

A statement of facts, tending to establish an estimate of the true value and present state of vaccination. / By Sir Gilbert Blane.

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STATEMENT OF FACTS,

TENDING TO

ESTABLISH AN ESTIMATE OF THE TRUE VALUE

AND

PRESENT STATE

OF

VACCINATION.

BY SIR GILBERT BLANE, BART.

*F.R.S. of London, Edinburgh, and Göttingen; Member of the Imperial Academy
of St. Petersburg; and Physician in Ordinary to the King.*

FROM THE TENTH VOLUME OF THE MEDICO-CHIRURGICAL TRANSACTIONS,
PUBLISHED BY THE MEDICAL AND CHIRURGICAL
SOCIETY OF LONDON;

WITH ADDITIONS.

LONDON:

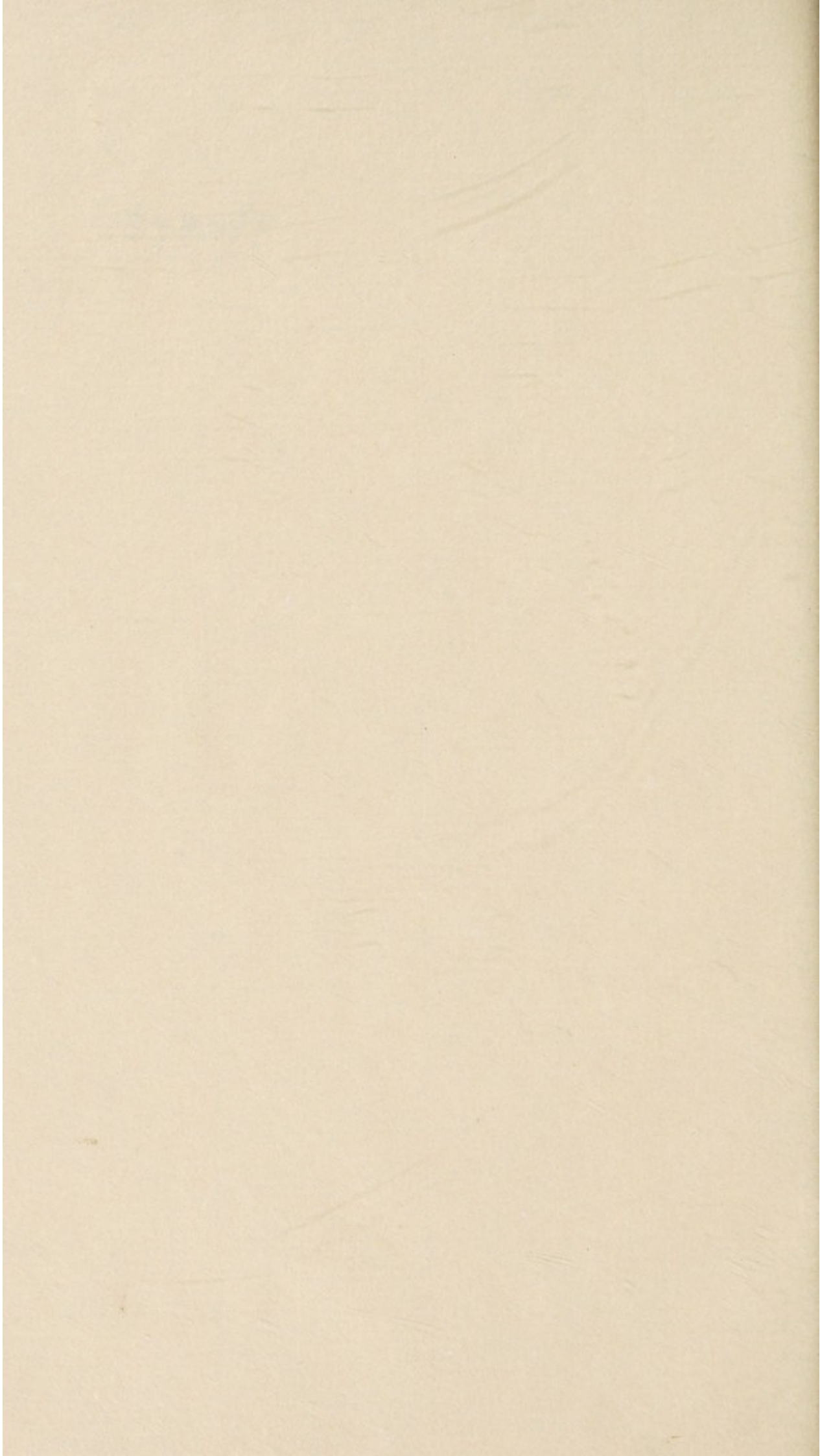
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1830

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PRESENT STATE OF

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BY SIR GILBERT BLANE, BART. F.R.S. Lond. &c.

