the middle of the 17th century to the present time, a period of 200 years. This has been done with the view of showing the comparative mortality from small-pox for at least 50 years before inoculation was known; 50 years during which this operation was largely in vogue, and for about the same period since the immortal Jenner gave to mankind the blessing of his discovery.

However, it is but for few countries only, that statistics, going so far back as 1650, can be obtained; and we have, in all other cases, given such as appear to be most worthy of reliance.

In most cases, the first Table for each country gives the mortality in decennial periods, while the second shows the actual state of mortality for each of the last ten years, the particulars of which have been ascertained by the authorities charged with that duty.

It will be seen when the statistics of small-pox in Ireland are referred to, that in that country, small-pox is found to be the second most destructive of the epidemic class of diseases. We were anxious to make a similar list of the epidemic diseases for England and Wales; but as the deaths for many of the latter years are not yet classified, it has not been found possible to accomplish this. The following, however, is a correct list, in their order of fatality, of the epidemic diseases of London. The order is taken from their intensity during the 13 years 1838—1850, in the returns of the Registrar-general. The number appended to each disease shows its average annual mortality in the metropolis, during the above-mentioned period.

ORDER.	DISEASE.	ANNUAL AVERAGE MORTALITY.
1	Typhus - - - - -	2,010
2	Scarlatina - - - - -	1,852
3	Hooping Cough - - - - -	1,760
4	Diarrhœa - - - - -	1,525
5	Measles - - - - -	1,235
6	Cholera - - - - -	1,230
7	Small-pox - - - - -	913
8	Croup - - - - -	347
9	Influenza - - - - -	262
10	Thrush - - - - -	224
11	Dysentery - - - - -	190

## L O N D O N.

Compiled partly from Marshall's Mortality of the Metropolis, and partly from the Collection of the Bills of Mortality in Mus. Brit.

P E R I O D S.	Average Annual Deaths.		Small-Pox Deaths per 1000 Deaths.
	All Causes.	Small-Pox.	
1650—1660 - - - - -	16,382	782	48
1660—1670 - - - - -	24,769	884	36
1670—1680 - - - - -	19,031	1,344	71
1680—1690 - - - - -	22,321	1,616*	73
1690—1700 - - - - -	20,972	947*	45
1700—1710 - - - - -	20,844	1,101	53
1710—1720 - - - - -	24,292	2,131	81
1720—1730 - - - - -	27,361	2,257	82
1730—1740 - - - - -	26,087	1,978	76
1740—1750 - - - - -	26,060	2,003	77
1750—1760 - - - - -	20,872	2,061	100
1760—1770 - - - - -	23,202	2,445	108
1770—1780 - - - - -	22,404	2,204	98
1780—1790 - - - - -	19,516	1,705	87
1790—1800 - - - - -	20,213	1,780	88
1800—1810 - - - - -	19,582	1,253	64
1810—1820 - - - - -	18,604	793	42
1820—1830 - - - - -	21,645	699	32
1830—1840 - - - - -	24,585	573	23

\* These numbers are corrected from Marshall, where the numbers given from 1687 to 1700 include the deaths from measles.

L O N D O N.

This Table is compiled from the Annual Reports of the Registrar-general. The population within the limits of London adopted by the Registrar-general was,

In 1841, 1,948,369; In 1851, 2,373,799.

Y E A R S.	Total Mortality.	Small-Pox Mortality.	Small-Pox Deaths per 1,000 Deaths.
1838 - - - - -	52,698	3,817	72.50
1839 - - - - -	45,441	634	14.
1840 - - - - -	46,281	1,235	26.75
1841 - - - - -	45,284	1,053	23.
1842 - - - - -	45,272	360	7.75
1843 - - - - -	48,574	438	9.
1844 - - - - -	50,423	1,804	35.75
1845 - - - - -	48,332	909	18.75
1846 - - - - -	49,089	257	5.25
1847 - - - - -	60,444	955	15.75
1848 - - - - -	57,628	1,617	28.
1849 - - - - -	68,432	518	7.50
1850 - - - - -	48,579	498	10.75
1851 - - - - -	55,354	1,066	19.

Average ratio of small-pox deaths from 1842-1851 = 16 per 1,000.

L O N D O N.

TABLE showing the Comparative Mortality from SMALL-POX in Decennial Periods before the Discovery of Inoculation, during the Practice thereof, and under VACCINATION.

P E R I O D S.	Small-Pox Deaths per 1,000 Deaths.	Comparative Numbers.	DESCRIPTION.
1650-1660 - - - - -	48	—	—
1660-1670 - - - - -	36	—	—
1670-1680 - - - - -	71	56	No protection.
1680-1690 - - - - -	74	—	—
1690-1700 - - - - -	51	—	—
1750-1760 - - - - -	100	—	—
1760-1770 - - - - -	108	—	—
1770-1780 - - - - -	98	96	Inoculation.
1780-1790 - - - - -	87	—	—
1790-1800 - - - - -	88	—	—
1810-1820 - - - - -	42	—	—
1820-1830 - - - - -	32	—	—
1830-1840 - - - - -	23	29	Vaccination.
1840-1850 - - - - -	18	—	—

\* The decennial period, 1800-1810, is omitted from this Table, as during that time Inoculation and Vaccination were both practised.

## ENGLAND AND WALES.

YEARS.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000 Deaths.
1838 - - - - -	- - -	342,760	16,268	47
1839 - - - - -	- - -	338,979	9,131	27
1840 - - - - -	- - -	359,687	10,434	29
1841 - - - - -	15,914,148	343,847	6,368	18.50
1842 - - - - -	- - -	349,519	2,715	7.66
1843 - - - - -	- - -	346,445	Not known	—
1844 - - - - -	- - -	356,933	"	—
1845 - - - - -	- - -	349,366	"	—
1846 - - - - -	- - -	390,315	"	—
1847 - - - - -	- - -	423,304	4,227	9.90
1848 - - - - -	- - -	399,833	6,903	17
1849 - - - - -	- - -	440,853	4,645	10.50
1850 - - - - -	- - -	368,986	Not known	—
1851 - - - - -	17,922,768	395,933	"	—

Ratio per 1,000 total deaths = 21.9. Average number of Small-pox deaths in England and Wales, 7,586 per annum.

## L O N D O N.

YEARS in which SMALL-POX was Epidemic in London from 1650—1850.

1650—1740. NO PROTECTION. 91 Years.			1741—1803. I N O C U L A T I O N. 63 Years.			1804—1851. V A C C I N A T I O N. 47 Years.
1652	1692	1721	1741	1762	1784	1805
1655	1693	1722	1742	1763	1785	1806
1659	1694	1723	1743	1764	1786	1807
1661	1695	1724	1744	1765	1787	1812
1664	1698	1725	1745	1766	1789	1817
1667	1700	1726	1746	1767	1790	1825
1668	1701	1727	1747	1768	1791	1838
1670	1704	1728	1748	1769	1792	1840
1672	1705	1729	1749	1770	1793	1844
1674	1707	1730	1750	1771	1794	1848
1677	1708	1731	1752	1772	1796	1852
1678	1709	1732	1754	1774	1798	
1679	1710	1733	1755	1775	1800	11 Years.
1681	1712	1734	1756	1776	1801	
1682	1713	1735	1757	1777	1802	
1683	1714	1736	1758	1778	1803	
1684	1715	1737	1759	1779		
1685	1716	1738	1760	1781	53 Years.	
1686	1717	1739	1761	1783		
1687	1718	1740				
1688	1719					
1689	1720	65 Years.				
1691						

From this Table of the years of epidemic small-pox in London, it appears that,

During the 91 years, from 1650—1741, when neither inoculation nor vaccination was in use, small-pox was epidemic

65 years, or above two-thirds.

From the years 1741 to 1803, a period of 64 years, during which inoculation was largely practised, small-pox was epidemic

53 years, or nearly six-sevenths.

While from the years 1804—1852, a period of 49 years, during which vaccination has been much practised, small-pox was epidemic

11 years, or two-ninths.

Whence it results that small-pox was epidemic in London,

Before Protection, as	- - - - -	42
During Inoculation	- - - - -	54
During Vaccination	- - - - -	14

LIVERPOOL (UNION OF).

Population in 1841, 223,003; in 1851, 258,236.

YEARS.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.	General Ratio.
1841 - - - -	7,556	147	59	} 21 deaths for 1,000 deaths.
1842 - - - -	7,400	232	31.33	
1843 - - - -	7,455	44	6	
1844 - - - -	7,625	257	33.50	
1845 - - - -	7,371	224	30.50	
1846 - - - -	9,707	70	7.25	
1847 - - - -	not known	not known.	—	
1848 - - - -	9,433	47	5	
1849 - - - -	13,042	62	4.75	
1850 - - - -	7,500	80	10.66	

MANCHESTER (UNION OF).

Population in 1841, 192,403; in 1851, 228,433.

YEARS.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1000.	General Ratio.
1841 - - - -	5,821	34	5.90	} 6.75 deaths per 1,000.
1842 - - - -	6,139	8	1.10	
1843 - - - -	6,263	10	1.50	
1844 - - - -	5,892	43	7.25	
1845 - - - -	6,022	64	10.50	
1846 - - - -	7,809	42	5.45	
1847 - - - -	9,517	155	16	
1848 - - - -	7,256	17	2.35	
1849 - - - -	8,216	14	1.80	
1850 - - - -	6,680	94	14	

BIRMINGHAM (UNION OF).

Population in 1841, 138,215; in 1851, 173,951.

YEARS.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000 Deaths.	General Ratio.
1841 - - - -	3,673	108	29	} 16.6 deaths per 1,000.
1842 - - - -	3,578	10	2.75	
1843 - - - -	3,342	-	-	
1844 - - - -	3,885	92	23.50	
1845 - - - -	3,604	311	86.33	
1846 - - - -	4,684	23	4.80	
1847 - - - -	5,404	13	2.45	
1848 - - - -	4,658	40	8.50	
1849 - - - -	3,942	18	3.33	
1850 - - - -	4,056	26	6	

## LEEDS (UNION OF).

Population in 1841, 168,696; in 1851, 101,343.

YEARS.	Total Mortality.	Small-Pox Deaths.	Small-Pox per 1,000 Deaths.	General Ratio.
1841	4,361	41	10	} 17.5 deaths per 1,000.
1842	4,612	152	33	
1843	4,325	89	20.50	
1844	4,124	92	20	
1845	4,239	55	13	
1846	4,842	6	1.25	
1847*	3,490	79	22.50	
1848	2,837	106	37	
1849	4,201	13	3	
1850	2,502	37	15	

\* N. B.—Hunslet was united with Leeds till 1847.

## IRELAND.

EVEN at the present day, Ireland, like her sister kingdom Scotland, is entirely unprovided with any system for registering the number of births and deaths. By means of a decennial census, commenced in 1821, we derive whatever knowledge we have of the vital statistics of the country. Previous to that period we are indebted to private observations and remarks for any light that has been thrown on these subjects. The only important notices of small-pox met with in this manner are the following, abstracted from Mr. Wilde's Report on the Tables of Deaths in the Census of Ireland for the year 1841:—

"The small-pox raged in Dublin in January and February 1728, a somewhat frosty winter after a wet summer, and that year there died of small-pox nearly one half of the numbers that died of fever. In 1736, when there was a very hot summer, small-pox mortality was nearly double that of fever. In 1740, an uncommonly dry season, small-pox was very fatal in summer, being sometimes doubly, sometimes trebly as much so as fever. In 1743, in August, September, October, and November, after a hot and dry summer, it prevailed again, though to a less degree, but still exceeded fever in the months mentioned; and again in July, August, September, and October 1745, in and after a very wet summer, it was remarkably malignant, sometimes twice as much so as fever; and, lastly, in the summer of 1752, an extremely wet one, it was sometimes more fatal than fever; and it is observable, that the sum total of persons who died of small-pox in Dublin during 31 years was but little short of that of fever, the number of those who died of fevers during that time, according to the bills, having been 16,081, and of small-pox 13,759; a large proportion truly.

"How much small-pox must have decreased in the city of Dublin may be learned from the fact, that notwithstanding the vast increase of population during a century, the average proportion of deaths for 10 years from this cause is barely one half in the present day what it was in the middle of the last century; the years in which it prevailed most were 1837 and 1838.

"It is remarkable that in proportion to the general mortality, small-pox has proved most fatal in the country parts, while fever has principally raged in towns and cities, although the same influences tended equally to the propagation of both diseases. This fact still further proves the great importance of an extension and gradual adoption of vaccination in this country, for it is chiefly in the rural districts where the natural poek is still maintained.

Next to typhus, small-pox has been and still is the most fatal epidemic in Ireland. The order of epidemic diseases in reference to mortality in Ireland appears to be as follows:—

- |               |                   |
|---------------|-------------------|
| 1. Typhus.    | 6. Hooping-cough. |
| 2. Small-pox. | 7. Diarrhoea.     |
| 3. Cholera.   | 8. Influenza.     |
| 4. Measles.   | 9. Scarlatina.    |
| 5. Croup.     |                   |

Small-pox being here second on the list.

In the 10 years from 1831—1841, the deaths by small-pox in Ireland were 58,006, that is, 5,800 annually; being in the proportion of 100 males to 96½ females. Estimating the mortality

mortality at 20 per cent. of the seizures, this gives a total of 30,000 cases of small-pox annually in Ireland.

