

## **Vaccination.**

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# VACCINATION.

THE following important and interesting article is extracted from a paper read by Sir Gilbert Blane, Bart. to the Medico-Chirurgical Society, Nov. 10, 1819, and inserted in the tenth volume of their Transactions, just published:—

Sir Gilbert begins by stating it to be "21 years since vaccination was promulgated in the country by Dr. Jenner, and 15 years since it began to produce a sensible effect in diminishing the mortality from small-pox. Though so discommodious in nature nor in medicine has been more important to the interests of humanity, nor any which ever so rapidly and universally has won the assent and practical adoption of mankind, yet he justly conceives it to be one of the reproaches of the country that it has not availed itself so much of it as of any other of its benefits."

"The small-pox (he says) 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 of diffusion to its virus."

In order to bring this to the test of calculation, Sir Gilbert selects from the bills of mortality four periods, each of 15 years, for the purpose of exhibiting the mortality of small-pox in each of these series in regard to each other, of which the following is a summary:

## RATIO OF THE MORTALITY OF SMALL-POX TO THE TOTAL MORTALITY.

From 1706 to 1720, one in 12.7; that is, 78 in 1,000  
From 1745 to 1759, one in 11.2; that is, 89 in 1,000  
From 1783 to 1798, one in 10.6; that is, 94 in 1,000  
From 1805 to 1818, one in 18.9; that is, 53 in 1,000

In all these computations, fractions are not noticed in the last column of numbers.

"From this statement it would appear, that the proportion of deaths from small-pox to the total mortality increased in the course of the last century; so that inoculation appears to have added to the mortality. 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 exposure to this infection during their whole life, 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 Sir Gilbert does not think this 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.

"But the truly important results from these statements consists in the clear, undeniable, and great diminution of deaths since the introduction of vaccination. It appears that in the last 15 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." If to this be added the out-patients and the unregistered burials among the dissenters, Sir Gilbert Blane calculates that the account of lives saved in this metropolis by vaccination, in the last fifteen years, will stand as follows:—

Within the bills of mortality	12,853
Without the bills of mortality	2,570
Unregistered cases	7,711

Total 23,134

He then goes on to remark on the fluctuations in the number of deaths in the last fifteen years, which he partly attributes "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," "and partly to prejudice, created by mischievous publications. This mortality," he thinks, "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."

"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 professional, 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 (Sir Gilbert remarks) are selected as some of the earliest proofs of the extirpating power. 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, 154 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 blind ness, deformity, scrofula, or broken constitutions, which is not the case with the plague."

"The description of those cases of small-pox, (if, Sir Gilbert says, they can be called so,) which occur in vaccinated subjects, is shortly as follows. The eruption 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 papule, such as precedes the most severe and dangerous cases of the confluent kind. This runs on till the fifth day from the eruption, both days included, at which time some of the papule 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 shivering 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 proceed 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, (the Medico-Chirurgical,) at which 40 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."

"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 Nusselburgh, 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 54 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

\* 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.

† 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.

the oral testimony of private practitioners, which would overawell 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.

"Now 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 statement, be one of the greatest boons that could be conferred on humanity, as an instrument or remedy which would disarm small-pox of its danger? The next greatest benefit to the total extirpation of small-pox would 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 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 of 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. 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 1,051 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. But the importance of this vanishes to nothing when the uncalculated 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 as a boon to mankind almost beyond the grasp of his mind duly to appreciate. It will in the eyes of future ages be deemed an epoch 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 unrequited 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 foster it, not only as the native offspring of his country, of which he has 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. There is no country which has prized it less, nor availed itself of it so little. Have we not seen it adopted instantly in Peru, in consequence of a flash of conviction from the light of evidence, and have we not seen this conviction fully justified by the immediate disappearance of small-pox from that whole region? To those nations who may feel the 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 nor to avail itself of it, and that it has encountered more opposition among ourselves than in all the world besides."

Sir Gilbert Blane concludes this important paper with four tables, a summary of which is given above.