Physician in Ordinary to the King.

Read Nov. 10, 1819.

IT is now twenty-one years since Vaccination was promulgated in this country by Dr. Jenner, and fifteen years since it began to produce a sensible effect in diminishing the mortality from Small Pox. In regard to the latter period, it is coeval with this Society; yet, though no discovery in nature nor in medicine has been more important to the interests of humanity, nor any which has ever so rapidly and universally won the assent and practical adoption of mankind, there are no notices of it on our records, except in our second volume, in an article by Dr. Bateman, in which he relates a case of a mother who was affected with the Small Pox a second time, by being exposed to infection, from some of her own children who had caught it casually; while her other children, who had been vaccinated, resisted it. As it is to be hoped that our labours will prove to posterity some of the principal sources of reference regarding the medical and chirurgical discoveries and improvements of the age; as it is one of the reproaches of our country, that it has not availed itself so much as any other of the benefits of Vaccination; and as there are writers among us who still allege that the failures are so numerous that the value of the discovery is very ambiguous, it seems one of the duties of the Society to lend its aid in placing these important points in their true light.

It seems almost needless to premise, that the Small Pox is of all maladies that, which, during the last thousand years, has destroyed the largest portion of the human species, and been productive of the largest share of human misery. There

is, perhaps, no disease over which medical art has less power; and this power, such as it is, has consisted more in abolishing pernicious practices, than in ascertaining any positive methods of controlling its fatality, unless we except the inoculation of it with its own *virus*. But, though the beneficial effect of this on those on whom it is actually practised is undeniable, it has no tendency like Vaccination to extirpate the disease; and from the impossibility of rendering it universal, it has actually been found to add to the general mortality of Small Pox, by opening a new source for the diffusion of its *virus*.

It ought to be stated also, with a view to a decision on this question, that Vaccination itself is attended with no danger, and frequently takes effect without any visible disturbance in the system. There is even reason to believe, that in its process it wards off other diseases, by pre-occupying the constitution.

In order to bring this matter to the test of calculation, in order also to institute a comparison of the mortality of Small Pox as influenced by Vaccination, as well as by Inoculation from itself, I have selected from the bills of mortality four periods, each of fifteen years, for the purpose of exhibiting the mortality of Small Pox in each of these series in regard to each other. These are thrown into the form of Tables, and annexed to this article.

The first series, is the fifteen years immediately preceding the introduction of Inoculation; that is, from 1706 to 1720, both included. Previous to this period, no account that could be depended upon regarding the Small Pox, could be derived from the bills of mortality; for down to the beginning of last century such was their imperfect construction, that Small Pox, Measles, and Flux were blended under one head. Exception may be taken against the accuracy of these bills, even in this improved state, particularly with regard to the discrimination of diseases. This objection, however, is certainly less applicable to Small Pox than any other disorder, its character being so striking as not to be mistaken by the most ignorant and careless observer.

The second series is taken at the middle of the last century, when Inoculation had made considerable progress; that is, from 1745 to 1759, both included. In comparing this with the preceding series, with regard to absolute numbers, it ought to be taken into account, that eleven parishes were added to the bills of mortality, between the years 1726 and 1745, both included: so that the progressive improvement of general salubrity ought to be estimated still higher than what is indicated by the diminished mortality, as it stands in the Tables.

The third series comprises the fifteen years previous to the introduction of Vaccination, when Inoculation had made still greater progress; that is, from 1785 to 1798, both included.

The fourth series comprises the time in which the vaccine Inoculation has been so far diffused as to produce a notable effect on the mortality of Small Pox; that is, from 1804 to 1818, both included.

The result of these computations stands as follows:—

Ratio of the Mortality of Small Pox to the total Mortality.

From 1706 to 1720, one in 12.7; that is, 78 in 1000.

From 1745 to 1759, one in 11.2; that is, 89 in 1000.

From 1785 to 1798, one in 10.6; that is, 94 in 1000.

From 1804 to 1818, one in 13.9; that is, 53 in 1000.

Fractions are not noticed in the last column of numbers.

