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VACCINATION
AND
SMALL POX.

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THE Chinese pretend to give the history of the earliest appearance of small pox. In a work published by the Imperial College of Medicine at Pekin, extracts from which have been translated by the Catholic missionaries, it is said that the disease commenced in the dynasty of Tcheou, about 1100 years before the Christian era, and that a species of inoculation had been employed in China for 700 years. This inoculation was performed by inserting one of the variolous crusts, or scabs, into the nostril of the person to be inoculated, and was called "Sowing the small pox." In the Hindoo writings, also, there are very ancient accounts of the disease, and its ravages are ascribed to the power of a malevolent spirit, called the Goddess of Small Pox, who is represented in their drawings as a demon with two uplifted daggers. Religious ceremonies are practised for appeasing her anger, and thank-offerings are presented to her by young women, who have passed through the disease without the loss of their beauty.

The first authentic account of small pox, however, refers to its appearance in Arabia, when it broke out in the Abyssinian

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army in what is called the War of the Elephant, and obliged them to raise the siege of Mecca, in 572. This event is described in the Koran as a miraculous destruction of the invaders, and is there attributed to a great flock of sacred birds, which dropped upon the soldiers small stones, no larger than pease, that killed them on the spot. The real cause, referred to in this allegory, was epidemic small pox, which, from that period, continued to ravage Arabia like a pestilence, and in process of time was carried by the Saracens over those countries which were the scenes of their conquests. In this manner the disease was brought into Europe, where it extended by degrees from one kingdom to another. It prevailed in France in the 8th century, in England in the 10th, and thus spread gradually into the northern countries; in 1707 it broke out in Iceland, and destroyed 16,000 persons; and it appeared, for the first time, in Greenland in 1733. Wherever the disease appeared in the middle ages, its ravages were equal to those of a pestilence; and by the historical writers of the times it is very often confounded with the plague. Similar examples are not wanting in later times: the disease was introduced into Mexico by the Spaniards in 1520, and, in a very short time, three millions and a half of people were destroyed by it in that kingdom alone.

While small pox was thus depopulating kingdoms, many cases of it appeared in a mild and favourable form, without any alarming symptom, and entirely without danger. As, therefore, very few escaped the contagion, it was not unnatural for those who witnessed its ravages to suppose, that if the disease could be communicated artificially, and communicated only in its mildest form, the mortality of it would disappear. This was probably the origin of inoculation, or, as it was formerly called, ingrafting the small pox. It soon appeared that the principle was so far erroneous, that the character of the ingrafted disease did not depend on the mildness of the case from which it had been communicated; but though inoculation did not answer all the expectations that had been entertained of it, its effects were most beneficial: though it did not annihilate, it very remarkably diminished, in those who were inoculated, the mortality of small pox.

In regard to the commencement of inoculation, there is much obscurity. By many it has been ascribed to the Arabs of the desert; but there is little doubt that, in the 17th century, it was extensively practised by the common people in Greece, Armenia, and Persia, probably also in several parts of France and Germany, and, according to some accounts, in South Wales. The operators were old women, and the operation was performed with a

needle. In the Highlands of Scotland also, it appears to have been a very ancient practice, to communicate small pox by putting a child into bed with another who had the disease in a very mild form, or by tying round the wrist a worsted thread soaked in the matter. Inoculation first attracted the attention of the medical profession, by the extensive and successful employment of it in Constantinople, where it had been introduced in 1706 by a Greek woman, a native of the Morea; and, by communications from several physicians who visited that city, it was described in the *Philosophical Transactions* in 1714. In 1718 it was performed on the son of Lady Mary Wortley Montague, who had accompanied her husband, then ambassador at Constantinople, and by this lady it was introduced into England in 1722. It was soon patronised by the royal family. Caroline, Princess of Wales, having nearly lost one of her children by small pox, determined on having the others inoculated, and, after a previous trial on six condemned felons, and a considerable number of charity children, the children of the princess passed through the inoculation in the most favourable manner. The practice soon became extensive in Britain, in America, and on the continent of Europe; and the strongest accounts were published, from time to time, of its success. The mortality from natural small pox was generally reckoned about one in six; that from the inoculated disease was never stated at more than one in sixty or eighty; and, after various improvements in the treatment, it was estimated in this country as low as one in 500 or 600.

