**Observations on cowpox and on the necessity of adopting legislative measures for enforcing vaccination : in a letter to Mr. Thomas Brown ... containing remarks on his "letter to the ... Earl of Liverpool, concerning the present state of vaccination" / by Henry Edmonston.**

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# OBSERVATIONS

ON

# Cowpox, &c.

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ON

# COW POX,

AND ON THE

NECESSITY OF ADOPTING LEGISLATIVE MEASURES

FOR ENFORCING VACCINATION,

IN A

## LETTER

TO

MR. THOMAS BROWN, SURGEON, MUSSELBURGH,

CONTAINING REMARKS ON HIS

"LETTER TO THE RIGHT HON. THE EARL OF LIVERPOOL,
CONCERNING THE PRESENT STATE OF VACCINATION."

BY

HENRY EDMONDSTON, A. M., SURGEON,

NEWCASTLE UPON TYNE.

HEAR ME FOR MY CAUSE!

LONDON:

PRINTED FOR LONGMAN AND CO.; ADAM BLACK, EDINBURGH;
AND E. CHARNLEY, NEWCASTLE.

1828.

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TO

WILLIAM MOORE, ESQ.

Surgeon,

NEWCASTLE UPON TYNE,

THE FOLLOWING OBSERVATIONS

ARE INSCRIBED,

IN TESTIMONY OF THE

AUTHOR'S

AFFECTIONATE REGARD AND ESTEEM

# Preface.

THE formality of a long preface is not needed to explain why the public is troubled with the following communication, as my reasons for writing will be found scattered through it.

To the authors, whose works I have chiefly consulted, I return my very respectful acknowledgments. Many more might have been quoted, perhaps with advantage to the subject—certainly, with advantage to me—but my purpose was not to adduce a long string of familiar authorities on every point, but to discuss the general merits of the question. For any thing in the shape of original discovery, the readers of these remarks need not look. Dr. Jenner began, and Dr. Baron has ended, by leaving nobody any thing to do.

To the results of the practice at the Newcastle Dispensary, and the documentary statements connected with it, given towards the conclusion of the work, I would take the liberty of directing

particular attention. While they forcibly attest the great benefits which vaccination has conferred, and is capable of conferring, they serve to place in a conspicuous point of view the injurious tendency of those opinions which I have endeavoured, in the conscientious discharge of an important duty, to analyze and impugn.

I am sensible, that to some, these pages may appear uninviting, from their unvaried aspect, a defect that gradually arose from not anticipating the length to which the subject has unavoidably extended, and which, in consequence, it was too late to rectify when noticed.

"The question now before us is nothing less than, whether a discovery has actually been made, by which the lives of *forty thousand* persons may be annually saved in the British islands alone, and double that number protected from lengthened suffering, deformity, mutilation, and incurable infirmity. This is not a question, therefore, which is interesting only to the physiologist, or the medical practitioner; it concerns nearly every community in the universe, and comes home to the condition of almost every individual of the human race; since it is difficult to conceive, that there should be one being who would not be affected by its decision, either in his own person, or in those of his nearest connexions. To the bulk of mankind, wars and revolutions are things of infinitely less importance; and even to those who busy themselves in the tumult of public affairs, it may be doubted whether any thing can occur that will command so powerful and permanent an interest, since there are few to whom fame or freedom can be so intimately and constantly precious, as personal safety and domestic affection."—*Edinburgh Review*, 1806.—(*Article Vaccination.*)

"In a time surprizingly short, every moral obstacle, every geographical boundary, gave way; and nations, not less differing from each other in language, in habits, in religion, than in clime and every outward circumstance, speedily abandoned their prejudices, and eagerly received from the hands of strangers the proffered blessing. The aboriginal American, the followers of Brachma and Confucius, the blind and obstinate votaries to Mohammedan fatalism, alike concurred to embrace and cherish this salutary gift of their bountiful Creator.

"Who can know that a power has been put into the hands of man to control the greatest of all his physical ills, and not be sufficiently grateful for the boon? Who can reflect that there are those who disregard it, and not lament such obstinacy and blindness?"—*Dr. Baron's Life of Dr. Jenner*, 1827.

# Letter, &c.

SIR,

AMONG the many objections urged by you against Vaccination, there is one which it would seem indispensable to have either satisfactorily established, or immediately abandoned—namely: that "the vaccine influence over the human body, as enabling it to resist smallpox contagion, is feeble, partial, and *temporary*." Than such a proposition, nothing more prejudicial to the interests of vaccination has ever been broached. In truth, it comprizes within itself, all other objections; and though it certainly cannot be said to have originated with you, yet as you have long been its almost sole supporter, there can be little hesitation with regard to the individual, to whom the following observations may with propriety be addressed.

Smallpox seldom having prevailed very extensively in this town or neighbourhood since the Vaccine disease was introduced, much embarrassment, arising out of (what I shall, for convenience' sake, call) your hypothesis, has seldom been encountered. But from June, 1824, to April, 1825, that disorder raged epidemically, creating much alarm—nor can it be denied, that confidence in vaccination was, in several instances, materially shaken, and that fears respecting the future,

troubled the peace of many. The question of revaccination, flowing, as it does, from parts of your doctrine, though unauthorized by your precepts, was frequently agitated; and though easily met, was not always so easily evaded in its consequences; parents sometimes insisting on the operation being repeated, in despite of all reasoning or persuasion—nor were there wanting practitioners, who either recommended the measure, or who did not sufficiently discountenance it. Exult not, Sir, in any imaginary triumph of your opinions which these intimations may possibly awaken, for I fully expect to show, that the correctness of those opinions has here, at least, received no confirmation, and that an application very wide of what you have probably long been in the habit of anticipating, awaits your motto of "*magna est veritas et prevalebit.*"

For much of their embarrassment in combating the difficulties of the question, practitioners are in no small degree indebted to you. For years together, have you been fighting, almost single-handed, or but with few auxiliaries, save prejudice, ignorance, and terror, against your professional brethren, and against the general conviction or consent of mankind. It may be owned that you have maintained a stout contest, yet, with such allies, though to wage war be easy, conquest, were it your's, would bring with it little glory. In striving to overcome impressions which may be considered in part the fruits of your dogmata, practitioners have, times out of number, been made to appear to disadvantage, while the progress of vaccination has been proportionally impeded. It can hardly,

therefore, be matter of surprise, or, I should hope, of disapproval, if an attempt be made to ascertain why this should be, and upon what ground it is that you claim to speak *ex cathedra* in this matter. At all events, it would seem desirable, and even necessary, that these momentous points of the vaccine question should be set at rest, if at rest they can be set. Any endeavour, then, however imperfect, leading to their final disposal, will not, I trust, be slightingly regarded.

Had you confined yourself, Sir, to a dispassionate, impartial statement, to the Earl of Liverpool—or had your sentiments been made public through the medium of a professional journal, in which the subject would have had the benefit of being canvassed, in the first instance, by the more competent authorities, your "Letter" might have been left to make whatever impression it was capable of making. But you set out with declaring, that vaccination stands convicted of failure; and you finish, not by patiently waiting the issue of the parliamentary investigation which you are so earnest to obtain, but by anticipating the impossibility of any measure resulting from such investigation other than a recurrence to smallpox inoculation. This measure, accordingly, you scruple not to recommend to his Lordship, taking care to enforce the recommendation with arguments addressed, not to the understanding alone, but to the imagination and the passions, in a form the most accessible, and therefore calculated to produce the utmost possible effect. These considerations, independently of any other, give an importance of their own to the

manner in which you have judged it fit to treat the subject, and, in some degree, impose the necessity of very grave, and even serious animadversion. It is too much, that medical men, after an experiment performed before their eyes for more than a quarter of a century, should be buffeted about, the sport of every breath of speculation or fancy, merely because an individual thinks fit to scatter abroad the firebrands of disquiet and alarm. It will not avail, if I can help it, your replying, that your writings are before the public, to be by its impartial voice judged, and that, no longer than three years ago, you made an appeal to the First Minister of the country for his interference; for it is the validity of those writings, and, particularly, of that appeal, which I purpose to controvert. This I have felt very much inclined to do, ever since the first appearance of your various publications, but circumstances, unimportant to any but myself, have prevented me; nor should I, perhaps, at this late time of the day, have entered the lists on the ground of mere discrepance of opinion, had some renowned combatant stept forward—or, rather, had the important interests at stake, and the vexatious interruptions already noticed, not made me feel a strong desire to clear the work of all incumbrances, by a simple reference to facts and experience.

It is irksome, to a degree almost beyond endurance, for practitioners to find themselves, the moment a case of smallpox makes its appearance, met at every turn with questions, doubts, anxieties, and terrors, which all their assurances are often insufficient to

allay. And this, not from any unworthy suspicions, or even from any excessive, though legitimate caution, on the part of the thinking community, but from dread, generated and kept alive by (I was going to say, a very few medical writers, but I must say, by) you almost alone, upon grounds which, I hope to show, are altogether fallacious and insufficient. The uncertainty of medical science is too deservedly proverbial; but in regard to vaccination, it is really high time it had ceased to be a by-word in the land.

One thing I would premise. The observations here respectfully obtruded on your attention, were mostly written two years ago. Within that period, several tracts on vaccination have been published, but few of them have fallen in my way—so that should I be found to have repeated what others have said much better before me, my unacquaintance with their works, though, at best, a lame excuse, must be my apology. I observe that an excellent article, in a late number of the *Quarterly Review*, does anticipate some particular points urged in this letter. But as a good tale will bear being twice told, I have not left out any of the general reasonings or remarks, prepared long before I could, by possibility, know of such an article. I regard the coincidence of views in so respectable a work as not less fortunate for myself, than auspicious for the interests of vaccination.

As I aim at nothing short of a thorough refutation of your doctrine in all its principles, parts and bearings, and through your doctrine, that of all apostates, sceptics, and infidels, in the cause of vaccination, I would here

desire to bring the subject under your deliberate and solemn revision—and, in so doing, suffer me to add, that I will not quit hold of it, till it has undergone some satisfactory adjustment. Happily, Sir, you are not called upon to answer one single charge that can cost you an hour's difficulty to answer, if your opinions rest upon the solid basis which you, of course, conceive that they do, or that they ought to have done, before they were so authoritatively—I would even say, unwarily—promulgated. Increased experience—nay, the very lapse of time itself, which, in a question of this kind, is a power of mighty agency—must, upon your own principles, have provided you with ample proofs of their truth—but proofs, differing essentially from those naked assertions, unsubstantiated by so much as one document, reference, or authority, of any sort, which you deemed sufficient for the ear of my Lord Liverpool. Moreover, the present juncture is one well suited to a calm and searching examination of the subject—a stillness hangs over the variolous horizon, which it may be well to take advantage of, that we may be prepared to act with firmness, consistency, and effect, in the event of any future storm.

Not having your larger work by me, I shall use your "Letter to the Earl of Liverpool," which, in fact, is the prime object of my attack, as a text book, taking it for granted that the reader is acquainted with its contents. Though, in some particulars, I may be obliged to tread ground already trodden, yet, for the sake of order, it will probably answer best to dispose, in the first place, of your ten insurmountable facts, as

arranged by yourself, reserving the analysis of the other more desultory points for a subsequent part of the enquiry—quoting, in some measure, at random to meet the occasion, and referring for minutiæ to the Letter itself. The quotations are made solely for the purposes of elucidation and perspicuity, and with no intention of resorting to the stale device of throwing them back upon you as any part of the attempted refutation. This I would, in an especial manner, beg you to advert to, as, in case of your taking any notice of the present communication, I should expect to be dealt with after a similar fashion.

I. You observe,

"There being particular diseases which the ex-
"perience of the medical profession and the general
"consent of mankind concede in granting only to occur
"once in our lives; such diseases are to be identified
"only by the uniformity and distinctness of their cha-
"racteristic symptoms; and when such are awanting,
"we entertain doubts of their existence altogether, or
"at least of their protecting power. Our experience
"has not afforded the smallest shadow of proof that
"the protecting influence of such diseases extends at
"all beyond their own species."

I am rather at a loss to perceive what bearing this general observation has on the particular question. One can easily understand, that when the characteristic symptoms of a specific disease are not distinctly marked, that disease can hardly be said to be present—no wonder, then, that we doubt its existence, and every property belonging to it. If an inference,

disadvantageous to vaccination,* be intended from any want of distinctness and uniformity in its characteristic symptoms, such inference must fail; for in no disease are those essentials more strikingly exhibited; the phenomena and appearances never having varied—no, not in the most trivial point or degree, from those first so correctly and graphically pourtrayed by Dr. Jenner; though, allowing a week for each maturation, the disease, since the first case vaccinated, must have passed, in a direct line of descent, through more than fifteen hundred different constitutions—beside the collateral stocks commencing after the first week, and increasing, in a more than arithmetical ratio, all over the world, and the diversifying influences, whatever they might be, thence called into action. Yet, with all this, we have what amounts to absolute sameness of character and appearance in every important particular—a convincing proof this, by the way, not only of identity, but of that sort of entity which belongs to the exanthematous diseases.

That the protecting power of any of those diseases, respectively, has not been found to extend beyond its own species, has nothing to do with the matter, nor can more than a faint, gratuitous presumption, at best, founded on analogy, be drawn from it against the conservative power of cowpox. The ability or inability of one disease to protect against its own subsequent

* It will be observed that I make use of the word, *Vaccination*, in a variety of senses, merely to avoid circumlocution. The particular signification, intended at any given time, it is to be hoped, will be sufficiently apparent from the accompanying context.

attacks, or against those of another disease, can neither be affirmed nor denied before hand on this account. For example, were the fact to be ascertained to-morrow, that measles or hooping cough taken after a certain period of life, are preventive of stone or gout, it would avail nothing against such discovery, that neither smallpox nor scarlatina were found to possess a similar power. Many of the specific contagions are protective against themselves, while others are not—and, on the other hand, it is perfectly easy to imagine that a disease may be preventive of another disease, and yet not preservative against itself. There is no greater difficulty in conceiving that cowpox can protect against smallpox, than that smallpox can protect against itself. That the constitution, after being subjected to a particular influence, shall ever after remain unsusceptible of that influence, or of a different influence, is equally astonishing—nay, marvellous—and must be taken as one of those ultimate facts or laws, which human ingenuity in vain attempts to account for. Nothing is known—nothing ever will be known—of the primary, intimate principles and habits of diseased action; or in what manner, or to what extent, diseases reciprocally affect each other. Remedies or antidotes have no resemblance to the disorders which they, respectively, relieve or cure. I am aware, that it has become fashionable, of late years, to insist much on the modification of disease, a doctrine, the soundness of which I leave to abler casuists than me to determine. But in respect to its practical utility

I must be allowed to entertain some doubts, unless it be received in a much more restricted sense than I have any where seen it confined to. On the subject of contagion, too, matters are carried with a high hand, some wholly disbelieving the existence of contagion except in what are denominated the specific contagions;* while others make no scruple of considering those contagions hitherto deemed peculiar or specific, to be the products of spontaneous generation.†

It may be very true, as Hippocrates has said, and others have said after him, that all diseases that do, or that ever did exist, are but diversified modes of the same elementary power or principle. So it may be said of all the great classes of animals, that though endlessly differing in orders, genera, and species, yet that they are composed, respectively, of similar solids and fluids—or that all vegetable existences are reducible by chemistry into two or three elements—and so on. But with refinements of this

* Dr. Maclean.

† I extract the following from the *Quarterly Review*:—

"Upon the whole, then, we are of opinion, that the distinction "set up between contagious and pestilential disorders, does not, in "truth, obtain to any thing like the extent commonly supposed; "and that the specific quality of *variola* itself, is but different in "degree, not in kind, from the mere infection of plague. We be-"lieve that both are occasionally spontaneous in their origin, more "or less communicable in their nature—pass from individual to "individual—and are susceptible of modification, in a different "degree, we allow, but still, in both cases, to an almost incalculable "extent."—Vol. xxvii., p. 531.

I own, I was a good deal surprised to find propounded in such a

kind I apprehend we have, at present, little to do; the chief business of science being with the particular form or manifestation. So long as that preserves uniformity of appearance and constancy of character sufficient to constitute individuality, there will be enough to occupy our attention, and enable us to regulate our procedure. Dr. Jenner, himself, first suggested the common origin of cowpox and smallpox—nay, he went so far as to allege that measles and scarlatina might be but modifications of each other; but be this as it may, and admitting modification, to a certain extent, in all its Proteus and delusive shapes, the nature of the reasoning here employed, is, in no respect, modified in consequence. So long as we know that measles cannot produce scarlatina, nor scarlatina hooping cough, nor hooping cough smallpox, but that each produces itself, and nothing else, all is secure.

Before proceeding farther, I would beg leave to apprise you, that I prefer, and shall continue to do so, going back to Dr. Jenner, on every point connected with vaccination, whenever it can be done with propriety; because, it appears to me, that scarcely one fact or principle, of any importance,

work, opinions so startling. Had Dr. Maclean, or any other bold writer, accredited such a doctrine with his name, I have no doubt it would have created a considerable sensation amongst the medical public. Yet to my thinking, there is not, in all his writings, any thing so extraordinary as this same suggestion. I am not for going all lengths with Dr. Maclean—but I may be allowed here to state, that I conceive many of the opinions originated and enforced by him, are highly deserving of general attention.

has been added to the plain, unpretending, but luminous account, originally published by him. In the space of a hundred and eighty small, widely-printed pages, he has described—explained—illustrated—anticipated every thing, in such a manner, that if not another word had been penned on the subject, it might be a question, whether the cause of vaccination, or the interests of humanity, would have sustained the smallest loss. This may seem extravagant—nevertheless, I think it will be found not much to exceed the truth—and, what a splendid instance of intuitive sagacity and comprehensiveness of mind does it exhibit for our admiration! That an individual should, at a single effort, so far perfect one of the greatest discoveries ever made in medicine, that at the end of thirty years, the discovery should remain precisely in the state in which it came out of his hands—is such a result as is only to be paralleled by those similarly stupendous events, which have at different periods changed the whole aspect of science and of society. But it would seem to be the characteristic of genius to complete its work; and of no individual can this be more truly said, than of Dr. Jenner.* In regard to vaccination, the many volumes written on it, since his time, will

* The chief subjects on which, I believe, he ever published, have been treated by him in so masterly and finished a manner, as to leave little to be done by any other writer—at least, nothing has been done yet. These, it is well known, are the *Incubation of the Cuckoo*—the *External use of the Tartris Antimonii*—and the *Migration of Birds*—all of them monographs of the first order.

be found, on a careful examination, to be little else than mere amplifications or confirmations (always excepting the objurgations of his opponents) of what was originally said by him. This avowal of an opinion, which by some may, perhaps, be deemed presumptuous, will not, I should hope, lead any one to impute to me the folly of wishing to undervalue the able works of able men in support of vaccination, entitled as they are to the respect and gratitude of all the friends of science and humanity. In my judgment, it derogates not from the merits of any work, that it contains little more than a repetition of Dr. Jenner's opinions. When he speaks, ordinary men must be content to hold their manhoods very cheap indeed. Entertaining these sentiments, I may expect to be believed, when I say, that it is under an intense consciousness of inability to advance any thing new, that I presume to endite one syllable on the subject. A soil nearly exhausted by Jenner, and since ploughed to utter impoverishment, by numerous other labourers, is not likely to yield much produce to any fresh cultivator; yet, a moderately skilful husbandman may be competent to show why the harvest has not been so plenteous as it might have been, and but for the blighting influence of prejudice and mismanagement, it ought to have been. Thus, though a writer may not have it in his power to strike out a new and brilliant path for himself, his labours may have their use, if they serve to recal others from the bewildering tracks into which

they may have wandered, and enable them to regain the road that leads to truth and tranquillity.

II. "When the Jennerian practice was introduced "to public notice, the whole medical profession en- "tertained great doubts of the powers of vaccination, "in being able to confer either immediate or future "security against smallpox."

Those doubts, however, arose from the exercise of a sound and necessary caution, and, as such, received the thankful approbation of Dr. Jenner.* It could not, indeed, be reasonably expected, that medical men should adopt the practice, *instanter*, on its announcement, before they could well know what it meant; yet, so lucid and convincing was that announcement, that though the phenomenon could not fail, from its singularity, to occasion, for a moment, surprise and hesitation, there followed, almost immediately, a very general, and it may be said, a very generous feeling, on the part of the profession, to cherish the discovery. That little backwardness was shown, it may seem superfluous to insist on, seeing that you (and hundreds yet alive) were witness to the fact, and have admitted it to the fullest extent; only, there seems, along with the admission, to be a disposition to overlook or forget certain points in the history of vaccination, and a wish to impress the reader with the idea that, in first going off, the discovery rather "hung fire." To show the alacrity with which it was

* Vide *Inquiry*, p. 181.

welcomed, I shall content myself with one instance. Mr. Cline, in a letter, dated just forty-two *days* after Dr. Jenner's first work came out, thus expresses himself. "The cowpox experiment has succeeded admirably. "I think the substituting the cowpox poison for "the smallpox, promises to be one of the great- "est improvements that has ever been made in me- "dicine; and the more I think on the subject the "more I am impressed with its importance.*

In short, by a self-verifying process, the operation and effects of which every one could appreciate, and none need mistake, the powers of the preventive developed themselves almost at once. It is true, that, amongst a select few, the doctrine was met by a sufficiency of railing and abuse; but the great mass of respectable practitioners (yourself among the number) hailed it with joy and gladness. However, Sir, had matters been otherwise, the doubts entertained *then*, as to whether the experiment would, or should succeed, can be of no manner of importance *now*.

As the first ground of those doubts, you notice "Its "possessing no character resembling the disease "which it was meant to combat."

Without adverting to several distinguishing marks of similitude between the two diseases, actually traced by Dr. Jenner,† it will suffice to assert, what admits of no dispute, that the non-resemblance, even did it exist, militates nothing against its power of combating the antagonist disease.

* *Further Observations on the Variolæ Vaccinæ*, p. 129.

† Vide *Inquiry, &c.*, p. p. 31, 48, &c.

As the *second* ground of doubt, you point to "Its "exerting *no* sensible or distinct influence over "the human body."* And on this account, and from the manner in which this part of the subject is dwelt on throughout your letter, you seem to hold that the apparent force in which an exanthematic contagion † is present, or the high degree of constitutional disturbance produced, is the test, or measure of security, imparted by such disease against its own future attacks (if such phrase be allowable, which, perhaps, in strict language, it is not), and upon this you ground reasoning unfavourable to the protective power of vaccination. Pardon me, Sir, if I take the liberty of reminding you, that severity can have nothing to do with the result. The apparently slight, or even the imperceptible,

* Not to be verbally hypercritical, is this not at variance with the next paragraph, wherein it is stated, that "the appearances "(of the punctured point) are, *in general*, accompanied with a "*slight* derangement of the system?"

† A term is wanting to designate those diseases which occur only once during life. None of the writers on nosology, excepting Dr. Cullen, has taken the least notice of it in their definitions; but his term *exanthemata* is hardly precise enough, for it includes several eruptive diseases which occur more than once during life, while it excludes hooping cough—one of the best-ascertained of the whole tribe. I expected to have seen this class of diseases arranged, in that most erudite and able work—the nosology of Dr. Mason Good—but though his notes are full of interesting matter touching this point, the wished-for appellation has not been supplied. Perhaps it is impossible, without violating natural arrangement, to bring them all under one head. I shall continue the use of the word, as expressive of those diseases which are undergone only once during life.

operation, of the vaccine principle, affects not its power of destroying the susceptibility to smallpox. No person who undergoes the *exanthemata* severely, is more secure than he who does so mildly, provided the genuine phenomena show themselves in regular order—nay, the secondary smallpox, as it is called, has occurred in many instances where the primary attack had left indubitable marks of its ravages. Were this not the case, what purpose could smallpox inoculation be intended to serve? Three pustules—one pustule, with scarcely a vestige of pyrexia—shall protect as effectually as though fever, with delirium and convulsions, raged with fury, and the whole surface of the body were converted into one confluent cake. It may appear superfluous to cite any authority in proof of a fact so familiar; but the support of Dr. Jenner, on a point of this kind, is so appropriate and, withal, so effective, that I would not willingly dispense with it. He says, speaking of smallpox recurring, "It is singular, that in most "cases of this kind, the disease, in the first instance, "has been confluent; so that the extent of the "ulceration on the skin (as in the cowpox) is not "the process in nature which affords security to the "constitution."* So that it follows as a sort of corollary from this principle, that the more violent the commotion, beyond a certain degree, the greater the probability of the specific and protective impression being rendered incomplete. Another deduction,

* *Inquiry*, p. 122.

not less important, is, that we are now furnished with an easy and satisfactory explanation of what has always puzzled pathologists, namely, a second attack of an exanthematic disease in an individual who has already felt severely the influence of that disease. Yet upon grounds thus, I imagine, clearly shown to be fallacious, do you proceed to establish one of the irreversible facts in your communication to the Earl of Liverpool.