Of these 58,006 persons above recorded,

There died in rural districts	- - - - -	45,459
„ civic districts	- - - - -	12,418
„ hospitals and sanitary institutions	- - - - -	129
TOTAL	- - - - -	58,006

The deaths by fever in the same period of time were nearly double, viz. - 112,000

The most severe epidemics of small-pox in the present century were in the years 1817 and 1838, the latter year being also one in which the disease was severely epidemic in England. Small-pox in Ireland (as elsewhere) is most fatal in early life. It expends its chief virulence on children from birth to the completion of the second year. This is the precise period of life when the power of vaccination over the disease is most energetic.

The Census for Ireland for the 10 years ending 1851 is not yet published. But the Earl of St. Germans, the Lord Lieutenant, has transmitted to the society some particulars which the Small-pox and Vaccination Committee were particularly anxious to obtain, so as to have the latest possible information from that country. Such is the account of the total and the small-pox mortality for Dublin, Cork, and Limerick cities, and Galway town.

In regard to these, Mr. Wilde makes the following remarks:—"During the imperfect decade extending from the 6th June 1841 to the 30th March 1851, the total deaths and those from small-pox have been derived from the Census Returns of 1851, now in process of compilation, but which have been given in compliance with the desire of his Excellency the Lord Lieutenant, by the Census Commissioners; the registration of deaths for the province of Connaught and for all Ireland are not in a sufficient state of forwardness to be made available.

"It is but right to observe that the amount of deaths from all causes and from small-pox, given in the accompanying Tables, is only an approximation to the absolute number of casualties, as they are only the deaths derived from the returns of hospitals, workhouses, and other public institutions, and of those which occurred during the ten previous years among the members of such families as were in existence on the 30th of March 1851; they are, therefore, deficient in the deaths which happened in those families which had been broken up or become extinct, or did not possess houses or separate places of abode at the time of taking the last Census. Owing to the peculiar circumstances of this country during the last ten years, this deficiency must be very great, and proves the urgent necessity which exists for a general registration of deaths in Ireland; the returns are also deficient in the general and small-pox mortality which occurred in the temporary fever hospitals which existed during the years 1847, 1848, and 1849, which will, however, be added to the published returns in that portion of the Census devoted to the consideration of disease and mortality."

The following very valuable Report on the present state of small-pox and vaccination in Ireland, made to the Lord Lieutenant by Mr. Wilde, expressly for this society, dated 5th March 1853, is appended. The remarks upon the systematic evasion of the law regarding inoculation deserve especial notice.

To His Excellency the Earl of St. Germans, Lord Lieutenant of Ireland, &c.

May it please your Excellency,

In answer to the queries forwarded to your Excellency by the Epidemiological Society of London, with respect to the mortality from small-pox in Ireland, I beg to submit the accompanying Tables and Report. It is gratifying to observe that there has been a slight decrease in the mortality from small-pox in those civic districts specified in the accompanying Table; but, at the same time, it is proper to remark that the great mortality in Ireland from that malady has heretofore occurred in the rural districts in which inoculation with small-pox virus is still extensively employed.

I would respectfully solicit your Excellency's attention to the present state of vaccination in Ireland, and to the daily infringement of the law for the prevention of inoculation with small-pox matter. Owing to the prejudices in favour of inoculation among a large portion of the peasantry in the country parts, the want of a well-enforced system of vaccination, possibly owing to some deterioration or inefficiency in vaccine virus, and the difficulty of procuring it pure in remote districts, but more particularly from the propagation of small-pox by means of ignorant persons, that disease still exists to a very great extent in Ireland.

Notwithstanding the daily and manifest breach of the law, there has scarcely been an instance of conviction under the Act of Parliament passed some years ago for the prevention of inoculation with small-pox matter.

No less than 58,006 deaths from small-pox were returned to the Census Commissioners for the ten years ending the 6th June 1841; and I have reason to believe that the numbers will be little less for the decade ending in March 1851; I would, therefore, suggest to your Excellency the following propositions for arresting the spread of this terrific malady:—

That the constabulary should be directed to summon all persons known to propagate small-pox by inoculation; and also that the attention of the resident magistracy should be called to the circumstance. This is the more necessary, as the country people would be very unwilling to prosecute, even although the inoculation proved fatal.

That as there were 515 persons labouring under small-pox in the workhouses and auxiliary workhouses in Ireland, on the night of the 30th March 1851, it is manifest that the disease must spread very rapidly in such institutions, in which there are always a number of persons who have neither been vaccinated nor inoculated; and that therefore all persons entering a workhouse who do not exhibit the marks of small-pox, or the evident traces of inoculation or vaccination, should be immediately vaccinated by the medical attendant of such workhouses. This will, I believe, not only save many lives, and assist in arresting the further spread of the disease, but also accustom the lower orders to the practice of vaccination, and in process of time lead them to put faith in its efficacy. I may remark, that in the Prussian army vaccination and re-vaccination are performed at stated intervals.

That inquiry should be instituted with respect to the working of the Vaccination Act, and also the present system of propagating vaccination in Ireland, with a view of affording greater facility to country practitioners for procuring pure vaccine lymph. According to the regulations of the present Medical Charities Act, the public dispensaries of the metropolis are obliged to provide vaccination for the poor. Although this is an accommodation to particular districts, it may in time act deleteriously towards the Cow-Pock Institution, which it is of great importance to uphold as an emporium for the collection and distribution of pure vaccine lymph. There are, I am informed, certain pastures in the West of Ireland, the cows feeding upon which are annually affected with that form of disease, the use of which has proved such a blessing to mankind. I would therefore suggest that, in any steps taken for the improvement and more general adoption of vaccination, fresh supplies of infection should be occasionally procured from the cattle feeding upon such pastures.

I have the honour to be  
Your Excellency's most faithful servant,  
W. Wilde.

<sup>d</sup> Westland-row,  
March 1853.

#### DUBLIN (CITY).

Population, 1841, 232,726; in 1851, 258,361.

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	6,672	190	28
1851 - - - - -	6,931	178	25.65

#### CORK (CITY).

Population in 1841, 80,720; in 1851, 85,745.

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1,000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	2,097	87	41.5
1851 - - - - -	2,002	80	39.5

LIMERICK (City).

Population, 1841, 48,391; in 1851, 53,448.

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1,000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	1,477	98	66
1851 - - - - -	1,418	58	41

GALWAY (Town).

Population in 1841, 17,275; in 1851, 34,057.

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1,000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	621	40	64
1851 - - - - -	789	28	35

PROVINCE OF CONNAUGHT.

Population in 1841, 1,338,635; in 1851, 1,011,578.

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1,000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	20,522	1,355	60.5
1851 - - - - -	Not known	Not known.	—

IRELAND.

YEARS.	POPULATION.
1821 - - - - -	6,801,827
1831 - - - - -	7,767,401
1841 - - - - -	8,175,124
1851 - - - - -	6,553,178

TEN YEARS ENDING	AVERAGE ANNUAL MORTALITY.		SMALL-POX DEATHS PER 1,000.
	ALL CAUSES.	SMALL-POX.	
1841 - - - - -	118,737	5,801	49
1851 - - - - -	Not known	Not known.	—

## SCOTLAND.

THERE being, unfortunately, no Act in Scotland for the registration of births, deaths, and marriages, and even no efficient system of parochial registration, we can only arrive at an approximative result, as to the prevalence and fatality of small-pox in that country, from an examination of the bills of mortality of a few of its chief towns. From the statistics furnished by these towns for the latest series of years, it appears that small-pox there forms a large proportion of the mortality, much larger indeed than could have been previously anticipated. It has, however, been ascertained, both in Edinburgh, Glasgow, and Perth, that the deaths from that disease occur almost entirely amongst the unvaccinated; and that the great proportion is furnished by the Irish, who form the mass of the pauper and labouring population of these towns. It has been ascertained that this class of persons is rarely protected by vaccination; but, in order to acquire some positive information on the subject, Dr. Stark, of Edinburgh, in 1841, went through a district in the old town inhabited by nearly equal numbers of low Irish and low Scots, and found that in 73 families, numbering 244 individuals, only 116 had been vaccinated. Of the remainder, 104 had passed through the natural small-pox, three had small-pox after repeated vaccination, one had twice had natural small-pox, and 24 were neither protected by vaccination or by having had small-pox.

If this, then, be the general state of the lower classes as to vaccination in Scotland, (even though the proportion unprotected may not be greater than occurs in England or on the Continent,) it can easily be explained why the mortality from small-pox should be greater than in the towns of England, or of the Continent.

In most of the large towns of Scotland, the pauper and labouring population live in what might be termed barrack houses; these consist of large blocks of buildings, of four, five, six, or seven floors, which, for economy's sake, have very commonly but one staircase common to two blocks. Most of that class have but one room per family, or at most two rooms; so that it is not an uncommon circumstance for from 15 to 50 families to enter by the same common staircase. When an epidemic breaks out in such a block of buildings, it rarely fails to attack all predisposed to it; and owing to this cause, even during the past year (1852), we heard of one instance in which no fewer than four deaths from small-pox occurred in one block of houses entering from the common staircase, whilst almost every individual unvaccinated took the disease.

When to this faulty construction of houses for the poor, is added, as is the case in most of the towns in Scotland, the want of ventilation, the crowding of human beings into too confined a space, the faulty supply of water to the houses of the poor, and the consequent want of cleanliness, and in especial the carelessness with regard to vaccination, we cannot wonder that this loathsome disease continues to exist and spread among the population.

Scotland, neglected on these and other points, has no Vaccination Act, so that unless the poor apply at some of the numerous dispensaries where vaccination is gratuitously performed, no care is taken to see that the children born are protected from small-pox. Even of those who do apply, a proportion rarely exceeding 50 per cent. returns to allow it to be ascertained whether the vaccine vesicle is perfect, or whether the vaccination has failed; so that even the numbers reported to have been vaccinated at the various dispensaries give no just indication of the numbers properly vaccinated. Dr. Stark, in his report on the mortality of Edinburgh and Leith for the year 1848, states that before the introduction of vaccination, small-pox "always constituted in Edinburgh a large per-centage of the mortality, almost always equalling the combined mortality of measles and hooping-cough."

Thus from 1740 to 1750 small-pox caused nearly 14 per cent. of the total mortality.

1750 to 1760	"	9	"
1760 to 1770	"	11	"
1770 to 1780	"	12	"
1780 to 1790	"	14	"
1790 to 1800	"	12	"
1820 to 1830	"	1·2	"

EDINBURGH.

THE following Tables have been drawn up with much care by Dr. James Stark, of this city. Indeed, as Scotland has not the advantage of having a Registration Act as England has, there are no public records of births, deaths, or marriages to be obtained. Whatever information therefore the society has received, concerning the different towns in Scotland, it is indebted to private individuals for, and has always been procured with much expenditure of labour, time, and money. The society hopes that this deficiency will be removed in an early Session of Parliament, by means of an Act for the registration of births, deaths, and marriages in Scotland.

TEN YEARS Ending	Average Population.	Annual Average Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1790 - - - -	65,205	1,897	240	131
1800 - - - -	70,000	1,915	186	97
1810 - - - -	76,306	1,931	45	23
1820 - - - -	93,507	2,337	27	11.5
1830 - - - -	123,013	3,223	42	13
1840 - - - -	139,511	4,046	83	20.5

Y E A R.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.	General Ratio.
1838 - - - -	4,176	97	23	} 19.4 per 1,000 deaths.
1839 - - - -	3,365	41	12	
1840 - - - -	3,688	164	44.25	
1841 - - - -	3,507	27	7.75	
1842 - - - -	3,854	181	47	
1843 - - - -	4,541	39	1.50	
1844 - - - -	3,964	11	2.75	
1845 - - - -	3,668	Unknown	-	
1846 - - - -	4,594	34	7.25	
1847 - - - -	6,706	163	24	
1848 - - - -	5,475	96	17.5	

Population in 1841, 132,977; in 1851, 160,302.

GLASGOW.

Compiled from the Researches of J. Strang, Esq., L.L.D., &c.

TEN YEARS Ending	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
	All Causes.	Small-Pox.	
1792 - - - -	992	347	350
1802 - - - -	908	289	318
1812 - - - -	1,091	101	93

Y E A R S.	Total Mortality.	Small-Pox Deaths.	Small-Pox per 1,000 Deaths.	General Ratio.
1841 - - - -	8,886	347	39	} 36 deaths per 1,000 deaths.
1842 - - - -	7,359	334	45	
1843 - - - -	9,459	151	16	
1844 - - - -	7,367	99	13.50	
1845 - - - -	7,509	Not known	-	
1846 - - - -	10,854	ditto	-	
1847 - - - -	18,081	592	32.75	
1848 - - - -	12,475	300	24	
1849 - - - -	12,231	366	30	
1850 - - - -	9,477	456	48	
1851 - - - -	10,746	618	57.50	
1852 - - - -	10,675	584	57.50	

Population 1841, 282,134; 1851, 360,138.

## GREENOCK.

This Table has been Compiled from the Researches of Dr. J. M. M'Culloch.

Population in 1841, 38,846 ; in 1851, 39,391.

