

Remarks on the merits, and present state, of vaccination, wherein the objections of the antivaccinists are considered / by Robert Lewins.

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Publication/Creation

Edinburgh : printed for A. Constable, 1825.

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REMARKS

ON

THE MERITS, AND PRESENT STATE, OF

VACCINATION.

I have thought that some good may be done by an attempt
to remove prejudices.

Dr DENMAN.

Printed by John Stark.

Dear Sir

Might I beg
the favour of you to
transmit the accompany-
ing copy of my little
Book to the Editor of the
Journal, at your leisure
ever yours, dear Sir,
truly, respectfully and
affectionately
R Lewis

Dear Sir

My dear Sir

I have the pleasure to

acknowledge the receipt of

your letter of the 11th

inst. in relation to the

business of the

company, and in reply to

advise you that the

same has been forwarded

to the proper authorities

REMARKS *sub*

ON

THE MERITS, AND PRESENT STATE, OF

VACCINATION,

WHEREIN THE OBJECTIONS OF THE ANTIVACCINISTS
ARE CONSIDERED.

BY ROBERT LEWINS, M. D. &c.

The prejudices against Vaccination are certainly great among the lower,
and the doubts are strong among the higher orders of society.

London Medico-Chirurgical Review, July 1825.

EDINBURGH:

PRINTED FOR ARCHIBALD CONSTABLE & CO. EDINBURGH;
AND HURST, ROBINSON, AND COMPANY, LONDON.

1825.

REMARKS

ON THE MERITS, AND PRESENT STATE OF

VACCINATION

WHICH THE NATIONS OF THE ANTIPODES

ARE CONSIDERING

THE IMPORTANCE OF THE SUBJECT DIS-

CUSSED IN THE FOLLOWING

BY ROBERT LEWINS, M.D. &c.

AND

TO WHICH ARE ADDED

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TO

SIR HEW DALRYMPLE HAMILTON,
BARONET, M.P. LL.D, &c. &c.

SIR HEW,

THE importance of the subject discussed in the following little work, seems to me to entitle it to appear under the auspices of a name, whose extensive influence may contribute to advance the object of its publication. I know of no one to whom I can apply with greater propriety than to YOU.

It was during my professional intercourse with your family, that I first became aware of the success which the doctrines of the Antivaccinists had achieved, over a mind of high intelligence, and witnessed, with surprise and regret, the doubt and dread resulting from that success. Eight years have since elapsed, during which I have patiently and anxiously watched the progress and effects of the Jennerian discovery : and if

the present developement of my own experience of its powers, and an impartial consideration of that of others, shall tend to dissipate the perplexing fears of a single parent, it will add much to the pleasure I feel in subscribing myself,

SIR HEW,

Your much obliged,

And most faithful Servant,

ROBERT LEWINS.

HADDINGTON,

August 1825.

To The Editor of the Edin.
Medical & Surgical Journal
From
The Author—

PREFACE.

THIS little Work on Vaccination is published from a conviction that something of the kind is at present necessary; a conviction which, I think, must have been forced upon all who are conversant with the state of the public mind on this subject; Those who are not, are referred to the report, lately published, of the Surgeons of the Edinburgh Vaccine Institution.*

That the practice of Vaccination is disproportionate to its worth, although twenty-six years have elapsed since Jenner announced to the world its wonderful powers, is neither novel nor surprising in the history

* See Appendix.

of science. There are always inherent, in the mass of the people, some sparks of prejudice, hostile to discoveries that militate against pre-existing opinions and practices, and which, when fanned into a flame by the breath of misjudging or designing men, require years or even ages of experience to extinguish.

Time, instead of weakening or destroying the expectation cherished by rational men from the practice of vaccination, has, year after year, accumulated evidence in its favour; yet it is a fact, as melancholy as undeniable, that the apathy of some, and the perverse recklessness of others, have lent their combined aid to diminish the confidence of the public in its efficacy, and to frustrate the goodness of a merciful providence, pre-eminently displayed in this discovery.

The following pages are intended to facilitate an inquiry into the actual condition and claims of the Jennerian discovery.

It will be abundantly obvious that I write not exclusively for the medical profession. It is to the general reader, and especially to parents and guardians of children, that I address myself. If my essay shall prove at all instrumental in confirming the faith of the wavering, or in restoring to the cause which I advocate, however feebly, that undoubting confidence which would never have been shaken had men taken reason for their guide, I shall fully attain the only object I contemplated in its composition—the good of the community.

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OBSERVATIONS

ON

VACCINATION.

SECTION FIRST.

CURSORY VIEW OF THE HISTORY AND EFFECTS OF SMALL-POX.

THE question involved in the efficacy of vaccination,* is one of momentous importance to the human race. The truth of this assertion will, I am convinced, be allowed by all who are acquainted with the history of small-pox; a disease, the most horrible in its nature, and dreadful in its consequences, that ever afflicted mankind.

* By the term vaccination is always meant, the full effect that cow-pock is capable of producing on the human body.

The origin of small-pox, as of most other infectious diseases, is little known ; and this fact, of itself, affords convincing proof, that they are of more ancient date than writers upon the subject are willing to allow. Some have supposed, that this dreadful disease has existed in Europe from the earliest times, and that the silence of the Greek and Roman writers concerning it, is to be explained by their having classed all violent and fatal diseases under the term pestilential. It is certainly true, that the ancients were too much afraid of encountering pestilence, to be able to transmit to us an accurate account of its symptoms ; they fled from places where it prevailed, or shut up the sufferers, and left them to their fate.

There is, indeed, some reason to suppose, that the great pestilence at Athens, so well described by Thucydides, was small-pox ; and there is no positive proof, that the *ignis sacer* (holy fire) of Lucretius, was any thing else.

Be all this as it may, we are certain that small-pox, and even the method of communicating them by inoculation, have been long known in China ; according to the Bramins, it is of the highest an-

tiquity ; and by them human power was deemed inadequate to resist the calamity. *

Travellers, in later times, have been astonished at the alarm and distress, which the appearance of small-pox excited in China, India, and Tartary. In the latter country, and in Thibet, it is deemed a plague, and the unfortunate victims are not only left to chance, but shut up from all communication. †

It has been asserted, that the small-pox were brought to Europe by the Crusaders, on returning from their chivalrous expeditions. This is, however, without doubt a mistake. If this disease did not exist earlier in Europe, ‡ the probability is, that it was introduced in the eighth century by the Saracens, when they invaded Spain,

* M. Sonnerat and Baldaeus.

† Moore.

‡ See Lives of the Saints, compiled by the Bollandists ; and I would refer those who are interested in this inquiry, an important one to the accomplished physician, to the posthumous work of Dr Willan on the subject, who has accumulated a mass of probable evidence from Egyptian, Jewish, Syrian, Grecian, Roman, and Saxon records, that small-pox have existed in every age of the world, of which history has furnished us with any records.

Sicily, and Italy; and that they had previously received the infection from the Arabians, who, in the course of their conquests, carried the contagion through Persia, Syria, and Egypt, along the whole southern coast of the Mediterranean. From Europe, with other evils scarcely less dreadful, small-pox were transmitted to America, and quickly spread over the western hemisphere; and there is no country in the known world that has not felt the effects of their malignant—their deadly sway.

Before the introduction of vaccination, many thousand children died annually of small-pox; the number of deaths in Europe was calculated at 210,000 every year,* and in Britain and Ireland alone at 36,000.†

In Iceland, during the year 1707, the mortality from small-pox amounted to 16,000, constituting more than a fourth part of the population,‡ and Greenland was almost depopulated by them in 1733.§

Shortly after the introduction of this disease in-

* Lettsom.

† Blane and Lettsom.

‡ Sir George Mackenzie.

§ Crantz.

to Mexico, upwards of three millions and a half of individuals were destroyed by this fatal malady. And, more recently, so fatal was this distemper in that part of the new world, then distinguished by the general name of Virginia, that entire regions were depopulated, and whole tribes of the natives disappeared.*

But even when small-pox do not prove fatal, they are often the exciting cause of other diseases, as scrofula, pulmonary consumption, and marasmus; or they leave the constitution so exhausted and debilitated, that it subsequently falls an easy prey to some other disease, the effect of which, at another time, or under other circumstances, would not have been felt.

Who is there, moreover, that can contemplate, without pain, the loss of sight that has been occasioned, and not only the beauty that has been destroyed, but the deformity that has been produced, by that cruel enemy of man, and still more particularly of woman kind. It has, alas! too often rendered the fairest sublunary being, that

* Robertson.

god-like countenance impressed by the Creator,
an object of compassion, if not of disgust.

“ Quis talia fando

“ Temperet a lacrymis ?”

I have considered it necessary to say thus much concerning the history of small-pox, that my readers may be aware of the extent of the evil, which the universal practice of vaccination is capable of removing, not merely from our doors, but, perhaps of eradicating from the face of the earth. It may be long ere this most desirable effect be produced ; nevertheless it is most gratifying to know, that, even now, small-pox is a disease comparatively seldom seen, and little known to the junior members of the medical profession in this country ; and it is particularly worthy of remark, that it is still less known in those nations, where vaccination was insisted upon more rigorously by their government, than can be done by the mild and conciliating laws of our country.

SECTION SECOND.

SUCCINCT HISTORY OF VACCINATION.