Professional readers need not be told of the inefficiency of such reasoning—and did it concern them only, it might be passed over without farther comment, as one of the feeble, though not powerless, weapons, with which vaccination has been but too successfully assailed. Unluckily, however, it falls in with a doctrine of the nursery, and on that account, acquires a degree of importance which renders a more detailed examination of it necessary.

Smallpox obtrudes itself on the senses by obvious signs—it possesses considerable powers of affecting the constitution—the indisposition being generally severe, often violent, sometimes fatal; and it is supposed capable of assimilating to itself, or, as it were, of swallowing up many slight irritations, so as to suspend or supersede their action. Similar phenomena are not so strikingly observable in regard to the vaccine disease. The irritation is here, judging from appearances, very moderate—and we thence presume, is easily disturbed by many irritations to which the constitution, and particularly the skin, in early infancy, is very liable—and which, from their

occurring at that period of life, are difficult of detection. This was long since minutely pointed out by Dr. Jenner. Yet does it form a perpetual stumbling block to the vulgar, who cannot comprehend how a disorder so simple and harmless as cowpox, should be able to prevent one so pestilential and apparently so potent as smallpox. Shall it be credited, that a notion thus bottomed on ignorance should have been sanctioned as good doctrine, by a gentleman of your long acquaintance with the principles of pathology, in a work intended to influence the legislature?

I find some difficulty in making out what you intend should be understood by the "Vaccine phe-"nomena admitting of a prodigious variety," though, perhaps, this may be charged rather to my want of penetration, than to any defect in your diction. If by variety be meant diversity of character and appearance, I have already endeavoured to show that such is not accordant to fact. If extent or degree of protecting power be implied, the assumption stands greatly in need of proof—and, at any rate, it could not then, in the early times of the discovery, impress the professional mind strongly, because it had not then been sufficiently warranted by experience—nor am I aware, that it forms any part of the doctrine commonly entertained, or at least acted upon, at the present day.*

* Candour requires me to mention here, that in the *Edinburgh Medical and Surgical Journal*, Vol. xiv. are certain queries, giving some countenance to the notion of an imperfect, varying,

III. To discuss minutely your third proposition, would lead me into too wide a field. Besides, it really does not appear to me (I speak with due deference) to possess much intrinsic force. Could it be incontestably proved, which it never has been, that the energy of smallpox is to that of cowpox as a thousand to one, it would not alter the merits of the case in the ratio of one to a thousand. The variolous principle is a thing *per se*—so is the vaccine. Their comparative energy has no relation whatever to their counteractive power—priority of time being all-sufficient, and being, indeed, the pivot upon which the whole may be made to turn, so far as regards the argument. Granting that smallpox is so much more energetic than cowpox—that it takes precedence when both attack upon equal terms—this would make nothing for you. It would merely affirm the generally received belief, though not the established fact, that the one irritation exceeds the other in power, and consequently, that when both make their approach synchronously, or while their operations are yet local and preparatory, not constitutional and confirmed, the cowpox must give place

or limited protecting power in Cowpox. However, as those queries, though appearing in a work of high celebrity, are put forward rather doubtingly, and have failed to make many—I might almost say, any—professional proselytes, it will not be thought unfair to consider them outweighed by several able articles in the self-same volume. The *Edinburgh Review*, likewise, and a few other minor authorities, have, at different times, expressed themselves in more qualified terms than could have been wished. To most of these I shall have occasion to address myself more fully by and by.

to the smallpox. It affects not the grand principle, that *after* the supposed weaker irritation, or cowpox, has entrenched itself (if I may be allowed the figure) in the constitution, all the succeeding efforts of the stronger irritation, or smallpox, may be rendered unavailing. Three hundred men *in* the pass of Thermopylæ were able to foil the whole army of Xerxes. But laying argument aside—there are reasons for doubting whether the facts are with you in this instance, and whether superiority of power be, as you allege, wholly on the side of smallpox. Dr. Jenner is quite of a different opinion, for he says,* "The inference I am induced to draw from these "premises" (contained in a Report, by Dr. Woodville), "is very different. The decline, and finally "the total extinction nearly of these pustules, in my "opinion, are more attributable to the cowpox virus "assimilating the variolous—the former, probably, "being the original, the latter the same disease under "a peculiar and, at present, an inexplicable modifi-"fication." Every practitioner must, I presume, have met with cases where the phenomena hardly admitted of explanation upon any other principle. It is no unusual thing to see members of a family vaccinated successfully, even after smallpox has been some time in the house—the variolous influence established—and, in all probability, engaged in doing its deadly work. Rescues of this kind are, next to the great purpose of the discovery, amongst

* *Inquiry*, p. 154.

the most felicitous occurrences in the life of a medical practitioner. Besides, Sir, the joint appearances stated by you in this paragraph, of the smallpox eruption, and vaccine vesicle, might, I think, be satisfactorily accounted for upon different grounds—in no shape invalidating the Jennerian theory.

IV. You proceed under the fourth head to say, that "Dr. Jenner, in stating his facts relating to the "proof which experience afforded of the immunity "conferred upon the human body by the effects of "the casual disease, stated many facts of an opposite "nature, could only collect a few cases where the "security had extended twenty, thirty, forty years; "and the general impression in the neighbourhood "seemed to be only, that those who had undergone "the diseases from the cow, *were hard to take the* "*smallpox*."

Although many of the facts were undoubtedly anomalous, and not easily explicable at that early period, the drift of the greater number certainly went to establish his interesting doctrine.

That he *could* only collect a few cases, &c., seems to be a statement obligingly assumed by you for him—his own words are * "I have purposely selected "several cases in which the disease had appeared "at a very distant period previous to the experiments "made with variolous matter." These periods are twenty-seven, fifty-three, thirty-one, and thirty-eight

* *Inquiry*, p. 11.

years, with several shorter periods. As to the expression, *hard to take the smallpox*, I forbear to cavil about it—and shall only remark, that after looking through and through his work, I can no where meet with it. But, Sir, whatever Dr. Jenner's then comparatively limited experience enabled him to bring forward in support of his statements, can have now no reference to the question. That question must stand or fall by its present merits. I may observe, however, *en passant*, that it indicates an obliquity or want of generosity in argument, to revert to impressions made, or to the necessarily scanty proofs which the author might be provided with, at a period, when time, which has since ratified almost all he said, had effected so little in aid of the vaccine discovery.

V. It is surprising to find you declare—that "It "was entirely from resisting the tests of inoculated and "epidemic contagion, which were immediately applied "to those who submitted to the vaccine disease, the "impression was produced upon the minds of the "medical profession and the public, that the vaccine "process might be trusted to, as giving security "against smallpox"—as if you would have the reader understand that no credit whatever was given to the cases selected by Dr. Jenner, of from five to fifty years' resistance. Every one knows that those cases formed the basis upon which the whole rested, and gave the profession and the public the confidence necessary to prosecute the experiment, which otherwise must have been performed with fear and trembling.

The cases of mild and modified smallpox, after vaccination, which in a few years occurred, and which appear to have led to the revolution in your sentiments, might very well have been set down to the account of unavoidable casualties and defects, for which it would have been but fair to have made allowance—these were novelty, inexperience, obstinacy, ignorance, the well-meant zeal of friends, the open or covert hostility of enemies, and numerous other circumstances, which will suggest themselves to the dispassionate mind. These common-places, however, you have thrown behind you, and have, at all times and seasons, since your conversion, darted on the subject with an impetuosity at war with the mild spirit of philosophic investigation—as though the rest of your brethren had some interested purpose to serve, or had entered into a league to push vaccination at all risks.

That those cases "continued steadily increasing "every successive year, in number and severity," is possible enough, without the efficacy of the prophylectic being thereby impeached. They may have increased absolutely, and this, I believe, was several years ago admitted by the National Vaccine Establishment. But unless they have increased *relatively* to the enormous accumulation of the vaccinated, which every year has produced, I submit, that so far from either your cause, or your reasoning, being advanced one step by such increase, the conclusion against you is aggravated by it.

VI. That cases of failure have been met with since "The first two or three years after the "introduction of vaccination, both in number and "severity, exactly according with the early intro-"duction of the practice, the increase of the popu-"lation, and the proportion of the lower classes of "the community," and whether they "have assumed "a most alarming appearance, from their extent, "severity, and danger," are assertions that might be met by a flat, unceremonious negative, having general results for its basis. I shall, however, refer the matter to your own calm and candid judgment to pronounce, whether, after three years added to your former experience, such a conclusion be well-founded; and here, for the present, leave this part of the subject, with the intention of soon adverting to it more particularly. It may be remarked, that to endeavour to subvert vaccination by an argument drawn from the increase of population, is but a thankless return for the eminent services rendered to that cause, by the preservation of infant life. But the argument is a fallacious one—or, rather, it cuts the other way—for unless (as I hinted before, in respect to the accumulation of the vaccinated) the number of failures have increased in a ratio far exceeding that of increased population, the argument goes for nothing. Similar reasoning will apply to what you observe of the lower classes of the community, exactly in the proportion in which they outnumber all the others, and in the more numerous chances of failure (without inculpating vaccination) to which their

condition in life necessarily exposes them. Your comparative estimate of the danger and deaths from the two inoculations, taking it upon your own terms, is rather in favour of vaccination—inasmuch as the disease frequently induced, or brought into play, by smallpox inoculation, even under the most favourable circumstances, exceeds, in severity, that produced by smallpox after vaccination. But of this, and of the subject of "future security and comfort," more hereafter.

VII. From you, Sir, I, for the first time, learn, that "It is now generally granted, that the vaccinated "cases are not only more readily influenced by the "smallpox contagion, but also in severity, according "to the extent of the period from vaccination—and "these severe, dangerous, and even fatal cases, have, "with very few exceptions, generally occurred at not "less than ten years from the period of undergoing "the vaccine disease; and there seems an inclination "among those only who have been the professed "advocates of vaccination, to limit the period of "increased facility and severity to this distance from "vaccination, and that, after that period, there seems "no additional tendency to be more strongly in-"fluenced by the smallpox contagion." You then ask, "How is it possible, my Lord, to come to such "a conclusion?" and very properly, I think, treat the idea with unsparing, but merited ridicule. Whether it arise from defective reading, or obtuseness on my part, I pretend not to say, but the scope of this part

of your seventh proposition is not so clear and intelligible as might be wished. I really am not aware of any general inclination to limit the period of increased facility or severity to ten, or to any other number of years. The bare notion of such a thing has always seemed, to me, preposterous in the extreme. Such an intimation, indeed, is to be found in the seventy-fourth number of a justly celebrated work,* but it is there incidentally given as the repetition of an observation made during the varioloid epidemic, described by Dr. Thomson, and, certainly, not with the view of corroborating the opinions advanced by you. That it ever became prevalent, or ever influenced the conduct of a single practitioner, I have never understood. At any rate, in the present instance, the opinion, if it ever existed, has remained ineffective.

The concluding sentence of this seventh paragraph is of a different complexion, and demands a more detailed analysis. It runs thus. "The truth is, my Lord, "the reason that the cases of failure do not assume "an uniform appearance, will be found satisfactorily "explained, either from the difference in the severity "and mode of application of the smallpox contagion, "or from the different extent of influence imparted "to the constitution, by the variety in the vaccine "phenomena; for according to the severity and extent

* *Edinburgh Review.* This work has, doubtless, long exercised autocratic sway in matters of general science and literature, and with "some little" pretensions, too; but it was never held to give, and never affected to give, the law in medicine.

"of the vaccine phenomena, so is the extent of "impression and security imparted to the con- "stitution."

The doctrine here proclaimed, in no qualified terms, is so erroneous in principle, and is likely to lead—or, rather, must have led—to practice so dangerous, that an exposition of its injurious tendency becomes a matter, not of choice, but of necessity. In discussing the comparative energies of the two poisons, I have already alluded to it with reference to its effect on the minds of the vulgar. But it here erects itself into a pathological principle, of such vital importance to vaccination, and probably to the exanthemata, that a casual notice will hardly suffice.

I stop not to enquire whether the cases of failure will be found satisfactorily explained by the reasons you assign, but hasten to state the principle established by Dr. Jenner, that the extent of impression and security imparted to the system, is NOT according to the *severity and extent* of the vaccine phenomena, but the reverse—according to their *mildness*. This might be easily shown by extracts from his work—but to multiply quotations is needless, since there is scarcely a page or passage of the "*Inquiry*" that contains not cases, expressions, inferences, or allusions, to enforce this primary and leading principle. Directions the most minute are every where given, to prevent or counteract violent inflammation of the vesicle, or disturbance of the constitution. On one occasion, he says, "Conceiving these cases to be

"important, I have given them in detail; first, to "urge the precaution of using such means as may "stop the progress of the pustule; and, secondly, "to point out (what appears to be the fact) that the "most material indisposition, or, at least, that which "is felt most sensibly, *does not arise* PRIMARILY "*from the first action of the virus on the consti-* "*tution*, but that it often *comes on, if the pustule is* "*left to chance, as a secondary disease.*"* Again, "as the cases of inoculation multiply, I am more and "more convinced of the *extreme mildness* of the "symptoms arising merely from the primary action "of the virus on the constitution, and that those "symptoms which (as in the accidental cowpox) affect "the patient with severity, are entirely secondary, "excited by the irritating processes of inflammation "and ulceration; and it appears to me, that this "singular virus possesses an irritating quality of a "peculiar kind; but as a single cowpox pustule is all "that is necessary to render the variolous virus "ineffectual, and as we possess the means of allaying "the irritation, should any arise, it becomes of little "or no consequence. It appears, then (as far as an "inference can be drawn from the present progress "of cowpox inoculation), that it is an *accidental* "*circumstance only*, which can render this a *violent* "disease, and a circumstance of that nature, which, "fortunately, it is in the power of almost every one

* *Inquiry*, p. 103. I quote from the Edition of 1800, having none of the other Editions, or Works, of Dr. Jenner, by me.

" to avoid."* The same opinions are echoed by Dr. Woodville, Dr. Marshall, Mr. Tierney, and the other correspondents of Dr. Jenner, quoted by him in his work. It accords with the experience of all practitioners; nor does it consist with my knowledge, that it was ever impugned publicly by any writer but yourself. Indeed, if there be one circumstance more remarkable than another, in the operation of the vaccine principle, it is the moderate character of all the symptoms, and their quiet regularity of succession. Other diseases have their bursts and their breakings out during their progress, while yet the specific impression may not be essentially (though it is, perhaps, oftener than we think of) compromised. In the phenomena of vaccination, no departure from the golden middle course can take place, without a most unsatisfactory suspicion, that the anti-variolous efficacy has been thereby endangered. In a word, severity is a term no where to be found in the vaccine vocabulary—the absence of that evil-portending attribute being the best guarantee of security.

To illustrate this, suppose chemistry had thirty years ago furnished us with a particular gas, the breathing of which, for half an hour, or half a minute, should secure nine hundred and ninety-nine of every thousand people from any specific disease, and that without occasioning any change or disorder of the general health; it would, I apprehend, be of no avail to say, that such result could not, or should not follow, be-

* *Inquiry*, p. 109, 110.

cause there was no analogy or precedent for it. Still less could it be objected against such a property in the gas, that little or no apparent constitutional disease had been produced by the inhalation. The fact would remain unaltered, and its force unweakened, by all such reasoning. In a precisely similar predicament stands the doctrine you contend for, founded on the gentle or unobservable operation of the cowpox. Some things are not the less true because we see them not. Faith is here, as in matters of higher moment, not only "the substance of things hoped for," but "the evidence of things not seen."

That much harm must have ensued, in practice, where the opposite notion, or the necessity of causing a severe disease, has prevailed, cannot, I fear, admit of a doubt. In matters of this kind, people in general are but little satisfied, unless they behold with their eyes, proofs of a sufficient quantum of disease. The larger, therefore, and more inflamed the vesicle, and the higher the state of febrile excitement, the more assured do they feel as to future security. Nor has this misplaced confidence been altogether without support from writers of respectability, whose views and intentions might be suspected of any thing, sooner than of hostility to vaccination. For example, the practice has been enjoined of making two punctures in the same arm, at from half an inch, to an inch distance from each other—by way, I suppose, of ensuring the inflammation from the stimulus of contiguity. Yet if such stimulus operate at all, it must, I suspect, do so uselessly or perniciously; for this plain reason, that if either puncture take on the

specific vaccine action, the addition of another is not required, as we know for a truth what is declared by Dr. Jenner, and has been confirmed by experience, that one vesicle is adequate to every purpose of security. On the other hand, if the proximity of one puncture, in the act of inflaming, cause the other to proceed, which, otherwise, might have misgiven, then there can hardly fail to supervene in the greater number of cases, more erysipelatous inflammation, with, probably, suppurative action, and constitutional commotion, than is necessary—and, certainly, more than is, for the most part, occasioned by one vesicle. Accordingly, I have often observed, and others must have done so too, a high degree of irritation, both local and general, brought on in this way—while, of course, the quiet and steady operation of the vaccine influence, so essential to success, must, to a corresponding extent, have been interfered with or defeated. If all this be true, what shall be said of the doctrine now openly sanctioned by your authority—a doctrine, that must, I imagine, appear not only to be founded on a false pathology, but necessarily to involve, as might be expected, the risk of imparting, and, consequently, of propagating, an imperfect or spurious disease.

Nor are the consequences which this view of the subject opens upon us, confined to the vaccine disease. They will, as I have already hinted, and shall hereafter make more apparent, be found very useful and applicable in the explanation of some important particulars connected with the examination.

Seeing, then, that one of the main pillars of your

disbelief in the efficacy of vaccination is thus struck from under you, must it not go far to abate confidence in the general soundness of those doctrines, on which your opposition to vaccination is founded, and which doctrines you so perseveringly press upon the attention of the Earl of Liverpool?

The importance which the noble earl may attach to your arguments, is known for the present only to himself. Fortunately for the public, his lordship has hitherto declined to act upon your suggestions —nor, perhaps, was any thing else to be looked for. That in the face of official documents, annually furnished to him by an institution sanctioned and maintained by parliament, and superintended by medical men of the highest rank, he should, at the unsupported solicitation of any individual, have moved the legislature to an enquiry involving the fate of millions, and during its continuance, creating unspeakable agitation and alarm to the whole community, would have been, to say the least of it, an act of unheard of complaisance.

However, all this apart, Sir, if I have succeeded in proving from the works of Dr. Jenner, confirmed by nearly universal experience, that what forms so conspicuous a principle in this seventh paragraph, and in other parts of your letter, is fundamentally wrong, and that the practice which it inculcates is hurtful —if the prosecution of the Jennerian discovery has, from the beginning, been conducted, and at this moment proceeds, upon grounds diametrically opposed to you—it will follow, that, come eventually

of vaccination what may, the obligation is imperative on you to relinquish this part of your doctrine. You ought to have the less difficulty on this score, since in your larger work (which has fallen into my hands while these remarks were going through the press), you have made the reluctant admission, that "the security afforded is the same, "and also, it is proved to be as complete from the "vesicle, whether it produces symptoms of consti- "tutional affection or not" (p. 133). How the opinion in your letter to Lord Liverpool is to be reconciled with this view, corroborated, as I am happy to find it is, by your quotations from Dr. Jenner and Dr. Willan, in 1806, I cannot so much as conjecture.

In your "Inquiry into the Anti-variolous Power of "Vaccination," I find you thus charge the author of the discovery. "Dr. Jenner unhappily, on his in- "troducing the discovery to public notice, made an "assertion, which, in my opinion, struck at its root in "the most violent manner. He observed, that the "constitutional symptoms which took place either in "casual or intentional vaccination, were not owing "to the exertion of any influence over the system, "but merely to the local irritation arising from the "inflamed vesicle" (p. 131). If this your interpretation of Dr. Jenner's words, be the correct one, then must I fairly confess the fact of having read without understanding him. Now, as this is a possible, though, I flatter myself, not a probable case, I would desire the reader to form his own judgment, by consulting Dr. Jenner's work. It will there be found,

if I mistake not, that you have, in this accusation, done a violence to his opinions, which no part of his context will authorize. The very passage I have quoted a few pages back, from this great author, in which he speaks of the "first action of the *virus* on "the constitution," as well as the obvious meaning of every part of his writings, attests this beyond all doubt or dispute. In truth, unless it be intended to convict him of having uttered downright nonsense, it is plain, even if he had not explicitly stated it, that the vaccine impression by which an individual resists smallpox, must of necessity be understood as made on the constitution, directly and specifically—and this, whether we hold with some, that the protective process commences when the virus is inserted; or with Hunter, that it does not commence till the full formation of lymph in the vesicle. But an apology is due from me for discussing, at such elaborate length, a point which, I doubt not, is familiar to every medical reader. Its extreme importance, however, in the question of vaccination, will plead for the trespass committed in endeavouring to set the public right as to the actual doctrine promulgated by Dr. Jenner. I would beg leave to add, that although my respect for that illustrious person be of no ordinary cast,* it does not

* By the by, I was not a little gratified to find, on a reperusal of Dr. Thomson's able "Historical Sketch of the Smallpox," what had escaped me at first, that I am fully borne out in the opinion I have expressed respecting Dr. Jenner's works. Dr. T. says (p. 143.), "It is now interesting to find that most of the important

lead me slavishly to pronounce every thing he said and did, right. Were he now alive, he would disdain such indiscriminate adulatory vindication, and his works and his memory need it not. There were points which admitted of correction, and that were corrected by him, so soon as they were detected. The mind that could give birth to a sentiment like the following, was not likely to remain long in wilful error:—"Ere I proceed," says this genuine philosopher, "let me be permitted to observe, that "Truth, in this and every other physiological In-"quiry, that has occupied my attention, has ever "been the object of my pursuit; and should it "appear in the present instance that I have been "led into error, fond as I may appear of the off-"spring of my labours, I had rather see it perish "at once, than exist and do a public injury."

Apropos—not the least remarkable peculiarity, in the history of your falling off from vaccination, is the retrospective harshness with which you treat those opinions of Dr. Jenner, which you must yourself have firmly believed in, and acted upon, for the space of nine years. One can understand how supposed new facts might open your eyes, and lead to the formation of new opinions, or to regret for having entertained the old; but why those very opinions, of

"facts which have since been ascertained respecting the vac-"cine virus, are contained in the original communication which "Dr. Jenner made of his discoveries—a striking proof of the de-"gree of maturity to which he had brought them, before they were "given to the public."

the truth of which you were for a long time absolutely convinced, should be ridiculed, as though you had never been a party to them, and the author reproached for having published them, does appear to be a proceeding at once uncalled for and extraordinary. From the manner in which you frequently express yourself, one might fancy that, up to 1809, the history of vaccination had remained to you a sealed book, or that you had, from the very first, been one of the most inveterate adversaries of the practice. No person could imagine, had the fact not been told, that you were one of the earliest, ablest, most enthusiastic and successful vaccinists. In short, Sir, you seem dissatisfied with yourself for having so easily become a believer, and you not only pour out your wrath on the head of Dr. Jenner, the innocent cause of yonr credulity, but you menace with vengeance, all who adhere to their original sentiments, because they do not instantly follow your example, and apostatize!

Before concluding my remarks on this seventh head of discourse, I would observe, that one mode of explaining why the vaccinated cases appear to be (I distinctly deny that they are), "not only more "readily influenced by the smallpox contagion, but "also in severity, according to the extent of the pe-"riod from vaccination," is to my, perhaps, prejudiced mind, sufficiently clear. Every year places multitudes in a state of security (or, according to you, of insecurity), so far as vaccination, performed in the usual way, can do so, and at the same time

increases the distance of the period from vaccination. Amongst those multitudes, the casualties from smallpox (and vaccination is no more than any other subject exempt from casualties) are, of course, more likely to fall, than amongst the very young, that is the more recently vaccinated, who, by the established usage and economy of society, are less liable to exposure. *

VIII. Think me not rude, Sir, if I entirely withhold assent from your statement, that "the effects of the "epidemic contagion, in producing a more severe "disease, according to the distance of the period from "vaccination, is most strikingly exemplified in those "cases of smallpox, which have succeeded to vac-"cination, in the higher classes of society." No previous reasoning or condition could lead us to anticipate such an event. Neither can I imagine it to amount to any thing more than the greater notice which such cases are sure to attract when hap- among the higher classes.

How, and when, it was made out that the "gradual decay of the vaccine influence is also "distinctly exhibited, from the uniform progress, "extent, and effects of smallpox contagion, when "it is introduced into those situations where vac-"cination had been almost universally practised," or from what quarter the evidence comes, remains

* This part of the case has, I suspect, been conclusively put home in the 66th number of the *Quarterly Review*—*q. v.*

to be seen. Perhaps it is to be found in your other publications, to which, I am sorry, I cannot immediately refer. Fresh documents, however, would here be of the utmost importance.