It appears from this statement, that the proportion of deaths from Small Pox to the total mortality, increased in the course of last century; so that Inoculation appears to have added to the mortality. It is but fair to mention, however, that this total mortality is not quite a just scale whereby to measure the relative mortality of Small Pox; for in the course of that century, the general mortality itself was greatly diminished in relation to the population. This diminution of general mortality was chiefly owing to the diminished mortality of children under two years of age, which, at the time when the account began to be kept, 1729, averaged about 9000; but at the end of the century not more than 5000*; also to the decrease of fevers, and still more of fluxes. The relation of the mortality of Small Pox to the population, would therefore be a more fair criterion of its increase or decrease. In this view it might, at first sight, be thought that it had decreased; for the population of the metropolis nearly doubled in the course of the last century. But it is to be remarked, that there has been little increase of population in that portion of the metropolis which is included in the bills of

* This diminished mortality of young children is, like that of fevers and fluxes, owing chiefly to the improvements in ventilation and cleanliness, but greatly also to laying aside the custom of exposing them to the open air in winter and early in spring; either from inadvertency, or from the false notion of rendering them hardy, whereas they thereby catch inflammations of the lungs. Nothing tends more to the health, strength, and growth of children, than genial warmth. It seems chiefly owing to the great plenty and cheapness of fuel, that the race of people in Lancashire are so superior in their form and size. In Buckinghamshire, on the contrary, where fuel is extremely scanty and dear, the race of people is small and puny, insomuch that it is provided by Act of Parliament that men shall be admitted into the militia of a smaller stature in this than other counties.

mortality; the great increase having been in the parishes of Mary-le-bone and St. Pancras, which are not included in these bills. It is computed in the remarks subjoined to the last parliamentary returns of population, that the population of London, within the walls, had decreased more than three-fifths in the course of last century, from the widening of streets, the erection of public buildings and warehouses, and, it might have been added, from the migration of mercantile families to the west end of the town. As a set-off to this, there has certainly been a great addition, in the same time, to those parishes within the bills, which stand on the verge of the metropolis, such as St. George's Hanover Square, St. George's Bloomsbury, Poplar, and Stepney. But the addition to the population, if any, within the bills of mortality, does not seem to be so considerable as to affect the computation. And, if this is admitted, the absolute numbers of the deaths from Small Pox, estimated in relation to the population, that is, exactly as they stand on the Tables, afford a fair comparative statement of the mortality in the last century, and seem to prove that Inoculation has not added so much to it as has been alleged. It was in the rural population that the effect of Inoculation in diffusing Small Pox was chiefly felt. In this situation there is much less intercourse of persons with each other than in towns, so that not only many individuals escaped from their not being exposed to infection during their whole lives, but whole districts were known to have been exempt from it for a long series of years, before it was universally diffused by Inoculation.

But the truly important result from these statements consists in the clear, undeniable, and great diminution of it since the introduction of Vaccination. It appears, that in the last fifteen years, the mortality from Small Pox, in the bills of mortality, has not been much more than one-half of what it was in the two like series of years in the middle and latter end of the last century. Nor does this comprise the whole benefit derived from this discovery in the metropolis; for, besides that the sixth part of it lies without the bills, it was found, in levying the tax on burials for the last six months of 1794, that the number of unregistered deaths, chiefly those of dissenters, amounted in that half year to 3148; and the reporter of the parliamentary enumeration thinks that, as besides these there were undiscovered interments, the unregistered deaths may be computed at one-third of the total mortality, that is, about 7000. (*See Abstract of the Parish Registers, 1811, printed by authority of Parliament, page 200.*)

Assuming, therefore, that Vaccination had not been practised the last fifteen years, and that the mortality from Small

Pox, within the bills, had in that time, that is, from 1804 to 1818, been the same as from 1784 to 1798, that is, 27,569 in place of 14,716; and assuming that there has been the same proportional diminution of deaths in the districts without the bills, and among the unregistered subjects, the account of lives saved in this metropolis by Vaccination in the fifteen years, will stand as follows:—

Within the bills of mortality.....	12,853
Without the bills of mortality ..	2,570
Unregistered cases.....	7,711
	23,134
Total.....	23,134

The first of these numbers is found by subtracting the amount of deaths by Small Pox, in the bills of mortality, during the practice of Vaccination, from the amount of them, during the same number of years, immediately before the discovery of Vaccination.

The second number is found by dividing the first by 5. The population of the metropolis without the bills is stated at one-sixth of the whole, which is evidently one-fifth of that within the bills.

The third number is found by dividing the sum of the two others by 2; the unregistered cases being, as before stated, one-third of the whole.