YEARS.				Total Mortality.	Small-Pox Deaths.	Small-Pox per 1,000.	General Ratio.
1843	-	-	-	1,024	26	25.50	} 34.66 per 1,000 deaths.
1844	-	-	-	777	11	14.	
1845	-	-	-	873	13	15.	
1846	-	-	-	1,142	30	26.25	
1847	-	-	-	2,285	158	69.	
1848	-	-	-	1,375	23	16.75	
1849	-	-	-	2,403	27	11.25	
1850	-	-	-	1,197	44	36.66	
1851	-	-	-	872	10	11.50	
1852	-	-	-	1,120	112	100.	

## PAISLEY.

This Table is Compiled from the Researches of Dr. M'Kinlay, of Paisley.

Population in 1851, 48,111.

YEARS.				Total Mortality.	Small-Pox Deaths.	Small-Pox per 1,000 Deaths.	General Ratio.
1845	-	-	-	1,154	9	8.75	} 18
1846	-	-	-	1,429	38	26.50	
1847	-	-	-	2,068	22	10.50	
1848	-	-	-	1,552	50	32.	
1849	-	-	-	1,712	2	1.25	
1850	-	-	-	1,324	11	8.	
1851	-	-	-	1,314	43	32.	
1852	-	-	-	1,233	36	29.	

## PERTH.

Compiled from the Researches of Dr. W. Malcolm.

Population in 1841, 20,167 ; in 1851, 23,835.

YEARS.				Total Deaths.	Small-Pox Deaths.	Small-Pox per 1,000 Deaths.
1844	-	-	-	431	—	—
1845	-	-	-	546	2	4.
1846	-	-	-	720	5	7.
1847*	-	-	-	966	83	86.
1848	-	-	-	716	2	3.
1849	-	-	-	762	1	1.25
1850	-	-	-	518	1	2.
1851	-	-	-	572	36	63.

General ratio for the eight years ending 1851, 25 per 1,000 deaths.

\* Dr. Malcolm writes, "The large increase of small-pox deaths in 1847, was owing to the great influx of Irish navvies who came to Scotland for work on the railways, bringing unvaccinated children with them, many of the parents themselves being in the same position."

He adds, "Vaccination is carefully and regularly performed on all young children in this part of Scotland, and there are very few cases of small-pox in this district."

DUNDEE.

The vital statistics of Dundee have been published officially by the magistrates of that town for many years past; the following table excludes the still-born. All the Scottish returns require this purgation, as the still-born are included among the deaths.

Y E A R.	Population.	Mortality.	Deaths from Small-Pox.	Ratio per 1,000 Deaths.
1841 - - - -	62,837	—	—	
1843 - - - -	- - -	1,509	2	
1844 - - - -	- - -	1,169	2	
1845 - - - -	- - -	1,324	7	
1846 - - - -	- - -	1,531	80	
1847 - - - -	- - -	2,520	29	
1848 - - - -	- - -	2,119	91	
1849 - - - -	- - -	2,312	4	
1850 - - - -	- - -	1,481	11	
1851 - - - -	78,931	1,644	63	
1852 - - - -	- - -	1,768	132	
		17,377	421	24.2

TABLES exhibiting the MORTALITY, &c., from SMALL-POX in various Countries in Europe, compiled from Official Documents furnished by the Government of each Country to the Epidemiological Society of London.

FRANCE.

THE following Table is compiled from the Annual Reports of the Academy of Medicine of Paris to the Minister of Agriculture and Commerce on the progress of Vaccination in France:—

Y E A R.	Births.	Vaccinations.	Small-Pox Cases.	Disfigured, or rendered Infirm.	Small-Pox Deaths.	Ratio of Vaccinations to Births.
1841 - - -	903,955	556,116	19,620	1,821	2,859	5—8
1842 - - -	910,337	547,646	11,779	1,294	1,379	5—8
1843 - - -	909,963	553,617	13,664	1,949	1,687	5—8
1844 - - -	924,605	582,010	8,812	1,139	1,175	5.5—8
1845 - - -	905,254	579,444	7,777	866	1,181	5—8
1846 - - -	904,476	561,446	8,560	913	1,677	5.5—9
1847 - - -	822,923	553,361	18,467	1,747	2,307	2.3
1848 - - -	870,917	529,972	28,215	2,958	3,898	5.8
1849 - - -	858,428	548,475	24,127	2,632	3,648	5.5—8
1850 - - -	868,047	538,668	13,775	1,669	1,677	5.9
TOTAL - -	8,878,905	5,550,755	154,796	16,988	21,488	62 per cent.

By the above Table it appears, that in the 10 years ending 1850, there were reported to the Academy of Medicine of Paris to have occurred in France—

Cases of small-pox - - - - -	154,796
Of which were disfigured - - - - -	16,988
Fatal - - - - -	21,488
Proportion of fatal cases - - - - -	1 in 7.

The Table gives 1 in 7 as the proportion of fatal small-pox cases, and this appears to be about the general average; but the proportion varies very much in the different departments. Thus, in the report for the year 1845, the Vaccine Committee of the Academy gives the following as the rate of mortality in this disease in the under-mentioned departments for that year:—

La Drome - - - - -	1 in 110*
Aude - - - - -	1 in 71
Ain - - - - -	1 in 52
Haut-Marne - - - - -	1 in 40
Sarthe - - - - -	1 in 30
Corrèze - - - - -	1 in 20
Vaucluse - - - - -	1 in 15
Jura - - - - -	1 in 10
Doubs - - - - -	1 in 6
Loire, Côte d'Or	1 in 4
Seine et Marne	
Le Cher - - - - -	1 in 2
L'Hérault - - - - -	
La Finisterre - - - - -	
Corse - - - - -	99 in 130
Pas de Calais - - - - -	31 in 51

Although the Reports from which this Table is compiled are highly important and valuable, still these figures cannot be looked upon as giving an accurate account of the state of things in France. In the first place, many medical men do not forward any statement at all to the municipal authorities, either of the number of persons they have vaccinated during the year, or of their patients who have suffered from variola; sometimes, even, the authorities themselves do not send the reports they receive from the medical officers of the different departments to the Academy at Paris; when this occurs, blanks are left in the Annual Report opposite all such careless departments, which, of course, affects the value of the Table.

Thus, in 1841, 86 departments sent in reports, but 2 omit the births.

1842, 83 - ditto - - ditto - but 1 - ditto.
1843, 83 - ditto - - ditto - but 6 - ditto.
1844, 85 - ditto - - ditto - but 1 - ditto.
1845, 82 - ditto - - ditto - but 2 - ditto.
1846, 84 - ditto - - ditto - but 3 - ditto.
1847, 83 - ditto - - ditto - but 6 - ditto.
1848, 83 - ditto - - ditto - but 3 - ditto.
1849, 83 - ditto - - ditto - but 1 - ditto.
1850, 80 - ditto - - ditto - but 2 - ditto.

Sometimes the number of births is given, but the number of vaccinations omitted; and sometimes there is no mention made of the number of small-pox cases, and of their details; still, the Reports are most valuable, and (with these exceptions) serve as models for what such documents ought to be.

The proportion of vaccinations to births varies very much in the different departments; this is found to depend very much indeed on the different amounts of remuneration received by the medical men for their service in vaccinating. By the Report for 1846, it appears that in the department of L'Aisne the sum awarded is 10 centimes, or 1 *d.* per case. In some other departments nothing at all is given; and in that of La Finisterre one medical man is reported, under the pretext that the Administration gives him no fee for vaccinating, to demand one from the poor people themselves, which these are manifestly unable to pay.

## TABLE

\* In explanation of the very low rate of mortality exhibited in this and some other instances, it is necessary to state that there is every reason to believe that many practitioners do not, in their returns, discriminate cases of varicella from cases of variola.

TABLE showing the POPULATION, ANNUAL TOTAL MORTALITY, and ANNUAL MORTALITY from SMALL-POX, as given in the Annual Reports of the Academy of Medicine on Small-Pox and Vaccination, from 1841 to 1850.

YEAR.	Population.	Total Mortality.	Small-Pox Deaths.
1841	34,230,178	804,762	2,859
1842	-	836,152	1,379
1843	-	811,435	1,687
1844	-	776,526	1,175
1845	-	754,701	1,181
1846	35,401,761	831,498	1,677
1847	-	856,026	2,307
1848	-	844,158	3,898
1849	-	982,008	3,648
1850	35,781,628*	775,653	1,677

\* This is the population for the next year, 1851. M. Mathieu, the well-known author of the statistical reports in the *Annuaire publié par le Bureau des Longitudes* in Paris, makes the following remarks on the prolonged duration of human life in France: "The Tables of Mortality of Duvillard show that the average duration of human life in France before the first Revolution was only 28 years 9 months; but in 1817 it had increased to 31·8 years; in 1834, to 34 years; in 1851, to 36·4 years. Here, then, is an augmentation of about seven years, which evidently arises from the introduction of vaccination, the improvement in sanitary and medical science, and the greater ease and comfort to be found in the middling and lower classes."

PARIS.

THIS Table shows the Total Mortality in Paris for the 10 years ending 1851, and the Mortality from Small-pox, with the ratio of the one to the other. It is more to be depended on than the Tables showing the like mortalities for the whole of France, as the returns of small-pox deaths are perfectly accurate in this Table.

Compiled from the *Annuaire du Bureau des Longitudes* for the years—

YEARS.	Total Mortality.	Small-Pox Deaths.	Ratio of Small-Pox per 1,000 Deaths.	General Ratio.
1842	28,676	472	16·50	} 10·5 per 1,000 deaths.
1843	27,967	237	8·50	
1844	27,360	277	10·	
1845	26,156	206	8·	
1846	28,593	391	11·	
1847	30,920	492	16·	
1848	30,088	269	9·	
1849	48,101	271	6·	
1850	25,126	342	13·75	
1851	27,585	364	13·	

TABLE showing the AGES of those who have DIED of SMALL-POX in the above Table.

	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	TOTAL.
Under 1 year -	66	44	37	37	38	59	53	26	49	77	486
Between 1 & 5	75	75	49	35	80	91	49	56	60	66	636
" 5 & 10	32	16	33	12	22	21	15	14	20	11	196
" 10 & 20	68	32	44	22	63	69	22	50	39	32	441
" 20 & 30	175	54	93	79	130	190	101	75	92	106	1,095
" 30 & 40	40	9	15	16	46	42	23	45	68	60	364
" 40 & 50	16	6	6	4	7	13	6	4	13	9	84
" 50 & 60	-	1	-	1	4	3	-	3	1	3	16
" 60 & 70	-	-	-	-	1	4	-	-	-	-	5
TOTAL - -	472	237	277	206	391	492	269	271	342	364	3,323

It appears that in the 21 years from 1817 to 1837, both inclusive, 11,451 persons died of small-pox in Paris, which gives an annual average of 545.

## HANOVER.

Y E A R.	Population.	Total Mortality.	Small-Pox.	Small-Pox Deaths per 1,000.
1847 - - - -	1,758,847	45,830	8	·17

The above are the only statistics referable to the subject that can be obtained from Hanover.

## B A V A R I A.

STATISTICS furnished by Dr. Reiter, Chairman of the Central Vaccination Board in Bavaria.

During five years ending 1843, the total deaths were 646,646; deaths from small-pox, 2,552, or rather under four in 1,000. But, says Dr. Reiter, among the 2,552, there were 1,226 children under five years, who, most probably, had not been vaccinated. We may therefore assume the number of cases in which vaccination failed to afford protection to be 1,326, when the deaths from small-pox would have been rather under two in 1,000.

He continues, "Had vaccination not existed, we may calculate that during the same period 51,840 persons," (or 83 in 1,000) "would have died of variola, therefore 49,288 lives may be assumed to have been saved by vaccination."

*N. B.*—The number of 51,840 persons which Dr. Reiter assumes would have perished from small-pox if there had been no vaccination, is by no means too large. In London, before vaccination was introduced, say in 1780, a much larger proportion than that assumed above, died from small-pox.

Y E A R.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1840 - - - -	4,370,077	126,909	493	4·
1843 - - - -	4,440,327	131,397	458	3·5
1846 - - - -	not given.	not given.	not given.	—
1849 - - - -	"	"	"	—

*N. B.*—The census in Bavaria is taken every third year; but the documents sent do not contain the statistics of the years 1846 and 1849.

## L U B E C K.

1850.

POPULATION.	TOTAL MORTALITY.	SMALL-POX DEATHS.
42,000	1,343	1

*N. B.*—The only fatal case of variola in Lubeck in 1850, occurred to a female, aged 48, passing through the town from Prussia.

These are all the statistics sent to the society. They are direct from the Syndic.

LOWER AUSTRIA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
		All Causes.	Small-Pox.	
1786 - - - -	1,006,107	34,345	2,314	67
1796 - - - -	1,022,056	40,420	1,406	35
1806 - - - -	1,053,653	73,039	3,935	53
1816 - - - -	1,045,412	38,060	375	9
1826 - - - -	1,117,754	39,259	500	13
1836 - - - -	1,250,421	48,019	531	12
1846 - - - -	1,405,642	49,096	321	7

Y E A R.	Population.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	49,948	571	11
1842 - - - -	- - -	51,937	419	8
1843 - - - -	1,415,695	51,213	418	8
1844 - - - -	- - -	46,335	349	7
1845 - - - -	- - -	46,885	79	2
1846 - - - -	1,494,399	50,450	42	8
1847 - - - -	- - -	57,558	91	2
1848 - - - -	- - -	52,030	218	4
1849 - - - -	- - -	60,235	605	10
1850 - - - -	1,538,047	54,970	309	5

Average ratio of small-pox deaths, 6 per 1,000.