IX. " The history and phenomena of scarlet fever, " malignant sore throat, plague, dysentery, yellow " fever, and other diseases of climate, and, I believe, " we may add every fever produced from contagion, " clearly show, that they by no means recur whenever " the individuals are again exposed to the contagion, " but give, in all cases, a temporary security; and " the phenomena and history of variola, rubeola, " together with the influence of the vaccine virus, " and the action of mercury upon the system, show a " specific action may not only exist minus in the " system, but even in various degrees, and in pro- " portion to the extent of their action, so may the " permanence of their influence be estimated; and as " the vaccine process only exerts a feeble influence " over the human body, the extent and permanence " of its effects are to be estimated accordingly."

Though the purport of this paragraph might be ascertained, yet, from a want of perspicuity, which appears to pervade it, or, perhaps, still more, from the multiplicity of topics which it embraces, and, its partly taking for granted, what, under favour, I insist, has not been proved, and which, if proved, would render parliamentary interposition superfluous, I would rather wave its more particular consideration here. I may, however, observe, in general terms, that you

seem, in illustrating this part of the argument, to have confounded things, in their nature essentially distinct, namely, diseases from external causes, specific contagions, the exanthemata, the vaccine influence, and the action of antidotes. It is among the three latter that there can be said to be any analogy whatever—yet, that is only apparent, not real, and it may be as well to divest the subject of this technicality. The powers of mercury and sulphur, for example, are antidotal, not preventive or protective—while those of cowpox, and the exanthemata, are preventive or protective, not antidotal—the former being counteractive, or destructive of an irritation or condition already existing—the latter being protective against itself, or preventive of another irritation, which, without such protection, would, in the vast majority of cases, seize upon the constitution. It hence follows, that a prophylactic is necessarily a protective against something external, and may be so with regard to itself. On the other hand, a protective is not necessarily a prophylactic, except of itself—while an antidote is neither the one nor the other, but merely curative of something different from itself.

This can hardly be considered the proper place for discussing the subject of diseases which arise from external causes, otherwise a very interesting topic presents itself.* It has been ably argued, in the

* The diminished liability to the endemic fever of tropical climates (and, perhaps, to other diseases) which the constitution seem to experience after having undergone that disease, is not, I apprehend, a case strictly in point, for it appears to be derived

Edinburgh Review—a work which, I feel myself called upon to acknowledge, has deprived some of my ideas on vaccination, of the few pretensions they ever had—or, rather, that I fancied they had—to originality. After noticing the analysis of your

from the circumstances in which the body is placed, and the power of adapting itself to those circumstances. Let a person who has experienced and survived an attack of fever in a tropical country, continue to reside in that country, his constitution becomes acclimated, or habituated to the surrounding agencies or influences, and he enjoys immunity. But that this immunity is not the result of any peculiar or permanent impression made by the disease, is clear from this, that let him remove to another country, he carries not with him an exemption from the diseases of that country, though they ever so closely resemble those of the country he has left, and arise from corresponding external causes—and, moreover, if he absent himself long enough, his susceptibility revives with his return. This fact has often been fatally exemplified in the case of Europeans, who have resided long in our tropical colonies, after recovering from the endemic fever, and then revisited Europe—their stay in the mother country having restored their susceptibility (this phrase will not be misunderstood), they have fallen victims on their return, when, probably, had they remained stationary abroad, life would not have been endangered. Thus the sort of exanthematic condition, which, not the fever, but the situation, induces, may be either partial and limited, or universal and nearly specific—but it is always extrinsic and dependent on circumstances. Smallpox, measles, &c., on the other hand, observe no such laws; they may be transmitted successively, or carried all over the world like a bale of goods; and, whether in Guinea or in Greenland, in the king's palace or the peasant's cottage, they are not of spontaneous or equivocal origin, but always act whenever the virus meets with a subject to act upon. No situation can defend against their operation—no power or circumstance can awaken the susceptibility when that operation is over. However, analogies, I own, are, at all times, sharp edged weapons, ticklish to wield, and sometimes wounding where they are most intended to heal—I therefore dismiss them.

cases, contained in the Report of the public Dispensary and Vaccine Institution of Edinburgh, the Reviewer thus proceeds. "After such a refutation of "Mr. Brown's statements, his hypothesis" (the temporary nature of the vaccine influence) "is scarcely "worthy of any notice, in so far as it is founded "on observation; and it is obviously contrary to all "analogy, although he has attempted to bolster it "up, by mistating the most universally received "principles of pathological science. It is well "known, that no two general constitutional diseases "can exist in the body at the same time. But it "is equally well known, that an attack of such a "disease, as soon as it is over, leaves the body as "susceptible to the impressions of any other as it "was before; nay, in many cases, renders it much "more so, since, in every elementary writer, we find "debility from preceding disease enumerated among "the causes predisposing the body to receive "infection" (No. xxx., p. 334).

In the same number, of the same Review, is fully criticised, your strange notion already quoted, of a specific action existing *minus* in the system—which, though it be possible to form some confused idea of what is intended to be signified by it, is entirely unavailable to the explanation of any pathological phenomena connected with the vaccine, or any other disease. At least my algebraic faculties, at no time of the brightest order, are incompetent to deduce from it one useful principle. I should, in all probability, therefore, more effectually

ensure the attention of the reader, by inserting the sentiments of the Reviewer, than by any thing I can advance of my own. But I abstain, in the present instance, from quoting his language, because, although I am satisfied that the criticism is just, yet critics are invested with privileges which are denied to authors, and I hardly consider myself entitled, in a matter of mere opinion, to introduce into these pages, even in the shape of a quotation, expressions more authoritatively severe than I am in the habit of making use of.

The estimate, with which the 9th paragraph concludes, of the extent and permanence of the vaccine effects, founded on the apparently feeble influence which it exerts on the human body, is a renewal of the same theme on which you so much delight to expatiate, and of which I have been, perhaps, at too much pains to exhibit the fallacy. The reader, therefore, need not be troubled with a repetition of it in this place.

X. The "demonstration," which you affirm the subject admits of, is neither more nor less than the prime desideratum which the world cannot but anxiously expect you to supply.

I have thus gone through those insurmountable facts, upon which principally rests your appeal to the Minister for his interposition. After what has been urged, it need scarcely be added, that I consider all those facts to be more or less untenable. My *say so*, however, is not worth much,

and by a very different tribunal must the whole of this important problem be finally decided.

Here, then, let me pause for a breathing space, while I venture to address to you a few words, not in the language of censure or complaint, but of expostulation. Putting aside all medical facts, reasoning, or speculation, let us for a moment turn to the more common-place view of the question. Here it may be remarked, that the stream of testimony, feeling, and opinion, which runs so diametrically counter to you, has hitherto borne down all effectual opposition. It is true, the many alarms heedlessly—I would not say, industriously—excited, have been thwarting and discouraging; but they have been partial, occasional, and, to any serious amount, unavailing. Qualified opinions have, no doubt, at different times been expressed by authorities which, on other subjects, are allowed to be of some weight, but here they have failed to make any permanent impression—vaccination keeps on its course, as if no such opinions had been heard of. What, I would ask you, Sir, but the most deeply-rooted conviction, the fruit of every-day experience, could have brought about such a result? And will it not rest with you to satisfy the world—your countrymen—your brethren—nay (must I add?) yourself—of the propriety of continuing, maugre such conviction, to deny its truth, and to resist its force?

No one, Sir, can withhold from you, the tribute due to singleness of purpose, and to fearless openness of conduct. Indeed, it is impossible to

conceive, that any individual could so long have borne up against what may well be termed a world in arms, had he not been actuated by motives of the purest integrity and benevolence. But, may not the sublimest virtues be sometimes carried to excess? Is it nothing, that you should, without an overwhelming load of facts and evidence, persist in your efforts to unhinge the confidence and disturb the comfort of the community? To speak continually to its anxieties and its fears—opposed as you are, and have all along been, to at least ninety-nine of every hundred medical men, each and all of whom must be counted as competent, candid, disinterested, and honest as yourself—the general merits of the question enveloped in no mystery, level to the lowest capacity, and open to universal discussion for a period little short of thirty years? Is it fair, is it liberal, is it considerate, to suppose, that nearly the entire of mankind continues hallucinated touching the Jennerian discovery, and that to you alone appertains the privilege of seeing it through the clear light of reason and truth? Owns your mind not one misgiving as to the possibility or the chance that you may be mistaken? The opinions you now so tenaciously maintain, are avowedly the reverse of those you held for a series of years after vaccination was made known—consequently, you have changed once, and may you not again? But granting your conviction to be complete and immovable—which, in fairness to you, I unhesitatingly grant, and, in tenderness to you, I as heartily believe—can you, as a

man of science and a philosopher, look upon the data which form the groundwork of your faith to be of that irrefragable nature which should justify you in compromising the quiet of society, rather than that the expression, by no means a guarded one, of such belief, should for a time be kept back from the world?

Were a meteor to appear in the firmament, which, by an incalculable majority of people, should be pronounced of a certain colour, while to one individual it should appear of a different colour, would not—ought not, such an occurrence to afford room for calling in question the correctness of that person's visual perception, both by himself and by others, and dispose him to wait or remain silent, till time and continued observation had proved whether he was right or wrong? Little more than nine months' observation seems to have sufficed with you for the overthrow of opinions to which your mind had assented for nine years! Say that doubts had crept in, and shaken your "better part of man," and that a sense of duty would not suffer you to be silent—surely, if credit were expected for candour, common respect for one's own consistency, required that precipitancy and vehemence should be avoided in the disclosure. It is one thing to entertain, and even to express doubts—it is another, in an instant, on very limited information and experience, to renounce opinions long matured and cherished, and in the most impetuous manner to preach up their rejection, and to declare open war against all those who

are less highly gifted than yourself! Did you apprehend being anticipated in the career of revolt by some brother rebel on the other side of the Tweed? A little time and patience would have quieted all fears on that head. But let me not violate the boundaries of fair controversy, by imputing motives, or trench on the privilege which every one ought to enjoy, of holding and expressing what opinions he pleases.

Here, then, is brought to a close what may be considered the first division of my Remarks. I next go on to direct attention to some of the opinions and statements scattered through your Letter, which could not so properly be discussed before, and which I hope to see share the fate of the ten insurmountable facts. Your hour is come. The disease of your doctrines has, if I may borrow a medical metaphor, reached its acmé. At that point, it is impossible for it to continue. You must either, therefore, "purge them to a sound and pristine health," or consent to see them "fall into the blind cave of eternal night"—a fate which I devoutly pray may be theirs.

From the period when, unhappily for the cause of vaccination, the new light broke in upon you, it has been a steady pursuit of yours to obtrude your opinions upon public notice, and, for this purpose, all the ordinary machinery for influencing, and even inflaming the public mind, has been assiduously and unscrupulously set in motion. Books,

pamphlets, newspapers, &c., have been put in requisition—of course, your influence, as a writer, must, to a certain extent, have been very sensibly felt, particularly as your views have, in an evil hour (I do not mean this reproachfully), chimed in but too cordially with popular ignorance and bigotry—nor must it be concealed, however sorely it is to be regretted, that there has been elicited (prematurely, as I hope the event will show) a qualified retractation of opinion in your favour, by an authority which ranks deservedly high in medical literature.* The reiteration, therefore, of your appeals to the prejudices and terrors of the people, cannot be matter of indifference, but must be productive of much good or much evil. If of good, your sentiments cannot be too widely disseminated —if of evil, the sooner they are exposed, and counteracted, the better.

In the sixth page of the Letter, you represent the late Dr. Alexander Monro to have declared of vaccination, a very short time after it was introduced, "that his apprehensions were so strong of the fu-"ture mischief and confusion which were likely "to ensue, that it ought to be prohibited by act of "parliament." Now, though this statement be given for the *bona fide* purpose of either showing your original sincerity and ardour as a vaccinist, or of sheltering your subsequent defection under so high an authority, yet when you afterwards (page 30)

* *Edinburgh Medical and Surgical Journal*, vol. xiv.

triumphantly announce what you deem the fulfilment of this prediction, in the mischief which you regard as consummated, and leave the reader under a persuasion that this greatly eminent physician was, throughout, inimical to vaccination—there is an air of disingenuousness for which one is not prepared by the otherwise generally straight-forward tone of your writings. By the same rule, you unfairly deprive vaccination of the advantage which is derived to it from the lustre of Dr. Monro's name and support—a support the more valuable and unequivocal, that it was the result of observation and evidence in direct opposition, as appears from your own account, to preconceived views so strong, as nearly to assume the character of prejudices. If I be told here, that the terms of the dedication of your larger work sufficiently exonerate you from such an imputation, the answer is, that on the mind of Lord Liverpool and of the public at large, who possibly never saw your professional work, and for whom, and not for your professional brethren, your Letter seems chiefly intended, the impression must remain of Dr. Monro continuing inimical to vaccination. This, at any rate, was the interpretation that kept possession of my mind, till I had been at pains to undeceive myself, by taxing my personal reminiscences of Dr. Monro's opinions, down to nearly the termination of his professional life—and also by recurring to your dedication, from which it is clear, that his sentiments in favour of vaccination underwent no change.

Though the tendency of your introduction of Dr. Monro's name be to mislead, I would on no account have it supposed, that I consider the disingenuousness complained of, as any other than accidental. To charge you with wilful misrepresentation, is as foreign to my thoughts as it is to the dictates of liberality and justice, and to that strict rule of impartiality which I have prescribed to myself in this investigation. All may be ascribed to eagerness and inadvertence on your part, and perhaps to a too sanguine conclusion, that the public must be as intimately acquainted with your writings as the professional reader.

Full nine and twenty years have now gone by since cowpox was introduced. So far as can be gathered from your writings, you appear to have fixed the *maximum* of its protective powers against smallpox, at four years—the *minimum*, at six—or inversely as to time—consequently your cycles must have been completed, the greater nearly five times, the lesser upwards of seven times—that is, for twenty-three or, at any rate, twenty one years, all the vaccinated in this empire, and every where else, have been successively regaining their susceptibility to smallpox—or, what amounts to the same thing, every person born since that time, and now above the age of four or six, who has not undergone smallpox, must be liable to an attack of that disorder. This is the plain consolatory English of your doctrine.

Now, Sir, as smallpox has not, so far as you

could help it, been exterminated, or even brought under regulation, but has prevailed in many places, there must have been, since 1803 and 1801, hundreds of thousands dropping in to be devoured by this arch destroyer of health and life. Say—have they been so devoured? I well know, you have ready in reply to this question, a special plea, founded on certain epidemic influences—modes of administering contagion—and so forth—to which I shall not fail to pay proper attention, in the proper time and place. But, Sir, in a question of this magnitude, involving the nearest and dearest interests of society, special pleading will not do—neither is it enough that you limit yourself to the results of individual skill, observation, or experience, be it ever so profound, accurate, or extensive. The practice of two villages, were they Chinese instead of Caledonian villages, cannot be set in array against that of the empire. Has, then, I repeat it, the number of victims borne any reasonable proportion to what it should have been had your views accorded with facts? Dr. Jenner has assumed, for the sake of argument, a scale so high as one in a hundred taking smallpox after vaccination, and denies, as I think very justly, that even this would invalidate his discovery. What sort of reasoning, then, would it be to say, that because one vaccinated person in five hundred takes smallpox, ergo, the other four hundred and ninety nine must also take smallpox, and vaccination can therefore be no preventive? Would it not be more candid and legitimate to look

around for means of accounting for the excepted case—especially if such means were at hand, as they are in abundance, for explaining not only a ratio so low as one in five hundred or five thousand (which I believe to be greatly within the real proportions), but so high as one in fifty, were it requisite, or should the sturdiest antivaccinist venture to allege that so high a ratio had ever obtained. Had your doctrine, in any degree, approximated to the truth, evidence should ere this have flown in upon you in torrents, such as no power could have withstood. Your experience ought to have been corroborated in every corner of the globe. Has it been so, or can the communications, which doubtless you have received from your correspondents, be regarded in any other light than as exceptions to a rule so general as to border on universality? Should your own immediate experience, or that of your friends, have fallen short, must not the records of public institutions have provided you with the means of establishing the point?

You assure the Earl of Liverpool that what you have advanced "can be substantiated by the "most satisfactory evidence" (p. 42). It were to be wished that you had specified some of the sources of that evidence. If you mean "the *viva voce* evi- "dence of medical practitioners, and more especially "surgeons, in all situations of the island," I greatly apprehend that a little cross-examination by the parliamentary committees would soon convince you of your mistake. As I question the existence of

any decisive or satisfactory evidence whatever, it may be right that I should particularize where the evidence on the other side is chiefly to be found. I beg, therefore, once for all, to refer to almost the whole of the professional periodical works since the era of vaccination—to the Reports of the Cowpock Institution, the Smallpox Hospital, the Jennerian Society, the London College of Physicians, the Vaccine Establishments in London, Edinburgh, and Dublin—to the nearly universal concurrence and writings of practitioners in the united kingdoms—to the authenticated accounts from most countries in Europe—and last, though not least, to the negative evidence as to the prevalence of smallpox, all over the world. This immense mass of recorded testimony must, however, be taken as a whole,* and

* In a similar sense must, in fact, be taken all the leading circumstances connected with this discussion. When I speak of any of the more important matters—as of the sameness of appearances and phenomena, &c. of vaccination, I must be understood—and I doubt not, by every judicious reader, I shall be understood—to mean the appearances and phenomena taken together. In some, the areola, the inflammation, or the constitutional derangement, may be greater or less—within certain bounds, regular or irregular. Such derangement amounts to nothing, except as it may affect the individual case. Sufficient it is, if, in the great bulk of cases, uniformity is preserved. In like manner, inoculated smallpox, contrary to its usual character, sometimes produces a violent disease and confluent eruption; while casual smallpox is often followed by a mild disease and distinct eruption. The eruption of measles frequently runs in patches, or is quite distinct, or amounts to a mere rash either over all the body, or only on parts. Scarlatina (or, as it is better named by Dr. Good, Rosália) is supposed to have three separate modes of manifesting itself, each as specific and protective as the other. All these diversities

not in detached parts, otherwise numerous contradictions will undoubtedly occur to embarrass us. If we are to be guided by partial views, I could engage, out of the various publications of any one year, to find matter sufficient to put vaccination down—nay, according to such a rule, the great truths of religion, morals, and physics, might be easily disproved in a few paragraphs. But such a mode of reasoning would be fit for boys only, not for bearded men. It signifies little what Doctor this, or Mr. that, may have written at particular times—how many cases have happened here, and there, and every where, in this or that particular year, or during any given epidemic prevalence of smallpox—excepting in so far as such occurrences affect the whole subject. They constitute the mere fluctuations of the question—the ebbings and flowings of the tide—the restless rolling of the waves against the rocks—and might, at one time, have answered to float conjectures and prophecies on; *now*, however, it is the cumulative amount of reasonings, opinions, writings, cases, experiences, facts, and actions, on the one side and on the other, that is offered to our consideration. Let these be impartially weighed, and it will soon, I imagine, be discerned to which side the balance of truth inclines. To fatigue the professional reader by multiplying quotations from the sources already enumerated, would be an idle

(for they do not amount to species), within certain recognised limits, alter not the general character of the disease, nor do they materially affect its protective energy.

encroachment on his patience and good sense. Indeed, I feel almost ashamed to have so overdrawn his indulgence as to cite authorities that have long been in the hands of every body. In a systematic treatise on vaccination, a more formal and formidable list of references would certainly be required; but I should hope, in a production like the present, they cannot be needful. Besides, the unpleasant truth must be told, that the desultory and disjointed form of your Letter bids defiance to all my attempts at arrangement, and exposes me to disadvantages of which I have more than once felt the effects. Therefore, should any glaring want of coherence appear in the ordering of my arguments, I hope you will not refuse to take to yourself some share of the blame—seeing that I must put up with the loss.

But, admitting, for a moment, that all this evidence which has been so long accumulating, may prove fallacious—that in nine and twenty years, nay months, weeks or days hence, mankind should be found to have laboured under a delusion all this while—still the question may be said to reduce itself to this: did we, at the time you last wrote (1822), or do we at this moment, possess data to warrant our thinking and acting as we do? After deducting what may be placed to the account of difficulties and drawbacks, with which this simple but stupendous question has been encumbered, are there left more cases of failure, that is, of smallpox after what may fairly be presumed complete vaccination, than a reasonable

person, making reasonable allowance for ordinary imperfections, can or ought in reason to look for? Compare books, reports, numbers, and dates, and say whether the utmost that has hitherto been brought forward, by the antivaccinists, carries with it that resistless force which should induce the world to acknowledge itself wrong by rejecting vaccination? Be not offended, Sir, with this catechetic mode of stating the case—though it may appear somewhat unceremonious, I would not have you think it is meant to be discourteous; my wish is to observe towards you, all possible respect, consistently with that warmth and freedom which disputation, and the interests of such a cause, are apt to beget. Be pleased, then, to take along with you, that the language into which I may be betrayed, must be held strictly referable to what I imagine (with deference to your greater experience) to be the erroneousness of your statements, reasonings, and opinions, and has not, and cannot have, the remotest personal application—not that, were I otherwise given, an example would be wanting to sanction almost any degree of vituperation. A certain writer, who shall be nameless, has roundly denounced all professional men who differ from him, as uninformed, stupid, or infatuated.—Boards have been stigmatized as arrogant, prejudiced—their members, including some of the first names in the profession, as unexperienced, incompetent, &c.—the great and modest discoverer of vaccination himself, has, over and over again, been charged with unworthy motives

(I reckon as nothing your tardy, extorted, and qualified recognition of his claims)—Parliament itself has, if I recollect aright, been taunted with extravagance and folly, in voting him his most inadequate reward—nay, the public is to be declared mad if it any longer oppose the doctrines and plans of the individual here faintly bodied forth; and who need not, therefore, wonder much if an antagonist try to "charge home upon him," or suspect that infallibility belongs not to him, more than to any other mortal. But, Sir, you have, I presume, felt strongly, as every one must do, on this interesting subject, and I am the last person to quarrel with you for having expressed yourself strongly—so, if you will, let give and take be the word.

To recur to your minus and plus, your maxima and minima; surely, of all notions, that of a specified or limited period, such as three, four, or six years, seems the most extravagant. Regarding it speculatively or hypothetically, a doubt arises whether it be possible for the mind to conceive of a specific preventive exerting its influence for a limited time, and then its power declining gradually, or ceasing altogether. I take it, the very idea will be found, on close examination, to involve a contradiction. Analogy, upon which you seem inclined to set its highest value, has nothing in favour of it—for in no other class of contagions is such a peculiarity observable. Should the recurrence of smallpox, measles, &c. be here retorted upon me, I think that phenomenon admits of

explanation, without implicating the principle now contended for. In the first place, even by those who are convinced that the impression of such diseases may be fully and completely felt twice, it has never been so much as alleged, that the original energy is efficient for a *given* time only, and no longer, or that the slightest idea could ever be formed as to the precise duration of such time. This alone would be decisive against you in respect of the argument; but, though I am very unwilling to prolong the discussion, I would observe, in the second place, that whatever view we take of the operation of any specific virus, that operation must consist of a succession of movements, all tending to one result, beginning with the first application of the poison, and ending with the re-establishment of all the healthy functions. That this process requires a stated time, is certain; for the order and progress of the phenomena can be calculated almost to an hour. Some of the phenomena may be influenced by circumstances, others are out of their reach. The peculiar nature of the series of movements or effects is, and probably will ever remain unknown. But whatever it be, of this we may be almost assured, that any thing materially interfering with the order, or breaking the continuity of the process, is likely to render the effect of that process incomplete. A single link of the chain wanting, or even weakened, may, for any thing we know, be sufficient for the purpose. From the best means

we have of judging, it is probable that, to a certain degree, steady, moderate action, and regularity in the succession of the phenomena are essential requisites in the perfecting of that impression, which is to constitute the protective state. The causes operating to prevent this condition being attained, must, it is presumed, be causes, either already belonging to the constitution itself, or foreign to it, or springing up in the course of the process, and cannot belong to the virus, when that virus is genuine. The morbific principle must be taken as in itself an integer, and competent to its work of security, unless counteracted or prevented. It would occupy a great deal too much time to go the length that this subject would carry us, were it to be minutely discussed. If I have made myself understood, it will suffice, for the present, to know, that the process or circle of operations, necessary to that condition, which is to impart the full prophylactic energy, may in some part, and by some means, be rendered defective. This appears to be safer, if not sounder doctrine, than to suppose with you, that the morbific principle can be present in the body *minus*, or in a degree (if I clearly comprehend your meaning) capable of producing a partial, or incomplete effect—or an effect having relation to time. It will follow as a consequence from this view, or rather it is the view itself, that the principle or influence which, by its operation, produces the protective state, is always the same, one and indivisible, but

the exercise or manifestation of that principle may, sometimes, be rendered nugatory by external causes, or by causes peculiar to the individual on whom the influence is exerted. Such interruption, however, observation has proved to be by no means a frequent occurrence—indeed it would seem, like the other more fixed laws of diseased action, to be left little at the mercy of accident. This view being admitted, the occurrence of secondary exanthemata ceases to be a mystery, and it goes far to establish, or rather to restore, in all its plenitude, the universality of the protective principle in all those specific contagions endowed with the property of attacking once only during life.