Though inoculation in Britain was thus beneficial to those on whom it was practised, its effects on the community had not entered into the calculations of its zealous advocates. Though the relative mortality of small pox was so remarkably diminished, the actual number of deaths from the disease was considerably increased. The reason of this is obvious. Small pox had formerly appeared, like any other infectious disease, in particular districts, at uncertain, and often at long intervals; but, by the practice of inoculation, the contagion was kept alive at all times, in every corner of the kingdom. The striking effects of this appear from authentic records. On an average of 40 years before the introduction of inoculation, out of every thousand deaths in England, 72 were from small pox; in the same period after inoculation was practised, the proportion had increased to 89 in 1000. The proportion continued to increase, and in the last 40 years of the (18th) century, when the practice of inoculation was in its highest state of improvement, the deaths from small pox were estimated at one-tenth of the whole mortality. Such was small pox in its most mitigated form, and such the difference

of its aspect in the tables of the learned, and in the public records of the kingdom, the one shewing a relative diminution of mortality from one in six to one in 600, the other an actual increase of death as ten to seven. The whole annual mortality from small pox in Britain and Ireland, for some years before the introduction of vaccination, was estimated at from 32,000 to 36,000.

Vaccine inoculation, or cow pox, was introduced by Dr. Jenner in 1798. It was derived from a pustular eruption which affects the udders of cows in Gloucestershire, and frequently communicates a similar eruption to the hands of those who are employed in milking. It had been known from time immemorial to the peasants in that county, that persons who have been thus affected are proof against the contagion of small pox. Its great and obvious advantages over variolous inoculation, in being not contagious, and being in every case entirely free from danger, soon procured for the new practice an extensive and zealous investigation; and this investigation having verified its power of resisting small pox, it was carried, in a few years, to every part of the civilized world. Since vaccination became general, the mortality from small pox has progressively diminished, and there are examples of considerable districts in which the disease has entirely disappeared. The most remarkable examples of this are the island of Ceylon, and, according to late accounts, the whole dominions of Denmark.

The experience of twenty years has fully established the general principle, that vaccine inoculation has the power of protecting against the contagion of small pox; but this extensive observation has also disclosed to us the important fact, that it has not in every individual instance actually conferred that immunity. In other words, it has discovered to us a considerable number of cases, in which those who had passed through vaccination, have been afterwards affected with an eruptive disease, varying considerably in its character in different cases, and in some of them bearing a near resemblance to small pox. These examples, it is true, have been very few in number, when compared with the immense amount of those who have been vaccinated, but still their reference to the general question of security has naturally excited in the public mind considerable attention, and some alarm.

In our anxiety to meet this important question in the most open manner, various considerations must be brought into view. It is necessary, in the first place, to remind the public, that the practice of vaccination has been treated too lightly. It has in many parts of the country been practised by persons not of the

medical profession, and of the multitudes of the lower orders who have been vaccinated by individuals and at public institutions, very many have never been brought back for examination. From these causes it must have resulted, that a considerable number have been subjected to the mere form of vaccination, without deriving from it any security at all. We do not wish, however, on that ground to evade the main question, or to deny that these eruptions have occurred after perfect vaccination, but we do contend that the circumstance to which we have now alluded, must have a considerable effect in diminishing the number of such examples. It has been farther, and perhaps not unreasonably urged, that too much has been expected from cow pox; that perfect and complete security would have indeed been most desirable, but that there is no ground of objection to cow pox, if it can be shewn, that the degree of security actually obtained from it, may fairly be compared with that obtained from small pox itself, and that in the mere question of security, vaccination gains by the comparison. We say in the mere question of security from small pox, for be it always remembered, that this is the only point on which they can ever be brought into comparison, the one, if it be a remedy, being a remedy entirely free from danger, the other a contagious and fatal disease.