TWENTY-SIX years have elapsed, since Dr Jenner announced to the world the astonishing fact, that, by the insertion of the smallest possible quantity of vaccine matter under the cuticle of the human subject, such an effect is produced, as to prevent the ravages and devastating influence of small-pox, that scourge of his existence.

So much out of the common course of events was that immortal discovery * considered, that the first accounts were disbelieved by many, and distrusted by all. To the honour of Dr Jenner, and of the earliest vaccinators, Woodville, Pearson, Pay-

* The cow-pock had previously, in Wales, been found by incidental experience, to be a preventive of small-pox, but it never had been applied to any beneficial purpose, till the genius of Dr Jenner discriminated its powers, and introduced it into practice.

therus, Ring, Waterhouse, Addington, Aitken, and Lettsom, the practice of vaccination was neither forced upon the profession, nor the public ; they satisfied themselves with communicating to the world the result of experiments conducted with impartiality—aware that a period of minute and ever wakeful observation was necessary to watch the progress of its march, before a positive judgment should be pronounced ; and sure I am, that the cautious, temperate, and delicate tone maintained by the early vaccinists, was infinitely more in the spirit of the true philosophy, than the crude, indigested, and precipitate reveries of their opposers. The experiments of Jenner and his followers, were considered so satisfactory, and afforded such convincing proof of the efficacy of vaccination, that, in spite of the most infamous practices to throw the cow-pox inoculation into discredit, it immediately spread into distant parts of the kingdom ; and, soon afterwards, into the neighbouring nations of Europe, to Africa, Asia, and America. And the most satisfactory intelligence of the extension of vaccination, and of its efficacy in preventing small-pox, was received from all quarters of the globe.

In 1802, the sum of L. 10,000 was justly voted to Dr Jenner by Parliament, for the promulgation of his inestimable discovery ; in 1807, it was augmented to L. 30,000; and innumerable other testimonies of national esteem and gratitude, were transmitted to that benefactor of mankind ; amongst which, not the least interesting was the Wampum belt, the usual token of friendship, from the five nations in North America. This was transmitted to Dr Jenner, by the Secretary-General of Indian affairs at Fort George, Upper Canada, with the following address, signed by the Chiefs :—" Brother, our father has delivered to us the book you sent, to instruct us how to use the discovery which the Great Spirit made to you, whereby the small-pox, that fatal enemy of our tribes, may be driven from the earth. We have deposited your book in the hands of the man of skill, whom our great father employs to attend us when sick. We shall not fail to teach our children to speak the name of Jenner, and to thank the Great Spirit for bestowing upon him so much wisdom, and so much benevolence. We send with this, a belt and string of Wampum, in token of our acceptance of your precious gift ; and we beseech the Great Spirit to

take care of you in this world, and in the Land of Spirits."

So early as 1807, the knowledge of vaccination had spread even to the remote parts of Siberia, and it is now practised throughout the civilized part of the known world. It is, however, melancholy to remark, that, in consequence of preposterous prejudices, encouraged by weak or designing persons, and perhaps, still more, from obstinacy, or a culpable apathy in individuals, which it is impossible to condemn in terms too severe, vaccination has not yet been so useful to mankind, as it is destined to be,—as it certainly will be, in spite of ignorance, malice, superstition, and misrepresentation; all of which have been employed to detract from the merit of the Jennerian discovery. Vaccination always has had its opponents, even amongst medical practitioners; but I may safely assert, without the slightest fear of contradiction, that the view I have taken, and the doctrine I attempt to inculcate, is supported by all those of our profession, to whom, in matters connected with medical science, we are accustomed to look with respect.

Yet the notions of others, however obscure their

situation, or limited their sphere of action, are not to be entirely disregarded upon a subject of this kind, in which the passions and prejudices of mankind are so intimately involved. It consists with my knowledge, that the dissemination of opinions hostile to vaccination, amongst those who had neither opportunity nor capacity to judge of their merits, has produced a bad effect, by staggering the faith of such individuals in the efficacy of that salutary agent, and inducing them to neglect it, or to prefer the variolous (small-pox) inoculation.

SECTION THIRD.

THE OBJECTIONS OF THE ANTIVACCINISTS CON-
SIDERED.

THE objection that has been made against the practice of vaccination, is, in the words of its most determined and uncompromising opponent, that the vaccine disease only exerts a *feeble, partial, and temporary* influence over the human body. And it has been insinuated by some, and boldly asserted by others, that, in consequence of the adoption and extensive practice of vaccination, the other diseases of infancy and childhood have been rendered more severe and fatal.

The illustrious Jenner himself, was, I believe, the first who declared that small-pox *sometimes* occurred after vaccination ; at all events, he did so in 1804, a period prior to the appearance of any reasonable or authentic report hostile to his immortal discovery. He, however, was satisfied,

that such an occurrence was an exception to a general law ; and, although he could not, at the time, give a satisfactory explanation of the circumstance, which, with his usual candour, he made public, yet he was confident, that experience would satisfactorily elucidate and explain the apparent anomaly. Nor were his anticipations disappointed. He lived to point out certain causes from which failure would result ; others have, since his death, been detected ; but still the tide of popular prejudice is strong against vaccination.

This effect, undoubtedly, arises in a great measure from the exertions of the antivaccinists. It was always asserted by them, that the vaccine disease would not afford permanent protection against small-pox ; and, in 1810, it was predicted, that the practice of vaccination would affect the public comfort and happiness, as well as the dignity and honour of the medical profession ; and that it would be the means of throwing society into universal consternation. The same kind of language has been of late publicly spoken with increased confidence, in a letter addressed to the prime minister of the British empire, wherein vaccination is represented as standing *convicted*, in

the most decisive manner, of being destitute of the character for which it was recommended and adopted ; and it is averred, that numerous instances of severe disease, and a considerable number of deaths from small-pox, have taken place in individuals who had been vaccinated. In refutation of the charge thus made against vaccination, I might, upon this occasion, imitate the antivaccinists, by boldly asserting that it does *not* stand convicted of being inadequate to accomplish the great and important object for which it was introduced,—that of disarming small pox of their malignant and fatal character, and perhaps of ultimately blotting out the name of that horrible malady from our catalogue of diseases. In doing so, I would be supported by the concurring testimony of nearly the whole medical profession ; and especially by the very respectable physicians and surgeons, * who, from their situations, enjoy the best opportunities of forming an accurate opinion of the matter under consideration. Were I, however, to content myself with a mere *counter-assertion*

* The Medical Officers of the London and Edinburgh Vaccine Institutions.

as to the actual protecting power of vaccination, an inference might be deduced, unfavourable to the cause of which I am the humble but most zealous advocate; and more especially, as it must be conceded, that the prejudices of the multitude lean towards the side of the antivaccinists: I shall, therefore, impartially examine the theoretical speculations, and the assumed facts, which have been advanced against the practice of vaccination.

The former are to the following effect:—That our experience affords no proof of the protecting influence of any of the diseases which occur only once in our lives, extending beyond that of its own peculiar species; and that, when the Jennerian practice was introduced to public notice, the whole medical profession entertained great doubts of its powers in being able to confer either immediate or future security against small-pox.

In the history of every science, as well as in the history of medicine, we occasionally find things true, which appear at variance with our preconceived notions, and with what we often presumptuously denominate our experience; hence the many recent improvements in the arts and sciences.

Our experience could not have informed us, that vaccination was capable of accomplishing that, to the extent of which, even the antivaccinist acknowledges its capability, viz. of affording, at least, temporary protection from small-pox. We could not, in short, expect to be assisted in forming an opinion of the powers of vaccination, by either experience or analogy, any more than in many other discoveries in the history of our art, until the fact was accidentally ascertained; for example, we never could have been taught by experience, that mercury, Peruvian bark, and sulphur, were specifics against certain diseases; that opium could alleviate pain, or that a drop or two of M. Gay-Lussac's concentrated prussic acid, which exists in bitter almonds and peach blossoms in a weaker form, will, when put upon the tongue, instantly prove fatal to the strongest and most healthy man. Besides, for any thing we know to the contrary, small-pox and cow-pox may be diseases of the same species; and the opinion, that small-pox never attacks the same individual oftener than once, is now universally allowed by all well informed medical practitioners to be erroneous. Dr Hennen, in an admirable paper up-

on this subject, published in the Edinburgh Medical and Surgical Journal, has quoted an infinity of authors to prove the fallacy of such a supposition.

That the whole medical profession at first entertained great doubts of the power of vaccination, is certainly true; and, when we consider the rapid, complete, and permanent change, which took place in the minds of the members of that profession, it affords one of the strongest and most convincing arguments, that can be brought forward in favour of vaccination.

It has been asserted, 1st, That, if individuals who were vaccinated some years before, to the satisfaction of all concerned, be exposed to the influence of the epidemical contagion, small-pox will readily follow, and run their course in the same manner as if vaccination had not been practised: 2d, That cases of failure of small-pox occurring after vaccination, in number and severity, accord exactly with the early introduction of the Jennerian discovery, (that is, that vaccination only affords protection for a certain length of time,) with the extent of population, and the proportion of the lower classes of the community:

And, 3d, That in proportion to the severity and extent of the local and constitutional effects of the vaccine disease imparted to the system, or, to speak more intelligibly, that the human body will be the more capable of resisting the small pox infection, in proportion as vaccination has produced a violent effect at the time it was practised. I may safely affirm, without fear of contradiction from any impartial or competent judge, that the assertion above assumed, “ if individuals who were vaccinated some years before, to the satisfaction of all concerned, be exposed to the influence of the epidemical contagion, small-pox will readily follow,” &c. is at variance with the experience of the whole medical profession, and inconsistent both with probability, and actual observation.