It would result that the constitution cannot feel the *full* influence of a disease of this class twice—and where the disease appears to occur a second time, it must be presumed that the constitution had not received the perfect and finished impression—something must have conspired to defeat or disturb the regular succession of causes and effects, operations or actions, on which the entire result depends—some informality (so to speak) or irregularity must have occurred in the first attack, too delicate, perhaps, to appreciate, by which the whole impression had fallen short in imparting that condition which renders the system unsusceptible.

In regard to small-pox (which suits best for illustration), we have, as I have already mentioned, the very important principle clearly established by

Dr. Jenner, that the " Extent of the ulceration of " the skin (as in cow-pox) is not the process " which affords security to the constitution ;" in other words, it is not the severity of the symptoms ; * and this is farther evinced by the fact, also noticed by him, that the primary attack of small-pox has often been a severe one. In this disease, as in cow-pox, most probably, moderation in the degree and regularity in the order of the phenomena, are essential requisites to security. It is easily conceivable, therefore, that an inordinate degree of fever, or of inflammation, from a highly confluent eruption, or some idiosyncrasy, either original or occasional, might constitute the interruption now contemplated, and by interfering with the specific operation which confers the preservative property, might leave that property unimparted, and consequently leave the susceptibility open. This would account for all the cases of secondary exanthemata that ever occurred. It hence follows, that the pits or fossulæ left by the variolous pustule, are no absolute proof of complete variolation, no more than is their absence any proof of incomplete variolation, the casual (even confluent) disease often occurring without leaving the slightest print behind it. In truth, these circumstances are, abstractly, nothing more than any other symptom or effect in the series. Experience, after all,

* I should be inclined to go a step farther, and say, that the great extent of the ulceration endangers the security of the constitution.

then, is the only guide in both cases. When measles or scarlatina has run its course, what evidence have we that the constitution has experienced the full and satisfactory impression, beyond the presumptive one derived from the fact of the disease having gone through the usual curriculum? There is a moral certainty, but no physical or absolute certainty, even in this case—yet do we find you continually asking for a sign—a proof—in regard to vaccination!

But whether this reasoning be good or bad, there still is left the fact, that small-pox, in a few instances, attacking the same individual twice, has never, to my knowledge, been supposed to affect the generally (approaching to universally) preservative power of that disorder—so that, according to this principle, vaccination would stand upon the same ground with variolation; and though its adversaries hardly wish it to stand so well, its friends need not care though it stand no better. Again—it has never been contended, in cases of secondary exanthems, that the preservative power is exerted for a limited time—consequently the fundamental objection to this precious doctrine remains in full force, supposing all other points conceded. In fact, you very pertinently anticipate the absurdity of attempting to act upon such a notion—yet, in the same breath, you arbitrarily assign four or six years as the extreme boundary to which protective power extends! No, Sir, the preventive, to be good for any thing, must be good for every thing. It must have all the attributes of a

preventive, or none. If the period of protection be doubtful or limited, (and what power can fix it?) away goes vaccination.

And here I would stop, for the purpose of adverting to the question of *Revaccination*—a question on which it is absolutely necessary that the public mind should be at once and for ever disabused, whatever be the sentiments entertained of vaccination. A freak of this kind would not deserve sober contradiction, but that many people, and even medical men, some of them of rank and note, who ought to know better, not only give into it, but act upon it.

I have already said, that you cannot be considered answerable for inculcating this most absurd and unmeaning piece of mal-practice, though with the unreflecting, and those who are anxious, by any expedient, to escape the dreaded alternative of small-pox, even in the inoculated form, and whose minds are under the spell of your mystical maxima and minima, it may easily be supposed to follow from your premises. You have, with great propriety, exposed the impossibility of such a plan being carried into effect. I shall endeavour to shew its folly and futility.

What purpose can its supporters intend that it should serve? Would they once declare this, the subject might be more effectually grappled with; but I have never yet been able to find out the precise object at which they aim. It will be granted, I imagine, that vaccination must have either a

permanent or temporary preventive power. If permanent, the necessity of revaccinating is of course done away with—if temporary, it must be for either a limited or unlimited period. If limited, even with the greatest exactness, every individual must have himself periodically and punctually vaccinated to the end of his days, a result which no system of medical economics could ever render attainable, or even endurable. If indefinite and unfixable, there is an end of the whole question. Dr. Jenner stated, that "Although the cow-pox shields the constitution from the small-pox, and the small-pox "proves a protection against its own future poison, "yet it appears that the human body is again and "again susceptible of the infectious matter of the "cow-pox." This principle, however, I believe he afterwards modified, so far as to consider the phenomena which occur after the first presumed constitutional impression, as possessing only a local character. The appearance, however, being the same in both, there is no certainty gained in whichsoever point of view we regard them. The person who has undergone the disease in the regular form, and become fanciful or alarmed, and has himself revaccinated, cannot have his confidence reassured by such revaccination. He remains in the exact predicament in which he stood before—nor, abstractly and pathologically speaking, would his constitutional security be one atom less with a single puncture, nor greater were every spot on the surface of his body the seat of a cicatrix.

The only case in which revaccination can be required, and where, indeed, it becomes imperative, is when a doubt exists as to the regularity or perfectness of any given vaccination. In all other cases, the bare suggesting of such an idea, is thoughtlessly and wantonly, nay, cruelly to disturb the public mind, and to introduce inextricable confusion into the whole subject. The parent or patient who once suffers himself to think that two chances are better than one, will soon find that three chances are better than two, four better than three, and so on. The event, however, will falsify common experience, for at last the conviction will root itself in his mind, that there is no security at all.

With notions equally unsettled and unsettling, you must have observed, that some speculate on going, forsooth, back for fresh virus to the cow! because, say they, it may have undergone a change, from passing through so great a number and variety of constitutions—it may have degenerated, or become enfeebled, and so forth. Now, what shadow of proof can be brought of this? Under fair circumstances, not the most trivial deviation, as I have elsewhere remarked, can be detected between the last vesicle produced, and the first case inoculated from the cow by the discoverer himself. What, then, are the characters of this alteration? When and where did they first appear?

You very justly observe, that it is impossible "to "proceed with the discovery, if we are under the "necessity of becoming milkers in the county of

"Gloucester." If not, a cow must be provided weekly in every part of the empire, in order to keep up the virus in a state of purity. Consequently, there will be no more vaccinating from the human subject, and as no person can possibly determine the precise period when degeneracy began, it will necessarily follow, that all who have already undergone vaccination in the usual way, must be revaccinated from the cow! A trifling difficulty, however, will stand in the way of this plan, from the fact of cowpox not being epizootic in any county in England except Gloucester; and even there Dr. Jenner found so much difficulty in prosecuting his earlier experiments, that at one time he was obliged to desist, his supply of matter having failed from the dryness of the season.* He had, however, anticipated this contingency of reverting to the cow, as he has done almost every other regarding vaccination. He says (*Inquiry*, p. 162), "Whether the nature of the virus "will undergo any change from being farther removed "from its original source, in passing successively from "one person to another, time alone can determine. "That which I am now employing, has been in use "eight months, and not the least change is perceptible "in its mode of action, either locally or constitution-"ally. There is, therefore, every reason to expect "that its effects will remain unaltered, and that we "shall not be under the necessity of seeking fresh "supplies from the cow." The event has not belied

* It is said to be epizootic in Lombardy, and in a few other parts of the continent.

his sagacity. What he said of matter that had been in use near eight months, may now be said of matter that has been in use more than eight and twenty years; and while children continue to be born, no serious apprehensions need be entertained of the virus degenerating or dying out.*

* With some surprise, and even concern, I find it stated in the Edinburgh Medical and Surgical Journal, for April, 1820, that it was "the explanation of the frequent occurrence of modified small-pox, after vaccination, in this and other countries, understood to be espoused by the venerable Dr. Jenner, that "the vaccine virus has degenerated in its quality, in consequence of its passing through a succession of individuals of the human species, without recurring to the original source of the disease in the cow or horse." The knowledge of this circumstance had, I own, quite escaped me till just lately, indeed till after the paragraph in the text had gone to the press. I do not, however, though nearly ten years have elapsed since the suggestion was thrown out, consider that the force of my remarks is in any material shape weakened by it, and therefore I shall not cancel them. It does not appear that Dr. Jenner, himself, had had the slightest knowledge of any such degeneracy in his own extensive practice, but merely ventured (very inadvertently, I think) the hypothesis, as a probable means of explaining phenomena, which about that time attracted some notice, and no doubt must have exposed him to numerous harassing enquiries from anxious, and not easily satisfied correspondents. Still it may be regretted, that his eagerness to reconcile anomalies, which, if explicable at all, might have been much more easily reconciled upon other and better principles, should even for a moment have betrayed him into the admission of a conjecture so diametrically opposed to his own great experience and long matured opinions.* Boldly, however, to meet an enemy, is often to defeat him—and in the present instance, happily both these objects may be effected in,

* Perhaps some explanation of this circumstance may appear in the lately published Life of Dr. Jenner, by Dr. Barron, which I regret not yet having had an opportunity of perusing.

**The consideration of these points naturally leads to some others, on which it may not be out of place to say a few words here—viz. on the Mode of vaccinating—the Form of the cicatrix—and the Test of constitutional security.**

**It is chiefly of late that much has been written respecting the first—Punctures, single or multiplied, deep or shallow, made by blunt or sharp pointed, broad or narrow shouldered lancets, have had their abettors and their opponents—some are anxious to cause a certain degree of inflammation in applying the poison, as if by that means the more effectually to ensure its operation—many think that the appearance of much blood at the wound is an earnest of success, while others tell us that it is likely to wash away the virus. One vesicle is recommended by some—two, and even four, by others. In short,**

to me, the best possible manner, by simply giving the remainder of the passage as it stands in the same respectable periodical already alluded to. "We are not," says the reviewer, "ac- "quainted with any decisive facts either for or against this hy- "pothesis, but Dr. Thomson states, as reasons for entertaining "great doubt of its validity; 1st. That no such deterioration "has ever been observed of any other contagious disease. 2nd. "That the vaccine virus, used at the Royal Public Dispen- "sary here, and in other parts of Scotland, for a series of eight- "een years, still continues to produce in those, who are inoculated "with it, the very same appearances which it produced on the "first trials that were made with it, and the same which have "been delineated and described by Dr. Jenner as characteristic "of cow-pock; and, 3dly. That recent equine matter, sent down "to him by Dr. Jenner, produces exactly the same appearances" (p. 238). A more complete extinguisher could not have been applied to all the frivolous conceits which have been broached on this point, than is to be found in the above short but most pithy paragraph.

these and a variety of other proposals, have at different times been suggested, all of them, with one or two exceptions, equally valid, or rather equally void of any useful application.

So far as I have ever understood, there is only one mode of vaccinating recognized by regular surgeons. The principle and practice of this mode are alike simple, and consist of the introducing in a horizontal direction, on the point of a common bleeding lancet, a small portion of lymph between the cutis and cuticle with the least practicable violence to the part—consequently, all attempts to excite or to aggravate local inflammation by repeated punctures or other means, are on every account hurtful, and ought positively to be forbidden. The appearance of a greater or less quantity of blood, on withdrawing the lancet, I should think implies, in itself, nothing either for or against success, farther than as indicating a greater or less vascularity or activity of the part. But to what extent such condition may affect its susceptibility to the specific impression is a matter on which it appears to me we have no means of forming any judgment one way or the other.*

* The great probability is, that the specific impression, whatever it be, takes place the instant that the virus comes in contact with that particular texture or surface which is its proper recipient. Of this we have a familiar example in the sting of a wasp, bee, nettle, &c., and while I am writing this note (Aug. 2), an instance appears directly in point, as given in the *Globe* Newspaper of the 31st July, by Mr J. Hall Wright, Surgeon, Chatteris, Isle of Ely.

The number of vesicles has, by some, been thought of extreme importance; and indeed by Mr J. Moore, in his work, and by the National Vaccine Establishment, the making of four punctures, that is, one in each arm and one in each thigh, and, at all events, one in each arm, is enjoined as a *sine qua non*. As these authorities are both high and influential, one would not lightly call them in question. Still they may, I should hope, be respectfully canvassed without any offence being taken; and, under this impression, I must, for one, be permitted to state, that I was never able to perceive where the necessity lay of multiplying the vesicles to four—nay, even to two—or in what way the practice was promotive of either success or security. In the first place, it can at the very utmost but increase the chances of infection, allowing that each puncture takes effect. In securing the constitution it can have no conceivable influence. Those on the thighs are for the most part violently injured or abraded. The preserving one arm, from which lymph is to be taken, and the other untouched, that the specific influence may operate uninterrupted on the constitution, proceeds upon a principle which neither the pathology of the disease nor experience countenances, and which, in practice, we are often obliged to violate—for it seems to imply, that the mere skilful puncturing the cells of the vesicle for the purpose of taking lymph, may interfere with the specific action of the disease on the constitution. That it cannot and ought not to be regarded in

this light, is manifest—and, in fact, where the inflammation runs high, it is often our only resource, and as such, is repeatedly urged and prescribed by Dr. Jenner himself. We are also told by Dr. Thomson, that "Vaccine vesicles, if left to themselves, "generally burst spontaneously." And again, he says, "I know that in many instances, *single vesi-* "*cles which had been abraded* have appeared to "preserve from infection individuals fully exposed "to the contagion of smallpox, or subjected to the "test by inoculation." * To puncture the vesicle safely no doubt requires some nicety of management, and forms one of numerous reasons why the directing or the performing so delicate an operation should no longer be entrusted to incompetent hands.

Farther, the doctrine goes to throw a certain degree of discredit on those cases (and they form a great proportion) which have been vaccinated with only one puncture, or in which only one has taken effect, if matter (and this must frequently happen) have been taken from that vesicle. In this manner may it not tend to unnecessarily shake public confidence in the efficacy of the preventive? You know well, Sir, that for many years after vaccination was introduced, no practitioner so much as thought of producing more than one vesicle, from which, of course, all the lymph employed in propagating the disease by individual practitioners as well as by public institutions was obtained—

* Edinburgh Medical and Surgical Journal, page 236, No. 63.

yet no one, at the time, ever dreamt that such vaccinations were imperfect, nor has the result since shown that they were less perfect than those vaccinations, in which the number of punctures was doubled, or quadrupled. Dr. Jenner was of this opinion, and followed it in his practice. Besides, it is not uncommon to observe, where vaccination is performed in both arms, and I suppose the practice is nearly universal now, that one of the vesicles (frequently both) is ruptured; simply, I suppose, from the difficulty, in fondling or carrying infants, of preserving one arm without ruffling the other. Not that I would at all insinuate, that the careful preservation of the vesicle from accidental injury is a matter of indifference—quite the reverse. Its importance is unquestionable; and I here only take the liberty of hinting whether this object might not be better effected by undivided attention to one vesicle, rather than by a divided attention to two or more.* In confirmation of this, the casual abrasion of the vesicle, was, unless my memory greatly errs, a much less common occurrence before than since the vaccination has been performed in both arms. If, however, two punctures are to be preferred, might it not be

* As a Corresponding Vaccinator of the National Vaccine Establishment, I conform to the regulations laid down by the Board in this particular, but when the necessity of the case requires it, I never scruple, all things else being satisfactory, to take away matter, though there be but one vesicle, nor do I feel that less confidence is thereby produced in my own mind, or less justice done to the patient.

eligible to make them in one arm only, but at such a distance as completely to obviate the possibility of one areola running into the other, and by that means to avoid the practice recommended by some writers, of making the punctures close to each other; of which practice I have already pointed to the impropriety.

As to the cicatrix, or any other of the phenomena singly, affording a criterion of perfect or imperfect vaccination, much need not be said. It is certain, and must therefore be admitted once for all, that smallpox has succeeded to cowpox, where the cicatrix has exhibited all the alleged characteristics, while persons have escaped, in whom these have been by no means so distinct—nay, when they have been almost wanting. But what does this amount to? really nothing. It is equally certain, that smallpox has succeeded to variolation where the surface of the body had been pitted all over, while in cases where not a mark can be traced, it has made no impression; yet we find many respectable authorities* reasoning upon the appearance of the cicatrix as on a thing unalterably fixed. Of these I may here cite Dr. George Gregory,† who, when speaking of cicatrices says, "the "proofs of vaccination were distinct and undeniable." If he mean proofs of the act of vaccinating having been performed, he may be right; but I doubt whether he can say, that of perfect constitutional vaccination, he possesses one or more distinct, undeniable proofs? Even of constitutional variolation, I maintain, there

* Quarterly Review, &c. † London Med. and Phys. Journal.

is no distinct, undeniable proof.—What then is the cicatrix worth in either case? Why, it amounts under any circumstances, to no more than a very strong presumption; and this view of the case is strengthened, when we remember that the local phenomena may sometimes be manifested as perfectly when the constitution is not fully influenced, as when it is. For any one, then, after examining the cicatrices, to declare that an individual has undergone perfect or imperfect vaccination, is, in my humble judgment, to declare more than there is sufficient warranty for; while the interests of vaccination must suffer in proportion to the degree of confidence assumed.

With regard to the Test of constitutional security, you have decidedly the advantage of your opponents; but this will, I hope, like all your other triumphs on vaccination, prove but a hollow and momentary triumph—for the impossibility of obtaining any test, though the notion of having obtained one at all be admitted as premature boasting on the part of the vaccinists, makes nothing in favour of your views, nor does it in the least degree tell against vaccination.

The test of Mr. Bryce, though unmercifully ridiculed by you, has yet been allowed by most authorities to be founded on ingenious speculation, at least, if not on correct views of pathology. He was an intelligent observer, and a moderate, judicious practitioner; and the test proposed by him, if such a thing as test there be, is perhaps the most

satisfactory within reach. One irremediable objection, however, attaches to it. In its general application, it is utterly impracticable. In particular cases, it might serve as a pretty sort of play-thing; but on the large scale, it is a refinement requiring such attention to minutiæ, as no arrangements could obviate, and no regulations enforce. Besides, it might frequently happen that the second or test vaccination, on the fifth day, would not take on, or would take on imperfectly, the specific action, notwithstanding the constitution might at the very moment be under the full influence of the vaccine principle. What state would the patient be in then? If the regular progress of the test puncture be an indispensable proof of constitutional safety (and it must be so according to the hypothesis), its non-appearance or imperfect appearance must necessarily give rise to uncertainty. By what means could this uncertainty be removed?—In a word, imperfection is complained of, yet security is sought for by an experiment grounded on a thing imperfect as the original process itself, and liable to all its uncertainties! No, Sir, the truth, I believe, will on this, as on all other occasions, be found to lie in a nutshell. The defect, at one time complained of by all practitioners, and thought to have been remedied by Mr. Bryce, and by you so repeatedly charged against vaccination, has been since amply supplied by time and experience. There neither is, nor probably will there ever be, discovered any absolute individual test.

In the absence of any such, then, we must rest satisfied with the knowledge that comes to us by inference, and which is all that we have to reckon upon in many similar cases—as thus—there is a certain appearance, or more properly, a series of appearances which we are taught to expect, because experiment has demonstrated, and experience has established them as ultimate facts. The order and regularity with which they present themselves, form, to a competent and close observer, the moral certainty, that where they occur, the assurance is afforded of perfect* security against that worse than plague or pestilence, smallpox. This is the sum of what we now know, or probably ever shall know. It is fully as much, if not more than smallpox can do for us; and it is consequently enough, even upon your own principle, for the guidance of our conduct, and the welfare of the public. It happens, too, that these beneficent results have been, and may all be obtained from one undisturbed† vesicle, or from two at most, as well as from twenty.

At page 19 of your Letter, occurs the following passage:—"Indeed, I will venture to affirm, if pro-
"per steps are taken to secure the application of an
"active contagion, three vaccinated cases out of

* I use the word *perfect* here in the most unlimited sense, always reserving, of course, the qualification which belongs to it when applied to this and to all similar subjects.

† As before stated, I do not consider the careful puncturing of the vesicle, for the purpose of taking off lymph, or relieving inflammation, to be any disturbance whatever.

" four will be found to yield to the influence of the " epidemic, if the period from vaccination exceeds " six years; and in some families, I have seen the " whole vaccinated cases yield to the influence of " smallpox, if I was allowed to regulate the applica- " tion of the contagion." It would, I presume, be deemed offensive trifling, to suppose that you take credit for any peculiar tact in regulating the application or ensuring the operation of contagion. I willingly, therefore, absolve you from the imputation of any thing so truly ludicrous, though the urging it so often does seem unaccountable. However, until it be divulged for the benefit of science, the members of the profession must go blundering on, believing in the adequacy of the ordinary modes of infection. These, during the late prevalence of smallpox here, were present in number, force, and extent, equal to any purpose. Vaccinated infants escaping, though suckled by their smallpoxed mothers—vaccinated mothers nursing, unhurt, their infants under smallpox—three, four, five, and six children, of the same family, some of them having necessarily passed your magical climacterics, living in the same room (for the houses of the labouring classes, in this town, consist of but one apartment), sleeping generally in the same bed, breathing the breath of the infected, their hands and clothes frequently besmeared with matter from the body of an unprotected brother or sister dying of smallpox—yet the pestilence departing the house, leaving the vaccinated untouched. May one ask what faculty or

gift of communicating infection you possess exceeding this in power? Did such occurrences ever happen prior to the discovery of vaccination? Can they be anticipated in situations where neither vaccination nor variolation has pre-existed? Lastly, what has produced the effect? Similar phenomena have been observed every where else. I shall, however, content myself with the following apposite observation by Dr. Reed, of Kilmarnock.* "It is highly "gratifying," says he, "amidst these instances of partial "failure, to think what a vast proportion resisted the "utmost exposure to the influence of variolous con- "tagion. For one case in which vaccination has "failed in any measure to secure the constitution, "ten have shown themselves invulnerable, even when "the mischief seemed most concentrated. Very dif- "ferent must have been the issue, had *variola* thus "broke in upon an unprotected population. With "what a desolating march it had swept the neigh- "bourhood, those best acquainted with its ravages "are best able to conceive."

Connected with this part of the subject, is another of your arguments, which, though of little avail pathologically viewed, is yet of some moment, as chiming in with a favourite prejudice of the vulgar, and also as having received some apparent countenance from high authority. At page 17 you observe, that "In the certainty of variolous contagion exerting "its effects upon the human body, and the extent of

* Edinburgh Med. and Surg. Journal, No. 17, for April 1822.

"its consequences, every thing depends upon the "accumulation of contagious matter, and its original "character for severity or mildness, and the extent, "duration, and mode of its application. There is "not a member of the medical profession of expe- "rience and observation but must have remarked, "that these circumstances distinctly exert their in- "fluence in the propagation of every contagious dis- "ease." Now, Sir, however heterodox it may seem, or, however greatly it may tend to lower your estimate of my experience and powers of observation, I cannot implicitly subscribe to all this. Though I would not deny that some of the circumstances enumerated by you may exert a certain influence in propagating contagion, I am compelled to deny, that "every thing depends upon the accumulation of "contagious matter," &c. in regard to the individual effect produced, or that much depends upon what is termed mildness or malignancy in the nature of the contagion itself. If the contagion be applied—or, more correctly, if it be received—the mere quantum, or the state of intensity or energy—I do not call it virulence—in which it is present in the body whence it proceeds, has little, if any thing, to do with the event—the smallest divisible portion of virus (and we may suppose of effluvium) often producing as certain and virulent a disease, as when the body is exposed at all points to the shock of a concentrated contagion, and *vice versa*. The influence, then, which the causes mentioned by you exercise, would seem to be but small compared

with that of other causes. Besides, the conclusion sought to be established loses much of its force, if we revert to the facts stated, when speaking of the prevalence of smallpox in this place (and in other places), and the kind and degree of exposure which the circumstances of the lower orders rendered unavoidable. Nor was any system of separation pursued with those very few cases of smallpox after vaccination which happened amongst the higher classes, but, on the contrary, free scope afforded for the contagion to do its worst. In support of these views, I fortunately have no farther to go, than to the number of the work just quoted,* in which appears the following passage, from Dr. Thomson's account of the Varioloid Epidemic. This author, when combating certain rules laid down by the National Vaccine Establishment, as to the mode of vaccinating, observes—"It "passes all power of comprehension to conceive, "how increasing the number of punctures can in "any way tend to *insure the production of a ge-* "*nuine cowpock.* The admission of this hypothe- "sis would oblige us to believe, that vaccine virus "differs in this respect from that of smallpox, of "itch, or of syphilis. For who ever imagined, that "the genuine nature of these diseases depended, in "any degree, either upon the quantity of their spe- "cific contagion, or upon the number of points "upon the surface of the bodies through which

* Edinburgh Med. and Surg. Journal.