It appears, therefore, that, even under the very imperfect practice of Vaccination which has taken place in this metropolis, 23,134 lives have been saved in the last fifteen years, according to the best computation that the *data* afford. It will be seen, by an inspection of the Table, that in that time there have been great fluctuations in the number of deaths. This has been owing partly to the Small Pox Inoculation of out-patients having, by an unaccountable infatuation, been kept up at the Small Pox Hospital for several years after the virtue of Vaccination had been fully confirmed. The greater number of deaths in 1805 may chiefly be referred to this cause. Since the suppression of this practice, the adoption of Vaccination, though in a degree so incomplete, in consequence of public prejudice, created entirely by mischievous publications, has been unable to prevent a considerable, though fluctuating, mortality from Small Pox. The late mortality from Small Pox, though little more than one half of what it was in former times, might have been entirely saved, if Vaccination had been carried to the same extent as in many cities and whole districts on the continent of Europe, in Peru, and Ceylon.

In the summer of 1811 the author was called to visit,

professionally, Don Francisco de Salazar, who had arrived a few days before in London, on his route from Lima to Cadiz, as a deputy to the Spanish Cortes. He informed him, that Vaccination had been practised with so much energy and success in Lima, that for the last twelve months there had occurred, not only no death from, but no case of, Small Pox; that the new-born children of all ranks are carried as regularly to the Vaccinating House as to the font of baptism; that the Small Pox is entirely extinguished all over Peru; nearly so in Chili; and that there has been no compulsory interference on the part of the government to promote Vaccination.

It is now matter of irrefragable historical evidence, that Vaccination possesses powers adequate to the great end proposed by its meritorious discoverer, in his first promulgation of it in 1798, namely, the total extirpation of Small Pox. The first proof of this was at Vienna, where, in 1804, no cases occurred, except two strangers who came into the city with the disease upon them. In 1805 there did not occur a single death from it in Copenhagen*. Dr. Sacco, the indefatigable superintendent of Vaccination in Lombardy, stated, in his Annual Report, 3d January, 1808, that the Small Pox had entirely disappeared in all the large towns in that country; and that in the great city of Milan it had not appeared for several years. Dr. Odier, of Geneva, so favourably known for his high professional, scientific, and literary acquirements, testifies, that, after a vigorous perseverance in Vaccination for six years, the Small Pox had disappeared in that city and the whole surrounding district; and that, when casually introduced by strangers, it did not spread, the inhabitants not being *susceptible*. The Central Committee in Paris testify, in their Report of 1809, that the Small Pox had been extinguished at Lyons and other districts of France.

These are selected as some of the earliest and most remarkable proofs of the extirpating power. But it is demonstrable, that if at the first moment of this singular discovery, at any moment since, at the present or any future moment, mankind were sufficiently wise and decided to vaccinate the whole of the human species who have not gone through the Small Pox, from that moment would this most loathsome and afflicting of all the scourges of humanity be instantaneously, and for ever, banished from the earth.

It is farther manifest, that extirpation being the ultimate aim of this discovery, and there being the fullest historical

* See Pfaff Neuen Nord v. Archiv. B. I.

and practical evidence of its being capable of accomplishing this end, all other questions with regard to its expediency must be futile and irrelevant. It is in the nature of all morbid phenomena to be liable to exception. One of the most essential and characteristic laws of Small Pox itself, namely, that of its affecting the human subject but once in life, is found in rare cases to be violated. It is, therefore, perfectly conformable to analogy, and naturally to be expected, that it may not in all cases be a complete security against Small Pox. But it is obvious, that, admitting these exceptions to be very frequent, much more so than the recurrence of Small Pox after Small Pox, this can constitute no objection to the practice, as long as the extirpating power remains unimpaired and unimpeached. Nay, it is obviously so far from an objection, that it ought to operate as a powerful additional incentive on every benevolent mind, to push Vaccination to the utmost, as rapidly as possible, in order that those who are still susceptible, either from peculiar natural constitution, or from the unskilful manner of conducting the operation, or from defective matter, may not, by any possibility, catch it; for, in the event of its extirpation, it could nowhere be met with. And in order to stimulate the good and the wise to aim strenuously at this consummation, let it be constantly borne in mind, that the adversary they are contending with is the greatest scourge that has ever afflicted humanity. That it is so, all history, civil and medical, proclaims: for, though the term Plague carries a sound of greater horror and dismay, we should probably be within the truth, if we were to assert, that Small Pox has destroyed a hundred for every one that has perished by the Plague.

