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ESSAY LV.

NOTES

ON

VACCINATION.

BY

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F.G.S., FELLOW OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF
LONDON, ETC. VICE-PRESIDENT OF THE RUGBY HOSPITAL.
FIFTY YEARS AGO SENIOR SURGEON OF
THE BRADFORD INFIRMARY.



"Of two evils choose the least."

OLD PROVERB.

*(Addressed to the Royal Commission on Vaccination, appointed in
1889.)*

LONDON:
GEORGE BELL AND SONS,
YORK STREET, COVENT GARDEN.
1889.

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NOTES ON VACCINATION.

"So let great authors have their due, as Time, which is the author of authors, be not deprived of his due, which is further and further to discover truth."

LORD BACON.

"The *Gazette* announces that the Queen has appointed Sir James Paget, Sir Charles Dalrymple, Sir W. Guyer Hunter, Sir Edwin H. Gulsworthy, Mr. W. S. Savory, Mr. C. Bradlaugh, Mr. J. S. Bristowe, Mr. W. J. Collins, Mr. J. S. Dugdale, Q.C., Mr. Michael Foster, Mr. Jonathan Hutchinson, Mr. J. A. Picton, Mr. S. Whitbread, and Mr. F. Meadows White, Q.C., as Commissioners to inquire and report as to—

1. The effect of vaccination in reducing the prevalence of, and mortality from, small-pox.

2. What means, other than vaccination, can be used for diminishing the prevalence of small-pox; and how far such means could be relied on in place of vaccination.

3. The objections made to vaccination on the ground of injurious effects alleged to result therefrom; and the nature and extent of any injurious effects which do, in fact, so result.

4. Whether any, and if so, what means should be adopted for preventing or lessening the ill-effects, if any, resulting from vaccination; and whether, and if so, by what means, vaccination with animal vaccine should be further facilitated as a part of public vaccination.

5. Whether any alterations should be made in the arrangements and proceedings for securing the performance of vaccination, and in particular, in the provisions of the Vaccination Acts with respect to prosecutions for non-compliance with the law."*

* The *Standard Newspaper*, June 1, 1889.

Being too weak from old age to appear before the Commission and give *vivâ voce* evidence, I beg leave to offer, with great respect, a few brief notes on each of the five points to which the attention of the Commission has been directed.

It will not, I think, be time misspent if a few minutes are first occupied in recalling some of the facts of the early stages of the practice of vaccination.

It is well known that in Europe for some centuries the small-pox was the most dreaded of all diseases. It was estimated that from one in five to one in three was the common mortality of the epidemics, and in addition, nearly all of those who did not die, had their faces disfigured by its *pits*.

The first step that was taken in the direction of the mitigation and prevention of small-pox was *inoculation*—the voluntary submission to having the disease thus given, in the belief that the attack would be much milder and much less fatal. This was early in the last century. It was brought from Constantinople, especially by Lady Mary Wortley Montagu. At the close of the century the general belief of the medical profession was expressed in these words:—"Inoculation for the small-pox seems to be so well understood, that there is very little need for a substitute." The condition at that time was really this—the individuals inoculated commonly escaped, but the prevalence of small-pox was greatly increased by the persons inoculated becoming centres of infection, so that the total mortality from the disease was in excess of what it had been before the adoption of the practice.

The second step was then taken by Dr. Edward Jenner, a young physician in Gloucestershire, who had been taught to observe and experiment by John Hunter. His first publication was in June 1798. He had found it a tradition in the country, that dairy maids, who had contracted an eruption on their hands and arms from a similar eruption on the cows they milked, were protected from small-pox; he was led to experiment upon this supposed fact, and found it to be true, and not only this, but the additional fact that persons inoculated from the vesicles on the hands of the dairy maid had a similar eruption, and were similarly protected. In his pamphlet he describes the symptoms in the cow, and in the human subject, and details twenty-three cases, tending to prove

the origin of the cow-pox, and the impossibility of the small-pox following it, *provided the patient had the symptomatic fever during the cow-pox.*

As to the origin, Dr. Jenner believed that this was the grease in the heels of horses. He thought that the matter of grease was applied to cows by men who have the care of horses being employed to assist the maid servants in milking, the disease being thus communicated to the cows, and from the cows to the dairy maids.