On this head then, it is contended, that the eruptive diseases which occur after vaccination, do not differ from those which have been long known to occur after regular small pox. Here we must take a short review of those eruptions which have been known to affect persons who had passed through small pox, either by inoculation, or by contagion, commonly called natural small pox.

I. The first and most important of these is a second attack of perfect small pox.—The occurrence of natural small pox a second time in the same individual, has been mentioned by successive writers from the earliest period in the medical history of small pox. It is mentioned by Rhases, the Arabian, in the 10th century, by Avicenna in the 11th, by Gaddesden in the 14th, by Forestus in the 16th, and in the 17th by Willis, Diemerbroeck, and other writers of the first authority. After the introduction of inoculation, these cases became more frequent, or were more carefully recorded, and in the appendix to the admirable paper of Mr. Hennen, which we have mentioned at the top of this article, he has collected references to no fewer than 140 writers, who relate examples of small pox occurring a second time in the same individual, and this second attack has, in many instances, been fatal. Louis XV. of France, is well known to have died of small pox, at the age of 65, after having passed through

the disease in the natural way at 14. The eruption of small pox is preceded by fever, frequently accompanied by vomiting, and in many cases by fits of convulsion. The eruption usually appears on the third day of the fever, and if a single specimen of it be minutely examined, it will be found to be an inflamed tumor, *hard, firm, and solid*, with an inflamed base. This tumor increases in size; in a day or two a little fluid appears on the apex of it, and by the 8th or 9th day, it has passed entirely into suppuration; that is, it has been converted into a sac filled with thick yellow matter, called *purulent matter*, or *pus*. In a few days more this *pustule* becomes dry and shrivelled, or sometimes bursts; and about the 12th day, the greater part of the eruption is converted into crusts or scabs of a brown colour, which about the 16th day fall off. The suppuration or maturation of the pustules generally happens on the 8th or 9th day, but sometimes earlier, on the 6th or 7th.

II. *Varicella*, or *Chicken Pox*. This affection was formerly considered as a modification of small pox, and proceeding from the same contagion, and it was only in 1768 that it was described by Dr. Heberden as a distinct disease. The eruption is preceded by fever for a day or two, sometimes very severe. If a single specimen of the eruption be minutely examined, it will be found to be from the first a small *vesicle*, *filled with a transparent watery fluid*,—it increases in size—is covered by a very thin pellicle, and generally has a loose shrivelled appearance. About the 3d or 4th day, it bursts—the pellicle of skin which covered it falls down collapsed, and the fluid dries into a slight scale of a light yellowish-brown colour. In some cases, the vesicles do not break till the 5th or 6th day, and on some parts of the body, where the skin is very thick and strong, we may find a few of them unbroken on the 7th, or even the 8th day. In this case the fluid in the vesicles becomes opaque and yellowish. A variety of the disease occurs, in which the vesicles are much larger than in the common chicken pox. This is called by the common people *swine pox*. It differs from chicken pox only in the vesicles being larger, rounder, and more distended by the fluid, those of chicken pox being generally oblong, flat, and of a loose and shrivelled appearance, as if they were imperfectly filled by the fluid.