"they had been introduced? Were this suppo-
"sition to be admitted, it would follow, I con-
"ceive, that a greater quantity of vaccine virus
"is required for the inoculation of an adult than
"an infant; unless we are to be told that it is by
"virtue of the number of the punctures, as well
"as by the quantity of the vaccine virus employ-
"ed, that genuine cowpox pustules are produced."
In these sentiments I beg to express my hearty and unqualified concurrence. They speak the language of pure pathology, and are in every way worthy of the author, and of the work in which he is reviewed. The mode of accounting for modified small-pox, which appears in the same article, is hardly so complete, certainly not so satisfactory. The reviewer says, "The only explanation which
"we can give of this, is, that the *constitution of*
"*epidemics*, as well as of individuals, is various,
"and that the contagion of the epidemic which
"has lately prevailed in Scotland has probably
"been unusually virulent." In support of this, he brings forward several authorities, none of which bear directly on the point. I am very sceptical as to the likelihood of the specific virus, in the body of one individual possessing *in itself*, either in degree or in kind, a higher malignancy than the virus generated in the body of another, and for the reasons I have assigned. Were it so, the matter from a severe form of smallpox, should communicate a severe form. This is not the case. There is no

difficulty in granting that, up to a certain point, in proportion to the greater or less quantity of contagious principle accumulated and applied, will be the more or fewer "chances of infection," (as Dr. Thomson accurately expresses it of the punctures in vaccination), but further than this I cannot go. When the reviewer speaks of the *constitution of epidemics*, it is much to be wished that he had been a little more explicit. One can understand how certain seasons, states of the atmosphere, conditions of the people as to food, clothes, &c., may favour the diffusion of contagion, or render the human constitution more susceptible in the first instance, or more liable to be severely operated upon when attacked, and so on. But when we are required to believe that any given contagion, raging epidemically, is endowed with powers of greater inherent virulence, our assent is not so readily yielded, and we are constrained to demand proofs more convincing than mere pronunciative statements of opinions, however respectable.

Facts will, I believe, bear me out, when, contrary to what you affirm, I state that cases of smallpox have *not* happened most frequently in those who have been longest vaccinated, neither has the susceptibility to smallpox contagion, nor the tendency to a fatal disease increasing with the distance from the period of vaccination, been generally observed *—at least with us, such an

* It is satisfactory to find these views supported by the writer in the *Quarterly Review*, No. 66, already quoted. In the number

averment might safely be made, as will appear more fully in the sequel. But were it otherwise, it would signify little, as more than the difference many times multiplied could be well accounted for from the more numerous chances of exposure after a certain age (supposing the vaccination to have been incomplete)—the great inattention, not yet superseded by proper regulations, which has all along prevailed in the practice of vaccination—the continually increasing difficulty of ascertaining with precision all the circumstances of the previous vaccination, after the lapse of a considerable time, &c. But in addition to these, and other causes, to which I have formerly alluded in general terms, there are circumstances which have not been much insisted on, but which observation and reflection have convinced me have not been without their influence.

It has been a practice, I fear much too common, to vaccinate infants within the first month after birth. Every one knows, that, at this age, all the organs and functions are in a state of very imperfect adjustment—indeed the tender being has scarcely yet had time to accommodate itself to the new existence into which it has been called. For a considerable time, the skin appears red and

of the *London Medical Repository* for February, 1827, will be found the results of vaccination in Paris and Geneva, which, though ambiguously stated, go to the same point. The intelligence, likewise, received from Denmark, Sweden, &c., on the general subject, is greatly promising.

shrivelled, frequently peeling off, and showing other marks of depraved action or of defective organization. No fact is better understood than that of the intimate connexion between the chylopoietic and cutaneous functions—the liability of the skin to many impressions (probably some of them atmospheric), most unquestionably to eruptive conditions and irritations, which are likely to interfere with the full and tranquil operation of the vaccine principle. That these have so interfered, requires no stretch of credulity to admit—and if they have, it will follow, that the practice of vaccinating at so early a period of life is one that calls for the strongest reprobation, and, at the best, is justifiable only under the most emergent circumstances, or when smallpox is at the door. *

* I am aware that Dr. Jenner mentions one instance of his having vaccinated a new born infant with perfect success. But this, though a strong proof of the energy of the virus, is one of those very, very few cases, in which his example is perhaps to be avoided rather than to be followed.

Dr. G. Gregory, in the *London Med. and Phys. Journal*, vol. 1 (new series), says, "I shall merely remark, that the most proper "age for vaccination is between the second and fifth month—that is "to say, after the infant has acquired plumpness, and before it has "begun teething." And in a very able article in the *Edinburgh Encyclopædia*, written apparently by the late Dr. Henry Dewar, the following direction occurs: "The end of the third month, when the "constitution has acquired some firmness, and before it is subjected "to the disadvantages of the period of teething, is the most eligible "time for the operation."

These authorities, confirmed as they are by the practice of all regular surgeons, may, I conceive, be considered quite decisive as to this matter.

Another eventful period of infant life, may be supposed to have had its share of blame, namely, *Dentition*, which is perpetually coming in the way to perplex and obstruct. Nor has due pains been taken by authors in recommending that this and other irritations should, as far as possible, be guarded against* —nay, some have even said, that the existence of cutaneous eruptions need be no hindrance; but, on the contrary, that vaccination, having a tendency to supersede them, is advisable! In some instances, undoubtedly, it does supersede them; but do they, in turn, exercise no counter influence? Such a course is the more singular, that in almost every case of smallpox inoculation where leisure was afforded, a severe system of regimen and medical treatment used to be previously enjoined, in order, as was expected, to clear the constitution of irritations, or to cleanse it of impurities. This, though done with a view somewhat different, implied a belief in the power of all such conditions to disturb the calm and safe operation of even the variolous poison, which is thought by you, and some other writers, to be much more potent in its nature than that of cowpox.

For a very short time after vaccination became known, the practice remained in the hands of those to whom only it ought to be confined, namely—regular surgeons. By and by, however, from the rapid subsidence of smallpox, the absence of danger, the erroneously-imagined simplicity and insignificance of

* Dr. Jenner, with his accustomed perspicacity, has very minutely pointed some of them out.

cowpox, and the safety and facility of imparting it, the utmost carelessness supervened. Every person was thought capable of vaccinating. Females did it with needles and penknives; and it is to be feared, that even by medical men themselves, from that eagerness to further the cause of humanity by which the profession has ever been and, I hope and trust, ever will be honourably distinguished, too little attention was sometimes given to the regularity of the various stages and phenomena, provided the contagion was but communicated. For the purpose of disarming prejudice, and charming away terror, cowpox was regarded in too unimportant a light, and even described, not as a disease, but as an ailment!* Books were written and addressed (by surgeons!) to the clergy, goading that body to become vaccinators—thus imposing on them a task foreign to their education, habits, and duties. Now, though all these endeavours, proceeding as they did from motives the most laudably philanthropic, helped greatly to abate the nuisance of smallpox at the time, there can be but one opinion as to their having contributed to swell enormously the list of doubtful and unsatisfactory cases, and, consequently, so far, to defeat the very end that they were meant to serve. Even public institutions, however essential to the carrying forward of the great and glorious work, may, on many occasions, have been instrumental in bringing about a similar result. Mothers bring their children only twice to such institutions—once, to be

* Bryce.

vaccinated; and again, at the end of eight days, to be inspected, and to have fresh lymph taken off for vaccinating others.* That done, they are seen no more. What happens between the eighth day and the twentieth, when the scab drops off, no one can tell, for no one knows. Of the abrasions, inflammations, suppurations, ulcerations, against which Dr. Jenner so repeatedly cautions, nothing is ever heard; for unless such prove very alarming indeed, the parents being thoroughly impregnated with doctrine similar to that taught by you, are in no haste to apply for relief, but are rather pleased that the symptoms should assume a smart or severe character. In truth, so strongly have I always been impressed with the dread of failure from these causes, and so often have irregularities occurred from carelessness and accidents, that I never yet could rest satisfied with visiting a vaccinated patient fewer than five or six times in the course of the disorder.

If these, and similar observations, apply to public

* Much has been written respecting the period of the disease most proper for taking lymph—some advising it to be done on the 7th, 6th, nay, so very early as the 5th day. Without calling in question the propriety of such a practice, farther than that it seems likely to endanger the safety of the vesicle, I may state, with regard to myself, that in no instance did I ever take off lymph earlier than the 8th day, and that the whole phenomena and pathology of the disease distinctly point to that day, as to the period when the virus is present in its highest state of propagative energy. Dr. G. Gregory *(Med. and Phys. Journal)*, observes, "it is obvious that the younger the lymph (fourth or "fifth day), the greater is its degree of *intensity*." I can perceive no satisfactory grounds for this opinion.

institutions, the officers of which are regularly-educated and professionally-experienced men, in the daily habit of seeing and treating disease in all its forms, how much more forcibly will they apply to those individuals into whose hands the practice of vaccination has but too often passed of late—or, rather, by whom the fearful responsibility of health and life is assumed, and in many instances the stream of public benevolence diverted from its established channels.

Let, then, these, and other considerations, which the length of this communication forbids me to dwell upon, be taken into the account, and we shall have no difficulty in explaining all that has happened, without eternally ringing changes on the inadequacy of vaccination; while more than enough will be left as food for amazement, not that the number of failures has been so great, but that they should not have been immeasurably greater. But to return.—For the purposes of the argument, nothing more is requisite than to state, that an incalculable amount of vaccinated persons above the ages of four and six, do not take smallpox when it is epidemic. The reverse of this should take place, were your position true, and would take place, I presume, had vaccination remained unknown.

With reference to the subject of time, it perhaps may not be uninteresting to notice a circumstance generally lost sight of. Twenty-nine years having elapsed since the vaccine discovery, it follows, that all, or nearly all, physicians, surgeons, apprentices,

and students, under the age of twenty-nine, must have been taken from those who have undergone vaccination, and, consequently, all the cases of smallpox that have come under medical treatment, for the last twelve or fifteen years, must have been visited by most of the persons in the condition here mentioned. The exposure must have been pretty free, and the liability considerable, notwithstanding the "charmed life," that medical men are alleged to bear about with them; yet, there is reason to believe that very few have suffered in this way. The only clear case * I have met with, is that of a surgeon's apprentice, eighteen years of age, who had been vaccinated when an infant, by a respectable practitioner. The victim, however, in this case, is stated to have been "living freely a "fortnight previous to his illness, and using great "bodily exercise in hot weather." In fact, the whole train of symptoms exhibited, from the first, a deadliness of character not usual, even for smallpox.

In one part of your Letter you state, that "the "mere recurrence of smallpox, after vaccination, "would form but little objection to the practice, "if this attack could always be depended upon as "being perfectly easy and safe. Experience, how-"ever, has, on the contrary, shown, that we can-"not depend upon the safety and mildness of the "attack of smallpox; for every successive year

* *Vide* Edinburgh Medical and Surgical Journal.

"has proved that the susceptibility for smallpox "has not only increased, but also the tendency to "a severe and even fatal disease; and these in- "stances, from the length of time which has now "elapsed since the introduction of vaccination, "have assumed the most alarming and decisive "character." Truly, Sir, one is apt to distrust the evidence of one's senses, when such state- ments are put forth in the face of what has been said by every writer of experience and emi- nence, within the last ten years, and it becomes exceedingly difficult to determine how to deal with such assertions. I am desirous of meeting them respectfully—but still it is impossible not to feel regret, when one sees, thus continually breaking forth, that recklessness of consequences, which would put all to the hazard, rather than that any idea, however unsupported, which had once found a place in your mind, should be lost to the world.

Whatever the adversaries of vaccination have said, I have never understood them to deny, that it possesses a power of altering the state of the constitution, or of impregnating or impressing it with a principle or condition whereby it is enabled to resist, if not the milder, at least, the severer ope- ration of the variolous contagion. Where, when, and how, you have found out "the tendency to a "severe, and even fatal disease," sets all my conjectures at defiance. I did suppose that though your (now, I hope, nearly demolished)

hypothesis of a temporary antivariolous influence were granted to cowpox, still that the influence, when worn out, would not leave the system in a worse state than it found it. But it seems even this negative virtue must be withheld from it.

I am equally puzzled to know how you have ascertained, that "we have been obliged to make a "total renunciation of every principle which was "introduced at the commencement of the practice, "and considered as matters of fact." That numerous failures have taken place in the hands of the most expert surgeons, no one dare gainsay—and that certain writers have expressed themselves with more timidity than before, is true—and as Polonius says, in the play, "'tis pity—and pity 'tis, 'tis true." Nor need it be disguised, that some of the leading periodical works, both literary and professional, have occasionally, of late, promulgated opinions less sanguine than those which they originally entertained.* In truth, so far as mere authorities, and these of a very select kind, are concerned, that part of the Jennerian doctrine, which recognizes the full protective power of vaccination, might be placed in some jeopardy, were such authorities to be taken at the highest estimate, and allowed to be on this point, what they are on many others, nearly overwhelming. Had the subject involved a mere medical hypothesis—had there not been thrown over it the invincible shield of common sense—it must have crumbled away

* Edin. Review, Quarterly Review, Edin. Med. and Surg. Journal.

like many other of the baseless fabrics of medical science, under a pressure apparently irresistible. The interests of vaccination, however, are protected from any catastrophe of this sort. At every step of the experiment, both in its principle and its details, there has remained open an appeal to facts, and to the unbiassed observation and understanding of mankind. This peculiarity, which distinguishes it from most other medical speculations, has steered it triumphantly over all the rocks and quicksands upon which it was in danger of being wrecked, and will, at last, conduct it safe into the haven of certainty. In this view, it presents a curious and instructive, though not altogether a solitary specimen, of the utter impotence of mere opinion or criticism, whether individual or collective, when it would attempt to compel public sentiment to bend to its dicta. Thus, though the authorities be potent and influential, and though it may be thought fool-hardy in any one to set himself in opposition to them, I do not despair of being able to show, that their too easy abandonment of this part of the question is at least causelessly premature.*

Taking all the cases of modified smallpox, or of smallpox, whether modified or not, subsequent to vaccination, for the very utmost that they are

* The firmness displayed by the Board of the National Vaccine Establishment, and the steady countenance held out to it by Government, during many embarrassing conjunctures, are beyond all praise, and deserving of public respect and gratitude.

worth, it is evident that they bear but a very small proportion to the mass of protected cases. To repeat this hacknied statement must, I fear, be tiresome to almost every professional reader. I am glad, therefore, to avail myself of assistance from any respectable quarter—and there comes, most seasonably, to my aid here, an authority whose sufficiency will not be questioned.

In the last number of the *London Medical Repository and Review*, appears the following account, which, besides corroborating some points touched on a few pages back, applies with such cogency to the subject matter in hand, that I transfer it entire to my text. 'The notion,' says the journalist, 'that the vaccine influence wears out in the human constitution, has recently occupied the attention of the committee of the *Academie Royale de Medecine*, who gave in their general report, on the efficacy of this practice, at the late annual public meeting, upon which occasion the veteran PORTAL presided. It is certain that smallpox has made its appearance in persons in whom vaccination had displayed all its regular phenomena; but, probably, with much less frequency than has been alleged; and not one has reached the knowledge of the academy which terminated unfavourably. The promulgation of the idea in question is looked upon by the committee as fraught with the greatest danger, inasmuch as it will disturb the peace of families, confuse the notions of those who attend to

the subject, and impair that confidence which is essential; while, as the period during which the vaccine influence is supposed to be valid differs exceedingly in the opinions of individuals, the proposal to revaccinate is judged altogether inadmissible. The concluding remark in their report is characterized by candour and good sense.' "It is evident," say the authors, "that when the utmost concessions "are made, when all the cases* of *smallpox after* "*vaccination* which have been reported, are consi- "dered authentic, it would be sufficient to compare "these rare occurrences with the innumerable cases "of the disease in those who have not been vacci- "nated; and also with the immense number of "those who have undergone the process, and been "exposed to contagion with impunity, in order to "be convinced that vaccine inoculation is one of "the most beautiful and useful discoveries that have "ever been made, and that this invaluable antidote "still preserves its virtues."

But one of the least equivocal of all proofs, in favour of the opinions now urged, and against the high authorities I have quoted, is to be found in the uniform practice of the whole medical profession—and in the conduct of nearly all the rest of the world. On this ground, and on this alone, the friends of the vaccine discovery are

* It may be asked here, what ratio the cases, seen by Drs. Thomson and Hennen, during the varioloïd epidemic, and all the cases seen by all the practitioners of Edinburgh, bear to all the cases vaccinated in that city and its neighbourhood, since the epoch of the Jennerian discovery?

entitled to assume, that the authorities have not prevailed against it, even to the extent of generating any serious doubt as to its full prophylactic property. Little cause, then, have you to boast of aid from them, in undermining the confidence of the public, by any admissions of theirs in favour of your hypothesis; for to whatever degree some of them may have hesitated as to the point of absolute preservative power, not one has ever expressed a doubt of the mitigating influence of cowpox, or advocated its temporary efficacy. But be that as it may, whoever has, on the authority of certain failures, or of certain cases of smallpox after vaccination, attempted to build up the doctrine, that vaccination is only an imperfect prophylactic as to efficacy (I here throw out of view all speculations as to a temporary influence)—or whoever has made concessions calculated to sap the foundations of that edifice reared by Jenner—has proceeded at his peril on insufficient data—and on his head be the consequences. All that such failures could possibly prove, was, that in the particular cases themselves, the powers of vaccination had either not been exerted to the uttermost, or had been resisted or counteracted by some idiosyncrasy* or external circumstance,

* It may, to the medical reader, seem superfluous to insist on the subject of idiosyncrasy or peculiarity of constitution, both temporary and permanent; but its influence is often considerable and capriciously exerted. For example—some persons cannot be made to take either smallpox or cowpox—others have resisted the former for a certain period of their lives, and then have fallen victims to it. There are families in which the disposition to receive a mild small-

and thus, a presumption, at the very most, against the efficacy of cowpox, might be opportunely thrown in the way of the antivaccinist, already nothing loth to take it up. But fair reasoning could never aim at establishing, on a few exceptions, any doctrine that should overthrow the general rule. This would be to subvert the principles of all reasoning. Even in the case of what is called modified smallpox, subsequent to vaccination, the bitterest antivaccinists, the most lukewarm defenders of vaccination, allow that the vaccine influence can alter the form, or mode, or degree, of smallpox. But no one can claim the right, from such cases, to assume, that such is all the power possessed by it, unless he could show, at the same time, which it is self-evident he cannot, that it has the same limited influence in those infinitely more numerous cases where exposure and resistance have been complete—always saving and excepting your infallible recipe for regulating and administering contagion. All beyond this could rest only on deductions hastily drawn by the alarmist or the alarmed. Yet has it been the means of spreading far and wide, a heresy which, with your good help, has retarded the attainment of one of the greatest blessings that God, in the fulness of his mercy, has ever vouchsafed to mankind.

pox, after vaccination, is so strong, that it pervades all the members of such families, even to the tenth or twelfth child, successively—excluding, of course, all idea or reasoning about bad lymph, improperly performed vaccination, &c. Such things, however, are beneath the notice of a good antivaccinist!

At page ninth you state, "Year after year, how-
"ever, notwithstanding every precaution had been
"taken to prevent their recurrence, these adverse
"facts have continued steadily to increase; and
"within the last three years, have assumed a
"character and extent to be mistaken by no one
"whose mind is not enveloped in prejudice and
"scepticism. The experiment is now, my Lord,
"distinctly allowed to be defective, and the great-
"est advocates contend for its possessing a power,
"*capable of only modifying, but not preventing,*
"*the operation of the smallpox contagion.*" Must I repeat, Sir, that these propositions are not allowed, but are, as has been already shown, contradicted by almost universal opinion and practice? The mere power of modifying is not all that it is believed to possess. The consideration of this point, however, would lead on to the enquiry as to what modification really is, or in what manner the modifying power operates. Is it the extinction of a given condition simply, or is this extinction accompanied by the formation of any new condition? Is there any positive state superinduced, or is it the negation of that state which previously existed? These questions it is not my purpose to attempt answering, for the discussion involved in them might be thought somewhat irrelevant here; and therefore, though they be well entitled to a careful consideration, I shall do little more than remark, that the impression on my mind is, that Dr. Thomson has not succeeded

in making out the identity of smallpox, modified smallpox, and chicken pox.* The agitation of the

* To pursue this subject, would engage us in a curious and interesting investigation respecting the very intricate and very obscure subject of modification. This, however, the present occasion forbids—yet I am tempted to hazard a few suggestions. If variola and varicella be identical, then smallpox is not prophylactic against itself, or rather against itself under the form of chicken pox; which chicken pox is termed a modification of smallpox, or is indeed the same thing as smallpox, and which modification again is as entirely individualized and capable of propagating itself in those who have never had smallpox, as smallpox itself is. It would thus appear that smallpox, having already exerted what has been generally understood to be its full and specific influence on the constitution, does not exhaust or extinguish the susceptibility to smallpox, but leaves it as open as it was before, with this exception, that the condition induced by the previous action of variola does not permit the virus, during this its second avatar, to manifest itself under the form of variola, but under that of chicken pox, which is the same thing as smallpox! This does seem a strange result, and if true, then the law of smallpox is, not to affect the constitution once during life, but almost invariably twice. Are we prepared to receive this as the established law? If it be not the ultimate law of the disease, then smallpox may be indefinitely modified, and why may not the modification be determined to ten different forms, as well as to one, and these as much individualized as varicella? When was this unexplained, and I may add, inexplicable, transmutation effected?

Another difficulty comes in the way. Varicella attacking persons who have never had smallpox, must do so by its own intrinsic and inherent power. It consequently is as distinct and specific a principle as smallpox, and must be independent of it. To consider it a modification of it, then, is, according to my perception of the matter, incorrect. Smallpox cannot produce it by inoculation, or otherwise, either in those who have, or those who have not been variolated—neither is it presumable that it can produce smallpox, or smallpox modified by cowpox, in those who have been vaccinated, by reason of the fact, that it was recognized long before the discovery of vaccination.

question has, I am afraid, served to embarrass the subject, at a time when it was disentangling itself

What I take to be generally understood by the modification of a specific disease is, the alteration by some power foreign or extrinsic to the virus, of some part of the characteristic form or mode under which it manifests itself. This alteration being brought about by external circumstances, can only be propagated under those circumstances. The virus, when made to act under the usual impressions, and accompanied with the usual agents, is still capable, by proper management, of giving back the original disease with all its powers restored. Such particular form, consequently, is not permanent, and cannot be rendered so, excepting under all the circumstances which impressed upon it that form. If it become permanent or fixed, or capable of producing its like independently, then, in strict language, it can no longer be held a modification. According to this principle, then, smallpox, as modified by cowpox, is not, I should imagine, essentially changed in its nature, but only slightly as to its form or degree. It is probably returnable into smallpox immediately, in a pure, unvariolated subject, or would be so in a very few successions of cases which had never been variolated or vaccinated. At any rate, it does not seem capable of being propagated under this particular form, in those who have felt the full vaccinating influence; neither can it produce chicken pox, nor can chicken pox produce it. The most familiar and perfect example, in all its parts, of what I should conceive to be pure modification, is to be found in the casual and inoculated smallpox. But the principle of this modification exhibits nothing in common with the phenomena of chicken pox or of smallpox modified by vaccination. The whole proof, then, of the identity of smallpox, modified smallpox, and chickenpox, narrows itself within a very small compass, and is resolvable into the close resemblance which a severe case of chicken pox has, at some particular stage, to a mild case of smallpox, and still more to a mild case of modified smallpox. But resemblances are not identities, and in this instance they hardly form a sufficient ground for disturbing a doctrine so long established, or for introducing one that requires to have reconciled so many things in their nature irreconcilable. The apparently insurmountable difficulties of this doctrine, are clearly pointed out in the *Edinburgh Med. and Surg. Journal.* To that work, the satisfactory manner in which the subject is handled, and

from many difficulties. It is therefore to have been wished, that, before throwing out such a tub to the whale, the doctrine had been fully matured by observation, or that it had been accompanied by an attempt on the part of Dr. Thomson, to determine the precise meaning of the term modification of disease, and to define its character, laws, and limits.