UPPER AUSTRIA AND SALZBURG.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
		All Causes.	Small-Pox.	
1786 - - - -	621,220	17,970	815	46
1796 - - - -	630,297	20,022	876	44
1806 - - - -	631,818	34,630	984	28
1816 - - - -	412,461	12,305	710	58
1826 - - - -	795,236	20,700	532	26
1836 - - - -	830,792	22,771	188	8
1846 - - - -	851,180	24,063	145	6

Y E A R.	Population.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	25,499	267	10
1842 - - - -	- - -	23,375	493	21
1843 - - - -	851,298	24,559	460	19
1844 - - - -	- - -	24,034	157	6
1845 - - - -	- - -	22,757	11	5
1846 - - - -	856,694	22,667	23	1
1847 - - - -	- - -	25,157	21	8
1848 - - - -	- - -	23,805	73	3
1849 - - - -	- - -	23,970	262	11
1850 - - - -	852,323	23,646	73	3

Average ratio of small-pox deaths, 7.5 per 1,000.

## STYRIA.

TEN YEARS		Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
Ending			All Causes.	Small-Pox.	
1786	- - - -	822,080	31,007	973	31
1796	- - - -	827,682	24,042	412	17
1806	- - - -	813,113	35,498	1,206	34
1816	- - - -	765,050	26,645	399	15
1826	- - - -	792,223	22,440	690	31
1836	- - - -	885,948	26,645	282	11
1846	- - - -	975,213	26,968	260	10

  

YEAR.	Population.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841	- - - -	27,655	1,032	37
1842	- - - -	26,197	281	10·625
1843	976,293	26,629	58	2
1844	- - - -	26,277	62	2·500
1845	- - - -	26,455	192	7·500
1846	1,003,074	28,242	165	5·750
1847	- - - -	31,969	88	2·800
1848	- - - -	28,683	348	12
1849	- - - -	31,803	187	6
1850	1,006,971	30,534	102	3·330

Average ratio of small-pox deaths, 9 per 1,000.

## ILLYRIA.

TEN YEARS		Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
Ending			All Causes.	Small-Pox.	
1786	- - - -	827,857	28,239	612	21·75
1796	- - - -	879,058	25,055	419	16
1806	- - - -	777,059	33,090	255	8
1816	- - - -	756,487	18,967	401	21
1826	- - - -	1,156,710	29,822	175	5·75
1836	- - - -	1,090,317	32,746	225	7
1846	- - - -	1,162,410	30,644	227	7

  

YEAR.	Population.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841	- - - -	28,499	501	17·5
1842	- - - -	30,655	392	13
1843	1,174,236	33,708	164	4·75
1844	- - - -	31,787	205	6·33
1845	- - - -	27,972	358	12·75
1846	1,204,587	30,477	126	4·25
1847	- - - -	32,471	75	1·33
1848	- - - -	32,063	136	4·25
1849	- - - -	37,047	246	6·75
1850	783,180	34,630	169	4·75

Average ratio of small-pox deaths, 7·5 per 1,000.

TRIESTE.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
		All Causes.	Small-Pox.	
1786 - - - -	20,355	817	116	142
1796 - - - -	27,522	1,903	350	184
1806 - - - -	29,227	2,647	617	239
1827 - - - -	48,741	1,742	not known.	—
1837 - - - -	60,645	2,394	ditto.	—
1847 - - - -	77,463	2,564	13	5

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	80,434	2,297	20	8.75
1842 - - - -	76,953	2,817	8	2.75
1843 - - - -	77,821	2,577	1	0.40
1844 - - - -	81,800	2,634	16	6.
1845 - - - -	78,984	2,318	19	8.
1846 - - - -	80,300	2,514	—	—
1847 - - - -	81,492	2,972	30	10.
1848 - - - -	81,939	2,705	32	11.
1849 - - - -	82,180	5,387	8	1.50
1850 - - - -	82,596	3,283	16	3.

Average ratio of small-pox deaths, 5.15 per 1,000.

THE TYROL AND VORALBERG.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1786 - - - -	511,330	15,117	632	42.
1796 - - - -	516,946	17,970	415	23.
1803 - - - -	518,798	14,226	312	22.
1816 - - - -	725,557	20,103	108	5.50
1826 - - - -	750,217	19,736	46	2.33
1836 - - - -	803,307	22,837	252	11.
1846 - - - -	836,501	22,453	94	4.

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	836,514	21,848	130	6.
1842 - - - -	837,838	26,268	25	0.90
1843 - - - -	843,355	22,294	36	1.50
1844 - - - -	841,144	24,268	27	1.10
1845 - - - -	852,352	21,349	11	0.50
1846 - - - -	859,250	22,820	65	3.
1847 - - - -	864,145	23,779	74	3.
1848 - - - -	863,698	24,867	120	5.
1849 - - - -	861,747	24,781	474	19.
1850 - - - -	859,706	25,276	219	8.50

Average ratio of small-pox deaths, 4.85 per 1,000.

## BOHEMIA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1767 - - - -	1,947,893	57,580	2,412	42
1786 - - - -	2,745,327	81,026	4,732	58
1796 - - - -	2,997,824	92,242	6,209	68
1806 - - - -	3,169,795	160,653	8,438	52
1816 - - - -	3,163,075	91,988	1,842	20
1826 - - - -	3,477,363	96,678	909	9.25
1836 - - - -	3,875,657	115,670	428	3.75
1846 - - - -	4,174,220	120,825	262	1.33

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	112,698	693	6
1842 - - - -	- - -	119,919	338	2.75
1843 - - - -	4,249,669	138,744	331	2.50
1844 - - - -	- - -	109,275	149	1.33
1845 - - - -	- - -	124,715	62	0.50
1846 - - - -	4,347,962	128,308	58	0.40
1847 - - - -	- - -	130,501	7	0.05
1848 - - - -	- - -	137,680	112	0.08
1849 - - - -	- - -	127,113	382	3
1850 - - - -	4,409,900	170,432	468	2.75

Average ratio of small-pox deaths, 2 per 1,000.

## MORAVIA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox, Deaths per 1,000.
		All Causes.	Small-Pox.	
1786 - - - -	Not known	40,858	2,223	54
1796 - - - -	"	44,249	3,432	58
1806 - - - -	1,379,384	99,357	16,697	166
1816 - - - -	1,349,224	42,304	1,128	27
1826 - - - -	1,485,498	44,530	305	7
1836 - - - -	1,634,050	57,553	194	3.50
1846 - - - -	1,712,231	47,020	90	1.75

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	47,170	119	2.75
1842 - - - -	- - -	48,640	233	4.75
1843 - - - -	1,740,031	56,659	242	4.25
1844 - - - -	- - -	49,986	144	4.75
1845 - - - -	- - -	51,989	21	.42
1846 - - - -	1,784,592	48,873	19	.35
1847 - - - -	- - -	62,827	36	.60
1848 - - - -	- - -	69,868	106	1.50
1849 - - - -	- - -	67,334	148	2
1850 - - - -	1,799,838	55,637	160	3

Average ratio of small-pox deaths, 2.5 per 1,000.

SILESIA (AUSTRIAN).

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1769 - - - -	176,834	6,756	820	121
1786 - - - -	Not known	6,194	413	66
1796 - - - -	"	9,733	1,270	130
1806 - - - -	333,788	22,888	4,138	181
1816 - - - -	340,760	9,648	112	11.50
1826 - - - -	366,728	10,620	139	13
1836 - - - -	412,737	13,175	57	4.33
1846 - - - -	448,120	12,830	28	2

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	12,457	2	.16
1842 - - - -	- - -	13,268	50	3.50
1843 - - - -	452,015	14,259	100	7
1844 - - - -	- - -	12,233	109	8.75
1845 - - - -	- - -	13,095	16	1.25
1846 - - - -	466,002	12,980	-	-
1847 - - - -	- - -	26,718	5	.20
1848 - - - -	- - -	29,748	29	1
1849 - - - -	- - -	14,650	47	3.33
1850 - - - -	438,586	12,123	9	.75

Average ratio of small-pox deaths, 2.6 per 1,000.

GALLICIA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1786 - - - -	3,290,656	97,791	3,792	38
1796 - - - -	3,357,130	104,866	4,350	41
1806 - - - -	4,888,514	186,836	5,631	31
1816 - - - -	3,454,543	96,905	6,329	65
1826 - - - -	3,736,460	100,759	1,712	17
1836 - - - -	4,144,212	153,863	1,722	13
1846 - - - -	4451,110	147,666	1,447	9.5

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	146,120	1,482	10
1842 - - - -	- - -	157,971	1,779	11
1843 - - - -	4,538,691	145,592	1,292	8.75
1844 - - - -	- - -	146,567	1,415	9.50
1845 - - - -	- - -	160,781	1,023	6.50
1846 - - - -	4,734,427	158,925	834	5
1847 - - - -	- - -	368,400	2,448	6.50
1848 - - - -	- - -	287,853	2,500	8.50
1849 - - - -	- - -	186,237	1,156	6.25
1850 - - - -	4,555,477	140,329	677	4.75

Average ratio of small-pox deaths, 7.6 per 1,000.

## BUKOWINA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1796 - - - -	168,866	5,047	712	141
1806 - - - -	207,329	4,865	615	126
1816 - - - -	200,742	4,665	304	65
1826 - - - -	228,490	5,074	64	12.5
1836 - - - -	292,050	8,137	69	8.5
1846 - - - -	332,100	9,414	105	11

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	- - -	8,811	63	7
1842 - - - -	- - -	9,022	130	14
1843 - - - -	332,588	10,220	211	19
1844 - - - -	- - -	10,228	175	17
1845 - - - -	- - -	10,304	102	10
1846 - - - -	371,131	9,150	22	2.33
1847 - - - -	- - -	10,450	125	11
1848 - - - -	- - -	18,490	203	10.50
1849 - - - -	- - -	12,846	406	30.50
1850 - - - -	380,826	11,070	76	6.75

Average ratio of small-pox deaths, 11 per 1,000.

## DALMATIA.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1826 - - - -	312,371	9,478	13	1.33
1836 - - - -	350,388	7,692	22	3.00
1846 - - - -	390,601	8,692	24	2.75

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	390,381	9,315	7	.75
1842 - - - -	391,618	8,793	39	4.50
1843 - - - -	397,051	8,463	61	7.25
1844 - - - -	400,777	8,673	20	2.25
1845 - - - -	403,434	8,404	1	1.33
1846 - - - -	410,988	8,639	2	.60
1847 - - - -	417,110	10,356	6	.55
1848 - - - -	416,813	9,697	174	17.75
1849 - - - -	420,229	11,286	212	18
1850 - - - -	393,715	9,442	64	6.50

Average ratio of small-pox deaths, 6.50 per 1,000.

## L O M B A R D Y.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1826 - - - -	2,221,262	80,226	70	·85
1836 - - - -	2,390,526	88,320	224	2·50
1846 - - - -	2,566,210	80,340	300	3·75

  

Y E A R.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	2,538,695	80,280	112	1·50
1842 - - - -	2,507,502	92,740	100	1·10
1843 - - - -	2,588,526	81,547	53	·65
1844 - - - -	2,613,999	90,530	113	1·25
1845 - - - -	2,639,607	80,895	95	1·10
1846 - - - -	2,670,833	81,255	111	1·25
1847 - - - -	2,696,772	92,490	195	2·
1848 - - - -	2,702,027	92,340	221	2·45
1849 - - - -	2,722,886	102,670	396	3·75
1850 - - - -	2,725,740	92,550	410	4·5

Average ratio of small-pox deaths, 2·5 per 1,000.

## V E N I C E.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1826 - - - -	1,919,564	76,078	39	·50
1836 - - - -	2,054,602	75,849	249	3·25
1846 - - - -	2,162,120	68,372	107	1·50

  

Y E A R.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1841 - - - -	2,150,161	67,089	168	2·50
1842 - - - -	2,168,443	77,970	94	1·10
1843 - - - -	2,207,996	75,390	109	1·40
1844 - - - -	2,210,938	70,720	117	1·50
1845 - - - -	2,236,118	64,786	62	·87
1846 - - - -	2,257,200	66,680	65	·95
1847 - - - -	2,272,492	76,310	67	·75
1848 - - - -	2,292,774	72,695	82	1·15
1849 - - - -	2,277,032	98,632	362	3·75
1850 - - - -	2,281,732	76,150	557	7·75

Average ratio of small-pox deaths, 2·2 per 1,000.

