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The Physician and Farmer;

OR,

VACCINATION EXPLAINED.

BY

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THE

PHYSICIAN AND FARMER;

OR,

VACCINATION EXPLAINED.

FARMER,—I understand you strongly recommend *vaccination*, and, although I have a very great prejudice against it, I want to know something more about it than I do, for I have not had any of my five children vaccinated. Can you tell me how it was *discovered*, and what it is?

PHYSICIAN,—Yes! Even before Dr. Jenner's time it was generally observed, those who had cow-pox had not small-pox, and on the other hand, those who had small-pox never had cow-pox; but the application of these facts to the purpose of vaccination is due to Dr. Jenner, who in 1796 practically put it to the test by vaccinating a boy named Phipps from a woman, who received the disease from "her master's cows on her hand and wrist, which had previously been slightly injured by a scratch from a thorn." Dr. Jenner then vaccinated other persons from Phipps, and others from them, and afterwards tested their liability to the disease by inoculating them for, and exposing them to, the small-pox; but none of them took it. It was not at that time known how the cows came by the disease, and the true nature of cow-pox was not at all understood. It is now supposed the cows in Dr. Jenner's time had the disease in

the first instance from being milked by hands infected with the then very common disease—small-pox, and by accidental vaccination from one to another; for in 1839 Mr. Sealey, of Aylesbury, inoculated a cow with human small-pox, and obtained cow-pox from the places inoculated; and so proved *cow-pox to be human small-pox in a mild and harmless form.* A fresh supply of cow-pox is easily and frequently obtained by inoculating or *vaccinating* a cow on the upper part of the teat, as a child is on the arm. Cow-pox *does not become weaker* by passing through many persons, but like small-pox, hydrophobia, and other similar diseases, it is an *unchangeable* specific animal poison; and this is easily proved by the following simple experiment:—Vaccinate a child in two places with cow-pox taken direct from a cow, and on the same arm vaccinate in the same number of places with old cow-pox—which, for aught you know, has descended direct from Phipps—and you will find no difference in the four.

F.—Why have persons as a general rule small-pox *only once?*

P.—Professor Liebeg compares small pox (which is classed amongst the fermenting diseases) to yeast, which, when put into wort (as in brewing) ferments; that is, it feeds and grows upon the gluten in the wort, and will do so as long as any remains. After this, the yeast will have no effect, for there is no gluten on which it can act. And in like manner, small-pox, *or cow-pox, acts upon a peculiar principle naturally in the blood,* and it continues to feed upon and is increased by this principle, so long as any of it remains. But after it has thus been removed, neither *small-pox* nor cow-pox can have any effect, there being no peculiar principle remaining in the blood on which it can act.

F.—How is it, then, that some persons have *small-pox a second time, and others have it after vaccination?*

P.—It is not because the first attack of small-pox had not removed all liability to the disease that they have it the second time, but because such persons have a peculiarity of constitution, giving them the power

again to form that principle which had been destroyed by the first attack. As regards the liability to small-pox after vaccination, Dr. Jenner was of opinion it did not depend upon the virulence of the vaccination, for he says, "A single cow-pock pustule is all that is necessary to render small-pox ineffectual;" while, on the other hand, Mr. Marson contends it depends upon the *quality* and *quantity* of vaccination employed. I believe they may both be correct, for where persons after vaccination have been repeatedly and for years (as I have often known them) exposed to small-pox with impunity, and yet at a later period of their lives have had the disease, it clearly shows, in their case, vaccination had for years afforded them as full protection as small-pox would have done, and that the liability depended, not upon the vaccination, but, as after small-pox, upon the subsequent state of constitution. Mr. Marson is surgeon to the London Small-pox Hospital, and his opinion is founded upon the result of six thousand cases of small-pox after vaccination, which have occurred in that Institution. His views are in accordance with Professor Liebeg's theory of fermentation; for if stale yeast, or yeast in too small a quantity is used, fermentation will generally be imperfect—and so with vaccination where dry cow pock of six or eight days old is employed, or where it has been taken from improper pustules, it will produce a small spurious pock, affecting only the upper and not the true skin; a kind of vaccination, perhaps, affording protection for a few years, but which is sure in time to lose all effect, and the marks themselves soon become very faint, and generally, before manhood, entirely disappear. In such persons the degree of danger, perhaps of taking, and certainly of death from, small-pox, if they have the disease, is twenty-eight times greater than if they had been properly vaccinated in four places. (See table $\frac{3}{4}$ and $21\frac{3}{4}$.) This table also shows that the danger is doubled in the ratio of 1, 2, 4, and 8, as there are 4, 3, 2, or 1 vaccination marks. Mr. Marson, therefore, very justly considers it is of the greatest importance "to produce four vesicles at least at vaccination, with lymph that leaves good permanent cicatrices;" and this, he assures

us, is best done by *arm to arm* vaccination, instead of from dry lymph on ivory points.

STATISTICAL EVIDENCE
of the *different degrees* in which persons vaccinated in different ways will be safe against Death by Small-pox.