Again, at page 15, is the following paragraph: "All, then, my Lord, that can be contended for is, "that those who shall undergo the process of vac- "cination will *acquire a diminished susceptibility* "*for the disease of smallpox; a general mildness* "*of the disease if it should occur, and an almost* "*universal security from danger.*" These immunities, which, by the way, are far from despicable, you dispute, of course, and labour to destroy. The state of the case, as here given by you, in italics, is correct, so far as it goes—for, strange to say, it forms the concluding deduction drawn by Dr. Thomson, in his History of Smallpox, with the addition by him, that these "must now be considered as the "real advantages which have hitherto been derived

the length of this digression, warn me to refer. Very little light, so far as I am aware, has hitherto been thrown on the real nature of the modification of disease. The subject is one of very great importance, and deserving of a separate investigation. So far as things have yet gone, the effect of Dr. Thomson's investigations would seem to be to blend diseases hitherto considered distinct—while the object of John Hunter was to separate, by proving that things distinct had been confounded, because they had not been accurately understood.

" from the inestimable discovery of Dr. Jenner." But I protest, Sir, against this being as you and he would have it, all that is contended for. The steady and consistent supporters of vaccination, that is, the great body of medical practitioners, and of the community at large, do not rate the advantages of vaccination thus, but believe, that it possesses the properties here imputed to it, not minus, but plus those originally ascribed to it. Indeed, it must have been evident, if there be the smallest force in these observations of mine, that the views attributed by you to the friends of vaccination as their ultimatum of belief, are unwarranted by the practice of the profession and of the public. Admit, as I have already done, that there has appeared in a very few a disposition to waver in some points of faith, still the result shows incontestably that their example has exercised no material influence, indeed no influence at all, on the bulk of the profession, nor, to any noticeable extent, impaired the confidence of the reflecting part of mankind. Vaccination, though occasionally a little agitated in its course, moves onward as though no such doctrines had ever been promulgated.

As a reason for inducing the Minister to grant an enquiry, you plead (p. 31), that " we are not to calcu-
" late the bad effects of not granting this inquiry, from
" the mere consequences which are yet to follow the
" Vaccine practice itself; but that we are to put down
" against such conduct" (the persisting in vaccination, to wit), " all the ravages which the natural smallpox

"now produces," &c. This, Sir, a moment's serious reflection will convince you is a very heavy charge, and ought to have been well weighed before it was preferred—implying, as it does, a gross dereliction of moral and professional duty. Whoever has not thoroughly examined and expurgated himself on this subject, has indeed much to answer for. Since, however, the promoters of vaccination are to be made responsible for all the ravages of smallpox past, present, and to come, it is comforting to know, that, during the last eight and twenty years, fewer persons have perished from smallpox, than did from the same cause for the same period preceding the Jennerian discovery.* So far the reckoning might be settled without much difficulty, and without entailing very

* Some statements, by Dr. G. Gregory, in the medical article of the *Monthly Magazine* for February, 1826, come very opportunely in point here—at the same time, I wish not to conceal, that this writer, in the same report, and in his professional, and therefore more strictly legitimate account, in the *London Medical and Physical Journal* for the same month, speaks in rather a subdued tone, touching particular points of the vaccine question, while on the general subject his language is confident and exhilarating. Though it cannot but be matter of regret, that a physician of experience, and a warm friend to vaccination should speak despondingly on any part of the subject, I am far from participating in his doubts, which I trust he will find on reconsideration to be scarcely authorised even by his own statements. The medical reader, who is acquainted with his zeal in the cause, will probably be at little loss to understand the true animus of the sentiments he has expressed, but the public mind, ever ready to perplex itself with fear, might augur unfavourably from them. No one knows better than does this author, that Jenner *has* given the arch pestilence his death blow—and that some wounds are not the less mortal that the victim die not instantaneously.

keen remorse on the friends of vaccination. But are you equally sure of escaping unhurt from a similar imputation to that which you would here cast upon the adverse party? It amounts to nearly a moral demonstration, that had the same pains been used to further, that have been taken to obstruct vaccination, by rooting out, instead of fostering prejudices against it, smallpox might this day have been, if not exterminated, at all events, so far brought under subjection or regulation, as to have been rendered a very feeble instrument in the destruction of life. What say your conscientious scruples to this, Sir? or must all the load of obloquy and crime be borne by the hapless advocates of vaccination, and by them alone?

On this head, I must be indulged a little farther. Experience having long since placed beyond the reach of doubt or cavil, the interesting and decisive fact, that, in consequence of vaccination, fewer deaths happen from smallpox, though the antivaccinists were to speak "with the tongues of men and of "angels," it would profit nothing, for it becomes obligatory on every one who feels that humanity has a claim upon him, to be instant in adopting and promoting the practice, without allowing himself a moment's leisure for speculation or discussion.— Though every individual vaccinated were to take smallpox, this would be the plain course without regard to any particular facts. What, though many individuals may have died, who might not have died had vaccination remained unknown, because they would probably have been protected by smallpox

inoculation, it still avails nothing, if general results testify that a great many more individuals have been saved from death, who would have perished had the discovery not been made. No general good is to be gained without the infliction of some partial evil; nor is vaccination, or its supporters, obliged to make provision for all contingencies, though the antivaccinists would fain have it so, and sedulously avoid grappling with the whole question together. Upon this ground, and upon this alone, then, the question might be securely rested. Not another word need be said—the argument is closed for ever. This is the state of the case which every one feels and acknowledges, and it may serve to abate your sensitiveness as to the apprehensions and alarms of the public. Be assured, Sir, that such do little prevail; and would have less prevailed, had it not been for the supererogatory care of writers like yourself.

And is it, under such circumstances, and with truths like these staring people in the face, that you can deliberately think of proposing to the Minister the resumption of smallpox inoculation—the reintroduction of a practice, from which it has been incontrovertibly proved, that a greater destruction of life has accrued than from the ravages of even the casual disease itself! Doubtless, this increased mortality may have been partly owing to the imperfect state of the laws respecting inoculation—but from the very nature of the disease, the perfecting of any system is not within

within the range of possibility. Yet this is the boon you would confer on your fellow creatures. After having been nearly rid of the horrid pestilence for more than a quarter of a century, you would have it revisit us, making the human face and form hideous. Hear what a respectable periodical work * said, only a year ago, on this point. "Let those who would abandon vaccination be-
"cause it is not infallible, look the conse-
"quences of such conduct fairly in the face.
"Would they omit both inoculation and vaccina-
"tion, and expose the nation unprotected to the
"natural smallpox, a disease which kills one-fourth
"of those who catch it, and disfigures the coun-
"tenances or ruins the health of a crowd of
"survivors?—or would they return to smallpox
"inoculation, which renders the disease mild in
"those who are inoculated; but by keeping up
"constant supplies of the contagion, spreads it
"continually among the uninoculated, and occa-
"sions a greater mortality than if inoculation was
"neglected?—or, lastly, will they continue vacci-
"nation, which affords perfect security from small-
"pox in an immense proportion of instances—
"when it does not prevent it, deprives it of its
"danger—and permits a severe or fatal disease in
"only a few rare instances. There are many per-
"sons whose prejudices against vaccination are
"utterly insurmountable; they dwell on the few

* Quarterly Review.

"instances which they have known of smallpox "after cowpox, and forget the many in which the "latter has afforded complete protection from the "former; they dwell on a few instances of ino- "culated smallpox which were mild, and ended "prosperously, and forget that even the inoculat- "ed disease sometimes occasions death, disfigure- "ment, or ruined health." It is difficult to say any thing more convincing, than what is to be found in the plain sober truth of these observations. With regard, then, to that part of the case which concerns the preservation of the public health, and the saving of life, it does seem, Sir, as though not a shadow of reasoning were left to you. Whatever may be the feeling of greater security in particular cases from inoculated smallpox, will not affect the merits of the subject, viewed as a whole. No theory, then, however ingenious—no sophistry, however plausible—no appeal, however touching to prejudice or passion, can elude the force of those facts and principles which array themselves against you. It would grieve me beyond measure to push matters past the bounds of moderation, and were it an affair of mere speculation or conjecture, I could be well content to let your fall be as gentle as possible. But the feelings and interests of society are not to be compromised for the sake of mere complaisance. You perceive I talk triumphantly—I do so—not, be assured, on account of the advantage over you here, in point of reasoning, but because facts and

results place the subject in a light which no efforts, of any writer, can extinguish or obscure. It is not I who overcome, but truth. Recollect—*magna est veritas.*

Allied to your proposal of restoring smallpox inoculation with all its honours, is the plan lately suggested by Dr. Ferguson.* Though not a new idea, it has philanthropy and feasibility to recommend it, and it has the merit of being an apparently philosophical application, not made before, of a principle old almost as the vaccine discovery itself. Every one acquainted with the subject will immediately call to mind the cases inoculated by Dr. Woodville, at the Smallpox Hospital, London, and the satisfactory discussion and explanation which they underwent by Dr. Jenner himself at the time;† and here the subject might

* "A Letter to Sir Henry Halford, Bart. proposing a Method of "inoculating the Smallpox, which deprives it of all its Danger, but "preserves all its Power of preventing a second Attack. By R. "Ferguson, M. D., Member of the College of Physicians of London "and Edinburgh—1825."

† I have elsewhere remarked (page 66 of this Letter), with what clearness Dr. Jenner had anticipated almost every thing connected with the phenomena of vaccination, and I cannot omit here directing the reader's attention to one curious instance of forethought. A proposal made the round of the scientific journals some time ago, said to have been suggested by a French author, of applying the potential cautery to the pustules in smallpox, by way of diminishing or destroying the irritation in extreme cases. At page 39 of Dr. Jenner's Inquiry, will be found the following passages, which, as illustrative of the comprehensive powers of his mind, I must be allowed to give at full length. Speaking of some cases in which he

be dismissed without further remark. There are, however, reasons for not dealing with it after this summary fashion. In the first place, the author is, I believe, a physician of station and eminence in the army—secondly, that circumstance not only entitles his opinions to attention, but is likely to secure for them both favour and influence—and, lastly, though not least (so far as concerns my present purpose with you), his sentiments on vaccination coincide in the main with yours—or what is worse, he adopts yours with but little qualification.

The pamphlet of Dr. Ferguson came upon me,

feared the supervention of a severe erysipelatous inflammation, he says, " Accordingly, after the patient had felt an indisposition of " about twelve hours, I applied, on the vesicle formed by the virus, " a little mild caustic, composed of equal parts of quick lime and " soap, and suffered it to remain on the part six hours. It seemed " to give the children but little uneasiness, and effectually answered " my intention in preventing the appearance of erysipelas. Indeed " it seemed to do more, for in half an hour after its application the " indisposition of the children ceased—perhaps a few touches with " the *lapis septicus* would have proved equally efficacious." He next asks, " What effect would a similar treatment produce in " inoculation for the smallpox?" and at page 111, he thus expresses himself. " Seeing that we possess the means of rendering the ac- " tion of the sores mild"—(this part of his doctrine ought never to be lost sight of)—" which when left to chance are capable of produc- " ing violent effects; and seeing, too, that these sores bear a resem- " blance to the smallpox, especially the confluent, should it not " encourage the hope that some topical application might be used with " advantage to counteract the fatal tendency of that disease, when " it appears in this terrific form? At what stage, or stages of the " disease this may be done with the most promising expectation of " success, I will not pretend now to determine. I only throw out " this idea as the basis of further reasoning and experiment."

I must say, in a manner at once welcome and unwelcome. I was grieved to see a person of his respectability so far influenced by doubts and fears, as to deem it necessary to bring forward at this time of the day, a plan which in any way called in question the efficacy of vaccination. On the other hand, I was rejoiced to see published and authenticated, the latest and the worst that can be advanced against the Jennerian discovery. It is satisfactory to possess the secret of the enemy's movements, and to know all that he can do, or that he can think of doing—for though, "look you, "th' athversary (you may discuss unto the duke, "look you) is dight himself four yards under the "countermines: I think 'a will plow up all if there "be not better directions." Yet—

"Let it work;
"For 'tis the sport to have the engineer
"Hoist with his own petar: and it shall go hard
"But I will delve one yard below their mines
"And blow them at the moon."

Before entering on the analysis of Dr. Ferguson's plan, I would notice, that, with all his approbation of your doctrine, he throws overboard entirely that part of it which affixes a precise period to the vaccine influence—and his scheme proceeds upon the principle of rejecting your proposal of bringing back smallpox inoculation—so that the support held out to your doctrine is, after all, a very equivocal support. It is but right, however, to state the extent of that support. Dr.

F. not only says, "In reviewing the numerous "examples of smallpox supervening upon vacci- "nation, I find that the conclusions drawn by "Brown, of Musselburgh, are on the whole cor- "rect" *—but he adds, "they who wish to ve- "rify the conclusions of Brown, will find ample "documents in Thomson's Historical Sketch of "the Smallpox." It is not requisite to state to you, though it may be to the general reader, that the proposal of Dr. Ferguson is founded on the ascertained power of cowpox, to modify either the state of the constitution, or the operation of the smallpox virus, so far as to ensure the mitigating influence of vaccination, together with the fancied greater protecting power of variolation. It has frequently been observed that when the two poisons have found their way into the body, at or about the same time, there has followed a milder smallpox than results from either the casual or inoculated form of that disease. This is believed to arise from the controlling, mitigating, or modifying agency of the vaccine principle. Of this peculiarity Dr. F. proposes to take advantage—or, to induce artificially a disease which is often induced naturally, and thus to combine the mildness of cowpox with what is supposed to be the greater security of smallpox. The disease thus produced is termed the variolöid disease, or modified smallpox. Such a theory wears a captivating aspect, not only to the multitude,

* Letter to Sir H. Halford, p. 5—6.

but at first sight to the profession, always foremost in adopting whatever expedient promises to further the cause of humanity.

"There are four modes," says Dr. Ferguson, "of communicating the variolöid disease." Three of these, however, he expressly reprobates, and confines himself to the first, viz. "By inoculation with "both poisons"—that is with cowpox and smallpox. Now, although the proposal may be said to have been entirely superseded by what Dr. Willan has said on the subject, yet as Dr. F. presses his plan upon the attention of the President of the College of Physicians, it may not be amiss to try how the theory will be found to work.

It has never yet been, and in all probability, it never will or can be determined, whether smallpox or cowpox possesses the greater intrinsic energy. Dr. Jenner evidently thinks that the superiority belongs to cowpox, for he explains Dr. Woodville's cases on the supposition that the cowpox virus had assimilated that of smallpox to its own character. Dr. Willan says, "that when a person was inocu-"lated with vaccine and variolous matter about the "same time, both inoculations proved effective." This would seem to indicate an equality of power. You seem to be of a different opinion, and to hold the vaccine energy as comparatively nothing. However, not to dispute about the matter, let it be assumed that their powers are equal—it is notorious, that in every individual constitution there exists a difference of susceptibility to the action

of the two poisons. Here arises a source of fallacy and confusion at once, which we have no means of remedying. Dr. Willan then goes on to say, "that the vaccine vesicle proceeded to its "acmè in its usual number of days, and the ma- "turation of the variolous pustule was attended "by a variolous eruption of the skin." I cannot imagine what advantage could be gained by this result, even supposing the two to be acting separately and distinctly at the same moment—which is granting more than I am willing to grant. If the two be coexistent and coefficient, then we have present vaccination and inoculated smallpox, a condition which brings with it no improvement whatever. If cowpox be supposed to predominate, then the patient is in the same predicament as if no smallpox had been present, and we advance no farther than we do under the vaccine regime. If smallpox assume the ascendancy, then we are thrown back upon smallpox inoculation—no very enviable fate. In no instance, can we have any thing like an assurance that both forces when they meet will move on in the diagonal line of mildness and safety—and though they do cordially coalesce, the disease produced is no other than what is almost invariably the consequence of smallpox supervening upon vaccination. There would then be one part of the world protected by casual or inoculated smallpox—another by cowpox—and a third by modified smallpox; a condition not one degree better than that in which we live at present, but worse, inasmuch as a comparison

would then be made by the vulgar to the disadvantage of vaccination, while there would remain no means of removing the cause of the dissatisfaction. At present, whatever individual doubt or inquietude may exist, there is no general distrustful feeling—or, at least, none that seriously interferes with the comfort of the public. The alternative, then, would seem to turn upon, whether we are to inflict a great deal of positive evil and uncertainty, with a small proportion of uncertain good—or shall the world continue in the possession of a large share of actual enjoyment, with as much of the uncertain good as the other state can furnish, and with but a very remote chance of a small evil?

Farther, this theory of Dr. Ferguson either goes upon the principle of keeping alive pure cowpox and pure smallpox, or it means nothing. Now, it is plain, that, supposing the scheme to be carried into effect, the object aimed at cannot be accomplished. For instance—if I inoculate a patient A, I must take the matter from two patients, B and C, the one under genuine cowpox, the other under genuine smallpox. The effect of this two-fold inoculation, is not cowpox, nor is it regular smallpox; but it is, or ought to be, modified smallpox. Here, then, my progress is stopped—for if I wish to inoculate a second patient, D, I dare not do it from A, with his variolöid or modified disease, because that is expressly declared by Dr. F. to be "dangerous." What, then, is to become of D, if there be no double supply of matter at hand? I must either have in reserve, or must

procure a fresh supply somewhere else. But then, according to the theory, all other practitioners must be similarly situated, and, consequently, in no better condition to assist me, than I am to assist them. Besides, such a thing is necessarily debarred by the doctrine, which enjoins mildness and security, by inducing a variolöid disease. To obtain this, two patients would, in every instance, be required for the inoculation of one by the double method, and thus, by a sort of suicidal operation, the process must speedily destroy itself. We must either go on preserving two stocks of virus, which is impossible, or if possible, is inadmissible by the theory, or the two diseases must be exhausted in the ratio of two to one, and in the last resort we shall have nothing left but the modified or variolöid disease, from which, we are told by Dr. F., that it is dangerous to propagate the disease farther. Here, then, we should be brought to a stand; for if we proceed at all, we must of necessity inoculate all the patients that hereafter may be with the virus of this modified or variolöid disease, which, as it is not a hybridous compound, could not be made to preserve its new character, but would be commutable into smallpox in the very first unprotected case, and the whole business would have to be commenced *de novo*.

It is not a little remarkable, that Dr. Ferguson, in his appendix, has himself anticipated the objection here made to his plan, and which almost approaches to the character of a mathematical objection; and yet he conceives that he has obviated it in the

following remark:—"Should the time ever arrive, "when smallpox matter is not to be procured, then, "I suppose, the disease itself will have ceased to "exist, and with it, the necessity of guarding against "it by vaccination, or by any other plan. If the cow-"pox and smallpox tumours preserve their respective "characters on the arm, and each is capable of pro-"pagating a specific disease, then the objection, that "it requires the existence of natural smallpox and of "the cowpox, falls to the ground." (Appendix.)

Could all the people in existence be protected at the same instant of time by one process or another, then smallpox would cease to be, in so far as it would have no subject to work upon. But the lapse of but a few moments would suffice to bring into the world a new series of human beings, with fresh susceptibility to smallpox—while that fatal disease is one not extinguishable in a moment, but the principle of which is preservable in a variety of forms and shapes, and for various periods of time —and thus, the last case produced or protected by the variolöid disease, supposing they were all reduced to one, might disseminate effluvium, or deposit virus, ready to act the first favourable opportunity. That the cowpox and smallpox tumours would continue to preserve their respective characters on the arm, and each be capable of propagating a specific disease, is not so certain—and, indeed, is almost precluded, first by the doctrine, and then by the fact—for Dr. Willan says, that, "inoculated at the same time, "they restrain the operation of each other on the

"body, and somewhat alter the pustules and vesicles, "without effecting any change in the qualities of "the fluid they contain." That they produce no change in the primary quality or propagative energy of the diseases respectively, or that they are capable of returning each into each when singly applied to an unprotected subject, may easily be believed; but that the vesicles and pustules jointly existing should, when applied jointly to a fresh subject, produce a perfect specimen of each disease, capable of propagating itself, and of preserving its specific character, is by no means probable, when we keep in mind the alteration in the form of the pustules and vesicles just pointed out by Willan, and when we know, that the disease sought to be produced by Dr. Ferguson, is neither cowpox nor smallpox, but the variolöid or modified disease.

Dr. Ferguson admits it to be proved, that "the "variolöid disease is a perfect security for a time "at least," and, "from the history of the disease, "that that period is the lifetime of the patient." Now, as protection during life ought, I presume, to be quite sufficient for any person, and as this protection is, generally speaking, attainable by those who suffer an attack of smallpox after vaccination, without any greater danger than from the mixed or variolöid product—or, rather, as the two diseases are almost identical—it seems to be exercising a degree of caution wholly unprofitable and, after what has been said, impracticable.

Dr. F.'s answer to Dr. Willan's objection, "that

"it must disseminate contagion," is invalid, because it is only applicable so long as no law exists to enforce vaccination—while some of the objections already advanced, apply to Dr. F.'s plan, even allowing smallpox to be a disease not transportable or communicable in any other way than by contact or inoculation. But when we also reflect, that to render the plan effectual, and consistent with itself, smallpox must be maintained; and that, though it were made an object of the strictest legislative provision, no power that we possess, even were the infant to be doubly inoculated the instant that it came out of its mother's womb, could possibly bring the devastations of smallpox within any fixed limits; the advantages of such a proposal must be greater than they have been yet made to appear, before Dr. F. can expect us to surrender our confidence unconditionally. But allowing, for a moment, that inexhaustible sources both of smallpox and cowpox virus, could be constantly kept up without difficulty or danger, still it might be made a question whether the complexity attending the inoculation of two diseases,* the labour of observing, the subtleties of distinction, the trouble of attendance, the uncertainty of result, the unsatisfied state of the public mind, would not of themselves render such a plan as that of Dr. Ferguson altogether

* Dr. Ferguson speaks of the one inoculation preceding the other by two or three days. To this I have not adverted in the text, for, in my opinion, it would render even the execution of the plan absolutely nugatory.

abortive. When with this we contrast the fact, that we have vaccination, already competent to all that this conjoined disease is capable of—the mechanism of the process working simply, satisfactorily, and safely—a degree of security equal to what the conjoined disease can produce, against death, disease, or disfigurement, in the very few cases of smallpox which do occur after vaccination, with perfect security in all the rest—and that, even far more than this might be ours, were all the advantages of vaccination secured to us, as they might and ought to be; when, I say, we carefully ponder all these things, and consider, as Sir Gilbert Blane does, that "it is demonstrable, that if at the first mo- "ment of this singular discovery, at any moment "since, at the present or any future moment, man- "kind were sufficiently wise and decided to vacci- "nate the whole of the human species, who have "not yet gone through the smallpox, from that mo- "ment would this most loathsome and afflicting of "all the scourges of humanity be instantaneously "and for ever banished from the earth;"* we may well pause before we give up benefits of such magnitude, and which the world has been nearly thirty years in purchasing.

These considerations appear to me to be fatal to

* Not having the work of Sir Gilbert Blane by me, I take the above passage as it is given in a Tract by Mr. T. M. Greenhow, surgeon, of this town, published two years ago, in which the writer has concentrated within a small space many valuable facts, and much satisfactory reasoning, on the subject of vaccination.

Dr. Ferguson's proposal of double inoculation, and leave on the mind a feeling of pain and surprise, that he should have sanctioned by his authority a plan founded, as it seems to me, on a fallacy; or that he should have thrown the weight of his name into the scale, as an approver of your general position of the temporary efficacy of vaccination.

I have thus dwelt on Dr. Ferguson's theory at, perhaps, greater length than the occasion may seem to require; but it was too recent a publication, and from too respectable an author, to pass unnoticed; and, besides, it has met with an indulgent, though, it must be confessed, a very qualified reception, from an authority to which I have often had occasion to refer.* I would add, though the simile may be thought somewhat quaint, that the seeking about for this or any similar project, or for the reintroduction of smallpox inoculation, is as though a man were to search round the room for his spectacles, while all the time they are bestriding his nose.