So far from being generally granted, it is now explicitly denied, that the vaccinated cases are either more readily influenced by the small-pox contagion, or increased in severity, according to the extent of the period from vaccination ; nor is this even suspected to be the case, by any one whose opinion is entitled to consideration.

It is perhaps true, that small-pox, after vacci-

nation, have been more common amongst the lower than the higher classes of society ; but a satisfactory explanation of this circumstance will be given by and bye. At present, I shall content myself with remarking, that, in the comparatively rare instances, wherein small-pox have occurred after vaccination, the disease has often been so mild, as scarcely to be recognized by the most competent judges.

It is not true, that, in proportion to the severity and extent of the local and constitutional effects imparted to the system by the vaccine disease, so is the extent of impression and security imparted to the individual ; on the contrary, severe local and constitutional effects, instead of amounting to demonstration, that the vaccine disease is perfect and complete, or that it has produced the effect in the system which is to afford protection against a future attack of small-pox, are proof of the very reverse ; and in confirmation hereof, I shall quote the authority of the very able and intelligent Dr George Gregory, who is at the head of the vaccine and small-pox hospitals of London.

“ You remark, that you have not seen lately

much constitutional disturbance attending cow-pox. At our institution, (where, in the year 1824, we vaccinated upwards of 3000,) we scarcely see any, and yet the public are quite satisfied with the efficacy of the preventive. I do not consider it as any test of the perfection of the process; but of this *I am sure,—perfectly sure,—*that if the vesicles become surrounded (by whatever cause) with high inflammation; or if the thin lymph, which they ought to contain, become mixed with common purulent matter,—if, lastly, the glands of the arm-pit swell from excess of inflammation, then is the vaccination *good for nothing*. The cicatrix left, is, therefore, a good test of the purity and perfection of the vaccination. Wherever it is *long, large, and irregular*, the subject is liable to take small-pox *severely*. I know of no exceptions to this law.”

“Such a degree of local inflammation as leads to this unhappy consequence, (want of protecting influence against small-pox,) is the result sometimes of local irritations, (such as scratching and rubbing,) but more commonly of *constitutional* irritations, such as *dentition, inflammation of the*

lungs, diarrhœa, or fever, co-existent with the vaccine process."

The allegation, that other diseases, and especially the diseases of infancy and childhood, are more severe and fatal since the introduction of vaccination, deserves only to be met by a bare denial; such an idea is utterly preposterous, and at variance with the principles of common sense. For a more detailed refutation, however, of this absurdity, I refer the reader to the account of the effects of vaccination in Prussia, by M. Casper, a gentleman, who, I believe, has had excellent and peculiar opportunities of making himself acquainted with what we have just been considering.*

I shall now proceed to examine the grounds upon which the antivaccinists maintain, that vaccination has failed to accomplish the object for which it was recommended; and it will be found that their positions are futile and untenable; that, in an immense proportion of cases where small-pox have occurred after vaccination, the very character of the disease was lost,—that its ma-

* See Appendix.

lignancy was averted,—that deformity, blindness, and death have very rarely been the consequence of this once dreadful disease. The hopes of those hostile to the Jennerian discovery, on this side of the Tweed, were reduced to the lowest possible condition, until a most virulent kind of small-pox appeared some time ago, in several districts of Scotland, and raged, during a season, amongst the unvaccinated, with appalling fury. During the continuance of this epidemic, cases of fever and eruption *amongst the vaccinated*, evidently arising from small-pox infection, were occasionally observed. Advantage was taken of this, to give a shock to the confidence of the public in vaccination, and unfortunately with too much effect. The circumstance just mentioned, certainly afforded matter for serious reflection, and strict inquiry. Men eminently qualified undertook the task,* and we rejoice to be able to say, that the result of the investigation has been highly favourable to vaccination. A satisfactory explanation

* Amongst whom I may mention the names of Thomson, Abercrombie, Bryce, Saunders, Hennen, and Dewar in Scotland, Blizard, Home, Cline, and Gregory, in England.

of the circumstance of small-pox, *sometimes* occurring after vaccination, can most undoubtedly be easily given, without even compromising the honour, or leaving the least doubt or fear of the transcendant usefulness of vaccination; without diminishing our faith in its potent efficacy, or relinquishing the consolatory and animating hope, that it is *not* destitute of the character for which it was recommended and adopted.

The truth of the matter is, that those who have considered the part of our subject now under consideration, with that attention and impartiality which its importance requires, have come to the conclusion,—That vaccination is a perfect and complete preventive of small-pox in an *immense* proportion of cases. They admit, that perhaps in one out of a thousand, the vaccinated are liable to be attacked by small-pox, which, however, even where the previous vaccination has been conducted with very little care and attention, is so slight that the character of the disease is entirely lost; and we are only assured that it is small-pox, by their power of propagating the disease, such as it was wont to occur be-

fore the introduction of vaccination, amongst those not protected by that salutary agent.

The above statement is the correct one ; and in a report of the National Vaccine Establishment, published some years ago, there is, what may be considered a fair opinion of the advocates of vaccination, delivered in very appropriate and expressive terms.

“ It appears, from the present state of our information, that one person in three hundred dies from the inoculated small-pox, and that there is, perhaps, one failure in one thousand after vaccination. An individual who, under such circumstances, should prefer the inoculation of his children for the small-pox, to submitting them to vaccination, would be guilty of an improvidence, similar to that of a parent who should choose for his son a military service, in which there was one chance in three hundred of being killed ; in preference to a station, where there was only one chance in a thousand of being slightly wounded.”

The above remarks bring us to the consideration of the great and important question, Is it then true, that, *as stated by the vaccinists*, there is

“ perhaps one failure in one thousand cases” of cow-pox ?

That there may have hitherto been so, in the practice of those who made the calculation, I verily believe ; but my own experience will not allow me to go so far as the physicians of the vaccine establishment have done. Their recorded opinion, however, is perhaps as near the truth, as it is possible to arrive at, in the present state of our knowledge—that is, as vaccination has hitherto been conducted ; but I am decidedly of opinion, that, when all the attention is paid to vaccination, which its importance demands, it will afford protection against small-pox, at least equal to that which results from variolous inoculation.

SECTION FOURTH.

EXPLANATION OF THE CAUSES OF APPARENT FAILURE OF VACCINATION

FAILURE of vaccination, may arise from at least four different causes.

1st, From imperfect vaccination.

2d, From mismanagement during the progress of the cow-pock pustules.

3d, From vaccination being practised at a time unfavourable for the action of the cow-pock matter on the system.

4th, From a peculiarity of constitution, for which we cannot account, certain persons are liable to the infection of small-pox, although previously they may have been vaccinated.

To enter fully into a consideration of the above mentioned causes, would lead to a discussion irrelevant to a work of this kind. It is necessary,

however, to make some remarks upon this most important part of our subject.

Imperfect vaccination may arise from improper or spurious matter ; I believe, however, that this is not *now* a common cause of failure.

By mismanagement during the progress of vaccination, I mean violence done to the pustules, as they are advancing to maturation, so as to bring on a new action ; or whatever produces violent local inflammation.

There is great reason to suppose, that by far the most frequent cause of the apparent failure of vaccination, has arisen from the operation being performed at an improper time, when the system was capable of resisting the legitimate action of cow-pock matter. We are not yet acquainted with all the causes that may affect the human body in this manner ; but there is reason to suppose that the existence of some other disease at the time will produce this effect ; * and we know

* When the above was written, a considerable time ago, I had not seen Dr Gregory's letter on the subject. It was very gratifying and satisfactory to have my conjectures confirmed by so able and respectable a person as the physician to the National Vaccine Establishment.

for certain, that cutaneous diseases especially do so. If the skin, over the whole body of the subject to be vaccinated, be not quite sound, the pustules do not go through their course with their wonted regularity, nor is absolute protection afforded against a future attack of small-pox : The indefatigable Jenner was aware of this, at an early stage of his inquiry.

Connected with this part of my subject, and as tending to illustrate a very important position, I with pleasure avail myself of a letter, addressed to the medical profession by the venerable Doctor, and circulated by him some time ago ; premising that my experience coincides with his, with regard to the “ contingent circumstances” alluded to. I had long been satisfied, from the appearance that the cow-pox sometimes have, that, in such cases, something was operating so as to affect the regular course of the disease ; and I inferred from this, that, under these circumstances, absolute immunity from small-pox was not afforded. Dr Jenner has both confirmed these suspicions, and pointed out one cause that gave rise to the deviation that I had noticed, as will be seen by the following letter :—

“ Presuming that you are conversant with the practice of vaccine inoculation, according to the instructions which I have formerly published, and that you may have seen, in addition to my general observations, those which I have since made and promulgated, respecting the varieties and modifications of the vaccine pustule, occasioned by an herpetic and other eruptive states of the skin, I take the liberty of requesting to be informed, whether the observations acquired in your own practice coincide with mine?—that is to say, whether the vaccine vesicles, under these contingent circumstances, go through their course with the same regularity, as when the skin is free from diseases of this description ?