A year after this, Dr. Jenner published, "Further observations on Variolæ Vaccinæ or Cow-pox." He endeavours to distinguish the real cow-pox from a spurious disease which had already appeared, having no power to defend from small-pox. He adduces additional arguments to prove that the cow-pox is derived from the horse, and he enquires into the cause of the variety in cases of children vaccinated in London, where an eruption appeared on the body *resembling the small-pox.*

The two names which were earliest associated with that of Jenner were those of Dr. Pearson and Dr. Woodville, and some notice of their labours is due to them. In Nov. 1798 Dr. Pearson published a pamphlet entitled "An Inquiry concerning the history of the Cow-pox." This book contains nine propositions, of which the following are the most interesting:—

"1. The cow-pox communicated in the accidental or natural way, renders the persons who experience the specific fever, &c., of that disease incapable of ever receiving the small-pox."

"2. The cow-pox communicated by *inoculation* renders the persons who are affected with the specific fever and peculiar local disease, insusceptible of the small-pox."

"3. The matter of the cow-pox, whether taken from the brute or human body, produces the same disorder by inoculation, and with the same certainty; and when several persons have been inoculated from each other in succession, such removal from the original source of the matter, produces no change in the nature or appearance of the disease." That is, it had not done so during this brief period.

"6. The cow-pox cannot be communicated by any other means than by the actual contact of the matter of a pustule."

"8. The cow-pox never excites or predisposes to other

diseases, which the small-pox has too frequently been observed to do"—and which the cow-pox itself also does now.

"9. The cow-pox does not prevent the small-pox, unless the constitution be affected with fever &c. during the disease." How much this was insisted on by Jenner himself is noticeable.

On March 12th, 1799, Dr. Pearson adds:—"Upwards of one hundred and sixty patients, from two weeks to forty years of age, principally infants, have been inoculated [with vaccine] since the 20th of January last, by Dr. Woodville and myself, separately:

"1. Not one mortal case occurred. 2. Not one of the patients was considered to be dangerously ill. 3. . . . the amount of the constitutional illness seemed to be as great as in the same number of patients in the inoculated small-pox. 4. None of the patients, namely, above sixty, hitherto inoculated for the small-pox, subsequently to the vaccine disease, took the infection. 5. The local affection in the inoculated part, on the whole, was less considerable and of shorter duration, than in the inoculated small-pox. 6. In many of the cases, eruptions on the body appeared, some of which *could not be distinguished from the small-pox.*"

In June, 1799, Dr. Woodville, Physician to the Small-pox and Inoculation hospitals, published his "Reports." He concludes that the vaccine disease is not derived from the horse. He details the cases which he inoculated between the 21st of January, 1799, and the 18th of March following, amounting to *two hundred*. Nearly the whole of these persons were subsequently inoculated with variolous matter, and many of them exposed to persons labouring under this disease, without a single instance of the small-pox being produced after the vaccine infection had taken effect. Afterwards Dr. Woodville says:—"It must be acknowledged that in several instances the cow-pox has proved a very severe disease. In three or four cases out of 500 the patient has been in considerable danger, and one child actually died under the effects of the disease. Now, if it be admitted that at an average, one of 500 will die of the inoculated cow-pox, I confess I should not be disposed to introduce this disease into the Inoculation hospital, because out of the last 5000 cases of variolous inoculation, the number of

deaths has not exceeded the proportion of one in 600."

Then in July he adds:—"The disease [vaccination] in its progress from patient to patient, has actually become much milder. For out of 310 cases of cow-pox, which have been since under my care, only 39 had pustules that suppurated; viz. out of the first 100, 19 had pustules, out of the second 13, and out of the last 110, only 7 had pustules. This leads to a conclusion widely different from that published in the Reports."

It seems to me to have been worth while thus to refresh our memories with this picture of early Vaccination. I will now very respectfully offer a few brief notes on each of the five points submitted to the Commission.