It is true that in its last visitation of this metropolis, one hundred and fifty-four years ago, it carried off 70,000 victims in a few months; but since that time, the deaths from Small Pox, recorded in the bills of mortality, have amounted to more than 300,000; and a like number of the survivors have been afflicted with blindness, deformity, scrofula, or broken constitutions, which is not the case with the survivors of the Plague. It appears, by a Report of the Hospital for the Indigent Blind, that two thirds of those who apply for relief have lost their sight by the Small Pox. It is alleged by some of the soundest Political Economists that Small Pox does not diminish the numbers of mankind, nor Vaccination increase them; for population is determined by subsistence, and the indefinite powers of procreation soon repair the ravages of disease. But, however true this may be, the miseries incident to so many of those who survive Small Pox, whereby they become a burden to themselves, their families, and to society,

render this disease uncontrovertibly an evil of the first magnitude, not to mention the intense sufferings and afflictions inseparable from it; and in this view of the matter the objection seriously adduced against Vaccination by one of its opponents*, that *Small Pox is a merciful dispensation of Providence for the poor man, by diminishing the burden of his family*, will not hold good, for the burden is not removed.

And when it is considered that there are large portions of the globe, India, China, even one whole quarter of it (North and South America), besides all the tropical and arctic regions, in which the Plague has never been known; and that in all the countries liable to it, it seldom appears but at one season of the year, and in some at long intervals, the ravage which it makes is trifling when compared with the unceasing havoc of Small Pox, which spares no nation in any climate, or at any season. Yet the Legislative Regulations for excluding and checking the Plague are of the most harsh and despotic description, while the law touches upon Small Pox comparatively with the most lenient hand. It ought to be generally known, however, that in a late trial and conviction, it was laid down by the judge to be the law of the land, that a medical practitioner who neglects to exclude the person whom he inoculates from communication with others, is liable to fine and imprisonment. Morally considered, indeed, it is difficult to conceive a higher degree of flagitious turpitude than that of a professional person, in the present state of knowledge, exposing his fellow-creatures, from sordid motives, to one of the most grievous calamities of which human nature is susceptible.

The preceding reasoning is grounded on the supposition of extirpation: but, however demonstrable the *possibility* of extirpation may be, it may not in all communities be *practicable*; and may not these alleged failures so operate, as, in such circumstances, to render the expediency of the practice questionable?

In order to decide this, let the nature and amount of these failures be ascertained and estimated.

The description of those cases of Small Pox, (if they can be called so,) which occur in vaccinated subjects, is shortly as follows:—The invasion and eruption in every respect resembles that of the genuine Small Pox. I have seen it attended with high fever and a thick crowded crop of *papulæ*, such as precedes the most severe and dangerous cases of the confluent kind. This runs on till the fifth day from the

* See *Serious Reasons for uniformly opposing Vaccination*. By John Birch. London, 1807.

eruption, both days included, at which time some of the *papulae* begin to be converted into small sized pustules. The disorder then abruptly stops short. On the following day the fever is found to have subsided, with a shrivelling and desiccation of the eruption, and recovery proceeds without the least danger or inconvenience. The face is marked, for some time after, with brown spots, but without pits. It should never be forgotten, that all morbid *phenomena* are full of varieties and exceptions. Accordingly, though the fifth day is the most common limit of this disorder, it sometimes stops short on the third; sometimes not till the sixth or seventh; and, in a very few cases, it has been known to run the common course of Small Pox. What forms the strong line of distinction from proper Small Pox, is that, with a few exceptions, it does not advance to maturation and secondary fever, which is the only period of danger. I am not prepared to deny that death may not have occurred in a few instances; nay, there seems sufficient evidence that it actually has; but these adverse cases are so rare, as not to form the shadow of an objection to the expediency of the general practice. A few weeks ago at a meeting of this Society, at which forty members and visitors were present, I put the question whether any of these eminent and extensive practitioners had met with any fatal cases of this kind. Two gentlemen had each seen a single case, and two other gentlemen took occasion to say that they had each seen a case of second Small Pox, both of which proved fatal. It is evident, therefore, that according to that maxim which guides mankind in the conduct of life, namely, that of acting on a general rule and average, and not on exceptions, these adverse instances ought not to have the least influence on practice, even though they were much more numerous. Nor indeed do they, except in the very rare cases here cited, deserve the name of failures; for, though they fail in preventing *Small Pox*, they do not fail to prevent *Death*. And let me here, in the name of humanity, beseech practitioners not to be forward in publishing single cases of failures, real or supposed; for, when the weak minded and uninformed hear of these failures, without hearing at the same time that there are hundreds of cases of permanent security for every single case of failure, they are guided by the *exception*, which becomes to them the *rule*; their judgments being thereby most fatally perverted.