“ Secondly, whether, on the other hand, such individuals are more liable to resist the legitimate action of vaccine lymph, when inserted into the arms, than those who are free from such eruptive affections ?

“ Thirdly, whether you have met with cases of small pox, or what has been termed the vario-
loid disease after vaccination ; and if so, whether, in such cases, you ascertained those deviations at the time of vaccination, in the progress of the pus-

tules on the arms, which I have described as liable to take place when the skin is affected with herpetic and other eruptions?

“As you may not have the paper before you to which I here allude, nor the short series which followed it, I will point out the periods of their publication, and where they are to found. The first was published in the Medical and Physical Journal, No. 66, for 1804, and gives an outline of the subject of some extent. It points out the facts, that a single serous blotch upon the skin, existing during the progress of the vaccine vesicles on the arms, may occasion such irregularity and deviation from correctness, that vaccination, under such circumstances, cannot be perfectly depended upon.

“I have found abrasions of the cuticle to produce the same effect; such, for example, as we find in the nurseries of the opulent, as well as in the cottages of the poor, behind the ears, and upon many other parts, where the cuticle is thin. Happily, we find no irregularity in the vaccine vesicle, in an uncontaminated skin; but we find it, if the skin is beset with these herpetic blotches, or even simple serous oozings from an abraded

cuticle. It is not to be considered as of less consequence when occupying a small space,—a speck behind the ear, which might be covered by a split pea, being capable of disordering the progress of the vaccine vesicle.

“Dandriff may be considered as a malady of this class, the incrustation on the scalp being formed from excoriation beneath, and however slight, for there is every gradation between a thin scurfy layer of a dirty looking substance, or even patches of this thin crust, and tinea itself. However, fortunately for the safety of the vaccine practice, and fortunately, too, for the ease of the practitioner, all these affections of the skin may be removed with very little trouble. Sore eyelids are also impediments to constitutional vaccination.

“The second paper relating to this subject was given by the late Dr Willan, in answer to the following interrogatory addressed to me by himself:—“What are the changes produced in the vesicle, when a person is affected, during vaccination, with the shingles, the vesicular ringworm, or impetigo?” To this question I made a full, and, I believe, a satisfactory reply. Its purport will be shown by quoting a few sentences from it. “To

answer this question, in its fullest extent, would lead me through a wide field of observation, which I mean to go over at a future time, but the following answer may probably convey to you as much information upon the subject as you may now require. Vaccination, under the circumstances you mention, usually produces a striking deviation from the perfect character of the vaccine vesicle at some period or other of its progress, but more frequently in its early than in its declining stages; indeed, it is commonly perceptible in a day or two after inoculation. It would be difficult, perhaps impossible, without the aid of drawings, to give a correct description of the varieties which an herpetic state of the skin is capable of producing, from those trifling deviations which prove no impediment to the vaccine security, up to that point of imperfection in the vesicle, which affords no security at all. Perhaps I commit an error in saying, 'no security at all,' for it strikes me, that the constitution loses its susceptibility of small-pox contagion, and its capability of producing the disease in its perfect and ordinary state, in proportion to the degree of perfection which the vaccine vesicle has put on in its progress, and

that the small-pox taken subsequently is modified accordingly.

“ When no deviation takes place in the ordinary course of the vaccine vesicles, or when it is inconsiderable, the herpetic blotches or vesicles, of whatever kind they may be, often assume, (sometimes as early as the third or fourth day after the insertion of the vaccine fluid,) a new character, not unlike the vaccine, and keeping pace in their progress with the vesicles on the arm, die away with them, leaving the skin smooth.

“ These two papers comprehend, first, the simple fact of important deviations being produced by diseases in pre-occupation of the skin ; and, secondly, a general account of the characters of these deviations, and their differing degrees of influence upon the vaccine protection.

“ Some further observations were published by Dr Wilson Philip, M. D. of Worcester, in an appendix to his work on Febrile Diseases, who requested some information from me on this interesting subject.

“ This letter goes more into detail than the former, though its purport is the same,—namely, to guard the practitioner against the insidious influ-

ence of a diseased skin, when he vaccinates. It will be an object of future consideration, to enter more generally into the minutiae of this subject ; but a sketch like this does not afford scope for the completion of such a design. Let me advise every practitioner, not to confine his cautions, nor to narrow my meaning, to one class of eruptive affections only. In short, every disease of the skin, which may be called serous, or one that sends out a fluid, capable of conversion into a scab, has the power of exerting this modifying and counteracting influence ; and I have seen purulent fluids exert a similar influence in producing deviations. If I was asked what were the other actual impediments to perfect vaccination, as a general answer, I should say, “ that I scarcely know any other except spurious matter, or impediments too obvious to require my naming them here, such as deranging the vaccine vesicle in its progress, by incautiously robbing it of its contents, or producing a new action by external violence.”

In the concluding part of Dr Jenner's letter, which I have quoted, we have an example of the candour and caution which characterized the mind of that illustrious man. In explaining the causes

of apparent failure of vaccination, he confines himself strictly to that which he knew was matter of fact. Subsequent experience has made us acquainted with other causes of failure, as has been already mentioned.

As the strongest and most convincing proof of the accuracy of Dr Jenner's sentiments, as well as of Dr George Gregory's and my own, with regard to the counteracting and controlling power of general and local disease, under the circumstances to which we have just been alluding,—I shall here narrate the history of a case that came under my observation.

About two years ago, when small-pox were prevalent at Haddington, amongst the unvaccinated, they attacked a family in the suburbs, where there were several unvaccinated children. I heard nothing of this family, until all the children, not protected by the ægis of Jenner, were covered with small-pox, except an infant about three months old, which was instantly vaccinated. But it was too late: three days after the cow-pock matter had been inserted, small-pox made their appearance upon the body of the child, but the pustules were scanty in number, soon matured,

healed kindly and expeditiously. The primary fever was mild, and there was no secondary fever; and whilst we thus observed, with surprise and satisfaction, the effect and controlling power of vaccination, performed under these unfavourable circumstances, we also witnessed the cow-pock on the arm of the vaccinated, in its turn, modified by the presence of the small-pox. The former had, in what I should consider a perfect degree, the appearance which they assume, when herpetic eruptions, or ulceration, exist upon the body of a patient at the period of vaccination; and I may mention, as a still more extraordinary illustration of the wonderful power of vaccination practised under the most unfavourable circumstances it is possible to conceive, that Mr Kesson of North-Berwick, some time ago, vaccinated a babe, the moment it was born, in a small, filthy, ill ventilated apartment, where small-pox were raging in all their horrors at the time, and where the putrid remains of two children who had died the same night were actually lying in an adjacent bed. The infant was affected with both diseases; but so completely did the vaccine modify and subdue the variolous, that there were not

above thirty or forty pustules ; and the subsequent history of the little sufferer was so similar to the one mentioned above, that a farther account of it is here unnecessary.

What I have just mentioned with regard to the effects of cow-pox on small-pox, and *vice versa*, was observed on a large scale in the small-pox hospitals in London, and, I believe, other parts of England, soon after the introduction of vaccination. The patients were received into the infected wards, and there vaccinated. Before the cow-pock matter had time to produce its specific effect, many of them were influenced by the small-pox infection, and both diseases went on at the same time, but invariably in a mild form, so that the nature of the diseases became a matter of dispute between the illustrious discoverer of the blessings of vaccination, and the very intelligent Dr Woodville. That it was real small-pox modified and subdued by vaccination soon became evident. Mr Paytherus of Norfolk Street, London, showed this so early as 1801.

In the present state of physiological knowledge, we cannot pretend to account for the peculiarity of constitution, which leaves certain in-

dividuals liable to a severe attack of small-pox after perfect vaccination. It is, however, satisfactory to know, that this is a very, very rare occurrence,—perhaps not once in a hundred thousand cases. And it must never be forgotten, that an attack, even of small-pox, does not, in some constitutions, prevent a subsequent severe or fatal one. I have already stated that Dr Hennen has satisfactorily shown this. It was well known over all Europe, that Louis XV. died of small-pox at the age of sixty-four, after having already had them when a boy of fourteen; and I, myself, had an opportunity of seeing two examples of this kind, a few years ago in Haddington, in one of which, a woman of about forty years of age, the disease proved fatal. She bore the most unequivocal marks of having previously had small-pox; in the other, the second attack, although severe, did not prove fatal.

It is certainly altogether unreasonable to expect that cow-pox will afford protection against small-pox in those constitutions, when the latter disease itself would not have done so; but, I maintain, it has been satisfactorily proved that the vaccine disease, when proper care has been taken

to communicate it effectually, is, in this respect, entitled to be placed on the same footing with small-pox. Nay, strange as it may seem from the facts hitherto recorded, it appears, that the modifying power of cow-pox is superior to that of small-pox,—that is, that there are a greater number of well authenticated severe, and fatal cases of a second attack of small-pox, than of severe and fatal cases after perfect vaccination.

I cannot conclude my remarks upon this part of our subject, better than in the words of Mr Bryce, who has devoted much time and attention to it, and whose name has been deservedly placed next to Dr Jenner's, in the history of vaccination.