"1. The effect of vaccination in reducing the prevalence of, and mortality from, small-pox."

That Vaccination did greatly reduce the prevalence of, and consequently the mortality from, small-pox, in the early years of its introduction into practice, cannot be doubted. It was a vast improvement upon Inoculation, which prevailed before it. My elder brothers and sisters, born in the last century, were inoculated. I was vaccinated early in this century, soon after Jenner's discovery became known. During sixty years of active professional life, I was frequently in close contact with cases of small-pox—some of them fatal cases. I was never re-vaccinated, and never caught the small-pox. And I have no doubt that many who were thus vaccinated, when the vaccine was fresh, were preserved as effectually as myself.

It is my belief that this power of protection has gradually become much less effective. As a consequence of this the practice of re-vaccination, at intervals of a few years, has been had recourse to; yet, after nearly a century of vaccination, the small-pox has not been exterminated. On the contrary, epidemics of it are not rare, and deaths still occur from it. So recently as 1871 a severe epidemic prevailed both in London and in the Provinces. So that the increasing mildness of vaccine noticed, and rejoiced in, by Dr. Woodville, and which was, not only up to that time but for many years afterwards, a true benefit, has now reached a degree

which is seriously damaging. This part of the inquiry is of great importance, and I believe that an unbiassed examination of it will lead to the conviction which is here pointed at, namely, that the vaccine now in ordinary use is not sufficiently reliable.

“2. What means, other than vaccination, can be used for diminishing the prevalence of small-pox, and how far such means could be relied on in place of vaccination.”

I think two of these other means are very obvious ones, namely, first, everything which improves the sanitary condition of the dwellings, and of the personal habits of the population. And, second, when a case of small-pox occurs, its isolation.

In 1847, attracted by the high reputation of Dr. Arnold's successor, Dr. Tait, I left Yorkshire and came to Rugby for the education of my sons. At that time there was no Board of Health, no drainage, no supply of town water, no supervision as to sanitary matters, in this little country town, then filling with respectable families for the sake of the school. In 1849, a worse epidemic of small-pox broke out than any I had seen at Bradford, where I had previously practised. I saw many cases, some most loathsome ones, of these one or two died. I fear several, attended by other medical men, also died.

In that year a Board of Health, now called the Local Board, was appointed, and at great expense the town was drained; a water supply established; and other improvements accomplished. The improvement in the health of the inhabitants was conspicuous. There were, I think, no more cases of small-pox until 1874, when a few cases excited so much alarm that a wooden hospital was erected in haste, and to this all the cases that could be, were instantly removed;—they recovered, and since then, little or nothing of small-pox has been heard of in Rugby. From this, I think, it is evident that people have now much more confidence in healthy dwellings, and immediate isolation, than they have in vaccination.

Other means of diminishing the prevalence of small-pox there may be besides these, but their discovery is barred by Act of Parliament.

“3. The objections made to vaccination on the ground of injurious effects alleged to result therefrom; and the

nature and extent of any injurious effects which do, in fact, so result."

My experience on this subject, briefly told, is this:—About twenty-five years ago I became convinced—the conviction was a slow process—that the vaccine then employed, whether obtained from official or from private sources, was so weakened in its power of protection, and so adulterated with the germs of other diseases besides cow-pox, that it was not fit to be used, and I determined never to use it again. But vaccination was compulsory, and consequently, the only alternative open to me was to seek vaccine from a new source.

It had long been thought probable that the disease had, in the first instance, been communicated to the cow, not as Jenner supposed by men giving it from the grease of horses, but by dairy maids milking while themselves suffering from small-pox. Lately, Mr. Ceely and Mr. Badcock, by direct experiment, have proved that vaccine is the lymph of small-pox modified by passing through the cow. I put myself in communication with Mr. Badcock, and began to use the vaccine-lymph supplied by him, and never afterwards used any other. The action of this lymph was much more powerful than that of the common vaccine, particularly during the first year or two of my using it, that is, the vesicles were surrounded with more inflammation, and became pustules, so that it was not prudent to make more than two punctures, and there was, generally, considerable feverish disturbance. I always took the liberty to say that there would be no necessity for re-vaccination.