III. A third eruption has been long observed, which differs from both the former. It comes out in firm inflamed papulæ like small pox, but does not advance to suppuration. About the 3d or 4th day, a little fluid may be observed in the apex of the tumors, but in two or three days more they have died away, subsiding into horny crusts of a brownish-yellow colour, *clear*

and *smooth*, and each elevated upon a hard, firm, tubercular base. They differ remarkably from the crusts of chicken pox, the surface of which is rough, the edges irregular, and the whole of a granular and sometimes a loose scaly texture, and without any thing interposed betwixt them and the surface of the skin. This eruption has been called *horn pox*. It differs from chicken pox in the eruption not being watery vesicles, but firm papulæ, like those of small pox. It resembles small pox for several days, but then, when small pox should be advancing to maturation, it suddenly stops, as if checked in its progress, and dies away, a few of the pimples sometimes advancing to an early maturation. This eruption (the horn pox) had been long ago observed to affect persons who had previously had natural small pox, and those who had passed through small pox by inoculation. It had been observed to prevail, when small pox was epidemic, and from various circumstances had been suspected of being allied to that disease. Extensive observation has now fully ascertained this most important fact, that horn pox is really small pox checked in its progress, and that matter taken from it is capable of producing, by inoculation, perfect small pox. The name horn pox, may therefore now be disused, and the affection more properly termed *modified small pox*. Considerable varieties occur in the characters of it in different cases. In some, the eruption subsides entirely at an early period into the clear horny crusts; in others, a considerable number of the pustules advances to an early maturation. There is generally fever at the commencement, but the disease is upon the whole mild and free from danger.

The eruptions which we have now described, were long ago observed to affect persons who had previously passed through perfect small pox. We have stated the remarkable affinity which exists between the first and the last; the second (varicella) there is every reason to consider as a distinct disease, persons who have passed through it in its most severe form, being afterwards liable to perfect small pox; and those who have passed through perfect small pox, being afterwards liable to varicella. We have mentioned that there are cases of varicella, in which the vesicles, or a certain number of them, remain unbroken and opake to the sixth or seventh day; and that, on the other hand, there are cases of small pox, which are fully matured about the same period. If viewed only at that period, therefore, the affections may be confounded; but it is only by imperfect observation that this can happen. It is not in their *period* merely that mild small pox differs from varicella. The two affections are in their *nature* radically and essentially dif-

ferent: the one is a *solid tumor*, which in a certain period advances to suppuration; the other, a *watery vesicle*, which in a few cases *may* continue unbroken up to the same period, and in which the fluid *may* by that time acquire an opaque and yellowish colour, so as on superficial examination, to bear some resemblance to the pustule of small pox.

We have been thus minute in our description of these eruptions, as they have been observed to affect persons who had previously had small pox, that our readers (not of the medical profession) may be able to understand the subject as it now stands, in regard to the eruptions which have occurred after vaccination.

Cases have from time to time occurred, in which persons who had been regularly vaccinated, have been affected by an eruptive disease bearing some resemblance to small-pox. Many of these cases, when accurately examined, were found to be chicken pox, under that form, in which, from the skin covering the vesicles being stronger than usual, they remained unbroken for a day or two after the ordinary period. Other cases assumed a different character, being at their commencement of a firm tubercular appearance, and either died away into crusts without bursting, or a few of the papulæ advanced to an early and partial suppuration. The disease was in general as mild as chicken pox, ran its course in about the same period, and by common observers (even of the medical profession) was not distinguished from it. Mr. Bryce, who is justly regarded as a first authority in all questions of this kind, had long ago remarked the peculiar characters of this eruption, and had long been of opinion that it is essentially different from chicken pox. From extensive observation, he had satisfied himself that it is really produced by the infection of small pox, acting upon a constitution which is fortified against the full effect of the contagion. This opinion is now completely verified—the disease has appeared in many parts of the country, affecting both those who had been vaccinated, and those who had formerly had small pox. In itself, it is in general a mild and trifling disease, but capable of producing, either by contagion or inoculation, in those not protected, perfect small pox.

This is the disease, vague accounts of which have lately excited considerable alarm in the minds of the public, and which by some has been considered as a failure of vaccination. As the medical histories of it are not in the hands of general readers, and if they were, might not be intelligible to them, we have been anxious to give such a plain and popular account of it, as may enable parents to judge for themselves, and, we trust, may

remove any apprehension of a failure of vaccination. From what we have already stated, and from the facts which we have still to mention, it will appear that the whole history of the affection, instead of invalidating, is calculated to establish the reputation of cow pox, by shewing that the protection derived from it is exactly on a footing with that which is derived from small pox itself.