As it is of the utmost consequence to establish the strong and important distinction between Small Pox, properly so called, and that which takes place after Vaccination, which may be called the mitigated, or five day Small Pox, a few of

the most impressive testimonies respecting the safe nature of the latter may be here recited. Mr. Brown*, of Musselburgh, gives the detail of forty-eight cases, in none of which did the secondary fever nor death occur. Here was a saving of at least eight lives, at the lowest computation; for this is the number which, by the average mortality of natural Small Pox, would have died if the constitutions of these forty-eight persons had not been modified by previous Vaccination. Dr. Dewar, of Edinburgh, hearing that many vaccinated subjects had been affected with Small Pox at Cupar in Fife, where the natural Small Pox at the same time prevailed, he most laudably repaired to the spot to investigate the subject. He found that fifty-four vaccinated subjects had caught the Small Pox. All these, except one, had the mitigated or five day eruptive fever, and livid. The fatal case was that of a child, who had a complication of other disorders, and having died on the fifth day, the Small Pox, according to its ordinary course of fatality, could not of itself be the cause of death. All the rest were safe; while of sixteen cases of the natural Small Pox at the same time and place, six died; so that, if these fifty-three cases had not undergone the mitigating process of Vaccination, nineteen or twenty would have perished. Between thirty and forty cases of the same kind have occurred at Carlisle, on the testimony of Dr. Barnes, a respectable practitioner of that city†. Many proofs might be adduced from the oral testimony of private practitioners, which would overswell this article. The only other to be mentioned is from the Report of the Central Committee of Vaccination at Paris, made in December last, in which the description of the disease occurring after Vaccination corresponds exactly with the mitigated five day cases which have occurred in Britain. They refuse the name of Small Pox to it; but as I know from my own observation, as well as from the testimony of others, that the matter from it does by Inoculation give the Small Pox, we can hardly, perhaps, with propriety deny it that name; but it should be distinguished by some strong discriminating epithet, such as is suggested above.

* See Inquiry into the Antivariolous power of Vaccination. Ed. 1809. There is an article in the Edinburgh Medical Journal by the same gentleman in 1819, in which he mentions that he had heard of several deaths having occurred from cases of Small Pox after Vaccination. But, admitting this, it is utterly incomprehensible by what process of reasoning Mr. Brown could on such premises arrive at the conclusion that Vaccination ought to be exploded and abandoned.

† See also a clear and able exposition of this subject in the Medical and Surgical Journal of Edinburgh for July, 1818, by Mr. Dunning, of Plymouth.

As the attack of Small Pox in subjects who have undergone Vaccination, generally occurs after a long interval, it becomes a question whether this is owing merely to the chance of such subjects not having been exposed to variolous contagion, or to the effect of time in diminishing the anti-variolous virtue of vaccination. The former is certainly conceivable; but when we consider the numberless severe proofs to which the recently vaccinated were experimentally exposed in the early part of this practice all over Europe, from which the most satisfactory evidence resulted; and when it is considered that, in the great majority of cases, Small Pox has not occurred till several years after vaccination, it seems by far most probable that the virtue of it is weakened by time. When parents, therefore, become anxious and apprehensive regarding the risk of Small Pox after a lapse of years, it seems quite reasonable that they should be indulged in having the operation repeated.

Let all this be applied to the case of a community, in which the total eradication of Small Pox is quite hopeless. Let it be admitted that such occurrences as have been described do frequently occur: let it even be admitted, for argument's sake, that every vaccinated case whatever must of necessity and unavoidably at some time or other in future life be affected with this mitigated species of Small Pox, would it not even under this great abatement be one of the greatest boons that could be conferred on humanity, being an instrument or remedy which would disarm Small Pox of its danger? Would not the next greatest benefit to the total extirpation of Small Pox, be the stripping it of its terrors by rendering it safe and harmless?

It may be further remarked, that the benefit derivable from the different proportions of the persons vaccinated to the total population, advances in a considerably higher progression than the simple arithmetical. It is evident that the smaller the relative number of the vaccinated, the greater their chance of meeting with Small Pox infection, and that though the disease which they may catch is of a mitigated nature, it would nevertheless be desirable to avoid it on its own account, but still more on account of the prejudice it creates. This, in the eye of general benevolence, constitutes an additional, though secondary motive for extending the vaccine inoculation as widely as possible, even though the attainment of the *maximum*, that is, total extirpation, should be impracticable and hopeless.

It is of the highest importance to society, that this subject should be seen in its true light, and in all its bearings; for the

frequent occurrence of these cases of Small Pox, however safe in themselves, have had a most pernicious effect on the credulous and ignorant, by giving a check to the practice of Vaccination. It ought never to be forgot that the power of Vaccination in extirpating Small Pox being established, the question of its expediency is completely set at rest. How many parents are there now who, from a weak distrust in the virtue of Vaccination, have to lament the loss of a child from Small Pox, either casual or inoculated? Many such are known to myself. It is pleasing, however, to observe, that though this unmerited discredit into which Vaccination had fallen, swelled the number of deaths in London from Small Pox to 1051 in 1817, good sense is likely still to prevail, for last year (1818) the deaths have fallen lower than they have ever been known since the institution of the bills of mortality, the total number being only 421*.