Having *four* or *more* vaccine marks	$\frac{3}{4}$
Having *three* vaccine marks	$1\frac{3}{4}$
Having *two* vaccine marks	$4\frac{1}{8}$
Having *one* vaccine mark*	$7\frac{1}{2}$
Stated to have been vaccinated, but having no mark,	$21\frac{3}{4}$
Unvaccinated	$35\frac{1}{2}$

* Among cases in which the one cicatrix was *well marked*, the death-rate was $4\frac{1}{4}$. Among cases in which it was *badly marked*, the death-rate was 12.

F.—I suppose you think re-vaccination is desirable?

P.—Most certainly I do! For all cases of small-pox which occur after vaccination might be prevented by re-vaccination, and as we cannot tell till they are re-vaccinated (and then by its virulence), who are, and who are not, liable to small-pox, it is strongly recommended all—especially those with few or inferior marks—should be re-vaccinated between the ages of ten and fifteen, and earlier if the small-pox be prevalent; and again, later in life, when likely to be exposed to the disease. When a single case of small-pox occurs in a district, the spreading of the disease may generally be prevented by the *immediate* vaccination and re-vaccination *of all* who have not had the small-pox, and are living in or near the house, or are in any other way likely to be exposed to the infection.

F.—Many persons have a great dread of vaccination, for they have an idea cow-pox must, more or less, *partake of the nature of the system through which it passes.*

P.—Such persons should bear in mind, wheat does not partake of the nature of all that is in the soil in which it grows, for those ingredients only which are essential to its growth are taken up, *and no others.* And so with cow-pox, *it does not partake of the nature of the system or blood in which it has been brought to maturity:* it feeds on the peculiar principle which brings it to perfection, *and it partakes of no other.*

The following interesting cases clearly prove this:—

A person had cow-pox and small-pox at the same time, and children were vaccinated from the cow-pox pustules, and others were inoculated from the small-pox pustules: and mark the results! Those vaccinated had cow-pox only, and those inoculated had small-pox only, *although all were vaccinated and inoculated from the same arm, and at the same time.* This is not an accidental or a solitary instance, and it and similar cases prove that as one grain can only produce a similar grain, so cow-pox can only produce *similar cow-pox.*

F.—How is it, then, *scrofula sometimes follows vaccination?*

P.—When scrofula or other diseases follow vaccination, which sometimes they certainly do, they are supposed either to arise from persons having a strong tendency to the disease, and vaccination, acting as an exciting cause, brings out that which otherwise would have been delayed a short time longer; or, when blood is taken with the cow-pox, vaccination may then convey a disease in the same manner as weeds in soil may be taken with a plant. A favourite toast of Dr. Jenner's was, "The Pearl in the Rose," and when the pearl (cow-pox) alone is taken, no disease can be conveyed.

F.—I really think I shall persuade my wife to have our children vaccinated; for it appears almost impossible for vaccination to convey any other disease than cow-pox, and if I rightly understand, cow-pox is harmless small-pox, and as such, it protects persons in the same manner small-pox would have done: that is, by destroying a peculiar principle in the blood essential to the taking of small-pox. And when vaccination is worn out and fails, it is from that principle being again formed, which may *again* be destroyed by re-vaccination.

P.—Exactly so; and while to most vaccination is a perfect protection, you should bear in mind those persons who have *small-pox after vaccination generally have it in a modified form*, that is, the fever is slight, and on the appearance of the eruption it rapidly subsides, and does not return. The eruption is scanty, comes to maturity on the fourth day, is not deep, does not suppurate, but shells off, leaving no marks. It very

rarely indeed proves fatal, and is seldom either dangerous or tedious. On the other hand, when persons have the small-pox naturally, the fever runs high, and if it subsides on the appearance of the eruption, which covers the body from head to foot, it returns on the fourth day, when, from the number, size, and depth of the pock, the skin begins to inflame and swell, especially about the face; the eyes soon become closed, and the head is a swollen mis-shapen mass, in which the parent can no longer recognize a single feature of his child, or the wife that of her husband. All other parts of the body, especially the hands and back, partake of the inflammation and swelling, and the sufferer cannot move, or be touched, without great pain. The disease is now at its height, but not at its worst, for suppuration and putrid fever follow; and as the suppuration escapes, the swelling subsides, sight returns, the face is covered as it were with a black mask, and it, and the pock on the other parts of the body, come off in patches. Health gradually returns, but not always; for one in four die under this most loathsome disease; and those who escape are often disfigured and diseased for life.

F.—I certainly will have my children protected by vaccination.

P.—I will call your attention to one case, shewing of what *importance vaccination is to the public*, and I have done. A publican, in an isolated district, would not have his four children vaccinated, although all his neighbours and their children who required it had been vaccinated and re-vaccinated, on account of a man, two or three fields off, having the small-pox. No argument could overcome the advice of a witty customer,—"not to let the children have the disease of a beast, but the real thing itself." This they soon had, and the result was, besides those attended by other medical men, I visited above three hundred cases of small-pox all of which arose from this man's *ignorant prejudice*.

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