We have already mentioned the leading characters of the disease, by which it is distinguished from regular small pox, and from chicken pox. It is small pox checked in its progress by a constitutional protection, and this protection may arise either from previous small pox, or from vaccination. In the numerous reports of it, accordingly, from various parts of the country, which are in the hands of the profession, it appears that it has attacked both the vaccinated, and those who had formerly had small pox. It has been found running its course, a mild and harmless affection, while the most fatal small pox was prevailing around. It has been observed in its mildest form affecting one individual who had been vaccinated, while others in the same family, who were not so protected, had the most malignant small pox. As it appeared in the military hospitals, it is expressly stated by Mr. Hennen, that it spared neither the vario-lated (that is those who had had small pox) nor the vaccinated. In one man who exposed himself to the infection, in the hospital in Edinburgh Castle, the disease turned out to be severe small pox, and was fatal on the fourteenth day. This man, on joining his regiment, assured the inspecting surgeons, that he had formerly had small pox, and in consequence of this, he was not vaccinated:—after he was taken ill, he confessed that he had deceived them. Dr. Monro gives the following example of the disease affecting, in the same family, one who had had small pox, one who had been vaccinated, and three who had neither had small pox nor cow pox. It was communicated to him by Mr. Bryce, and was seen along with him by the writer of this article.

———— BENNET, smith in Crosscauseway.

“ His family consists of five children. The oldest, a girl of sixteen years of age, was inoculated, and had the small pox when seven months old, in a very satisfactory manner, and several marks are visible on her face. The next is a girl of nine years of age, who was vaccinated at the Dispensary in December 1803. She was only brought back once for examination, but there is a good mark on the arm, and the mother says that the pock rose well. The remaining three were neither vaccinated nor had the small pox. The oldest of these three was at school, and contracted small pox, of which she had a full load, and the eruption run through the regular course of

that disease. This girl slept with her oldest sister, who had the small pox in her youth. About fourteen days after the eruption appeared on the third child, the oldest girl became feverish, and very sick and uncomfortable: this state continued three days, and was followed by an eruption of pimples on her head, face, neck, shoulders, arms and thighs. The second child, who had been vaccinated, also sickened about the same time, and after a slight fit, an eruption of pimples also appeared on her face and body, rather more numerous than on her oldest sister, but not of a larger size. The eruption blackened about the fourth or fifth day in both, or rather dried into hard pimples without suppurating, and both were presently quite well again. The fourth child had a complete load of distinct small pox, with very considerable fever, but recovered. The fifth child was vaccinated fully three weeks after the small pox first appeared in the family. The vaccine vesicle appeared regularly, and she wholly escaped the small pox." Pp. 82—84.

In Forfarshire, the affection excited such alarm, that by a meeting called for the purpose by the Sheriff, a committee of medical men was appointed to investigate its nature. In their able and distinct report, these gentlemen state, that in a number of children who had been vaccinated, small pox contagion had produced *a slight disease*. It began with slight fever, followed by an eruption of small pimples, not numerous, and in a few days terminating in *hard horny crusts**. To the same purpose is a similar, able, and most satisfactory report from Dundee†. It is there stated, "that there appeared the most marked distinction in its attacks, between those who have and those who have not been previously vaccinated. In the former, though the eruption has been sometimes ushered in by smart fever and threatening symptoms, yet in almost every case the disease has *terminated abruptly* on the sixth or seventh day, without going through the usual stages even of the mildest forms of that loathsome distemper; while in the greater number of cases it hardly deserved the name of disease." The reporters then go on to state, that a few cases had occurred, in which small pox in its most distinctive forms had affected those who had been vaccinated; but they add farther, that such was the virulence of the contagion, that it attacked for the second time several persons who had formerly passed through regular small pox, and they mention particularly a girl being affected, who had formerly lost both her eyes by small pox.