“As the result of all my observations,” Mr Bryce says, “I have been led to make the following conclusions respecting the cow-pox and small-pox.

“I believe, that, in a very great majority of cases, the process of vaccination, when properly conducted, is a certain preventive of the small-pox.

“That there is no evidence to conclude that the virus of cow-pox is deteriorated, by passing through or being regenerated on a variety of hu-

man constitutions, provided it be taken from a regular vesicle, at the period when most active.

“ That there is no evidence to conclude that the protecting influence imparted to the human constitution by perfect vaccination, diminishes by time, and ultimately leaves the constitution as susceptible of small-pox as before vaccination was performed : that, in some very rare instances, in which persons are said to have died from an attack of small-pox, after cow-pox, this occurrence may be fairly attributed to some error in conducting the previous vaccination :

“ That, from some peculiarity of constitution, however, which we cannot explain, certain persons who may have undergone vaccination in the most perfect form, are still liable, on a free exposure to small-pox infection, to suffer considerable constitutional disorder :

“ That the constitutional disorder thus excited, does not run the regular course of small-pox, but is rendered greatly milder by the preceding vaccination. Thus, the disease is attended with little or no fever after the eruption is completed,—the eruption itself is less numerous,—and few of the pimples in proportion to their number run to

suppuration, but a great majority of them never becoming larger than pins-heads, quickly dry into a horny or tubercular state,—and while hundreds are dying around from the natural small-pox, none who have been vaccinated are seriously ill, or in danger from this milder state of the disease ; so that, should the present prevailing epidemic small-pox pass over without any person who has undergone the cow-pox being more severely affected with this constitutional eruptive disease than we have hitherto seen, * we must consider the history of this epidemic as the history of the triumph of vaccination.

“ I believe, also, that it may be regarded as a general rule, that those persons who have suffered an attack of small-pox, may be considered safe against a future attack of that disease :

“ That from some peculiarity of constitution, however, which we cannot explain, certain persons who have suffered an attack of small-pox,

* It did so ; and epidemics that have occurred since, have done so, we believe, in every county in Scotland. The report of the National Vaccine Establishment bears testimony to the same fact in England. R. L.

are liable again, on exposure to its infection, to suffer considerable constitutional disorder :

“ That the constitutional disorder excited, is generally more slight than a first attack of small-pox. But that we have on record more instances of persons suffering severely, nay fatally, from what was considered to be a second attack of small-pox, than from small-pox after what has been considered perfect vaccination.

“ Farther, it is my opinion, that the slighter attacks of small-pox after small-pox have been long known in this country, under the name of the horn-pock, * and that the eruptive disorder, occasionally occurring on exposure to small-pox infection after vaccination, is the same disease, and ought also to be named the horn-pock : †

“ That the same general rule ought to be applied

* I would particularly direct the attention of the reader to the above remark of Mr Bryce, and to the following fact, that, since it was written, it has been ascertained that matter from horn-pock is capable of communicating genuine small-pox.

† In like manner, the disease, well known by the name of chicken-pox, has been considered by another very distinguished physician, Dr John Thomson, as in reality but a milder or secondary small-pox.

to the small-pox, and to the cow-pox, with regard to their powers of protecting the constitutions of those who have undergone their influence, against a future attack of small-pox : And, finally,

“ That the other advantages arising to society, from propagating the cow-pox, in place of the small-pox, are so many and so conspicuous, as to admit of no hesitation in concluding that the former ought, on every occasion, to be encouraged, and the latter repressed with all our most active exertions.”

SECTION FIFTH.

REMARKS ON THE PRESENT STATE, AND PROTECTING POWER OF VACCINATION.

FROM the foregoing observations, it will be seen, that to practise vaccination successfully, is by no means so simple an affair as has been imagined; that the health and habit of body of the subject upon whom the operation is to be performed, require particular attention. The application that we would make of a knowledge of this fact is obvious. It is well known that the children of the lower classes, in most of the counties of Scotland, are either not vaccinated at all, or not in due time, or the operation is performed by persons totally incompetent to judge of the circumstances I have alluded to. This is an evil that ought to be remedied forthwith; and I would strongly impress upon the minds of Magistrates,

Clergymen, and other influential persons, to second my views in this respect.

But the most important application that can be made of the knowledge we now possess with regard to vaccination, is still to be noticed. There can be no doubt, that, in the first years in which vaccination was practised, and, indeed, frequently since, the operation has been imperfectly performed, from the ignorance or inattention of even medical practitioners, as to the health, habit, and condition of the individual to be subjected to its influence. This affords a satisfactory explanation of a great proportion of the reported failures; and in the same manner, it is easy to understand how this should have occurred more particularly amongst the children of the lower classes, who, from want of proper attention to cleanliness, and from other obvious reasons, are most liable to cutaneous diseases, and other affections capable of preventing the vaccine disease from fully exerting its legitimate influence upon the constitution.

On this principle, too, we may trace to misconception the opinion, that the vaccine power over the human body is only temporary, in enabling it to resist the infection of small-pox.

As the most satisfactory and effectual method of counteracting the evil which is likely to arise from the cause we have just been considering, I would recommend every individual who has been vaccinated, especially in the infancy of the Jennerian discovery, to submit to the operation a second time. No possible harm can result from such an expedient, and the benefit may be incalculable. It will be found that, even where the operation had been originally performed by the most skilful practitioners, cow-pox will occasionally be produced in the most perfect and satisfactory state. Such individuals would, in all probability, have been affected with small-pox in the modified form if they had been exposed to the infection.

An opinion prevails, and is very generally acted upon, that one cow-pock answers the purposes of vaccination as well as two or more. From what has just been said, however, it will appear that it is of importance to insert matter into different parts, so as to produce several vesicles,—two at least; and this is more essentially necessary, if it be proposed to use the test, to which the attention of the medical profession was called

by the ingenious Mr Bryce: The value of his discovery is universally acknowledged, and medical practitioners generally avail themselves of it, to prove that the system is thoroughly under the influence of the vaccine disease. It consists in puncturing one of the vesicles on the fifth day, from which matter is taken and inserted into a distant part of the body. If the constitution be properly affected, the test-pock (which was made five days later) on the ninth or tenth day, is in the same state of forwardness as that from which the lymph was taken. From what has been said with regard to mismanagement during the progress of the cow-pock pustule, it will be obvious, that if only one have been made, there will be some risk in robbing it of its contents to form the test-pock. As we have hinted before, measures ought, therefore, always to be taken, at first, to produce at least two vesicles;—indeed, I have determined not to be satisfied, in future, with less than three, except when I cannot command a sufficient quantity of matter.

The period of life most favourable for vaccination, is a subject worthy of particular attention. It has, as is well known, been practised at all

ages. Babes have been vaccinated a few hours after birth with complete effect ; but I think there is good reason to suppose, that, in general, from the third to the fifth month is the best time for vaccinating children, they being at that age less apt to be affected by causes likely to influence the vaccine disease, and, consequently, absolute protection against a future attack of small-pox may, with the greater certainty, be calculated upon.

A competent knowledge and efficient practice of vaccination, are matters in which all classes of the community are deeply interested ; and I cannot but think, that the physician incurs a fearful responsibility who does not call his most strenuous efforts into active operation, to remove the unjust and unnatural prejudices, which have been entertained by some against vaccination, and to confirm the wavering faith of others in its salutary efficacy.

My present advocacy of the cause of vaccination has arisen solely from my conviction of that responsibility, and from an anxious wish to restore the Jennerian discovery to that confidence, which its own merits, no less than a regard to the welfare and preservation of our offspring, demand.

Who, that has a heart rightly constituted, is proof against the blessings resulting from a practice, in behalf of which, twenty-four years ago, the aimable and accomplished John Coakley Lettson, M. & LL. D., the friend and fellow labourer of Howard the Philanthropist, made the following ardent and affecting appeal, dictated by the same motives, and under circumstances somewhat similar to those in which I have ventured to address the public.

“Ye *Literati*, under the designation of Reviewers and Critics, whose penetrating eye pervades the ample circle of science, and whose decisions impose a tone upon public opinion, and widely influence even the judgment of every reflecting mind; in proportion to that influence ought you to stand forward upon this interesting occasion, with an impressive ardour adequate to the imperious necessity of animating the multitude to self preservation.

“When Herschel fixed the site of the Georgium Sidus in the great volume of the heavens, you raised the theme of ardent praise to that unrivalled astronomer; but what is the Georgium Sidus in competition with the Jennerian disco-

very. Has it conveyed to one human being a single ray of advantage? Contemplate with impartiality the latter, whose beneficent rays are destined to dissipate the gloomy atmosphere of pestilential mortality. Dip your pens in ethereal and indelible ink ; impress your observations in characters legible to the most distant regions of the globe !

“ Ye *Pastors*, whose congregations listen to you for information ; may a retrospection of the ravages of the small-pox, and the prospect of its extinction, by the vaccine inoculation, excite your piety to promote the salutary practice in public and private. As the Creator, it is believed, gave existence to rational beings, in order to augment rational happiness, may you co-operate in forwarding this benign purpose, by inculcating the duties of self preservation.

“ And ye *Parents*, who are the natural guardians of your offspring, do not hesitate in adopting a process that exempts them from variolous contagion, and its frequent concomitant, death.