## THE MILITARY FRONTIER.

TEN YEARS Ending	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
		All Causes.	Small-Pox.	
1840 - - - -	1,571,820	48,892	450	9
1850 - - - -	1,246,710	52,081	362	7

  

YEAR.	Population.	Total Mortality.	Small-Pox Deaths.	Small-Pox Deaths per 1,000 Deaths.
1841 - - - -	1,205,209	40,910	455	11
1842 - - - -	1,220,503	44,990	829	10.75
1843 - - - -	1,235,466	44,330	416	9
1844 - - - -	1,248,708	39,362	30	.75
1845 - - - -	1,260,166	43,460	57	1.25
1846 - - - -	1,282,309	47,115	70	1.50
1847 - - - -	1,293,193	54,080	84	1.50
1848 - - - -	1,293,282	55,380	312	5.75
1849 - - - -	not known	76,750	1,015	13
1850* - - - -	1,009,109	44,610	367	8

Average ratio of small-pox deaths, 6.25 per 1,000.

\* Without the seven burghs of the military frontier.

## PRUSSIA (EASTERN PROVINCES).

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - - -	847,363	24,630	2,814	111
1810—1815 - - - -	812,553	34,180	1,588	46
1816—1831 - - - -	1,073,725	34,789	439	17
1832—1846 - - - -	1,330,391	43,374	604	14
1847—1850 - - - -	1,470,944	56,366	342	6

From 1832 to 1850 small-pox deaths averaged 12.33 per 1,000 deaths.

## PRUSSIA (WESTERN PROVINCES).

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1780 - - - -	346,782	10,537	788	75
1810—1815 - - - -	365,133	16,760	383	23
1816—1831 - - - -	689,169	24,728	181	7.33
1832—1846 - - - -	863,199	28,846	347	12
1847—1850 - - - -	1,022,409	35,927	92	2.33

From 1832 to 1850 small-pox averaged 10 per 1,000 deaths.

POSEN.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000
		All Causes.	Small-Pox.	
1780 - - -	140,173	4,041	285	71
1816—1831 - - -	953,478	32,960	828	25
1832—1846 - - -	1,174,148	37,161	942	27
1847—1850 - - -	1,358,206	50,119	265	5

From 1832 to 1850 small-pox averaged 22.50 per 1,000 deaths.

BRANDENBURGH.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - -	800,729	23,740	1,943	82
1810—1815 - - -	1,004,888	33,274	266	7.75
1816—1831 - - -	1,413,432	38,092	104	2.75
1832—1846 - - -	1,752,975	47,816	487	10
1847—1850 - - -	2,098,007	55,819	233	4

From 1832 to 1850 small-pox averaged 8.75 per 1,000 deaths.

WESTPHALIA.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - -	286,430	8,930	757	83
1816—1831 - - -	1,142,694	30,533	64	2
1832—1846 - - -	1,337,201	36,764	212	6
1847—1850 - - -	1,455,320	36,593	231	6.26

From 1832 to 1850 small-pox averaged 6 per 1,000 deaths.

RHENISH PROVINCES.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - -	150,835	4,166	137	33
1816—1831 - - -	2,045,976	53,800	151	2.75
1832—1846 - - -	2,485,177	68,752	206	3
1847—1850 - - -	2,787,126	72,341	440	6

From 1832 to 1850 small-pox averaged 3.75 per 1,000 deaths.

## BERLIN.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1781—1805 - - -	130,326	5,809	446	77
1810—1815 - - -	162,735	5,496	92	16.75
1816—1831 - - -	212,801	6,607	21	3.16
1832—1846 - - -	296,181	8,813	53	6
1847—1850 - - -	416,202	11,649	42	3.50

From 1832 to 1850 small-pox averaged 5.50 per 1,000 deaths.

## SAXONY.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - -	347,677	9,249	250	27
1816—1831 - - -	1,308,067	34,722	68	2
1832—1846 - - -	1,565,097	43,431	372	8.50
1847—1850 - - -	1,761,874	54,437	428	8

From 1832 to 1850 small-pox averaged 8.33 per 1,000 deaths.

## POMERANIA.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1780 - - - - -	417,174	10,028	740	74
1810—1815 - - -	500,054	15,914	55	3.50
1816—1831 - - -	787,358	20,004	27	1.33
1832—1846 - - -	1,001,309	25,968	246	9.50
1847—1850 - - -	1,181,387	30,473	34	1

From 1832 to 1850 small-pox averaged 7.75 per 1,000 deaths.

## SILESIA (PRUSSIAN).

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1810—1815 - - -	1,807,559	73,670	2,226	30
1816—1831 - - -	2,181,577	72,127	520	7.50
1832—1846 - - -	2,699,834	87,951	525	6
1847—1850 - - -	3,063,701	98,389	244	2.50

From 1832 to 1850 small-pox averaged 5.25 per 1,000 deaths.

PRUSSIA.

PERIODS.	Average Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1776—1780 - - -	2,979,356	83,018	6,808	82·
1810—1815 - - -	4,502,554	173,809	4,549	26·
1816—1831 - - -	11,595,467	342,063	2,394	7·
1832—1846 - - -	14,209,319	420,723	3,564	8·25
1847—1850 - - -	16,222,062	486,723	2,221	4·50

From 1832 to 1850 small-pox averaged 7·50 per 1,000 deaths.

HAMBURG.

The following is all the information that can be obtained. It was sent by the Registrar of the Government Archives.

YEAR.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.
1848 - - - -	—	—	—	—
1849 - - - -	- - - -	- - - -	14	—
1850 - - - -	151,147	5,167	13	2·5
1851 - - - -	- - - -	- - - -	12	—

SWEDEN.

Population, Average Annual Mortality, Average Annual Deaths from Small-Pox, with the proportion of Small-Pox Deaths to every 1,000 total Deaths, from 1750 to 1850, in Decennial Periods.

Compiled from manuscript Tables forwarded to the Epidemiological Society by the Swedish Government.

PERIODS.	Average Population.	Average Annual Deaths.		Deaths from Small-Pox in each 1,000 Deaths.
		All Causes.	Small-Pox.	
1748—1750 - - -	1,750,000	48,549	7,564	156·
1750—1760 - - -	1,834,000	50,431	8,531	169·
1760—1770 - - -	1,981,600	54,505	10,937	201·
1770—1780 - - -	2,050,000	58,830	4,553	71·
1780—1790 - - -	2,142,275	48,322	4,200	81·
1790—1800 - - -	2,280,441	57,803	4,120	71·
1800—1810 - - -	2,412,772	67,087	2,030	30·
1810—1820 - - -	2,465,066	63,904	397	6·
1820—1830 - - -	2,771,252	65,137	358	5·5
1830—1840 - - -	3,025,439	68,655	870	13·
1840—1850 - - -	3,316,536	75,072	205	2·7

N. B.—The numbers in the fourth column (small-pox) include the deaths from measles to the year 1764 inclusive. No special returns are to be found in the original documents for the small-pox deaths from 1765—1773 inclusive; the average is therefore struck without these. Finland is included with Sweden to the year 1809; the numbers after that date are for Sweden Proper.

## COPENHAGEN.

Compiled from official manuscript Tables furnished by the Government of Denmark.

TEN YEARS Ending	Average Annual Population.	Average Annual Mortality.		Small-Pox Deaths per 1,000 Deaths.
		All Causes.	Small-Pox.	
1760 - - - -	60,000	3,452	306	88
1770 - - - -	65,000	3,574	221	62
1780 - - - -	73,000	3,161	129	41
1790 - - - -	79,000	3,541	207	60
1800 - - - -	83,660	3,136	265	85
1810 - - - -	95,000	3,752	67	18
1820 - - - -	105,000	3,121	—	—
1830 - - - -	115,000	3,418	12	4
1840 - - - -	119,000	3,379	57	19
1850 - - - -	126,000	3,626	24	6.75

From the years 1811 to 1823, both inclusive, there was not one fatal case of small-pox in Copenhagen.

Y E A R.	Population.	Total Deaths.	Small-Pox Deaths.	Small-Pox Deaths per 1,000.	
				Yearly.	Total.
1841 - - - -	- - -	3,381	—	—	} 6.75 per 1,000 deaths.
1842 - - - -	- - -	3,402	35	10.25	
1843 - - - -	- - -	3,449	111	32.	
1844 - - - -	- - -	3,625	83	23.	
1845 - - - -	126,787	3,496	7	2.	
1846 - - - -	- - -	4,092	—	—	
1847 - - - -	- - -	3,647	—	—	
1848 - - - -	- - -	3,529	2	.4	
1849 - - - -	- - -	4,044	7	1.75	
1850 - - - -	129,695	3,563	—	—	

## BRUSSELS.

Compiled from the Registers in the Archives of Brussels.

Y E A R S.	Population.	Mortality.		Small-Pox Deaths per 1,000.
		All Causes.	Small-Pox.	
1842 - - - -	114,633	4,336	—	—
1843 - - - -	116,255	4,201	5	1.20
1844 - - - -	118,113	4,180	8	2.
1845 - - - -	119,076	4,528	10	2.
1846 - - - -	125,518	4,716	13	2.75
1847 - - - -	125,564	5,201	39	7.50
1848 - - - -	130,700	4,556	8	1.75
1849 - - - -	134,991	5,508	7	1.33
1850 - - - -	140,248	4,796	56	11.50
1851 - - - -	145,005	4,698	34	7.25
1852 - - - -	150,038	4,588	83	17.50

Average ratio of small-pox deaths, 5.5 per 1,000.

The decennial "Rapport sur la Situation Administrative du Royaume, 1841—1850," contains the following: "In 1849, there were nearly 8,000 cases of small-pox in Belgium, upwards of 700 children falling victims to the disease."

PIEDMONT—TURIN.

Although this Government has obligingly forwarded all the vital statistics of Piedmont and Sardinia, no statement can be made to show the amount of mortality from small-pox, as the different diseases causing death are not distinguished.

In volume 4 of "Informazioni Statistiche raccolte della Regia Commissione Superiore," published at Turin 1852, there is the following account of the last epidemic of small-pox that devastated Turin in 1829:—

1829: January	- - -	Died of small-pox	- - -	—
" February	- - -	"	- - -	—
" March	- - -	"	- - -	2
" April	- - -	"	- - -	8
" May	- - -	"	- - -	17
" June	- - -	"	- - -	53
" July	- - -	"	- - -	163
" August	- - -	"	- - -	209
" September	- - -	"	- - -	156
" October	- - -	"	- - -	68
" November	- - -	"	- - -	59
" December	- - -	"	- - -	26
1830: January	- - -	"	- - -	15
" February	- - -	"	- - -	5
" March	- - -	"	- - -	4
TOTAL Deaths - - -				785

It is worthy of remark that the first person who was attacked by the disease, and who was the means of introducing it into Turin, was an individual aged 21, who had already suffered from it in 1811, and who was exposed to it in an infected house in Fossano. The number of persons attacked was 4,235; so that there were about 18 deaths per cent.

After the most minute and careful researches made by Dr. Griva, it results that of the number attacked, 57 had been vaccinated, and 156 had already suffered from small-pox; and that of the former, five died. These, however, had only been vaccinated a very few days. Of the 156, nine died. It further appears that there were between 13,000 and 14,000 of the inhabitants of Turin who had not been vaccinated, nor had suffered from small-pox. The remaining population consisted of about 100,000 persons, about half of whom had been vaccinated, and half had been inoculated or had suffered from previous small-pox. It follows from this, that in the epidemic of 1829, 1 in 1,000 of the vaccinated was attacked, while 3 in 1,000 of those who had previously suffered from the disease were again attacked.

In Genoa, there were between 3 and 4 per 1,000 of the vaccinated attacked, and between 9 and 10 per 1,000 of those who had previously suffered.

In Marseilles from 8 to 9 per 1,000 vaccinated, and from 19 to 21 per 1,000 secondary cases occurred.

Appendix (A.)

ON the LAWS and REGULATIONS in different Countries connected with VACCINATION.

Appendix (A.)

ENGLAND AND WALES.

ON the 23d of July 1840, an Act was passed to extend the practice of vaccination.

It consists of nine clauses, of which the following is the essence:—

1. Empowers Poor-law Guardians to contract with their medical officers or other medical practitioners for vaccination.
2. Guardians are to conform to the regulations of the Poor-law Commissioners.
3. The medical officers or practitioners, so contracted with, are to report the number of persons successfully vaccinated by them, in such manner as the guardians shall require.
4. The copies of contracts are to be sent to the Poor-law Commissioners.
5. That such Commissioners have power to annul contracts within 14 days from the receipt thereof.
6. The guardians of every Poor-law Union in Ireland must divide such union into districts, and make contracts for vaccination.

Appendix (A.)

7. The previous provisions with respect to unions in England and Wales are to apply to Ireland.
8. Persons inoculating or otherwise producing small-pox to be subject to one month's imprisonment.
9. Relates to the interpretation of words of the Act.

## FRANCE.

VACCINATION in France is only indirectly enjoined. There are no penalties attached to the neglect of this precaution, but the majority of those physicians who have paid much attention to the subject, give it as their decided opinion that it should be made compulsory by the most stringent regulations.

In some of the last annual Reports of the Académie Imperiale de Médecine, the Vaccination Committee of the Academy urge the same subject forcibly on the attention of the Government. In the Report for 1849, page 13, they say, "It is desirable that France should at length follow the example set by so many other nations, where the law obliges parents to have their children vaccinated, as it obliges them to register their births. Undoubtedly, some will object that it is the principle of liberty to allow every child to be brought up, both morally and physically, as its parents choose. To this argument the reply is simple and easy. Undoubtedly every citizen is at liberty to act as he wishes, provided always that the liberty he uses is not injurious to any other person; but the individual who refuses to be vaccinated exposes himself to contract small-pox, and to become a centre of contagion which will quickly infect a mass of individuals, disfiguring one, blinding a second, causing the death of many. In one word, the right of not vaccinating oneself is nothing else than the right of poisoning other people."