Dr. Thomson observed the disease in 29 patients, who had either had small pox or cow pox; and in the same number who had not had either. Of the latter 9 died; of the former 22 had

* *Monro*, page 148.

† *Ibid.* page 151.

the disease in a mild and trifling form; 7 had it severely, and of these, 3 had been vaccinated, and 4 had passed through small pox. Dr. Ramsay of Dundee saw perfect small pox in a patient, who 18 years before had passed through small pox inoculation in a satisfactory manner; and Dr. Graham of Dalkeith saw small pox fatal on the twelfth day, in a man who had passed through the disease in the natural way 19 years before, and was marked by it. This case was also seen by Dr. Monro.

We must refer to Dr. Monro's useful work for other accounts of this eruption as it occurred in his own family, or was described to him by intelligent practitioners in different parts of the country. With some occasional and slight deviations, they agree in their character of the disease, describing it as an eruption which at first exactly resembled small pox, and sometimes threatened to turn out a severe case of it, but at a certain period, generally about the fourth or fifth day, was suddenly checked in its progress, and disappeared. In one case "a medical gentleman, who saw the child on the second day of the eruption, said it was small pox, and that he would return in a few days, and take matter for inoculation. When he returned for this purpose, on the 4th day of the eruption, the pustules were all dried up."

We have only to add, that some cases occurred after vaccination, in which the eruption did not entirely die away in this manner, but a few of the pustules advanced to an early maturation about the sixth day. In a few, the period of maturation was prolonged to the eighth day, the usual period of small pox; and in a very few, the number of pustules that advanced in this manner, was so great, as fairly to entitle the complaint to the name of small pox. These cases were very few, and we are always to place by the side of them, those examples, one of which was fatal, in which an attack of perfect small pox occurred in persons who had formerly passed through the disease, either in the natural way, or by inoculation.

Upon the whole, we trust we have given such a view of the subject, as will satisfy our readers, that the history of this epidemic is calculated to confirm and establish our confidence in cow pox, by shewing that the protection derived from it is exactly on a footing with the protection derived from small pox itself. And if so, we must repeat what we have said in an early part of this article, that this is the only point in which cow pox and small pox inoculation can ever be brought into comparison; the one, if it really affords protection, being a remedy entirely free from danger, the other a contagious and fatal disease.

The view which we have given of this subject, is that in which it is interesting to the public. In the more minute details of it,

there are some points which are the ground of discussion among professional men, but they have no reference to the general question, which has been the subject of this paper. The most remarkable of these is a doctrine proposed by Dr. Thomson, for the investigation of which he has circulated a number of queries among his professional brethren; that chicken pox and small pox, proceed from the same contagion. Mr. Bryce, on the contrary, maintains, that chicken pox is a disease perfectly different in its nature, and quite distinct in its characters from every modification of small pox—*Non nostrum tantas componere lites*. We confess, however, that we are inclined to the opinion, that there is a *vesicular* disease, distinct in its nature from the *tubercular* eruption, which we have described under the name of modified small pox. At the same time it must be allowed, that the subject is in its infancy, and a great deal is to be done in the way of minute observation, before we are ready for any general conclusions in regard to the nature of the two affections. We want a complete history of the vesicular disease, which is properly chicken pox, distinct from that of the tubercular affection, which is now fully ascertained to be modified small pox; and we want accurate observation of the minute characters of both. Of the *vesicular* affection, we conceive, it is yet to be ascertained whether it really be a contagious disease? secondly, if it be contagious, what are its characters, when it affects a constitution, unprotected from small pox? thirdly, whether it has not sometimes at its very first eruption, a slightly papular appearance, the papulae however passing *entirely* into vesicles, at a very early period? In regard to the first, we confess that we are very much in doubt. We have been in the habit of believing that chicken pox is contagious; but under this general name, we suspect that the two affections have been included without any discrimination. We certainly have seen the vesicular eruption affect one of a family without going farther; but this, we are aware, may happen with a contagious disease*. On the second point, we think we can be more decided, for whatever was the origin of the affection, we have certainly seen it, in an unprotected constitution, without exhibiting any deviation from the vesicular character, or any approximation to the character of small pox. We do not recollect to have ever seen this in regard to the tubercular disease. Of the *tubercular* affection, it remains to be ascertained whether it may not have, in some cases, at an early period, a ve-