"4. Whether any, and if so, what means should be adopted for preventing or lessening the ill-effects, if any, resulting from vaccination; and whether, and if so, by what means, vaccination with animal vaccine should be further facilitated as a part of public vaccination."

That "ill-effects" do, from time to time, follow the common vaccination of the present day, is, I think, now generally admitted. Even Sir Thomas Watson, while strongly advocating vaccination, allowed that there were instances of the loathsomest of all diseases being conveyed by it. It may be said that early vaccination was sometimes followed by severe disease, and even occasionally by death. That is true, but *then* it was the

disease of small-pox, or if it is preferred to call it so, the disease of cow-pox. Now, such attacks are not witnessed; if serious disease follows modern vaccination, it is some disease different from cow-pox. But it becomes me to restrict myself, in these Notes, to my own experience, and I have already stated that, about twenty-five years ago, I was compelled by what I saw to give up using the common vaccine, and to have recourse to Mr. Badcock's, which had been obtained by inoculating the cow with small-pox, and taking the vaccine from that. It follows, that as far as a single individual example can go, my example goes to recommend that a similar course should be adopted in "public vaccination." Should, however, such a course be adopted, it is to be earnestly insisted on, that the precautions which Jenner and his immediate followers carefully observed, must not be neglected.

"5. Whether any alterations should be made in the arrangements and proceedings for securing the performance of vaccination, and, in particular, in the provisions of the Vaccination Acts with respect to prosecutions for non-compliance with the law."

Perhaps I may be permitted to say, that I think the time has arrived when some alterations should be made in the performance of vaccination. The ordinary vaccine, by passing through so many generations of mankind, has become diluted, and not only diluted but adulterated. The dilution is proved by the fact that re-vaccination is now insisted on almost as much as vaccination itself; and the adulteration is proved by the fact that other diseases besides cow-pox are sometimes produced by it.

But that to which the attention of the Commissioners is called to "in particular" in the provisions of the Vaccination Acts is "in respect to prosecutions for non-compliance with the law." May I, without being charged with presumption, say something about this? It is the part of the subject that I have most at heart, but while I desire to speak upon it with great earnestness, I am very anxious to speak upon it with the greatest respect. The point in question is the freeing of the pursuit of knowledge from its present obstruction.

Every thing human, is in a condition of transition; especially is this true of human knowledge—we know in

part only, and the path of human wisdom is that which consists in following on to know more and more. Hence any legislation which practically bars the progress of knowledge in any of the sciences or arts of human life is *primâ facie* a mistake, and it is true patriotism to endeavour to have such legislation corrected. It seems to me that compulsory Vaccination is a mistake of this kind. Our knowledge of the prevention, as well as the cure of diseases, is yet quite in its infancy. In regard to the prevention of small-pox we all know that the first step in this direction in England was that taken by bringing *Inoculation* from Constantinople. This was rapidly adopted, and after some years it became the belief of the medical profession, that "inoculation for the small-pox seems to be so well understood, that there is very little need of a substitute."

Had Parliament then passed an Act to compel Inoculation, it would have stopped all progress at this first step, and the second could not have been taken. The second step was Vaccination, and this has been found to be so great an improvement on Inoculation, that that first step on the road to prevention is now, by Act of Parliament, made a criminal offence! How greatly was medical opinion at the end of the last century mistaken! When it has become possible to take a third step on this road to prevention by the removal of the present disability, it is quite within the prospects of the future that, in another half century, Vaccination also may be forbidden by Act of Parliament! The present medical opinion in its favour may thus be shown to be another mistake.

What may be suggested as to the probable nature of this third step? At present this can be regarded only as a matter of conjecture. No experiments have yet been made, because there is no liberty to make them. Hypothesis—in its legitimate use to suggest experiments—must be had recourse to. Now, it appears to me that these experiments may proceed in two different directions. First, attempts may be made to modify the vesicular lymph of the small-pox eruption by dilutions; *e. g.* as in glycerine, until it has become as mild as if passed through a cow without having lost its identity with small-pox, and so without losing the protecting power generally possessed by a single attack of the disease.