In France, no person is admitted into schools or any public establishment without producing a certificate of vaccination; and there are inspectors charged with seeing that these regulations are not infringed.

A Committee of the Academy of Medicine of Paris is charged by the Minister to make an annual report to the Government of the progress of vaccinations throughout France; and, to encourage the extension of this practice, a sum of money, together with medals and rewards, is annually bestowed by the Minister of Agriculture and Commerce to such medical and other officers as are recommended for that purpose by the Vaccination Committee of the Academy. Every year there is given,

1. A prize of the value of 1,500 francs is given to that person or those persons who have contributed most to the propagation of vaccination.
2. Gold medals to the four individuals who are the next most deserving.
3. From 100 to 150 silver medals are decreed to those who, though not so prominently meritorious as those in the two first classes, have nevertheless shown much merit as vaccinators.

## BELGIUM.

## REGULATIONS FOR VACCINATING.

THE laws relating to vaccination in Belgium are founded on a Royal Decree, dated 16th April 1818, by which it is made imperative on all persons receiving relief from any public charitable fund, to cause such of their children as have not already had the small-pox naturally or by inoculation, to be vaccinated.

The same provision extends to all institutions where children are received and maintained, partly supported by endowments or private benevolence, but subsidised from public sources.

The authorities are charged with carrying these regulations into effect.

There are no other compulsory laws.

Nevertheless superintendents of establishments supported entirely by their own funds, are exhorted in the strongest manner to use every effort for the promotion of vaccination.

Medical practitioners are to keep registers of vaccinations.

Gold medals of encouragement are awarded to practitioners who pay particular attention to gratuitous vaccination.

When the small-pox appears in any house the children inhabiting it are not to be sent to any school or public establishment for children.

Parents and guardians are required strictly to obey this injunction.

Inoculation for small-pox is prohibited within the precincts of towns and villages, and when small-pox breaks out in any locality, the authorities are to use all means to prevent its progress.

Fumigations are enjoined, and ingredients for that purpose ordered to be furnished to the poor gratuitously.

Bodies

Bodies of persons dying of small-pox are to be interred promptly, and in no case to be kept over 72 hours. Appendix (A.)

The public authorities are likewise directed to carry out the spirit of this decree by encouraging the practice of vaccination.

Small-pox being epidemic in the manner of 1850, a new decree was issued specially applying to vaccination, appointment of vaccinators, their duties and remuneration, keeping registers, supply of lymph, &c.

The regulations respecting small-pox remain essentially as prescribed in the original decree of 18th April 1818.

In the summer of 1852 some amendments relating to the appointment of vaccinators and their remuneration were also decreed.

NUMBER of VACCINATIONS compared with the BIRTHS in the Ten Years, 1841—1850.

—	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	TOTALS.
Births -	138,135	135,027	132,911	133,976	137,012	119,610	118,106	120,383	133,105	131,416	1,299,681
Vaccinations	75,336	68,425	74,474	81,189	76,957	75,527	71,339	72,946	78,907	77,707	749,107

Or about seven Vaccinations to 12 Births. In some of the Provinces, however, these numbers are much more equal. Thus, in that of

LUXEMBOURG.

—	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	TOTALS.
Births -	5,845	5,922	5,689	5,694	5,976	5,331	5,283	5,330	5,706	5,756	56,532
Vaccinations	5,340	4,322	4,915	5,348	5,510	5,569	4,518	4,979	5,665	5,801	51,907

Or about 10 Vaccinations to 11 Births.

SARDINIA.

EVERY facility is given for vaccination. Every inhabitant in the country, rich and poor, has a right to vaccination gratuitously.

The laws for vaccinating the people were first promulgated in 1819.

The Minister of the Interior regulates the formation of the different Boards of Health that have charge of this department of public health.

No admission into any educational establishment can take place without the candidate producing a certificate of having had small-pox, or having been successfully vaccinated.

All persons receiving help from charitable associations must present a like certificate for themselves and for each member of their families.

TABLE showing the Amount of VACCINATION in each of the Provinces during the 30 Years from 1819 to 1848, with the ratio to each 100 BIRTHS during the same Period.

PROVINCES.	NUMBER OF VACCINATIONS.	VACCINATIONS PER 100 BIRTHS.
Savoy - - - - -	147,725	27·12
Turin - - - - -	272,965	29·68
Cuneo - - - - -	158,255	24·98
Alexandria - - - - -	227,292	34·71
Novara - - - - -	355,155	59·34
Aosta - - - - -	8,925	11·33
Nice - - - - -	78,756	34·71
Genoa - - - - -	273,071	37·52
TOTALS - - - - -	1,522,144	35·19

Appendix (A.)

Population								VACCINATIONS.	
	1819	1824	1830	1838	1848				
	-	-	-	-	-	-	-	3,419,538	32,253
	-	-	-	-	-	-	-	3,674,707	58,241
	-	-	-	-	-	-	-	3,972,490	49,733
	-	-	-	-	-	-	-	4,125,735	46,221
	-	-	-	-	-	-	-	4,916,084	36,796

## Ratio of Vaccinations, per 1,000 Inhabitants.

1819	-	-	-	-	-	-	-	9.43
1824	-	-	-	-	-	-	-	15.83
1830	-	-	-	-	-	-	-	12.51
1838	-	-	-	-	-	-	-	11.20
1848	-	-	-	-	-	-	-	7.48

## PRUSSIA.

## REGULATIONS FOR VACCINATING.

1. EVERY child is required to be vaccinated before it is twelve months old; the magistrate and officers of health (kreis-physicus) of every circle keep proper lists; parents of those children who do not obey are fined.

2. Soldiers are re-vaccinated on entering the army.

3. No one is admitted into any school, or any public employment, or allowed to marry without producing a certificate of having been successfully vaccinated.

4. No particular directions are given to medical men, but every one before being allowed to practise must send in a certificate from a duly qualified medical man, that he is perfectly capable of vaccinating, and understands the course of the vaccine disease; students, for instance, are instructed in vaccinating at the offices of health as well as at the clinical institutions of the universities.

5. It is the duty of the parochial medical officer to vaccinate every child. He is not specially remunerated for this. Every fully qualified medical man may also vaccinate, but he must send in every three months the list of those whom he has successfully vaccinated. The officer of health has to supervise the vaccinations.

6. The officer of health is charged with supplying fresh lymph to all parties requiring it. There is an officer of health to each district. Prussia is divided for this purpose into 26 districts.

7. Whenever an opportunity presents itself recourse is had for fresh lymph to the cow. Every person who gives information of a cow being affected receives a remuneration of 15 s.

## LUBECK.

## REGULATIONS REGARDING VACCINATION.

Decree of 29 May 1805 :

Ministers of the Gospel are enjoined to encourage and recommend the practice of vaccination from the pulpit among their flocks.

Decree of 15 October 1823 :

All children received into any public institution, such as schools, orphan asylums, almshouses, &c., &c., are to be vaccinated forthwith, and annual reports of all children so vaccinated to be made by the physician.

Decree of 22 May 1805 :

All deaths that occur from small-pox are to be immediately published in the newspapers and public journals.

Signed by Dr. Goorstins, Syndicus.

Lubeck, 16 October 1852.

## HANOVER.

THE directions for the general applications for vaccination throughout the kingdom are contained in the royal edicts of 24th April 1821, and of the 15th August 1839. The substance of these edicts is as follows:—

1. Every subject is bound to have the children under his authority or care vaccinated.
2. The kingdom is divided into districts for the purpose of vaccination, and in each district a physician is appointed, who has to attend to all matters respecting vaccination in such district.
3. In the months of May and June of each year a general vaccination is performed in each district by the physician appointed thereto. To this vaccination all children born in the preceding year must be brought, of whom it is not proved that they have had the small-pox or cow-pox, or that they have been already vaccinated three times ineffectually by a competent person. A penalty of fine or imprisonment is inflicted on all who disobey.
4. On the seventh, eighth, or ninth day after vaccination the physician must examine the patients, to see whether or no the operation has been successful.
5. The children whose vaccination has not been successful must be brought again to the next public vaccination until they shall have been vaccinated with effect.
6. The public vaccinations are controlled by lists containing the names of the children born in the preceding year, as well as of those otherwise liable to be vaccinated. These lists are drawn up by the registrars of births.
7. The fees of the physicians for vaccination, fixed as low as possible, are paid by the parents or guardians of the patients, or in cases of poverty by the parish.

## REGULATIONS RELATING TO VACCINATION EXISTING IN FRANKFORT.

THE 20th November 1805, by a proclamation of the Board of Health, vaccination was advisable.

The 6th September 1811 compulsory. Our actual medical instruction of 1841 says:

1. All physicians shall give a certificate of vaccination to all persons vaccinated by them; and have a register, in which shall be subscribed the name of the individual, the time of vaccination, and the course of the disease.
2. Children received in pauper houses, orphan asylums, &c., or maintained by public alms or public aid, must be vaccinated.
3. Parents who get alms by public institutions shall not get these before their children are vaccinated.
4. In public and private schools no children to be received without being vaccinated.
5. No person can enter as a labourer, clerk, or apprentice, &c., &c., in the business of artisan, merchant, artist, &c., or as servant, without having been vaccinated, and without showing regular testimonials thereof.
6. Soldiers who have no such testimony shall be vaccinated (or re-vaccinated).
7. Whoever wishes to become a citizen of this town must have testimony of vaccination (and, if he has children, a similar testimony for them).

## BAVARIA.

## REGULATIONS FOR VACCINATING.

BAVARIA was the first European State in which vaccination was made compulsory, and it continues so.

The first royal ordinance to that effect bears date 26th August 1807.

The following is an abstract of the present regulations:—

On the 1st April in each year all children born in the preceding year become liable to be vaccinated, and entered in a separate list. This list contains,

- 1st. The children born in the preceding year according to the registers of baptism.
- 2d. The strange children brought into the parish liable to vaccination.
- 3d. Those children who from disease or disobedience have not been vaccinated in the previous year.

## Appendix (A.)

On the 15th April the public vaccinations commence, and terminate on the 30th May. Bavaria is divided into a certain number of vaccine districts, in all of which public vaccination takes place after previous notice has been given. All children are required to be brought to these vaccinations, or certificates of illness, or of previous vaccination, must be put in. Whoever has been vaccinated six times ineffectually is exempt. Whoever fails to bring his child to these acts, or to produce certificates, is fined from one to eight florins, and the fines may be raised each year from four to 32 florins. This is the only direct means of compulsion. There are other indirect means.

The certificate of vaccination can only be signed by a Government medical officer; without it—

No child can be received into any school or institution.

B . . . as an apprentice.

V. No person is allowed to marry.

The public vaccinators are paid by each parish, and the medical man receives, in the country and small towns, 12 kreutzers (4*d.*); in large towns 8 kreutzers (2½*d.*) for each child successfully vaccinated. This includes the certificate.

When variola or varioloid disease breaks out anywhere all the children, whether vaccinated or not, are bound to be vaccinated whenever the epidemic occurs.

All medical men are bound to give instant notice to the authorities of such an outbreak.

The Royal Vaccine Institution in Munich supplies all vaccine required gratuitously. All recruits are vaccinated. No law exists as to re-vaccination except in the army.

After the public vaccinations are concluded, a report of the result is sent in to the Central Board. On an average 110,000 children are vaccinated in Bavaria annually. It scarcely ever occurs that any one refuses to submit. Whoever has had variola receives a certificate to that effect, and is exempt from vaccination.

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GRAND DUCHY OF OLDENBURG.

GOVERNMENT ORDINANCE OF 17 APRIL 1819.

1. Lists are to be drawn up by the official authorities of the names of all the inhabitants who have not had the small-pox, or been successfully vaccinated, every half-year.
2. On the receipt of these lists, the district physicians shall either personally, or through approved physicians or surgeons, vaccinate all such persons.
3. These medical men must either call at the houses of the patients themselves, or appoint a place of meeting not more than half a league's distance from their dwellings.
4. All persons whom the district physician does not consider properly qualified, and those who are not authorised to practise, are positively forbidden to vaccinate.
5. If the vaccination of any subject should fail, he must be re-vaccinated at least three times.
6. The district physicians will commence vaccinating at the beginning of April each year, and continue it throughout the summer.
7. The physicians and surgeons throughout the country shall always keep by them a stock of good lymph.
8. The errors and prejudices that may still exist against vaccination will easily be overcome by the officials, the clergy, and the faculty. In case of the obstinate refusal of any parties to bring the children under their care to be vaccinated, the Government reserves to itself the adoption of more stringent measures for preventing the introduction and spread of small-pox.
9. The inoculation of small-pox is prohibited by law.  
On the occasion of any case of small-pox occurring, the parents, relations, or master shall immediately inform the local authorities thereof, under penalty of five rix dollars.
10. The charge for vaccination shall be included in the general pay of the medical officers.

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HAMBURG.

"THERE are no laws to enforce vaccination in Hamburg; but no child is admitted into the schools of the poor, unless it has a certificate of vaccination.