I once more return to your Letter, and, before proceeding regularly with the few remaining observations I have to make on it, I beg leave to say three words on a subject which has always appeared to me to have been very much misconceived, and, in consequence, a great deal of misrepresentation to have been heaped upon Dr. Jenner—I allude to the doctrine of the *universality*

* Quarterly Review, No. 66.

of effect, alleged to have been ascribed by him to the vaccine influence. Scarcely had a few cases of smallpox after vaccination occurred, ere the anti-vaccinists, with a littleness of view, and not much magnanimity of purpose, laid hold of the want of universality of effect, that a rent might be made in the mantle of Dr. Jenner. Vaccination was found not to be *always* an *absolute* preventive, ergo, it was not to be held as *almost* always a preventive—or, rather, it must be considered no preventive at all, and ought to be rejected. And there are not wanting authorities, even at the present hour, who allow views equally confined, to influence their reasonings on the subject, though in their practice they discard them altogether. With nearly equal reasonableness might it be said, that because, in one instance out of an incalculable multitude, mercury or sulphur fail as antidotes, therefore, in all the rest, these substances are not antidotes, and deserve to be expunged from the Therapæia. But, leaving argument behind, let us come to the facts of the case. I apprehend no person has a right to put more words in the mouth of Dr. Jenner than those which he uttered, or to impute to those words meanings which are not imputable, according to the rules of fair and liberal interpretation—at all events, if there be a doubt, he is entitled to the benefit of it. But I ought here to sue for pardon from every reader of taste and judgment. Of all the writers that ever wrote, Jenner is about the last, whose accuracy of diction any one should think of attacking with the

smallest prospect of success. His words, which apply more immediately to this point, are these :— "But what renders the cowpox virus so ex- "tremely singular is, that the person who has "been thus affected is for ever after secure from "the infection of smallpox."—*(Introduction.)*— Again, he asserts, p. 43, that "the cowpox protects "the human constitution from the infection of the "smallpox." Now these, as *medical truths*, stand at this moment precisely where they did when, in the year 1798, he recorded them, with his own hand, in his ever memorable work; but with this difference, that instead of being what they *then* were, the offspring of his own unassisted thoughts, founded on experiments performed by himself only, they *now* stand forth confirmed by the experience of all that is learned and illustrious in medical science—ratified by the hand of time—and consecrated by the benedictions of grateful millions throughout the universe. After such a fate, can it be left for me to elucidate what such a man as Jenner has written? Assuredly not. —But there are persons who either will not reason or cannot discern. To such I would address myself by remarking, that all the observations, principles, doctrines, and opinions of the discoverer of vaccination must be taken with express and expressed reference to a *perfect* disease.* It would

* Speaking of the mode of preserving smallpox matter, he says, (p. 88.) "But when kept several days in a state of moisture, "and during that time to a warm temperature, I do not think it

be a libel on common candour and understanding to suppose any thing else. In what part of his works does he assert preventive power as having the character of either a mathematical or physical truth; or where does he say that vaccination, *qua* vaccination, is a never-failing safeguard? And has he not taken all the pains, that a modest and severely-cautious mind could take (would that a certain author had but followed so bright an example!) to point out the causes of imperfection, and the many irritations and conditions which so often prevent the constitution from receiving the full and satisfactory impress of the vaccine influence? In the very last sentence of his work he says, "To have admitted the truth "of a doctrine, at once so novel and so unlike any "thing that ever had appeared in the annals of medi- "cine, without the test of the most rigid scrutiny, "would have bordered upon temerity; but now, when "that scrutiny has taken place, not only among our- "selves, but in the first professional circles in "Europe, and when it has been uniformly found in "such abundant instances, that the human frame, "*when once it has felt the influence of the genuine*

"can be relied on as capable of giving a *perfect* disease, al- "though, as I have before observed, the progress of the symptoms "arising from the action of the imperfect matter bear so strong a "resemblance to the smallpox when excited completely." No person can pretend to say, *a priori*, in any given case, that smallpox protects absolutely from smallpox. The reservation must always be implied, that the protection will depend on the variolation being *perfect*. Why, then, more should be required of cowpox than of smallpox, by those who hold smallpox to be infallible, is not very apparent.

"*cowpox in the way that has been described*, is "never afterwards, at any period of its existence, "assailable by the smallpox, may I not, with "perfect confidence, congratulate my country, and "society at large, on their beholding, in the mild "form of the cowpox, an antidote that is capable "of extirpating from the earth, a disease which is "every hour devouring its victims—a disease that "has ever been considered as the severest scourge "of the human race!" Dr. Jenner was too wise a man to preach the doctrine of universality in its strict and literal sense; and nothing but an eagerness to find fault, or a sullen determination not to give him credit for the simplest powers of discrimination, could have fastened such a construction on his language, or, at least, on the spirit of his writings. Few men were more sensible than was this rarely-gifted person of the imperfection inseparable from medical facts and reasonings, or better knew that the term universal is, of all others, the most exceptionable when applied to our science, unless in one sense little flattering to its importance or to the self conceit of its votaries.*

You demand of the minister, "What is the best plan "for securing the ultimate safety of those who "have placed their hopes of security in the vaccine

* Those who are enamoured of the doctrine of the infallibility of medical facts and reasonings, would do well to consult the able work of Mr James Moore on that subject, when a few unexpected and rather unpalatable home truths will not fail to attract their notice.

"process, and have not yet had a subsequent attack "of smallpox?" and you next ask, "Is it possible, "then, to go on with vaccination under the circum- "stances and defects it now stands convicted of?" My answer to the second question is a virtual answer to the first, and is comprehended in the simple affirmative, YES. You go on to state, "The only object then, my Lord, now can be, *to* "*have an antidote which shall banish all appre-* "*hension of suffering an attack of smallpox, or* "*this attack positively free from danger.* I appre- "hend, my Lord, you will not now meet with any "medical practitioner of experience and character "who will lay his hand on his heart, and declare "that the Jennerian discovery, as it is now prac- "tised, is that expedient." Although I would not go the length of saying, that vaccination, in the imperfect manner in which it is now suffered to be practised, could fully and finally answer such a purpose, I have no hesitation whatever in laying my hand upon my heart, and declaring, that, as it might and ought to be practised, I believe vaccination to be the very expedient here sought for.— "Still, I am afraid (you add), as we are wholly "ignorant of the sources and nature of the smallpox "contagion, as it is now a disease so generally "diffused over the whole world, and so severe and "dangerous, we could not possibly guard ourselves, "either as a nation, or as individuals abroad; and, if "it should once get amongst us, after an absence of "thirty or forty years, the consequences would be

"dreadful. I must also observe, that the deter-
"mined obstinacy of the National Vaccine Estab-
"lishment on refusing and resisting all enquiry,
"has been productive of the most distressing
"consequences." You incautiously let slip here the important admission, that, in consequence of vaccination, smallpox may be made to disappear for thirty or forty years. This is making a great advance towards extirpation, and is nearly equivalent to a tacit refutation by yourself of the doctrine of temporary influence.

Ignorant we certainly are of the sources and nature of smallpox contagion; nevertheless, of its originating spontaneously any where, neither history nor tradition furnishes us with the slightest positive proof; and of its being generated in any European country where it never existed before, there is not so much as a presumption of proof. From sporadic or endemic growth, then, there is nothing to be dreaded; and the idea of importation from abroad need occasion no uneasiness, for, on the supposition that all in this country would necessarily be protected by vaccination, there would be left no subjects on whom smallpox could commit its depredations. We cannot conceive the existence or operation of the disease, except in relation to bodies on which it can act.—It has no abstract entity or energy. Quarantine in this case would be superfluous, and travelling on the continent need not be restrained by statute, for, from the most authentic accounts, the sources

of infection are rapidly drying up every where: in truth, other countries have now far more to fear from us than we have to fear from them, for it is in civilized Britain alone—the birth-place of Jenner—that smallpox, to our disgrace be it spoken, is cherished with fondness, or its hated existence preserved from that fate which it has experienced even among semibarbarians.

We are now prepared, therefore, to look at the legislative part of the question. Though I approach the consideration of it with becoming deference to that body in whose hands the final disposal of the subject is now placed, I shall not be deterred from stating what occurs to me with perfect freedom.—The time has in fact arrived when every one ought to have his mind made up, and prepared to give an opinion for or against. It is little creditable to an enlightened age, that, with the means of information so widely diffused, there should now be found any person of the commonest capacity whose mind is in a state of incertitude on this question. In urging what I have to say, should I be charged with doing that which I have already condemned in you, namely, with anticipating measures which ought to flow from the wisdom of the legislature, let it be remembered, that our circumstances are different. Any observations of mine calculated to rouse the attention of government, are merely incidental. I do not call upon those in power to exercise their judgment and discretion, and, in the same breath, inform them that only one course is left

for them to pursue; the purport of what little I shall advance, will be to show, that, throughout the whole of the affair, from first to last, the subject has not received that attention from the legislature which its great importance would seem to have demanded. At the same time, however forcibly one may be impressed with such a conviction, it is satisfactory to know that, besides many excellent writers, who entertain corresponding sentiments, support is not wanting from authorities which, by conventional agreement, are accredited as the organs of public opinion. I, therefore, willingly extract the following paragraph from a periodical work* which, in this respect, exercises considerable influence:—

"About twenty years ago, when it was proposed to purify the medical profession from quackery and ignorance by legislative enactments, the late Dr. Gregory, of Edinburgh, published a letter on the subject, in which he remarked, that "Eng-"land is a free country, and the freedom which "every freeborn Englishman chiefly values, is "the freedom of doing what is foolish and wrong, "and going to the devil his own way." This is strikingly exemplified in the present state of vaccination in Great Britain, compared with its state in other countries in Europe. In the latter, general vaccination was ordered by government; no one who had had neither cowpox nor smallpox could be confirmed—put to school—apprenticed—or married. Smallpox inoculation

* Quarterly Review, No. 66—1825.

was prohibited. If it appeared in any house, that house was put under quarantine; and in one territory, no person with smallpox was allowed to enter it. By such means the mortality from this disease, in 1818, had been prodigiously lessened. In Copenhagen, it had been reduced from 5,500, during twelve years, to 158 during sixteen years" (that is from an annual mortality of 458, to an annual mortality of 9!). "In Prussia, it had been reduced from 40,000 annually, to 3,000" (something more than from 12 to 1); "and in Berlin, in 1819, only 25 persons died of this disease" (about one person in 8,000). "In Bavaria, only five persons died of smallpox in eleven years; and in the principality of Anspach it was completely exterminated. In England, on the other hand—in England, the native country of this splendid and invaluable discovery, where every man acts on these subjects as he likes—crowds of the poor go unvaccinated; they are permitted not only to imbibe the smallpox themselves, but to go abroad and scatter the venom on those whom they meet. A few years ago it broke out in Norwich,* and carried off more persons in one year than had ever been destroyed in that city by any one disease, except the plague. A similar epidemic raged at Edinburgh; and last year, it destroyed within one of 1,300 persons in the London bills of mortality."

* *Vide* the interesting account given by Mr. Cross, of its appearance in that city.

Without unnecessarily transcribing or multiplying documents, the above may be taken as an epitome of general results formally authenticated and confirmed by similar results in every part of the globe. Can we, then, on a moment's reflection, fail to be struck with surprise, that, in this country, not one step has been taken to ensure to the people all the advantages which the vaccine discovery proffers for their acceptance? "All kindreds and tongues and nations" have embraced it with avidity; with us it has been left to make its way by the slow, feeble, and unavailing efforts of reason and persuasion. True it is, that those who are satisfied, must be satisfied from conviction — But persons over whom reason exercises control, require not a thirty years' probation to arrive at a conclusion. Besides, facts and results convince much sooner and much better than the soundest arguments. On the other hand, it is too trite a saying to be repeated, that so long as men are born with the infirmities of men, a certain proportion (small, indeed, but sufficient to do mischief) will be found impenetrable to reason, persuasion— nay, to facts. In no state short of Utopian, can the mind be expected to rise superior to its weaknesses, and yield itself to the guidance of rational philosophy. Nothing, then, can be more deplorably useless and hopeless, than to proceed upon the notion, that the day can ever dawn, when all people shall concur in the propriety of any one measure, be it in itself ever so excellent or desirable—

yet, in regard to vaccination, men seem to act as if they looked for the advent of such a chimera.

A question, then, arises, whether, for the sake of a minute fractional part of the community, which must continue to the end of time immersed in folly and ignorance, an enormous majority of this great empire, who thankfully receive what science has won for them, shall have their peace of mind invaded, and the dearest objects of their affections kept in a state of perpetual uneasiness and alarm? Are all who were alive at the commencement of vaccination destined to die off without witnessing the fulfilment of its golden promises?—Does the legislature wait till the experiment shall have been prosecuted for a sufficient length of time? The ensuing Sessions of Parliament will not have ended before the completion of the thirtieth year of that experiment—performed, not in a corner, but in the broad light of day. If to these thirty years be added the fifty-three years of protective power, exhibited in one of Dr. Jenner's original cases of cowpox, or if an average be struck, or the whole period be taken at fifty or sixty years, we shall have a time almost equal to the term of man's natural life, and double that of his active exertions. If such a term be insufficient for establishing a fact in natural science, when is the experiment to terminate, or what duration will be required hereafter for determining those truths which are to guide mankind in the pursuit of knowledge? Dr. Jenner survived his discovery full five and

twenty years, yet was he suffered to die, like Moses, in sight of the land, without being permitted "to go over thither." In the year 1802 (that is, at the very moment when the proofs of your doctrine of temporary influence must have begun to manifest themselves), the sum of £10,000. was voted by the House of Commons as a reward for a discovery which he had, with the high-mindedness that should ever distinguish the medical character, instantly given to the world undebased by any sordid stipulation. This sum, though lamentably deficient as a national recompence, even when augmented, as it was afterwards, by a farther grant of £20,000., was yet large enough to show, that, at a very early period, the benefits of vaccination were deemed worthy of parliamentary acknowledgement and encouragement. Years and years have passed away, and those benefits have gone on accumulating. Every member of the legislature, either in his own person, or in the persons of his family, has availed himself of those benefits, yet does parliament decline, or delay, to secure them to the people at large. And, why? for no apparent reason under heaven, except some vague, unfounded idea that the right must be held sacred, which every man in this free country claims, of possessing as much disease, either in degree or kind, as he chooses; or, in the more impressive language of Dr. Gregory, the right "of doing what is foolish and wrong." The unfettered exercise of this right would be an unanswerable plea, could every

man engross a disease to himself without injuring his neighbour or the community; he might then take it to his bosom, and die of it, if he had a mind—and welcome. Nay, I presume the legislature would not think of curtailing a person's right to set fire to his house or property, provided it were situated in a remote part, where the flames could not spread beyond a certain distance; but in a crowded city or street, no such licence would be allowed.—In the framing of laws, particular feelings and interests, be they ever so respectable, must give way to the general good—why, then, partial obstinacy, prejudice, and bigotry, should be reverenced, as they are in this instance, exceeds my power of comprehension. On a similar ground, the laws should not interfere in the case of any disease, yet they do interfere both in respect to the smallpox and the plague. Wilful or needless exposure in the street of persons under smallpox, is an offence indictable at common law. Quarantine, though stript of many of its vexatious annoyances, is still performed, often to the detriment of commerce, and though it be admitted in a work by no means sceptical as to contagion in the plague, that "it does not seem "probable that the metropolis of England can ever "receive from the shores of the Levant, a sufficient "measure of contagious miasmata to cause the exist-"ence or prevalence of positive plague."*

* Quarterly Review, Vol. xxvii. One might suppose that the plague is importable by the bushel or kilogramme, and that it has both a positive and negative existence.

Even with regard to inoculated smallpox, the slightest retrospect will satisfy the most unthinking, of the absurdity of neglecting the easily-practicable means of lessening the havoc made by that disease—and all, because the eccentric whims, or, as they were sometimes gravely but mistakenly termed, the conscientious, and even religious scruples of not a tithe of the population, must, on no account whatever, be treated with levity. The casual smallpox was looked upon as an immediate visitation of the Almighty (what calamity is not?), and no expedient, however simple, and obviously vouchsafed by the same gracious power, must be used to avert or to alleviate its horrors! Sound doctrine enough this for Turks and stupid fatalists, but hardly fit for christians, in the eighteenth and nineteenth centuries. A similar principle would lead a man when afflicted with illness to refuse all help, and physic might literally be thrown to the dogs. Yet jesting apart, for it is no jesting matter, resistance to smallpox inoculation, and the supineness of the legislature in not subjecting that resistance to heavy penalties, had no better excuse than what has been here assigned. Casual smallpox killed one in five of all whom it attacked—inoculated smallpox killed only one in several hundreds; but, from the unconfinable action of the contagion, and the numerous sources of infection thence generated, more persons died of smallpox after than before inoculation. Yet not one movement was made by the legislature to circumscribe the evil, and to secure the

large amount of good derivable from inoculation, by enforcing its universal adoption. Things were left to take their course; and inoculation, which might, by strict legislative provisions, have been rendered a blessing, became, in the end, a depopulating curse. A far greater blessing than is smallpox inoculation, even at the best, has now, for a series of years, been placed within our grasp, free of trouble, and almost free of cost, yet does our conduct verify the scripture saying, of the pearls cast before swine, and trodden under foot. The legislature remains inexorable. —Beyond an annual grant of £3,000.* to the National Vaccine Establishment (an institution which has done eminent service to the cause), not an effort is made to oblige the refractory to be kind to themselves, and just to others. For it should never be forgotten, that scarcely any but the idle, ignorant, profligate, and vagrant few, claim the privilege of acting foolishly and wickedly, and have it so readily conceded to them. The useful, the worthy, the intelligent part of society, all drink freely at this living fountain of health and comfort, yet to them the waters are poisoned. I wish to be understood, that the sentence which follows (and every other wherein I venture to make use of a scriptural allusion), is written under a deep sense of awe and humility; but are we not taught in the Bible, that if ten righteous men could be found

* It deserves mention, that during the discussion on the estimates, last sessions, when this vote was proposed, the friends of vaccination in the House had enough to do to defend its interests.

within the city, it should not be destroyed. And shall we reverse the all-merciful sentiment by saying, that for the sake of ten unrighteous men, the city shall not be saved ?

But to do the most senseless and obdurate of this class justice, every practitioner will bear witness, that if a time of trial come, and the case be judiciously put, their opposition is seldom so enduring but it may be overcome. When danger lifts the latch of the door, and death, in the shape of smallpox, threatens to stalk in upon the floor, they are ready enough to flee for refuge to any quarter, and would then gladly seize the means of escape which they had thoughtlessly disregarded. In point of fact, then, the superstitious notions or prejudices of the people, about which so much has been said or pretended, and for which the full advantages of vaccination are withheld from the nation, though they may exist as a mysterious, undefined bugbear, easily conjured up to obstruct the enactment of necessary laws, yet, when brought to the test of examination, cease to be of the smallest value as arguments against legislative interference. Such prejudices only acquire strength and importance from the absence of all legal power; for to do away with them requires efforts which all have not the inclination, some have not the leisure or the opportunity, and others will not be at the pains to make. Nothing is so easy as to propose and to project societies for putting down smallpox inoculation, or for encouraging vac-

cination, by persuasion or by premiums; but all of us know what such things are worth in accomplishing finally any purpose. Though they have done a great deal, and might be made to do a great deal more, they are never more than partially effectual—while here, a universal and complete effect is wanted. According to the homely adage, "what is every body's business "is nobody's business;" and such institutions, proceeding upon mere speculative views, however praiseworthy, and influential to a certain extent, commonly soon languish, and prove, in the end, incompetent to bring about any finished result.—Witness the fate of the association formed in Norwich, in Gloucestershire, and even of the Royal Jennerian Society of London itself, and many others. That "such measures," then, "might re-"strain smallpox inoculation more effectually than "acts of legislature," as has been argued in a medical periodical work of much repute,* I am

* Medico-Chirurgical Review and Journal. It is with regret that one observes the subject of vaccination but seldom introduced into this popular work, and when introduced, it is commonly treated with a degree of indifference, or, at least, lukewarmness, which, unfortunately for the interests of vaccination, is strikingly contrasted with the generally clear, fervid, and forcible style, in which the other articles in the same publication are written. In this work, I incidentally find that I have made a mistake in designating Dr. Ferguson an army physician. However, this is a matter of little consequence, as no adventitious circumstance, or the want of it, can affect the merits of his proposal; which proposal, although I have canvassed it with a freedom which, I have no doubt, he will easily forgive, must be considered alike honourable to his ingenuity and humanity, and were no other alternative left, or could it be rendered available, is infinitely to be preferred to smallpox inoculation.

inclined not only to doubt, but entirely to deny. Those who recommend such institutions as allsufficient, in the very same paragraph acknowledge the reluctance to receive gratuitous vaccination —deplore the inefficacy of the best meant endeavours—laugh at the visionary thoughts of expecting to root out prejudices, especially from the minds of some of our senators—and express the disappointment experienced by themselves at the manner in which their disinterested exertions and persuasions have been met. While they advise us to influence people by acting upon their sense of pride, where the moral sense is blunted, they seem to forget, what they had admitted just before, that there are people in whom pride and moral sentiment are either extinct, or, if present, are enlisted on the side of the enemy. "The utility of vaccination in "the army and navy," says the reviewer of Sir Gilbert Blane, in the same work, "has shown us "what may reasonably be expected from such a "vigorous effort in private practice." But, instead of parallelism, there is opposition between the two cases. The success in these departments of the public service depends on the power which the officers possess of enforcing their regulations; which power is totally wanting to the private practitioner. The onus of persuading has thus, from one cause or other, fallen upon the members of the medical profession almost exclusively. Nor has the task (by a wilful perversion of all liberal principle) been unaccompanied with a certain share of obloquy.

Acting from motives which, it might be thought, malignity itself could not misconstrue, they have not unfrequently had applied to them the mistrusting maxim, *Timeo Danaos et dona ferentes.*— Yet great has been their reward, notwithstanding. In the consciousness of having discharged an arduous duty to their fellow men, when interest would have pointed out a very different course, they have a solace, of which the sneers of the world cannot deprive them. Almost all that has been done, at least latterly, in this country, they have done—and through good report and evil report have held on their way, till, by their approved rectitude of intention and undeviating adherence to honourable principle, they have put detraction to open shame. Still, unless the legislature stretch forth its strong arm, medical men may wear away their lives in vain aspirations and fruitless exertions, ere they see their "own bright land" made happy in the possession of the legacy bequeathed to it by Jenner. There will never cease to spring up a certain number of persons whom no information can enlighten, no eloquence charm, and no reasoning convince—and smallpox, though shorn of its beams, will, from time to time, walk abroad, smiting with ugliness, blindness, sickness, or death, all who are unprotected by vaccination.

After all, then, the effect of coercive measures would only be to compel the infatuated or indolent to do, in the time of tranquillity, what they are too happy (but it is often too late) to have it in their

power to do in the hour of peril; and if this be a hardship, let us hear no more of the severity of our laws. Those who object to legislation, at the same time that they admit the inefficiency of every other means, commence with the deadening assumption that to legislate is impracticable. This may be an expeditious and convenient mode of getting rid of a proposition—but we may surely question its fairness and propriety. The principle of interfering by legislative enactments is, as I have already said, acted upon in smallpox and plague. The rest would affect questions of mere expediency, mode, extent, or detail. It is recognized by you in your scheme of bringing back smallpox inoculation. The proposal to legislate in the particular case of vaccination is not new, for, in the year 1813, Lord Boringdon brought a bill into parliament, for the express purpose—but it was thrown out, for no good reason that has ever yet been given, so far as I could find. However little we may admire the summary and despotic means employed by the governments of foreign countries, the beneficial effects of those measures need not be lost upon us. I confess that I am sanguine enough not to anticipate one serious or valid obstacle to any well-matured measure that the legislature might be pleased to pass for the enforcing of vaccination. The country is now, I believe, fully prepared for such a measure, and the good sense of the people forbids us to doubt that it would be cheerfully received and

obeyed by all whom it is of the least importance to conciliate, or even to regard.

But by this time, probably, you, and all my readers, are of opinion, that enough has been said on this part of the subject—I therefore desist.

Thus far I had reached when Dr. Baron's "Life of Dr. Jenner"* fell into my hands, a work which does honour to the medical literature of our day, and which, when completed, will undoubtedly supersede all that has been written on vaccination—with the exception of Dr. Jenner's own works. It affords me the highest gratification to perceive, that none of the opinions or views I have endeavoured to support, are in any material feature at variance with those of so fully competent a judge. Indeed, could I have calculated that this insignificant production of mine, would have been delayed as it

* I cannot resist the present occasion of acknowledging the delight and instruction I have received from the perusal of this most interesting piece of biography. Every thing is set forth with the candour, simplicity, clearness, and philosophic moderation which shone so conspicuously in that "surpassing genius," whose life and character it so faithfully and so beautifully delineates. By the style in which Dr. Baron has executed his difficult task (for few were entitled or able to write the life of Jenner) he has proved himself worthy his great theme. Less praise it were unjust to withhold—more it is not in the power of any one to bestow.—From this rich mine of information I should have purloined a great many articles touching important matters—such as the proper time, (eight times 24 hours) for taking off lymph, the despicable attempts made in a variety of quarters to rob Dr. Jenner of the discovery, with their triumphant discomfiture by Dr. B., &c. &c.; but I have already trespassed too far, and must refer all who wish to be enlightened on the subject, to Dr. Baron himself.

has been, by unforeseen occurrences, till after the appearance of his classical volume, I should scarcely have mustered assurance to print it.—Now, however, it must take its chance. One thing is rather favourable for me. The first part only of Dr. Baron's work is yet published, and that part brings down the history of vaccination, no farther than 1803—six long years before the tocsin of temporary influence was sounded on your part, and the eighteen years war had begun—consequently, he has not forestalled, in print, at least, the discussion of those points to which my observations are principally directed—otherwise, what I have said could not have obtained a hearing. As it is, something may be found in it subservient to the interests of the good cause, and if so, my labour will not have been bestowed in vain.