“ *Mothers !* your infants cannot reason for themselves, but they call upon your protection, by every tender and winning gesture. How have

you been delighted, when their playful hands instinctively press your bosoms, to solicit the flow of that nutritive fluid that percolates from your heart's blood, and adds to theirs ! when they look up to you with smiling innocence, how ardently you press their lips with caresses and kisses:—with ardour I invoke you to shield their endearing features with the ægis of Jenner."

SECTION SIXTH.

AN EXAMINATION OF THE PROPOSED SUBSTITUTION OF VARIOLOUS FOR VACCINE INOCULATION.

THAT the condition of mankind has been meliorated by the introduction of vaccination, is beyond all dispute. But it is too true, that the great object which we had in view,—the extirpation of small-pox,—is far from being accomplished.

Many who have condemned vaccination, are favourably disposed towards the variolous (small-pox) inoculation, and strongly recommend it as an antidote for the evils which they pretend have resulted from the former: The unavoidable consequence of this is, to supply a constant source of infection, and to put the merits of vaccination perpetually to the severest trial.

According to antivaccinists themselves, small-pox inoculation proves fatal to 1 in 500, accord-

ing to better judges, to 1 in 300. That mode of communicating small-pox, at the period when it was introduced, was considered an immense improvement, since, in the natural mode of receiving them, one in four or five perishes. Without doubt, by this expedient, the disease was rendered infinitely less dangerous and severe, upon those who were inoculated; but, as has been long since clearly proved by the “virtuous and faithful Heberden,” after the introduction of small-pox inoculation, the total mortality from that disease *increased*,—and an able medical writer has lately said, “On an average of forty years before the introduction of inoculation, out of every thousand deaths in England, seventy-two were from small-pox; in the same period, after inoculation was practised, the proportion had increased to eighty-nine in a thousand. The proportion continued to increase, and in the last years of the (eighteenth) 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 showing a relative diminution of mortality, from one in six to one in six hundred, the other an actual increase of death, as 10 to 7." *

This is easily enough accounted for : Inoculation never was common amongst the great mass of the population, but it became pretty general in the upper ranks of society, in consequence of which, there was always, and almost in all situations, a source from which the infection spread in every direction, and thus, those who had not been inoculated, were constantly exposed to its subtle influence ; and of course the work of infection was constantly going on. Before the introduction of small-pox inoculation, whole districts were many years free from that disease. It must, therefore, be evident, that the attempt to ameliorate the condition of mankind, by inoculating small-pox, fairly failed ; † and those who persist in prac-

* New Edinburgh Review.

† A fact unknown to many intelligent persons at this day. Dr Johnson, in the last year of his life, when speaking of the improvement of medicine, made the following remark, which, whilst

tising it, are positively guilty of a most serious breach of moral duty.

I cannot allow that those individuals are less culpable who inoculate children with small-pox matter, because *they* suppose it more advisable so to do. In the relative situation which every individual stands in a civilized country, there are things to be done and to be left undone, which cannot be disregarded with impunity. Upon the same principle, that some parents, and, I grieve to say, some medical practitioners, recommend and practise small-pox inoculation, they might infect persons with the plague: the latter disease, by no means so dreadful a one as the former, is neither more nor less than a fever, differing perhaps in degree only from the typhus of this country. Continued fevers of all kinds are less apt to affect an individual who has once laboured under them. Now, should any one through

it showed his knowledge of one subject connected with the healing art, betrayed his ignorance of another:—"It is wonderful how little good Radcliff's travelling fellowships have done. Inoculation has saved more lives than war destroys."

fear of a subsequent attack of plague, under more unfavourable circumstances, than *he* supposes to exist at any particular time ; or, what is quite rational and consistent with what we have reason to believe to be fact, should any one, in the prospect of having the disease in a milder form, or avoiding it altogether, in situations where it is apt to occur, dare to infect himself or others with the plague, in this country, we know very well, he would be considered highly criminal, and treated accordingly.

My opinion is comparatively of little consequence to the world upon this subject ; but with the view of more forcibly expressing it, I will here take leave to say, that were it considered a fit subject of legislation, I humbly conceive that the law should consign, to some of our stations of salutary discipline, every one who dared to propagate small-pox by inoculation.

The late Lord Ellenborough did, upon one occasion, commit an ignorant mother, and a respectable medical practitioner, to prison ; the former for exposing her child, labouring under inoculated small-pox, in the streets of London ;

the latter for performing the operation at his house.*

But this was done under particular circumstances; the law as it stands at present, does not sufficiently guard against a repetition of the dangerous practice of inoculating children with small-pox matter, and of exposing them, when labouring under that loathsome disease.†

Small-pox might, I think, be entirely extirpated from this country, but certainly divested of their horrors, were parents compelled, by a legislative enactment, to have their children vaccinated, or at least prevented from having them inoculated with small-pox matter.

There can be no good reason, I conceive, for not prohibiting, at once and for ever, this outrage on the feelings, and perilous experiment on the lives of his Majesty's subjects. We have quarantine laws sufficiently strict and severe to prevent the importation of foreign disease; and

* It was clearly proved that eleven individuals were infected by the child above referred to, eight of whom died, and a ninth lost one of its eyes.

† See Appendix.

yet, by some unaccountable apathy, or strange fatality, the same means have not been employed to get rid of a domestic plague of the worst kind, that has spread horror, desolation, and death, wherever it has appeared,—and which, at a former period, destroyed one in five or six, of all that were born in Great Britain.

Whoever takes the trouble to attend to the history of the late epidemical small-pox, as occurring in such towns as Haddington, or North-Berwick, or any other of the same size, where the manner in which the disease was introduced, can be ascertained with perfect certainty, and its progress easily traced, will be convinced that were the Legislature to take the matter up in good earnest, incalculable benefit would result to the country.

To conclude my remarks against the pernicious practice of small-pox inoculation, with an argument that can be easily understood and appreciated by individuals of all conditions, and of every capacity, Why, I should beg to inquire, is any person allowed, with impunity, to sow the prolific seeds of a pestilential, malignant, and highly infectious disease amongst us? and

thus do what is calculated to render our free, happy, and flourishing country, as destructive to human life as the swamps of Batavia, or the sultry shores of the Levant. From what has been proved, it is evident, that if my neighbour inoculate his child with small-pox, and communicate that detestable malady, mine or others that may be unprotected at the time, must, of necessity, be exposed to the inconceivably subtle influence of the infection, and likely to be smitten by that most fearful of Heaven's avenging ministers, in the shape of disease. Would it not, therefore, be politic, just and humane, in the Government of the country, to prevent the propagation of small-pox by inoculation? and thus put it out of the power (as effectually as human means can,) of obstinate, rash, and inconsiderate men, from persevering in a Machiavelian practice, which has the baneful and deplorable effect of wounding, most acutely, the best feelings, and violating, most cruelly, the dearest interests of humanity.

A Legislative enactment, on this subject, would, in the judgment of reason, enhance and crown the triumphs which his Majesty's Ministers have

deservedly achieved by the wisdom of their late measures; and would secure to themselves the proud consciousness, that to them belongs the fine characteristic of the ancient philosopher:—

“ Homines ad Deos nulla re propius accedunt quam salutem hominibus dando: nihil habet nec fortuna tua majus quam ut possis, nec natura tua melius quam ut velis servare quam plurimos.”

APPENDIX.

REPORT of the Surgeons of the Vaccine Institution at the Royal Public Dispensary, Edinburgh, for 1824.

IN submitting to the Managers of the Royal Public Dispensary of Edinburgh, the Annual Report of the state of Vaccination during 1824, the Surgeons of the Vaccine Department of that Institution have again to express their regret, that the great benefit which might accrue to the community from their services, is still so much circumscribed by the neglect, both of those who ought to present, and of those who do present their children for inoculation. 533 children only, out of the vast population of this metropolis, have been vaccinated by them, at this Institution, during the last year ; and of these, they are sorry to state, that a considerable number have not been brought back for examination ; so that

there is no evidence, so far as the Surgeons are concerned, of the effect having been produced in a satisfactory manner ; and, consequently, of these children being protected from an attack of small-pox. The Surgeons would remark, that although they cannot congratulate the Managers on the increase of the practice of vaccination during the past year, among the lower orders in this city, yet they still consider themselves, in duty to the public, bound to recommend, and to do all in their power to render general the practice of vaccination—being convinced, that if ever the small-pox is to be banished from these islands, or to cease being considered as the scourge of the human race, it is by means of cow-pock inoculation that an event so desirable is to be accomplished.

Effects of Vaccination on the General Mortality.

M. Casper's work on the influence of vaccination in Prussia, proves that not only the mortality among infants, but even the general mortality, has been incontestibly lessened by it in that kingdom ; thus disproving the idea of its causing other maladies to become more fatal to mankind. The following important conclusions are the result of M. Casper's investigations :—

1st, "The small-pox formerly carried off from one-twelfth to one-tenth of the population.

2d, "Of twelve children born at Berlin, one formerly perished of small-pox ; at present not more than one in 116 dies from the same cause.

3d, "The diseases of infancy are more common than before the introduction of vaccination, because the number of infants which survive is more considerable than it used to be.

4th, "Those diseases formerly destroyed 39 infants in 100 ; at present only 34 in 100 perish by them : so that, before the introduction of vaccination, 47 children in 100 died, whilst at present only 35 die out of the same number. There is, therefore, a sensible diminution in the mortality among infants of a tender age.