Possibly, a grain of lymph thus divided into a million of parts may be this desideratum. Should any experiments of this kind succeed, it will assuredly be granted that this method is greatly to be preferred to the clumsy and distasteful method of employing animals as the medium of dilution.

The second direction experiments may take is to go in search of a drug which can give to the human organism a touch like that given to it by small-pox, whereby it becomes insensible to any future infection from that disease. To explain what is meant. Tartarized Antimony, when given in small doses, is the best remedy I am at present acquainted with, for the treatment of small-pox. An ointment containing this salt may be mentioned as already known to produce, when applied to the skin, a pustular eruption scarcely distinguishable from the eruption of small-pox. Whether any influence on the constitution of a protecting kind is thus produced may be a legitimate subject of enquiry.

If it be asked—What is the practical issue of these Notes? It is respectfully suggested:—

(1). In reference to No. 4: that Vaccination should, for the present, be continued, and the establishments for its effective performance be maintained without change.

(2). But that the old vaccine should be abandoned; and a new start be made with fresh vaccine obtained by inoculating the cow with small-pox lymph, after the manner successfully practised by Mr. Ceely and Mr. Badcock—care being taken not to make more than one, or at the most, two punctures, until several removes have been reached.

(3). In reference to No. 5: that the present compulsory Act should not be repealed, but amended to this extent, namely, that Government—not a Medical College—should be empowered to grant licenses for a year, to competent medical men to investigate the subject experimentally; that the persons so licensed should have power to give certificates to parents who object to have their children vaccinated; by which certificates they may be excused from obedience to the Act; the condition being that some other method of protection from small-pox be adopted.

The gentlemen receiving these licenses may be required to give a report to Government of what they have done during the year; and the renewal or withdrawal of their licenses may depend upon the satisfactoriness or otherwise of their Reports.

(4). In reference to No. 2: these Notes cannot be concluded without two remarks being added. One, that if other towns have been benefited as Rugby has been by a Local Board, the country ought to thank God for the Act of Parliament which established them. The other, that it is my belief that cleaner houses, fresher air, and purer water, have had quite as much to do with the prevention of small-pox as Vaccination itself, probably they are entitled to the greater share of the credit. If this be so, how wise it is for Governments to go on promoting sanitary improvements! By perseverance in this course, not only small-pox but other destructive diseases, and much immorality and misery, may be prevented.

(5). And, finally, in reference to No. 1—the prevalence of, and mortality from, small-pox. It is certain that both of these have been diminished by cow-pox as a substitute; it is clear, therefore, that vaccination ought to be continued until a better substitute has been found, but not longer than that. Nevertheless, it is not likely that small-pox will be altogether removed by any thing that we can do. And this for two reasons:—first, because it is so difficult to prevent mistakes in the details of administration. It has been noticed that even in Jenner's own time, he became alarmed by finding that vaccination had sometimes been performed by using purulent instead of vesicular material, and so a spurious cow-pox, which was not protective, had been produced. Some of my relatives, born at the beginning of the century, were vaccinated when children, and afterwards had the small-pox, and it is quite possible that this mistake was the cause. The second reason is the incurable susceptibility to small-pox inherent in a small percentage of the people. I knew intimately a lady, born with the century who, after vaccination, had small-pox *three times* during her life; and Canon John Moultrie, the poet, who was also of the age of the century, and who was our Rector here for fifty years, died in 1874, in his *third*

attack of small-pox, caught by visiting one of his parishioners, who also died of it, while the wooden nospital was being built, but before he could be removed to it. Whether Mr. Moultrie had been inoculated or vaccinated I do not remember, and now am not able to learn. For these two reasons we may not hope to cause small-pox to disappear; but our experience with cow-pox is sufficient to encourage us to go on aiming at this deliverance by continuing to practise vaccination, with the alterations which have been suggested, and in the hope that some better substitute for small-pox, may, before long, be happily discovered.

HORTON HOUSE, RUGBY

June 15, 1889.

BY THE SAME AUTHOR.

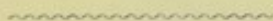


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