Dr. Baron, I observe, does not call for an Act of Parliament—nay, he even says, "an "authoritative enforcement of this kind has cer- "tainly been of the greatest service in foreign "countries, but the habits and modes of thinking in "England do not admit of such compulsory interfe- "rence;" and he quotes a letter of Sir Henry Mildmay's, in support of this opinion. With all possible respect for such authorities, the reasoning is clearly inapplicable to the case now. It was founded on a belief, in 1803, that, "vaccination, if left to take "its own course, its adoption in lieu of smallpox "inoculation, will very shortly become universal; but "if attempted to be enforced by Act of Parliament,

"a prejudice against it will be created, which will, "for some time at least, retard its progress."* Now, it is certain, that vaccination *has* been left to take its own course, and that its adoption has *not* become universal. These are the very things objected to, and sought to be remedied—while it is as certain, that to have enforced it, in 1803, the date of Sir H. Mildmay's letter, would, in all probability, have realized the well-grounded fears of the writer. But four-and-twenty years make a difference in most things. What was highly inexpedient, and would, perhaps, have been impracticable or ruinous, in 1803, may not only be practicable and highly expedient, but absolutely necessary, in 1827, simply by the rule of contraries, if, for no better reason, because matters are in a position the very reverse of what they were. Still it is sadly mortifying to know that Dr. Baron is opposed to me on this very important point. I would fain, therefore, like the drowning man, snatch at a passage or two from his work, that might, in any way, be interpreted as sanctioning legislative interference. At page 265, after enumerating and approving the means used in different countries, for suppressing smallpox, he says, in the words of Dr. Sacco, "If "all governments would exert themselves to procure "the regular vaccination of the children born in "their states, smallpox would soon disappear." In other places, he uses expressions of similar import,

* Sir H. Mildmay's Letter to Dr. Jenner, in Dr. Baron's "Life "of Jenner."

some of which I shall here condense. "If "the practice can accomplish such benefits in a "crowded city, which is never altogether free from "variolous contagion, what might it not achieve, "were it employed as it ought to be?" "Smallpox "was extinguished by the judicious regulations for "the employment of vaccination in Ceylon." (Ceylon is a military settlement, and regulations could most probably be directly or indirectly enforced.) "The proof that vaccination could do so much, must "fill every rightly-disposed mind with grief, that "it had not been so employed as to prevent "altogether this waste of human life." "By an "ordinance of the Austrian Government, dated at "Vienna, March, 1802, a public and *authoritative* "recommendation was given to vaccination. The "*prejudices* which had at first opposed it were *thus* "*effectually overthrown*, and a series of *regulations* "were *established*, which soon rendered it general "in Vienna; and in no long time, smallpox was "almost banished from that capital." "Let vacci-"nation be effectually and universally employed, and "smallpox must cease." "Shall not these unques-"tionable statements arouse the attention of the "community to secure all the blessings placed within "its reach?" These, taken together, furnish clear intimations, that (without unduly wresting Dr. Baron's words from their true meaning), though his written opinions be unfavourable to any forcible measures, his sentiments are by no means adverse to a rigorous system of regulation.

At this protracted stage of the discussion, it is satisfactory to be able to produce a statement of cases, authenticated from the records of the Newcastle Dispensary, and confirmatory of much of what has been advanced in this communication. As the tables and documents* themselves are too bulky to be inserted, I shall detail, as succinctly as I can, the substance of the information contained in them, and leave every one to draw his own conclusions.

From the 1st of June, 1824, to the 29th of April, 1825, there were entered on the Dispensary books, 118 cases of smallpox. Of these, 18 were of smallpox after vaccination generally—that is, presumed perfect and imperfect vaccination—as will be seen by the subjoined table. Of this number, 10 were perfect, of whom 1 died; and 8 were imperfect, of whom 2 died.

Twenty-four may be taken as the extreme amount similarly affected with smallpox, that is, after perfect and imperfect vaccination, since 1801, the year when inoculation for cowpox commenced at the Dispensary. Of these, 13 were, after presumed satisfactory vaccination, of whom none died, and 11 were after imperfect vaccination, of which number 2 died; which, with the late cases, make in all, 42 cases of smallpox, after supposed perfect and imperfect vaccination, and 5 deaths, or 1 in 8 nearly. It will be seen, however, that after perfect vaccination, the proportion

* For these documents, I am indebted to Mr. James Wilkie, jun., Assistant Surgeon of the Dispensary, to whose assiduity and ability, I am happy to have it in my power to bear this public testimony.

is only one death in twenty-three, while after supposed imperfect vaccination, it amounts to 4 in 19, or very nearly one in five. But we shall take the average on both, viz. 1 in 8, and proceed with the calculation upon that for the present.

The whole number vaccinated at the Dispensary during four and twenty years, is 20,264. There will be then, as matters have turned out here, one case of smallpox for 482 persons vaccinated, and by the same rule, one death from smallpox for every 3,856 persons vaccinated. Or to state it another way, there will be 482 chances to

TABLE.

| *No.* | *Age.* | *Character.* | *Degree.* | *Result.* |
|---|---|---|---|---|
| 1 | 3 Years. | Imperfect. | Severe. | Died. |
| 2 | 7 | Ditto | Mild. | Cured. |
| 3 | 9 | Ditto | Ditto. | Ditto. |
| 4 | 6 | Perfect. | Ditto. | Ditto. |
| 5 | 2 | Ditto. | Ditto. | Ditto. |
| 6 | 12 | Ditto. | Ditto. | Ditto. |
| 7 | 10 | Ditto. | Severe. | Ditto. |
| 8 | 8* | Imperfect. | Ditto. | Died. |
| 9 | 5 | Perfect. | Mild. | Cured. |
| 10 | 12 | Ditto. | Ditto. | Ditto. |
| 11 | 9 | Ditto. | Ditto. | Ditto. |
| 12 | 12 | Imperfect. | Ditto. | Ditto. |
| 13 | 12 | Perfect. | Ditto. | Ditto. |
| 14 | 3 | Imperfect. | Ditto. | Ditto. |
| 15 | 9 | Ditto. | Ditto. | Ditto. |
| 16 | 3 | Perfect. | Severe. | Died. |
| 17 | 19 | Imperfect. | Ditto. | Cured. |
| 18 | 17 | Perfect. | Ditto. | Ditto. |

* Vaccinated when three years old at the Dispensary, but not inspected.

It may be remarked, likewise, that the interval between the period of vaccination and the subsequent attack of smallpox is not given, because it could seldom be correctly ascertained. But of the 18 cases, 6 were under six years of age. Respecting them there could be no mistake. All with the exception of 6, had the disease in a very mild form.

one against a person taking smallpox at all after vaccination, and 3,856 chances to one against his dying of that distemper, or being defaced or injured, when he has so taken it. It is admitted that one in four or five hundred perishes from inoculated smallpox, under the best treatment that has yet been devised. The proposition will then stand thus: the chances of escaping death are eight times greater from vaccination, irregularly conducted as it has been, than from inoculated smallpox, which you would substitute in its place. In fact, the certainty of *taking* smallpox after vaccination, not more than equals the certainty of dying of it by inoculation, while the certainty of death, *when taken after vaccination*, is eight times less. And this is the very worst view of the case, too; for, if the rate be according to the average mortality, after presumed perfect vaccination, it will be *twenty-three times* less instead of *eight*. On the other hand, calculating the deaths that must happen from casual smallpox, if inoculation for that disease be persisted in, and the contagion preserved and indefinitely propagated, as in that case it must be, the deaths would be not 1 in 500, as they are now from inoculated smallpox, but an average might raise them to 1 in 100, probably to 1 in 50, or less, and the risk of dying be increased of course in the like proportion, while the chances of escaping death after vaccination might be multiplied, not only eight times, but eighty and eight times, and the danger from smallpox be reduced almost to nullity, were vaccination

made part of the law of the land.* These are consolatory views, that cannot be brought too prominently forward, nor are they to be set aside by assertion or argumentation. It will rest, then, with the Prime Minister for the time being, to decide whether variolation or vaccination be the best expedient for ensuring the lives and happiness of his Majesty's liege subjects. Indeed, though this principle has been adverted to,† I have not reasoned upon it at length. Yet this is the light in which a statesman would necessarily be called upon to regard it. The greatest saving of life, with the smallest expenditure of health and comfort, would be his primary object. Nor would it occupy his thoughts whether vaccination prevented smallpox or not, the question for his consideration being, whether it prevented *death*, without increasing danger, discomfort, or disease. If every person vaccinated were to be seized with smallpox, it would signify nothing to him, provided the number of lives saved to the country were increased as eight to one, and along with this, unlimited exemption from mutilation and the developement of a horrid train of fatal disorders.

Observe, I have purposely run the estimate in the Dispensary Report as close against vaccination as

* In the Report of the Central Committee of Paris, for 1815, it is stated, "that *one* individual out of several millions had smallpox after vaccination."—*(Dr. Thomson's Historical Sketch.)* But indeed, "they order this matter better in France."

† Page 103.

truth would allow. Were it put strictly, it might be raised a full third, or nearer a half, higher in favour of cowpox; because local circumstances have much diminished the numbers vaccinated at the Dispensary for the last ten years, and proportionally augmented them in other quarters, while nearly all the casualties arising out of the difference, have been thrown upon that institution—thus, by a two-fold operation, making the average to bear against vaccination, so far as these lists are concerned. One thing deserving of attention is, that of the 20,264 vaccinated, 2,508 are reported to have been vaccinated, but not inspected; the parents not having had the good sense or the gratitude to return. Yet with all these, and many other disadvantages, 42 is the very utmost that can be said to have taken smallpox after cowpox, amongst those admitted on the books of the Dispensary, during four-and-twenty years, amidst a population ranging from forty to sixty thousand, in many places densely distributed, while the numbers of all the vaccinated which have furnished casualties from smallpox is much nearer fifty than twenty thousand. Besides, though smallpox has never in any one year of the twenty-four, raged as it did during its last prevalence, it has never been absent more than three years together at any one time. Nay, for fifteen years of the twenty-four, it has been present, more or less, with various intervals, and in one instance, it prevailed during five years in succession (from 1816 to 1820 inclusive), and one out of the fifteen (in 1813), the number admitted is as high

as 28—while no means of separation or security were used, not even the benefit of an hospital, but the sick treated at their own houses. Yet 173 is the entire number of smallpox cases from 1801 to 1824, which, with the 118 cases of that and the following year, gives 291 as the total of smallpox cases treated at the Dispensary in twenty-four years. Contrast with this the fact, that for twenty-four years prior to the introduction of cowpox at this establishment, that is, from the year 1777, when the charity was instituted, 4,055 cases of smallpox appear on the lists, when the population was less by a third, and in *one* of those years, more by seventy-two cases of smallpox were entered than have been entered in all the four-and-twenty years since. I am not conversant enough with the principles of calculation, to determine what proportion of our population has each successive year been liable or is at this moment liable to smallpox, according to the high antivaccine standard, or to your cycloid periods; but this I know, that, disregarding speculation, common sense could not endure the violence that would be done to it, if, assuming the preventive to be no preventive, or but an inadequate or temporary one, there should, under all the circumstances I have mentioned, be, in the course of four-and-twenty years, only 291 cases received of a virulent specific disease, which ninety in the hundred would otherwise take once in their lives, and with every facility afforded them of taking it.* I must not forget to add, that the

* The same Dispensary register shows a very different result indeed as regards the other two leading exanthems, measles and scarlatina.

general results in private practice were, if possible, far more satisfactory—not an instance of death from smallpox after cowpox having, to my knowledge, ever been heard of.

Such, then, is a sketch of the occurrence here of smallpox, with a calculation as to results. The sketch and the calculation, are necessarily rough and defective, but they have authentic registers and experience for their basis. It is one instance more on the right side, and it agrees wondrously well with others that have happened in other towns and cities.

There is one view of the subject which must not be passed over. The advocates of smallpox inoculation cannot allege, that in the treatment of the disease they have any improvement to suggest. So far as our present knowledge goes, *that* is perfect. The expected amelioration, then, must arise from rendering inoculation universal by penal laws. Supposing, then, every infant born to be inoculated—and supposing, what is impossible (but I do it because it is in favour of smallpox inoculation, in order to carry the reasoning against it *ad absurdum*), that the contagion could be confined to the bodies of the inoculated, still, as the annual number of births for the British Islands is, by the last census, 343,660, it follows, that as smallpox by inoculation kills one in five hundred, about 700 persons *must* die of smallpox every year—no power could save them; while 86 only would be the number of deaths by smallpox after vaccination, even according to the lowest estimate that *can* be made of its preservative powers. But

reverse this picture, and restore things to their real state—then what do we see? In consequence of the illimitable energy of smallpox contagion, the mortality could not be kept down by inoculation to one in 500, but must mount up to one in 100, or one in 50 (nay much higher, as will presently appear), in which case, 7,000 would be the smallest number that must infallibly be cut off from among the people every year;* while, if the estimate be regulated by the results of presumed perfect cowpox, only 30 would die in one year of smallpox, subsequent to vaccination, even under the present order of things. But were vaccination to be enforced, the probability is, that not three would die yearly throughout the empire.

On reverting still more minutely to the Dispensary lists, it appears that the total number of deaths from smallpox, in four-and twenty years (from 1777 to 1801), is 230, or within very little of ten deaths annually, from inoculated and casual smallpox jointly, or one in eighteen. The proportions separately agree with common experience,† viz. one death in four or five for the casual, and one in five hundred for inoculated smallpox. Thus smallpox, during the twenty-four years before the commencement of vaccination at the

* The ordinary allowance is 40,000 persons annually—and with all the perfection of which smallpox inoculation is susceptible, the slaughter would probably not fall far short of this number.

† Immediately after the establishment of the Dispensary, smallpox inoculation amongst the poor was zealously promoted here by the surgeons, according to the most approved practice, each surgeon taking to himself a district, and using every means that skill and humanity could dictate, to stay the ravages of the pestilence.

Dispensary, was never any one year absent from Newcastle, and nearly decimated those whom it attacked, while for twenty-four years, subsequent to vaccine inoculation here, smallpox has succeeded to cowpox, at the rate of two cases (hardly so many) every year, and the population has sustained a loss of only one person every five years from smallpox after vaccination. Rate my calculating powers, therefore, as high or as low as you will, here is a statement, which, while it leaves calculation out, sets refutation at defiance. Extending themselves, as these most important facts do, over a period of eight-and-forty years (or fifty inclusively) that is exactly twenty-four years before, and twenty-four years after the introduction of the Jennerian discovery here, they present us with a grand and imposing result, which, I should hope, will, by every dispassionate person, be deemed satisfactory at least, if not decisive.*

According to the judgment, then, that I have formed of the subject generally, and of the late prevalence of smallpox in this town and its immediate neighbour hood, I should say that Newcastle merely underwent

* Were the number of deaths from smallpox after cowpox to be taken according to the rate of supposed legitimate vaccination, or as 1 in 23, there would be here one death for each eleven thousand of the whole number. It is singular enough, that the grand total of births, 343,660, divided by 11,000, gives just 31, or nearly the number (30 being the number) that would die from smallpox after cowpox, supposing vaccination to be conducted upon a plan corresponding to the most perfect scale of vaccination which we are at present acquainted with, but which we know to be in itself highly imperfect. This, on the face of it, is rather a lucky coincidence, the great and the small scale showing a sameness of event.

the purification which every place has undergone, or may look to undergo, so long as all the respectable part of the community lie at the mercy of the ignorant, the negligent, and the worthless. While the present system lasts, there must be continually floating about a great number of unprotected cases. These accumulate, and form so many offerings ready to be heaped upon the shrine of the devouring Moloch, smallpox, whenever he appears to demand his prey; nor does it require much of what is termed epidemic or atmospheric influence to enable him to sweep away those victims, which the obduracy and folly of one part of the public, and the passiveness of another, seem to take delight in preparing for him.*

To sum up all, Sir, the utmost that you, or any other writer, has been able to advance against vaccination, is simply this—that, as a preventive, it has in some instances failed. And, what then? Aye, WHAT THEN? It is for you to answer. On the other hand, an enormous aggregate of persons, under thirty years of age, of all classes and conditions, in

* This receives some countenance in the instance of Newcastle, from the circumstance, that the two longest intervals of release from smallpox have been followed by the greatest number of smallpox cases in one year. And it is too notorious, that however the matter stood in the former of those periods, a culpable neglect or indifference about vaccination had prevailed for some time previous to the last appearance of smallpox. Nor must the curious coincidence be left out, that these two appearances (I shall not say what part of the neglect and indifference may have originated in the same cause) followed hard upon the two principal publications of the author or whom I have written the present lengthened commentary.

all countries, continue to resist smallpox. In despite of every kind and degree of exposure the mass remains untainted. By the experience and consent of the medical profession and of mankind, the power which protects them is vaccination.—Such truths may well drive conviction home to the most incredulous (may they help, too, to confirm the wavering and the wayward!) that the antivariolous influence of cowpox is not, and cannot be, what it is considered by you, "feeble, partial, and *temporary*."

And this brings me back once more to my original ground of opposition, from which station I call upon you, with the most emphatic earnestness, to meet the whole question largely and liberally, with such documents and proofs as shall leave no room for doubt in the minds of the reasonable and enlightened members of society, or consent to relinquish your opinions as unsupported, and, in the fullest sense of the word, *unsupportable*.

In the expectation, then, of seeing you welcomed back a *reconvertite* to doctrines which, I trust, you will one day find to have been too hastily abandoned, I take my leave. One word, however, at parting—for I would not even seem to part in anger. My pretensions, at setting out, were mighty and high sounding, and by many may be thought to have far outstript performance. To waste conjectures upon that point, however, would be idle now. Should it even prove so, I console myself with the assurance, that the monument erected by Jenner will endure, however numerous and com-

plete the failures of unskilful artificers like myself to prop it, or, rather, to clear away the rubbish that obscures its fair proportions; nor will such failures tend to further one step the designs of those who seek to overthrow it.

For the rest.—I am aware, Sir, that a tone of asperity pervades much of what I have written, nor can I plead guiltless to the charge that such was in some degree the character intended to be impressed upon it. Besides those reasons which I have partly explained already, there appeared in your publications a disposition, hardly to be looked upon as accidental, to hold up the conduct of your professional brethren on the vaccine subject, not merely to censure, but to something bordering on derision and contempt. In common with the rest, I felt the sting; and though its rankling was for a long time borne, my patience was at last worn out. It would be uncandid and untrue, therefore, to say, that I have been able wholly to divest my mind of a certain indignant or resentful feeling which may have mingled itself with my diction. Yet while I do not shrink from avowing the influence which such a sentiment may have exercised, I know that a higher and a better motive actuated me. That motive sprung from the wish to render service to a cause deeply interesting to humanity, by bringing into disesteem, opinions which I considered prejudicial to that cause. My success might have been more complete, perhaps, had the style of this letter been distinguished by a greater

degree of suavity. But judging of me by yourself, you will allow that to feel smartly and to write smoothly, though an enviable, is not an easily attainable gift. Every one must do his own work in his own way, or not do it at all. Still I should incur my own reproaches, and the reproaches of others, if these remarks shall be found to exhibit any heartlessness, or want of generous, right feeling. Against an imputation of this kind I am most solicitous to guard myself. My aim unquestionably was to be temperately severe, not gratuitously harsh or abusive. There is an irascibility (you must have felt it?) which the mere act of controverting engenders and exasperates. To its impulses I may sometimes have yielded unknowingly and too unsparingly—never, I trust, unbecomingly.—But rancorous, malignant hostility, I abjure as abhorrent to my nature and my principles. Should any expression, therefore, unhappily savour of such a spirit, or in any shape offer offence to your feelings as a gentleman, I desire that it may be blotted out, and beg to add, that there is no explanation, apology, or reparation, however ample, that I shall not tender with alacrity and pleasure.

I am, Sir, &c.

HENRY EDMONDSTON.

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## ERRATA.

Page 24, *for* prophylectic, *read* prophylactic.
Page 32, *for* examination, *read* exanthemata.
Page 38, *for* hap-, *read* happening.
Page 136, *for* association, *read* associations.

*Preparing for the Press,*

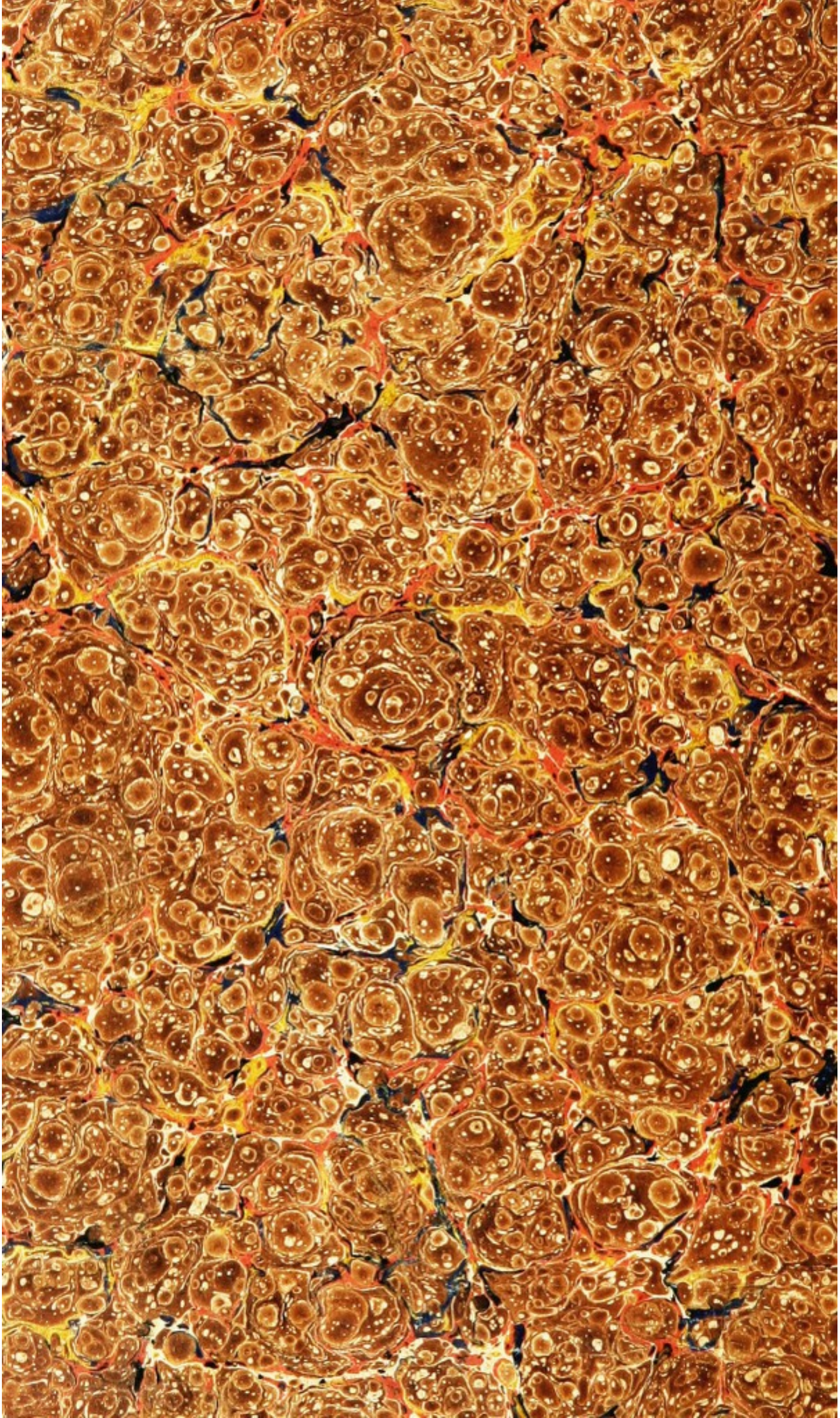
BY THE SAME AUTHOR,

# A TREATISE

ON

# CONSUMPTIVE DISEASES,

&c.



Liverpool, concerning the Present State of Vaccination. 8vo., full morocco, good copy; scarce. £2 2s. 1828