5th, "Formerly the general calculation was of one death in every 28 inhabitants ; it is at present not more than one in 34. There is, therefore, a sensible diminution in general mortality. The French Academy have, we believe, appointed M. de Chateanneuf to collect information on this very important subject in France."

It were to be wished that the British Government, with its usual ardour in the cause of science and philanthropy, would institute an inquiry of the same kind in this kingdom and in our colonies.

As tending practically to corroborate the truth and accuracy of the reasoning in the text, I subjoin the able Report of Dr Gregory, physician to the Small-Pox Hospital in London, for 1824-5, lately published :

“ Of all the diseases which afflict the human race, the most formidable (whether we consider the extent of its ravages, or the intensity of its virulence) is, unquestionably, the small-pox. The plague rages only in particular countries, and at particular seasons, but the small-pox spreads its devastations over every region of the habitable globe, indifferent alike to summer heat and winter cold. Placed as your physician is, at the head of the only charitable institution existing in the world for the express relief of this dreadful disorder, he considers it in some measure his duty, by an annual communication to the Governors, to direct their attention, and that of the public, to a subject so replete with interest ; to impress upon them the melancholy, but important truth, that the small-pox still continues among us, and that incessant attention alone can prevent a renewal of those scenes of death and misery, which rendered the disease an object of such terror to our ancestors.

*Table of Admissions into the Small-Pox Hospital,
during the year 1824.*

Class.	CHARACTERS OF THE DISEASE.	Admissions.	Deaths.	Rate of Mortality per Cent.
1	Small-Pox in the Unprotected, in its greatest virulence, (<i>Confluent malignant.</i>)	12	12	100
2	Small-Pox in the Unprotected, in its second degree of virulence, (<i>Simple confluent.</i>)	46	27	59
3	Small-Pox in the Unprotected, in its third degree of virulence, (<i>Coherent.</i>)	55	14	23
4	Small-Pox in the Unprotected, in its mild form, (<i>Distinct.</i>)	35	1	3
	Total in the Unprotected,	148	54	36
5	{ Small-Pox of the Confluent, Coherent, and distinct kinds, occurring subsequent to Vaccination, (<i>Modified.</i>) }	45	0	0
6	Small-Pox occurring subsequent to Inoculation, (<i>Secondary.</i>)	2	0	0
7	Eruptive Diseases, not Small-Pox, - - -	4	0	0
	Total, - - -	199	54	27

Table of the Ages of the several Cases admitted in 1824.

Under Seven Years of Age, - - -	33	19	57
Between Seven and Fourteen, - - -	15	2	13
Adults, - - -	151	33	22
Total, - - -	199	54	27
Total Vaccinated in the Year 1824,—3,324.			

“ A cursory glance at the proceedings which have taken place within the walls of the Hospital, during the past year, will point out the circumstances which have led your Physician to this train of reflection, and show, at the same time, the extent of benefit which the public has reaped from the labours of your useful Institution.

“ 1. The annexed Tables show, in the first place, that the usefulness of your Hospital, and its credit with the public, are in no degree diminished ; for, in the last year, one hundred and ninety-five persons labouring under genuine small-pox, and four having complaints mistaken in the first instance for small-pox, have partaken of its benefits ; and the annual admissions have never (except in one instance) exceeded the number of two hundred since the commencement of the present century.

“ 2. They point out, in the second place, how great is the mortality of natural small-pox, when it attacks those who are wholly unprotected. Out of one hundred and forty-eight persons admitted into your hospital under these circumstances, fifty-four died, being at the rate of thirty-six per cent. They show, further, that children suffer from this disease in a much greater degree than grown persons ; that is to say, in the ratio of fifty-seven to twenty-two. This great mortality among children, compared with that which takes place at a more advanced period of life, is well worthy of the notice of the governors. It

arises, doubtless, from the comparative feebleness of the human constitution in infancy, and its consequent incapacity to resist with equal effect the inroads of this severe disorder ; but the fact is chiefly deserving of attention, as proving, that any measure calculated to throw the burthen of the disease upon a period of life better able to oppose it (even though it had no pretensions whatever to the character of a *preventive*) would yet confer the most essential benefit on mankind :—and this leads me to state,

“ 3. In the third place, that these tables are fitted to show, in a manner the most unequivocal, some of the advantages of vaccination. From them the governors will perceive, that forty-five cases of small-pox subsequent to vaccination have been admitted during the year 1824, all of whom were discharged cured. Yet these exhibited, at their onset, the several degrees of virulence which characterize small-pox in its purest form, and in the usual proportion ; that is to say, some were confluent, some coherent, some distinct and mild. By a comparison of these cases with those in the table that immediately precede them, it will be apparent, that, without the protecting influence of vaccination, thirty-six per cent. (that is, sixteen out of the forty-five) would have died. This simple statement appears to your physician calculated to allay much of that uneasy feeling which the occasional failures of vaccination excite. It shows, that where vaccination is inca-

pable of resisting effectually the approaches of small-pox, it arrests it in its course, and strips it of all its malignity.

“ Your physician, however, by no means wishes to rest the merits of vaccination on this slender and doubtful basis. He is anxious again to impress upon the governors his firm conviction, strengthened by the experience of another year, that vaccination is, in a very large proportion of cases, a complete security against the small-pox ; and that the benefits which the hospital confers upon the public, by the reception of persons labouring under small-pox, are enhanced an hundred and a thousand fold by the strenuous exertions which it makes to diffuse that inestimable blessing. It is with great satisfaction that your physician reports, that 3,324 persons have been vaccinated under his superintendence during the past year, a number exceeding, by 195, that of 1823. The confidence of the public in the vaccine protection is founded, not on the opinion of medical practitioners, but on an extended observation of its utility and safety ; and it is highly gratifying, therefore, to find that confidence not only unshaken, but actually on the increase.

“ Your physician has availed himself of the opportunities which his office affords of studying minutely the phenomena of vaccination, and he has directed his inquiries with the view of ascertaining, as far as possible, to what circumstances the occasional

failures of vaccination are owing. He is well convinced, that much yet remains to be discovered in this path of science, but he has seen enough to convince himself, that not a little may be attributed to careless and imperfect vaccination. It does not seem to have been hitherto well understood, that the human frame is not at all times susceptible of that full and complete beneficial influence which vaccination is capable of exerting ; the consequence of which is, that vaccination has been often performed in a state of bodily health, which precluded all reasonable hope of deriving benefit from it.

“ Your physician is satisfied, that the presence of fever, of diarrhœa, and of inflammation in some internal organ, interferes so materially with the vaccine process, as in many cases to render its protecting powers uncertain, and in some to prevent them altogether. He is convinced that vaccination has been hitherto viewed too much as a trifling and unimportant operation. Its performance by other hands than those of medical men, is, he believes, nearly, if not altogether, done away with. This affords some prospect of a diminution in the number of failures ; but he confidently anticipates still further improvement, when medical practitioners attach a due degree of importance to the operation, and practise it only in such circumstances as afford a fair prospect of obtaining the *full effect* which it is fitted to produce.

“ Your physician, in particular, would offer a caution against submitting a child to the process of vaccination during the period of dentition; and he is further anxious to impress upon those who are engaged in vaccinating, the necessity of *preparing* the body, in many instances, for its reception; and of keeping the system, during the progress of the disease, free from inflammatory tendency, in the manner formerly practised in regard to variolous inoculation. It is quite obvious, that an operation, which is to free the constitution from the influence of a poison so active and subtle as that of small-pox, should be conducted with, at least, the same degree of attention which was bestowed upon the attempt to introduce it into the system.

“ Your physician has thus endeavoured to strike, with a fair and impartial hand, the balance of the defects and benefits of vaccination. The hope entertained by its illustrious and amiable discoverer, that it might ultimately exterminate small-pox from off the face of the earth, appears vain and unfounded. The decree of Providence seems to be, that small-pox shall never cease out of the land. In his mercy he has been graciously pleased greatly to lessen the sphere of its virulence, and to mitigate the intensity of its horrors, but it still exists, and, as far as human eye can penetrate, will for ever continue to exist, one of the many diseases by which mankind is chastised.

“ With these remarks, your physician concludes his present Report. The governors will perceive that he has not shrunk from the investigation of that part of the subject which offered the greatest difficulties, nor hesitated to throw out the suggestions which the limited experience of a few years has dictated to him. He is well aware that these are imperfect. A quarter of a century only has elapsed since the first discovery of vaccination; and this period is not sufficient to enable us to see fully, and to appreciate justly, the bearings of the many intricate questions connected with vaccination. He can only assure the governors, however, of his anxious wish to improve the opportunities which their patronage affords; and, to the utmost of his power, to render the small-pox hospital useful to the public at large, as well as to the miserable victims of that dreadful disorder.

GEORGE GREGORY, M. D.

8, *Upper John Street, Golden Square,*

February 3, 1825.

A long commentary on the above valuable document, would be altogether a work of supererogation. But I would particularly direct the attention of the reader, in the first place, to the fact of small-pox after inoculation being there recorded. It is true, that the number of cases (2) appears to bear no proportion to the number (45) after vaccination.