"Vaccination is effected gratuitously by a private institution. It is done by the vaccine department of the Medical Society, which has vaccinated 24,000 children since its commencement in 1816."

(signed) Dr. Buck, sen.,  
President of the Board of Health.

12 June 1852.

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## AUSTRIA.

1. AUSTRIA is divided into districts (called Kreiss) for vaccination, with a surgeon and physician to each. Each district contains on the average from 30,000 to 120,000 inhabitants, and extends over about 50,000 German square miles.

2. The duties of the surgeon are to go over their districts two or three times a year vaccinating all the children who have not yet been vaccinated. He has no other vocation than this, and to see that the vaccination is successful; he is paid by the Government.

3. The law of vaccination is compulsory in an indirect manner: Thus, no child or young person can be received into any school or house of education, public or private, no person can receive any appointment under government, civil or military, or can have any help or support from the State, without bringing his certificate of successful vaccination.

4. Any person applying to the charity boards for relief of any kind must each time produce the certificates of vaccination of themselves and their entire families. If they do not fulfil this obligation the relief is not given.

5. Whenever the police learn that there are individuals who have not been vaccinated, they have the power of forcing them to submit to this operation.

6. A certificate of vaccination cannot be admitted as sufficient unless the person producing it has either marks of vaccination left, or of having had the small-pox.

7. As soon as the inhabitant of any house is attacked by small-pox, the medical attendant is to give notice thereof immediately to the police, who have orders to give public warning by fixing on the door of the house a placard containing the following words:

"Here, at Mr. N. N's, there is small-pox," and all communication with the inmates is immediately cut off, till the eruption is entirely dried up, and the crusts fallen off.

8. The remains of a person who has died of small-pox must not be followed to the grave by parents, relations, or friends under the most severe penalties. This law admits of no exception whatever.

## SWEDEN.

## REGULATIONS FOR VACCINATING.

His Majesty's Gracious Ordinance regarding the Vaccination in the Kingdom, given at the Palace of Stockholm, 6th March 1816.

It is the duty of all parents and guardians, without exception, to have every child vaccinated as early as may be possible, and in accordance with admitted medical rules; but unconditionally, and under penalty as stipulated further on, before the children have reached the age of 10 years. This obligation to vaccinate applies equally to children and other persons which have already attained a higher age, without having had natural or inoculated small-pox.

Every parish shall have one vaccinator, with permission, however, for smaller and contiguous parishes to have one in common. The capability of the vaccinator must be attested by the provincial physician. In the practice of vaccination he has to conform to the rules laid down by the Board of Health; he must not use any vaccination matter but such as may be depended on; he is to visit the child within the seventh or the ninth day, to ascertain if the vaccination has been duly developed, otherwise the operation must be renewed. He must keep a journal of his vaccinations arranged according to the form which has been given by the parish, of health, and which is appended to this ordinance.

For the encouragement of skilful vaccinators, his Majesty has already graciously ordered that the collections which take place for account of the vaccination, may remain within each parish, and be employed for the benefit of vaccinators which have manifested zeal and ability; and which may, moreover, be remembered with such medals as are cast on account of the vaccination, and in cases of still more prominent merit, with appointed prizes. It will depend on the parishes to compensate the vaccinator in other ways for his trouble, either by subscriptions or by private donations.

The vaccination superintendents, which have to be provided by the parishes, are selected by the rector and the parish; and they, as well as the voluntary vaccinators mentioned in S. H., must be reported to the Royal authorities, who communicate the information to the consistorium and the provincial physician. The duties of the superintendents are:

Mem. 1. To see that all the children in the parish are vaccinated as early as possible, at the latest within the age of two years, and that such as have remained unvaccinated beyond that age, have the operation performed without fail.

Mem. 2. Although vaccination may be performed at all seasons, it appears, however, to be most convenient to select a certain time for the generality of children

## Appendix (A.)

within the parish, and notices to that effect will be issued by the clergy from the pulpit, at the request of the vaccinator, and through the interposition of the superintendent, in which notice must be named the place or places within the parish whither the children are to be brought for vaccination.

Concerning rewards to such medical practitioners as shall distinguish themselves in the course of vaccination, His Majesty's commands to His Board of Health will form the rule.

If any parent, master, or other person who has unvaccinated children under his care without legal cause omits to have a child vaccinated within two years after its birth, at the latest, or openly refuses to produce the child or the servant who has not had the small-pox already, at the meeting places which have been proclaimed by the vaccinator of the parish, or keeps the subject out of the way, or in any other manner tries to prevent the course of the vaccination, such conduct is to be reported by the vaccinator, and the party is to be publicly reprimanded. If after this he continues obstinate, he will be fined: the first year 1 rix-dollar and 32 skillings, and to be then ordered, on pain of a heavier fine, to have the vaccination performed within a certain limited time, &c.

Translated from the original Swedish Royal Ordinance.

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 UNITED STATES ARMY.

## REGULATIONS FOR VACCINATING.

Paragraph 84. "WHEN a recruit joins a regiment, post, garrison, station, or depôt, the surgeon will forthwith ascertain whether he has had the variolous or vaccine infection, and if he has not, will see that he be vaccinated as soon as practicable; and for this purpose he will constantly keep good matter on hand, making application to the Surgeon-general for a fresh supply as often as may be necessary."

At the two principal recruiting depôts, the first at Fort Wood, New York Harbour, the other at Newport Barracks, Kentucky, recruits are always carefully examined, and they are vaccinated and re-vaccinated whenever the case is doubtful either from entire absence of the characteristic cicatrix, or when it is imperfect.

(signed) *Thomas Lawson*, Surgeon-general.

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 OTHER COUNTRIES.

THE Committee have addressed applications for information on the laws and regulations of vaccination in various other States, but at the period of printing this Report, they regret that they have received no replies from the following countries:—

Holland, Rome, Naples, Spain, Portugal, Parma, Tuscany, Russia, Turkey, New York, Boston, and Philadelphia.

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 Appendix (B.)

## Appendix (B.)

ADDITIONAL ILLUSTRATIONS of Protection against SMALL-POX afforded to Towns, Districts, &c., by VACCINATION; from Private Communications to the Society (*vide* Report, p. 8).

MR. POLLOCK, of Kensington, some years ago, saw small-pox introduced into a village in Northamptonshire by a disorderly woman, who brought it from Northampton. She died. All the inmates of the house were immediately vaccinated, not having been so before. Two were attacked with small-pox while the vaccine vesicle was going through its course apparently well; both recovered. The whole parish was vaccinated, and the disease spread no further. There had been no small-pox in that village for 30 years previously, and scarcely any vaccination; many of the elderly people had neither had small-pox nor been vaccinated.

Mr. Hutton, of Colefield, states that the village of Newland has been excluded from the visits of small-pox for many years, although the village of Cherwell, only one mile distant, and other neighbouring hamlets, have suffered severely on several occasions.

Mr. Bailey, of Thetford, says, that in the parish of Caxton, near Thetford, about three years ago, a parishioner brought home the infection of small-pox by attending the funeral of his mother and bringing her clothes with him, she having died from small-pox. The daughter, who had not been vaccinated from prejudice, took the disease; "I directly vaccinated three children next door, and ultimately the children of the village, in number 73; it proved successful, and no other instance occurred at the time." And again: "Another instance

instance took place this spring, when 37 children were vaccinated, and no other case of small-pox occurred, nor had any case of failure taken place." Appendix (B.)

A correspondent reports the following case:—

"St. Michael's Mount, containing 150, or more, inhabitants, is extra-parochial, but through the willingness of the inhabitants to be vaccinated, and their adopting the plan of having their children operated on at an early age, I attribute the cause of their never having small-pox, although there is a constant communication with other places where small-pox prevails."

Small-pox was at Wilburton for four months; during its visitation Haddenham and Stretham parishes were vaccinated, and there has not been a single case of small-pox in either of them, though the communication has been constant.

Mr. Keddell says, "the good effects of the general vaccination have been perceptible in our district. About six years ago small-pox was brought from Chatham to Sheerness garrison, and from London to Queenborough; but it was confined to the patients so brought, and did not spread at all, although the children brought from London both died."

Mr. Jolliffe, of Chard, Somerset, has kept his locality well vaccinated, and seen scarcely a case of small-pox, when he knows it has been prevalent in the vicinity.

Mr. Coates has scarcely seen small-pox for fifteen years; almost every child in his neighbourhood is vaccinated, and the greatest care is taken to prevent the lower orders from inoculating.

Mr. Blytham, of Swinton, has vaccinated almost 6,000 children in 27 years, and out of that number not more than six have had small-pox. In the village in which he resides only two cases of small-pox have occurred in 23 years, one modified by vaccination ending on the fifth day; the other fatal, unvaccinated. A large family of children vaccinated, and living in the same house, escaped the contagion.

Mr. Brown, of Kineton, Warwick, has only had two cases of small-pox in his district in 14 years, and in one of them the mother refused to have the child vaccinated. He attributes this to the people being all so well vaccinated, owing to the guardians giving a sum (2 s. 6 d. for each case) which makes it worth while looking up cases for vaccination.

Mr. Audland gives the following illustration of the protective power of vaccination: A few years ago a young man, 20 years of age, came from Bristol to Brockwin, with small-pox of the worst kind. It is a low dirty village, the inhabitants most of them being poor, but generally vaccinated; the young man himself was not vaccinated; he died. Two women who attended him, and who had both had small-pox, had each a few pustules; but no other case occurred. Again, recently, a shoemaker, upwards of 40 years old, who did not know whether or not he had been vaccinated, and in whom no cicatrices could be found, took small-pox in a shop at Monmouth, and brought it home to the village; it was a bad confluent case, though not fatal. Though his wife and children slept in the same room all escaped; they had cicatrices on their arms. No other case occurred in the village. As a contrast to this, when typhoid fever was introduced from Bristol in 1850, there was scarcely a family which escaped, showing that the locality is favourable to epidemics.

Mr. Watson, of Cottingham, near Hull, attributes the almost perfect immunity from small-pox, for the last 10 or 12 years, to the complete state of vaccination in the district.

Dr. Mott, of Walton-on-Thames, says that formerly small-pox was very prevalent there, but during the last eight years has been prevented by efficient vaccination. During his residence there, four cases have been imported, and six or seven have contracted the disease from them, but it spread no further.

During 12 years that Mr. Steel, of Blaenavon, near Abergavenny, has been the appointed surgeon of a mining population of about 5,000, he has exerted himself to keep up vaccination, and with this result, that though small-pox has raged virulently all round his district, it has remained almost free: the total cases being in 1840, eight; in 1841, eight; in 1845, two; in 1847, three; in 1851, five. These five were, one unprotected adult (a new comer) and four children in the house where he lodged. These four had been vaccinated, and had three to eight pustules only. One of them was vaccinated after the case of small-pox occurred, and had three pustules only.

Mr. Delamotte, of Swanage, reports that small-pox has been several times brought into his district, by persons returning home from places where it was raging; but the disease has not spread, and this he attributes to the good vaccination of the district. He relates the case of Mr. R. N., aged 40, who returned home from Ringwood with what proved to be a severe attack of small-pox. His wife and three children (protected) were not attacked, though the wife and one child slept in the same bed with him, and the other two were much exposed.

Mr. Balding reports, that in the course of 24 years he has known small-pox introduced accidentally five times, and in every instance it was fatal. It never spread beyond the house of the party attacked. In a few instances he has known it introduced by inoculation, but neither in these cases has it spread. Vaccination is tolerably well kept up in the district (Barkway).

Mr. Sand, of Exmouth, relates, that about two years ago, when small-pox was very prevalent in neighbouring parishes, he kept it out of Exmouth by vaccinating the whole of the country people between the town and the infected parishes.

## Appendix (C.)

AGES of 8,714 Persons who DIED of SMALL-POX in 1839. From the Registrar-General's Second Report.

AGE.	MONTHS.						YEARS.									
	0.	1.	2.	3.	6.	9.	0.	1.	2.	3.	4.	5.	10.	15.	20.	25.
Males and Females	202	181	162	456	646	588	2,235	1,524	1,197	809	628	1,122	206	226	240	148

  

YEARS—continued.																AGE.
30.	35.	40.	45.	50.	55.	60.	65.	70.	75.	80.	85.	90.	95.	Uncertain.	TOTAL.	
93	75	43	22	13	10	19	10	10	4	10	1	-	1	8	8,714	Males and Females.

Of 8,714, 6,453, or 74 per cent., were under five years of age.

## Appendix (D.)

Appendix (D.)

VACCINATIONS in *Wales* complete for 1850 and 1851.