On the whole matter, I believe I am speaking the language of every man of good principles and feelings, capable of reflecting seriously and considerately on the subject, when I say, that whenever he applies his mind to it, he finds some new and increasing cause of complacency and satisfaction. Viewed as a mere physical fact in the natural history of the animal kingdom, the virtue of the vaccine *virus* in resisting the action of the *variolous*, is, by its novelty and singularity, highly striking and interesting to every one whose taste leads him to take delight in contemplating and exploring the devious ways and varied forms of Nature, as curious exceptions to the uniformity and constancy of her laws. One can hardly contemplate with sufficient astonishment, the extraordinary fact that a morbid poison taken from a domestic animal should, when inserted into the human body, shield it against the assault of one of the most fatal and cruel maladies to which it is incident. But the importance of this, as a physical curiosity, vanishes to nothing when the unexampled benefits of it to mankind are fairly weighed; benefits which could never have been dreamt of by the most sanguine philanthropist, who, in contemplating it, finds himself lost in astonishment, at a boon to mankind almost beyond the grasp of his mind duly to appreciate: so that what seems at first sight merely a sportive aberration from the usual course of things, has, by the wise dispensation of Providence, become

* Since the first publication of this Tract, it has appeared that in the succeeding year (1819), the deaths from the Small Pox had advanced to 712; which ought to add to the perseverance, zeal, and vigilance, of the friends of humanity in prosecuting Vaccination.

subservient to the most beneficent purposes: and how many more useful discoveries may there yet be in reserve for the alleviation of human misery, from obscure and undetected facts still lurking under the very surface of Nature! It will in the eyes of future ages be deemed an *epocha* in the destinies of the world, and one of the highest boasts of the country in which it took its rise, with a sense of unrequitable obligation to the individual* who first disclosed and promulgated the secret, by drawing it from the dark recesses of rural tradition, and rendering it available to the whole human race.

Such are the sentiments which must fill every well constituted mind; and it behoves the whole medical profession, which has already done itself so much honour by the zealous and disinterested encouragement afforded to it, to continue its efforts in eradicating every remaining prejudice against it. It becomes Englishmen, in particular, to cherish it, not only as the native offspring of their country, of which they have reason to be proud, but to redeem the character of the nation from the reproach of having, of all others, whether savage or civilized, done the least justice to this noble discovery. It is somewhat humiliating to reflect, that while there is no country which has received more striking and unambiguous benefits from this discovery, there is none which has prized it less, nor availed itself of it so little. I here allude to the unspeakable advantage of it to the public service, both by sea and land, in the late war, so eventful and portentous in its course, and so glorious in its termination. Formerly, Small Pox was one of the greatest embarrassments to the operations of armies; and ships of war were occasionally under the necessity of quitting the sea, from the prevalence of this disorder among their crews. Those lately at the head of the navy and army, with that vigilant wisdom and humanity which become those who direct the affairs of a great and enlightened nation, recommended and enforced the practice of Vaccination in both these departments, to the great furtherance of the public service. Their example has by no means been followed among the civil population of England. This is chiefly imputable to the abuse of the press, the general licentiousness of which may be denounced as one of the most grievous evils of this age and country, in regard to other subjects interesting to humanity and public happiness, as well as this; the votaries of error and depravity being more successful, because they find more encouragement in disseminating their principles, than the advocates of truth,

* Dr. Edward Jenner.

virtue, and good order. There is no maxim more true, than that the best things do become by abuse the worst, and that in proportion to their excellence. What a mortifying contrast does England form with Peru, where it was adopted instantly, in consequence of a flash of conviction from the light of evidence! and was not this conviction fully justified by the immediate disappearance of Small Pox from that whole region? To those nations who may feel an envy of the glory attached to our country by this discovery, it must be no small consolation to perceive that a large proportion of the English nation has hitherto been so besotted as not to know how to appreciate it, nor how to avail themselves of it, and that it has encountered more opposition among ourselves than in all the world besides.

TABLE I.