But the difference will be found to be more apparent than real, when we remember, that although small-pox inoculation is still practised in London, on a scale sufficiently extensive to rank it amongst pestilential nuisances, and, in our opinion, to call for the interference of the Legislature; yet, to the credit of the lower orders in that metropolis, contrary to what is the case in many other situations, the confidence in vaccination is on the increase, so that, in the sphere whence Dr Gregory's cases, at least, are taken, and from which his table is composed, the probability is great, that the proportion of the vaccinated (3324) to the inoculated, is as high as $22\frac{1}{2}$ to 1—so that the only part of his interesting table which appears at all at variance with the view which I take, is in reality in confirmation of it.

There is one part of Dr Gregory's report in which I cannot acquiesce; it is as follows:—"The decree of Providence seems to be, that small-pox shall never cease out of the land," &c.

With the greatest deference to, and respect for the abilities of Dr Gregory, I cannot be persuaded, that the situation which he occupies, with so much honour to himself, and benefit to the community, is so favourable for forming a just judgment on this very important point, as that of a physician in a town of moderate, or rather small, size.

I found my opinion on the following considera-

tions:—In London, and all other large and populous cities, cases of natural or inoculated small-pox always exist, in consequence of which, the work of infection is so constantly and imperceptibly going on, that the most skilful and attentive physician is scarcely competent to judge of the full extent of the powers of vaccination, practised under circumstances most favourable to the display of these powers.

I have said, in page 57, “ whoever takes the trouble to attend to the history of the late epidemical small-pox, as occurring in such towns as Haddington or North-Berwick, or any other of the same size, where the manner in which the disease was introduced can be ascertained with perfect certainty, and its progress easily traced, will be convinced, that, were the Legislature to take the matter up in good earnest, incalculable benefit would result to the country.”

By attending to the history of small-pox, as it has occurred occasionally, of late years, in the towns referred to above, I have found that they have appeared four different times since 1816; and each time the disease emanated from wretched houses, where travelling paupers were lodged with their unvaccinated children, who, in the course of their peregrinations, had been exposed to the infection, and caught small-pox. When there happened to be any other unprotected children in the neigh-

bourhood, they were generally infected, and took the disease in the unmitigated form ; and about twelve children have fallen victims to its devastations in the space of time mentioned above, and a few, but comparatively few, cases of modified small-pox have each time been observed. The disease, however, never spread to any distance, nor was it, in any case that came under my observation, in the least severe ; and I do not believe there has been a single instance of death from small-pox after vaccination, in East Lothian, since its introduction into this county.

The above remarks are also applicable to what I have occasionally observed, when, during harvest, reapers from the Highlands, and from Ireland, have been taken ill of small-pox in the country—often in situations particularly favourable for the extension of the disease. The comparative immunity from small-pox which this country has enjoyed, I attribute to the laudable zeal evinced by *all* classes to have their children vaccinated ; for, although the confidence in its powers is by no means universal, yet, contrary to what is the case in many other situations, the great mass of children are early vaccinated ; and I do not think small-pox inoculation has been once practised in this district for above fifteen years. There is, however, one evil prevalent in this quarter, the bad effect of which, it is to be feared, will be felt sooner or later. Many are vac-

inated by people not of the medical profession ; but still I conceive that to be preferable to the operation being altogether omitted.

It is certain, that, but for the introduction of small-pox by unvaccinated strangers, that disease would not have been seen in Haddington, or North-Berwick, for many years past. It is, therefore, evident to demonstration, that vaccination is capable of eradicating small-pox from a particular district, and that it requires the importation of infection to communicate the disease even to unprotected children. This, in all probability, would not have been accomplished, unless for the reckless imprudence of profligate or regardless parents. Such is the reasoning by which I infer that small-pox may be eradicated from Great Britain. Could we once get rid of this domestic plague, an act of the Legislature, combined with the panoply which the genius of Jenner has interposed against its pestilential and malignant influence, would, I confidently predict, most effectually protect the sons and daughters of Britain against the ravages of small-pox.

Connected with this part of my subject, and in confirmation of what I have formerly said concerning it, I shall, in conclusion, quote a passage from an excellent review* of Mr Cross's book on the Va-

* Edinburgh Medical and Surgical Journal, Vol. XVII.

riolous Epidemic which occurred at Norwich,—this useful work not being in my possession.

“ The still more important consideration, that no one can be protected against the natural small-pox by variolous inoculation, without the strongest probability of his communicating the disease, in its worst form, to others, is one that ought to be urged, not to the parents of the children, but to the government of the country ; and we were not aware, till we read Mr Cross’s book, that so strong a case existed for the interference of the Legislature. It is quite obvious that, as long as inoculation for small-pox is permitted, any measures to prevent the diffusion of the disease must be absolutely nugatory. In Scotland, we believe that the practice is now nearly abandoned, and the general diffusion of the small-pox is to be ascribed merely to neglect of vaccination among the poor, partly owing to habitual indolence, and partly to a mistaken notion of the religious duty of resignation to the Divine will. But, in Norwich, it appears, that

“ Variolous inoculation was practised on more than 400, each of whom thus became a centre of contagion,” (p. 13 ;) and in the whole of the neighbouring country “ itinerant inoculators, irregular practitioners, and old women, introduced and extended the disease to all quarters by inoculation, regardless of the admonitions given them, because the law authorized no direct measures against them.

The disease was thus continually introduced into parishes previously free from it; and these consequences of the practice were made the subject of a representation to the Grand Jury, some of the magistrates of which body attempted, *without success*, to inflict punishment on the ignorant persons who wantonly committed so great an injury against the public. Many medical men, desirous of doing their duty by discouraging variolous inoculation, have been placed in the most unpleasant situations, and not unfrequently have been compelled to commit an act which they believed to be immoral and injurious, because they could not afford to sacrifice the small emolument arising from it; some have reluctantly inoculated whole parishes of the poor at the instigation or order of an overseer, who probably did not know but the cow-pox was as contagious as the small-pox. It is lamentable indeed if the Legislature cannot interpose to correct evils and abuses, the existence of which has been felt and acknowledged by a very great proportion of the community." P. 219.

Nine of the surgeons to whom Mr Cross addressed his circular letter reported, that

"The disease had been introduced into parishes in which it did not before exist, by variolous inoculation. One surgeon states, that from the first person who casually fell down with small-pox in his neighbourhood, forty were immediately inoculated,

spreading the disease in all directions. Another, that in four parishes out of five where he had attended variolous patients, the contagion was brought by an irregular practitioner, who went about inoculating. A third, that a child went to an adjoining town to get inoculated, and became the centre, whence the contagion spread to the parishes under his care. A fourth states, that, before the present year, he had repeatedly been able to prevent the spreading of the disease beyond the family where it originated; but that lately a man of bad character, and not at all acquainted with medical subjects, had, for a small gain, made it his business to extend the disease far and near. Mr Dix of Snellburgh found the small-pox in nearly all of the forty-two parishes which he superintends, and to many of them it was conveyed by inoculation." P. 269.

"It is in the history of more despotic countries, that we are to look for exemplification, on a large scale, of the national advantage derived from general vaccination. From a statement furnished to Mr Cross by Dr Gordon, and which he had obtained from an extensive statistical work just published in Denmark, it appears, that since 1808, the small-pox no longer exists there, and is wholly unknown. In the city of Copenhagen alone, 5500 persons died of small-pox between 1788 and 1800, when vaccination was introduced; whereas the number that died of it in the whole Danish dominions, from 1802 till

1818, was only *one-hundred and fifty-eight*. It is there the law, that all persons shall be vaccinated, and the bishops and magistrates are required to take care, that no one be received at confirmation, permitted to marry, admitted into any school or public institution, or bound an apprentice to any trade, without complying with this injunction. "An annual report is published of the results of vaccination, which is judged to have been adequate, by comparison, with the numbers of births and burials." P. 241. A still more striking instance is furnished by the principality of Anspach in Bavaria, in which, as appears by a table given by Mr Cross at p. 248, more than one-fortieth of the population, that is, probably almost all the children that live to the age of six months, are vaccinated annually. In this district, in the year 1809, there were four deaths from small-pox, and since then, up to the end of 1818, not one had died of it. The deaths by small-pox in this district, in the years 1797, 1798, 1799, were above 500 annually, and in 1800 no less than 1609; and what makes this instance particularly satisfactory, the small-pox prevailed epidemically, and to a great extent, during 1814, 1815, 1816, and 1817, in every one of the immediately adjoining states of Wirtemburgh. P. 245. In Prussia, in which the deaths from small-pox, before vaccination was introduced, were 40,000 annually, they were under 3000 in the year 1817, although the popula-

tion has been considerably increased by an accession of territory ; and in the department of Breslau, containing above 500,000 inhabitants, and in which one twenty-eighth of the whole population were vaccinated in the year 1818, although small-pox was introduced in the course of that year, in nine different places, yet, in consequence of the extensive vaccination, and of insulating all who fell down in the disease, only twenty-eight in all took it, and of these six died. P. 244, 245. It is painful to contrast these undeniable proofs of the power that we possess of resisting the invasion of small-pox, with the example now before us, where “ 530 lives were, in less than a year, sacrificed to this disease, in an enlightened city, where humanity abounds, and charity seeks for every measure to prevent and relieve distress.”

EDINBURGH :

PRINTED BY JOHN STARK.