DISTRICT.	1850.				1851.			
	Under 1.	Above 1.	Total.	Births.	Under 1.	Above 1.	Total.	Births.
Anglesea - -	321	498	819	1,186	—	—	—	—
Brecknock - -	140	230	370	498	160	289	449	536
Builth - -	73	305	378	252	-	19	19	253
Cricklewell - -	456	261	717	817	376	220	596	833
Hay - -	64	68	132	276	64	72	146	301
Aberagon - -	47	108	155	379	83	245	328	357
Aberystwyth - -	109	110	219	764	—	—	—	—
Cardigan - -	63	199	262	547	33	219	252	531
Lampeter - -	9	68	77	244	26	105	131	224
Tregaron - -	271	286	557	301	198	207	405	308
Carmarthen - -	128	89	217	826	299	339	638	1,171
Llanelly - -	201	133	334	774	293	214	507	829
Llandilofaur - -	139	245	384	537	—	—	—	—
Llandovery - -	40	80	120	476	166	318	484	473
Newcastle - -	35	43	78	584	14	49	63	528
Bangor and Beaumaris - -	150	270	420	1,025	112	151	263	1,083
Carnarvon - -	62	60	122	929	—	—	—	—
Conway - -	85	154	239	318	92	183	275	300
Protsheli - -	24	126	150	605	82	548	630	581
Llanrwst - -	158	284	442	389	206	335	541	359
Ruthin - -	84	292	376	-	130	364	494	400
Wrexham - -	387	423	810	1,332	450	291	741	1,428
St. Asaph - -	212	500	712	493	—	—	—	—
Holywell - -	431	480	911	1,185	420	441	861	1,181
Bridgend - -	168	214	382	346	265	429	694	674
Cardiff - -	377	295	672	1,350	601	294	895	1,813
Merthyr Tydvil - -	1,080	391	1,471	2,799	1,686	998	2,684	3,220
Neath - -	499	294	793	1,509	601	294	895	1,813
Swansea - -	401	164	565	1,337	561	206	767	1,507
Bala - -	-	-	-	159	13	114	127	171
Corwen - -	17	84	111	351	95	276	371	340
Dolgelly - -	24	53	77	335	85	302	387	373
Festiniog - -	53	260	313	532	117	264	381	517
Llanfyllin - -	51	94	145	520	—	—	—	—
Machynlleth - -	16	20	36	317	—	—	—	—
Newtown - -	159	6	165	805	418	185	603	806
Haverfordwest - -	54	443	497	1,111	96	240	336	1,133
Narberth - -	138	570	708	695	64	130	194	670
Pembroke - -	118	126	244	809	84	127	211	761
Knighton - -	13	133	146	318	—	—	—	—
Presteigne - -	20	89	109	101	—	—	—	—
Rhayadn - -	31	229	260	216	-	2	2	254

VACCINATIONS in LONDON complete for 1850 and 1851.

UNIONS.	1850.				1851.			
	Under 1.	Above 1.	Total.	Births.	Under 1.	Above 1.	Total.	Births.
St. Matthew, Bethnal Green -	714	219	933	3,597	801	316	1,117	3,589
St. Luke, Chelsea -	460	135	595	1,609	599	249	848	1,804
Clerkenwell -	636	177	813	2,142	769	218	987	2,266
Fulham -	375	134	509	350	401	126	527	390
St. George (East) -	662	166	828	1,763	821	250	1,071	1,836
St. George, Hanover-square -	491	109	600	1,772	571	175	746	1,854
St. Giles -	484	180	664	1,596	519	299	818	1,850
Hackney -	442	165	607	1,607	414	246	660	1,765
Hampstead -	118	6	124	237	53	38	91	286
Holborn -	198	76	274	1,318	484	294	778	1,427
St. Mary, Islington -	781	401	1,182	2,851	822	434	1,256	3,057
St. James, Westminster -	34	9	43	865	30	5	35	973
Kensington -	286	112	398	1,097	373	100	473	1,195
City of London -	58	19	77	1,364	57	126	183	1,311
East London -	494	97	591	1,411	537	125	662	1,481
West London -	335	105	440	764	354	153	507	802
St. Luke, Westminster -	570	129	699	2,306	931	239	1,170	2,352
St. Margaret and St. John -	878	202	1,080	1,989	1,019	368	1,387	2,045
St. Martin-in-the-Fields -	157	25	176	703	206	76	282	634
Marylebone -	1,526	468	1,994	4,537	2,356	1,006	3,362	4,798
Paddington -	64	17	81	1,324	226	153	379	1,458
St. Pancras -	1,698	561	2,239	5,142	1,868	748	2,616	5,578
Poplar -	743	152	895	1,669	900	353	1,253	1,782
Shoreditch -	1,134	531	1,665	3,993	1,545	757	2,302	4,273
Stepney -	608	295	903	3,650	976	589	1,565	3,921
Strand -	365	70	435	1,199	410	154	564	1,351
Whitechapel -	1,919	443	2,362	2,419	1,981	395	2,376	2,725
Bermondsey -	818	157	975	1,783	820	227	1,047	1,945
Camberwell -	332	110	442	1,600	565	226	791	1,710
St. George, Southwark -	246	55	301	1,637	363	69	432	1,811
Lambeth -	858	473	1,331	4,665	888	628	1,516	4,751
St. Mary, Newington -	932	272	1,204	2,157	1,034	274	1,308	2,264
St. Olave -	299	103	402	576	178	105	283	552
Rotherhithe -	388	104	492	521	417	142	559	615
St. Saviour -	417	563	1,223	-	562	187	749	1,332
Wandsworth and Clapham -	286	233	519	1,441	255	219	474	1,535
Greenwich -	1,547	1,354	2,901	2,972	1,296	1,083	2,329	3,139
Lewisham -	492	175	667	971	453	127	580	1,109

Appendix (D.)

## VACCINATIONS, 1850.

## LANCASHIRE.

UNIONS.	Under 1.	Above 1.	Total.	Births.
Ashton-under-Lyne - - - - -	1,279	681	1,960	4,355
Saddleworth - - - - -	67	48	115	645
Barton - - - - -	296	264	560	712
Blackburn - - - - -	1,325	742	2,067	3,628
Bolton - - - - -	2,294	620	2,914	4,508
Burnley - - - - -	839	631	1,470	2,521
Bury - - - - -	1,038	637	1,675	3,261
Chorley - - - - -	358	328	686	1,368
Chorlton - - - - -	2,665	551	2,616	4,628
Clitheroe - - - - -	323	299	622	671
Fylde - - - - -	264	126	390	756
Garstang - - - - -	98	65	163	368
Haslingden - - - - -	465	351	816	1,704
Lancaster - - - - -	150	146	296	713
Leigh - - - - -	205	181	386	1,152
Liverpool - - - - -	4,373	1,337	5,710	9,127
Manchester - - - - -	4,305	913	5,218	7,025
Oldham - - - - -	812	465	1,227	3,382
Ormskirk - - - - -	400	415	815	1,360
Prescot - - - - -	725	647	1,372	2,005
Preston - - - - -	1,017	442	1,459	3,381
Prestwick - - - - -	320	104	424	708
Rochdale - - - - -	909	530	1,439	2,663
Salford - - - - -	1,576	383	1,959	3,297
Ulverstone - - - - -	256	265	521	1,014
Warrington - - - - -	209	83	292	1,485
West Derby - - - - -	2,068	665	2,733	5,299
Wigan - - - - -	898	435	1,333	3,073

## CHESHIRE.

UNIONS.	Under 1.	Above 1.	Total.	Births.
Altrincham - - - - -	339	282	621	1,108
Great Boughton - - - - -	228	249	477	126
Chester - - - - -	304	112	416	855
Congleton - - - - -	350	539	889	900
Macclesfield - - - - -	657	385	1,042	2,107
Nantwich - - - - -	353	677	1,030	1,148
Northwich - - - - -	353	242	595	1,099
Runcorn - - - - -	188	126	314	1,038
Stockport - - - - -	1,243	416	1,659	3,078
Wirrall - - - - -	538	270	808	1,755

## CAMBRIDGESHIRE.

UNIONS.	Under 1.	Above 1.	Total.	Births.
Cambridge - - - - -	154	40	194	829
Caxton - - - - -	92	291	383	408
Chesterton - - - - -	33	27	60	872
Ely - - - - -	72	43	115	879
Linton - - - - -	73	5	78	452
Newmarket - - - - -	41	122	163	990
North Witchford - - - - -	227	685	912	655
Whittlesea - - - - -	95	43	138	317
Wisbeach - - - - -	196	409	605	1,360

VACCINATIONS, 1851.

UNIONS.	Under 1.	Above 1.	Total.	Births.
Norwich - - - - -	844	532	1,376	2,244
Swaffham - - - - -	10	93	103	505
Great Yarmouth - - - - -	46	124	170	906
Bruchley - - - - -	27	467	494	417
Brinworth - - - - -	42	49	91	430
Kettering - - - - -	12	13	25	644
Northampton - - - - -	30	175	205	1,180
Oundle - - - - -	186	179	365	541
Peterborough - - - - -	294	410	704	1,080
Thrapston - - - - -	30	111	141	471
Ely - - - - -	36	159	195	851
Bedminster - - - - -	266	118	384	1,276
Haslingden - - - - -	488	395	883	1,839
Leigh - - - - -	279	286	565	1,267
Liverpool - - - - -	6,510	2,700	9,210	9,180
Ormskirk - - - - -	622	480	1,102	1,398
Preston - - - - -	1,500	566	2,066	3,620
Prestwick - - - - -	595	131	726	1,124
Rochdale - - - - -	1,090	669	1,759	2,730
Todmorden - - - - -	304	997	1,301	—
Warrington - - - - -	238	220	458	1,423
Wigan - - - - -	1,337	795	2,132	3,415
Ashby-de-la-Zouch - - - - -	49	81	130	987
Billesden - - - - -	44	18	62	188
Leicester - - - - -	706	276	982	2,434
Loughborough - - - - -	58	121	179	968
Bolton - - - - -	213	559	772	1,240
Grantham - - - - -	331	270	601	1,022
Lincoln - - - - -	313	239	552	1,463
Sleaford - - - - -	69	145	214	819
Chepstow - - - - -	188	112	300	595
Blofield - - - - -	37	92	129	313
Depwade - - - - -	14	83	97	850
Docking - - - - -	78	217	295	607
Espringham - - - - -	20	56	76	711
Higg - - - - -	7	41	48	302
Guiltecross - - - - -	34	100	134	413
Lynn - - - - -	297	225	522	655
Wigton - - - - -	344	266	610	726
Belper - - - - -	419	431	850	1,649
Chesterfield - - - - -	701	752	1,453	1,712
Derby - - - - -	343	296	639	1,538
Hayfield - - - - -	87	71	158	344
Bideford - - - - -	16	42	58	567
Newton Abbot - - - - -	68	89	157	1,563
East Stonehouse - - - - -	1	-	1	438
Chester-le-Street - - - - -	137	89	226	860
Gateshead - - - - -	1,020	238	1,258	1,828
South Shields - - - - -	874	95	969	1,470
Stockton - - - - -	397	161	558	1,851
Sunderland - - - - -	623	213	836	—
Teesdale - - - - -	70	24	94	593
Weardale - - - - -	272	231	503	556
Cirencester - - - - -	6	83	89	658
Ross - - - - -	195	404	599	448
Weobly - - - - -	149	531	680	222
St. Alban's - - - - -	247	1,377	1,624	581
Welwyn - - - - -	4	5	9	84
Barnet - - - - -	165	79	244	370
Watford - - - - -	172	728	900	588
Hatfield - - - - -	85	323	408	227
Hitchin - - - - -	84	431	515	904
Royston - - - - -	110	293	403	750
Huntingdon - - - - -	16	42	58	805
St. Neot's - - - - -	7	10	17	671
East Ashford - - - - -	62	90	152	34
Bridge - - - - -	80	125	205	353
Dartford - - - - -	247	169	416	879
Dover - - - - -	108	141	249	820
Greenwich - - - - -	1,296	1,033	2,329	3,139

(continued)

Appendix (D.)

VACCINATIONS, 1851—*continued.*

UNIONS.	Under 1.	Above 1.	Total.	Births.
Hoo - - - - -	19	58	77	110
Romney Marsh - - - - -	3	4	7	168
Seven Oaks - - - - -	104	275	379	699
Sheppey - - - - -	164	154	318	485
Tenterden - - - - -	-	-	-	427
Isle of Thanet - - - - -	428	174	602	974
Barton-on-Irwell - - - - -	353	377	730	1,051
Blackburn - - - - -	955	756	1,711	—
Bolton - - - - -	2,675	749	3,424	—
Burnley - - - - -	869	501	1,370	2,602
Bury - - - - -	1,221	757	1,978	3,285
Chorlton - - - - -	2,121	536	2,657	4,890
Chorly - - - - -	424	444	868	1,394
Fylde - - - - -	381	235	616	748
Haslingden - - - - -	488	395	883	1,839
Rescot - - - - -	775	560	1,335	2,249
Hitchin - - - - -	84	431	515	904
Braintree - - - - -	116	186	302	607
Maldon - - - - -	222	584	808	678
West Ham - - - - -	891	342	1,233	1,114
Witham - - - - -	74	266	340	491
Northleach - - - - -	4	79	83	339
Stow-on-Wold - - - - -	12	55	67	296

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607  
TEL. 773-936-3700

1960-1961

PHYSICS DEPARTMENT  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607

1960-1961

10-6-61

SMALL POX AND VACCINATION.

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COPY of LETTER from Dr. *Edward Seaton* to  
Viscount *Palmerston*, with enclosed Copy of  
a Report on the State of SMALL POX and  
VACCINATION in *England* and *Wales* and  
other Countries, and on COMPULSORY VAC-  
CINATION.

(*Sir John Pakington.*)

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Ordered, by The House of Commons, to be Printed,  
3 May 1853.

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[*Price 8 d.*]

434.

*Under 12 oz.*