Years.	Total Mortality.	Mortality from Small Pox.	Proportion.	Proportion to 1000.
1706	22,097	1094	1 in 20	50
1707	21,600	1078	1 20	50
1708	21,291	1687	1 12 $\frac{1}{2}$	79
1709	21,800	1024	1 21	49
1710	24,620	3138	1 8	127
1711	19,833	915	1 21 $\frac{1}{2}$	46
1712	21,198	1943	1 11	92
1713	21,057	1614	1 13	77
1714	26,569	2810	1 9 $\frac{1}{2}$	106
1715	22,232	1057	1 21	47
1716	24,436	2427	1 10	100
1717	23,446	2211	1 10 $\frac{1}{2}$	94
1718	26,523	1884	1 14	71
1719	28,347	3229	1 8 $\frac{3}{4}$	114
1720	25,454	1440	1 17 $\frac{1}{2}$	56
Total—350,503		27,557	1 12.7	78

In this series it appears that the deaths from Small Pox are, to the total mortality, as 1 in 12.7; that is, 78 in 1000.

TABLE II.

Years.	Total Mortality.	Mortality from Small Pox.	Proportion.	Proportion to 1000.
1745	21,296	1206	1 in 17 $\frac{3}{4}$	56
1746	28,157	3236	1 8 $\frac{3}{4}$	115
1747	25,494	1380	1 18 $\frac{1}{2}$	54
1748	23,869	1789	1 13 $\frac{1}{2}$	75
1749	25,516	2625	1 9 $\frac{3}{4}$	103
1750	23,727	1229	1 19 $\frac{1}{4}$	52
1751	21,028	998	1 21	48
1752	20,485	3538	1 5 $\frac{3}{4}$	172
1753	19,276	774	1 25	40
1754	22,696	2359	1 9 $\frac{1}{2}$	104
1755	21,917	1988	1 11	91
1756	20,872	1608	1 13	77
1757	21,313	3296	1 6 $\frac{1}{2}$	155
1758	17,576	1273	1 13 $\frac{3}{4}$	73
1759	19,604	2596	1 7 $\frac{1}{2}$	132
Total—332,826		29,895	1 11.2	89

In this series it appears that the proportion of deaths from Small Pox is, to the total mortality, as 1 in 11.2; that is, 89 in 1000.

TABLE III.

Years.	Total Mortality.	Mortality from Small Pox.	Proportion.	Proportion to 1000.
1784	20,454	1210	1 in 17	59
1785	18,919	1999	1 9 $\frac{1}{2}$	106
1786	20,445	1210	1 17	59
1787	19,349	2418	1 8	125
1788	19,697	1101	1 17 $\frac{3}{4}$	56
1789	20,749	2077	1 10	100
1790	18,038	1617	1 11 $\frac{1}{4}$	89
1791	18,760	1747	1 10 $\frac{3}{4}$	93
1792	20,313	1568	1 13	77
1793	21,749	2382	1 9	11
1794	19,241	1913	1 10	99
1795	21,179	1040	1 20 $\frac{1}{4}$	49
1796	19,288	3548	1 54	18
1797	17,014	512	1 33 $\frac{1}{2}$	30
1798	18,155	2237	1 8	123
Total—293,350		26,579	1 11	90.9

In this series it appears that the proportion of deaths from Small Pox to the total mortality is 1 in 11, that is, 90.9 in 1000.

TABLE IV.

Years.	Total Mortality.	Mortality from Small Pox.	Proportion.	Proportion to 1000.
1804	17,038	622	1 in 27 $\frac{1}{2}$	36
1805	17,565	1685	1 10 $\frac{1}{2}$	96
1806	18,334	1297	1 14	71
1807	17,938	1158	1 15 $\frac{1}{2}$	65
1808	19,964	1169	1 17 $\frac{1}{4}$	58
1809	16,680	1163	1 14 $\frac{1}{4}$	70
1810	19,893	1198	1 16 $\frac{1}{2}$	60
1811	17,043	751	1 22 $\frac{3}{4}$	44
1812	18,295	1287	1 14 $\frac{1}{4}$	70
1813	17,322	898	1 19 $\frac{1}{4}$	52
1814	19,783	638	1 31	32
1815	19,560	725	1 27	37
1816	20,316	653	1 31 $\frac{1}{4}$	32
1817	19,968	1051	1 19	53
1818	19,705	421	1 47	21
Total—279,404		14,716	1 18.9	53

In this series it appears that the proportion of deaths from Small Pox to the total mortality is 1 in 18.9, that is, 53 in 1000.

Year	1871	1872	1873	1874	1875
1871	100	100	100	100	100
1872	100	100	100	100	100
1873	100	100	100	100	100
1874	100	100	100	100	100
1875	100	100	100	100	100

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Year	1876	1877	1878	1879	1880
1876	100	100	100	100	100
1877	100	100	100	100	100
1878	100	100	100	100	100
1879	100	100	100	100	100
1880	100	100	100	100	100