* From recent observations, we think it *probable* that the vesicular affection spreads by contagion, but it is still to be ascertained whether it can be communicated by inoculation.

sicular appearance, but with this distinctive character, that the vesicles are elevated upon tubercles. The eruption on Mr. Hennen's child was by some considered as vesicular; if it was so, we have little doubt that the vesicles must have been elevated upon tubercles; for as late as the 6th day, when the case was first seen by Mr. Bryce, the tubercles were still conspicuous, being then surmounted by the clear horny crusts. This case seems to have been considered by Dr. Thomson as an example of pure chicken pox, while Mr. Bryce stated it to be modified small pox. Six children, inoculated from this child, were all affected with small pox*. The eruption on Mr. Wishart's child, again, though the disease was as severe as in Mr. Hennen's, was an example of the purely vesicular affection, and was considered by Mr. Bryce as an example of pure chicken pox: it terminated by the vesicles bursting, shrivelling, and the fluid forming slight yellowish scaly scabs, without any appearance of tubercles. On seven children inoculated from this child, no effect whatever was produced†. These facts appear to us to favour the opinion, that the two affections are distinct, but we do not pretend that they authorize any conclusions, and the subject certainly deserves to be minutely investigated.

We must now bring this article to a close, but before doing so, there are a few points to which we would allude very briefly, and on which we trust some benefit may result to the public from the alarm that has been excited.

I. Every exertion should be used, by those who have it in their power, to induce the lower classes to bring their children regularly for vaccination. For this purpose stations should be appointed over all the country, where surgeons shall attend at stated periods. In great towns this service can be procured gratuitously. In the country, this cannot be expected; and we earnestly suggest to the country gentlemen, the propriety of associations and contributions, by which that laborious and meritorious class of the profession, the country practitioners, may be remunerated for this important service.

II. We have already expressed our suspicion that vaccination has been treated too lightly, and we must confess our doubts of the propriety of it being performed by persons not of the medical profession. We have no reason, indeed, to believe that there is a true and a spurious cow pox. Were this the case, the great object of attention would be to procure genuine matter; but we believe, and are sure, that the best matter often produces a cow

* Mr. Hennen's Paper *Edin. Med. Journal*, No. 56, p. 423, *et seq.*

† *Ib.* page 416.

pox which affords no protection. It may take effect in the inoculated part, may advance for several days, making a vesicle of considerable size, and often a very sore arm, and, after all, be merely an affection of the arm, without entering the constitution, and consequently without protecting against small pox. Hence the important distinction of cow pox into *constitutional* and *local*; and the affection, we repeat, may be confined to the local vesicle, though the most genuine matter has been employed, and inserted in the most careful manner. The difference depends upon circumstances in the constitution of the patient, which it would be foreign to our present purpose to detail; but we can assure the public, that this local affection is by no means an unfrequent occurrence, and that it often requires much attention, and considerable experience, to discriminate betwixt it and the regular constitutional cow pox.

III. Finally, to make the practice of vaccination perfectly secure and satisfactory, we take the liberty of most respectfully recommending to the gentlemen of the profession, the general adoption of Mr. Bryce's test. This beautiful discovery certainly places the name of Mr. Bryce, in the history of vaccination, next to that of Jenner, and has given to the practice a stability and a security which it did not possess before, and which, we conceive, make nothing farther requisite for securing it a title to unlimited confidence.