

Historical sketch of the opinions entertained by medical men respecting the varieties and the secondary occurrence of small-pox ; with observations on the nature and extent of the security afforded by vaccination against attacks of that disease : in a letter to Sir James M'Grigor ... / By John Thomson.

Contributors

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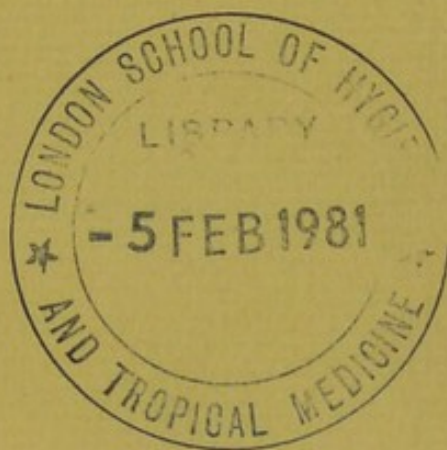
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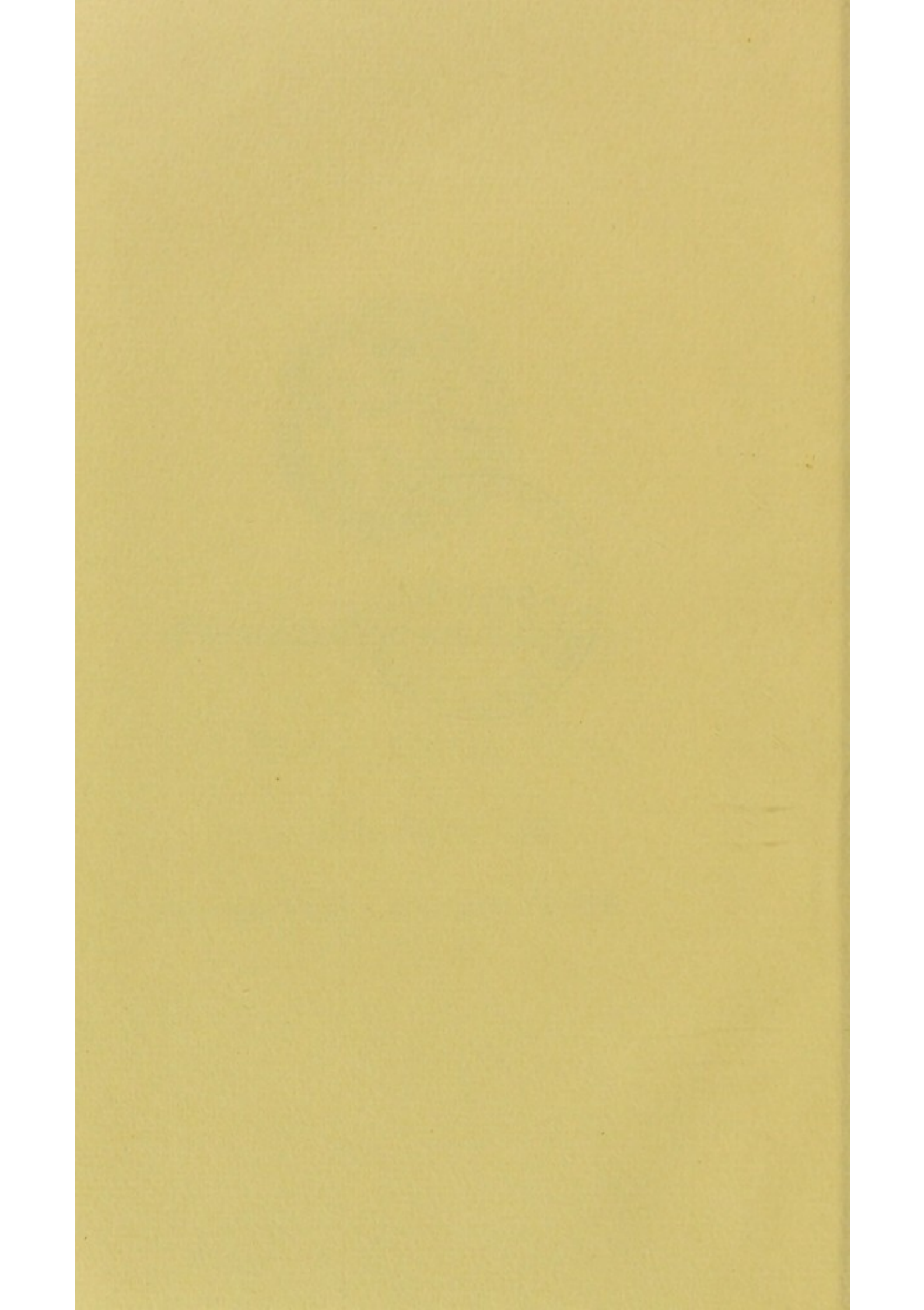
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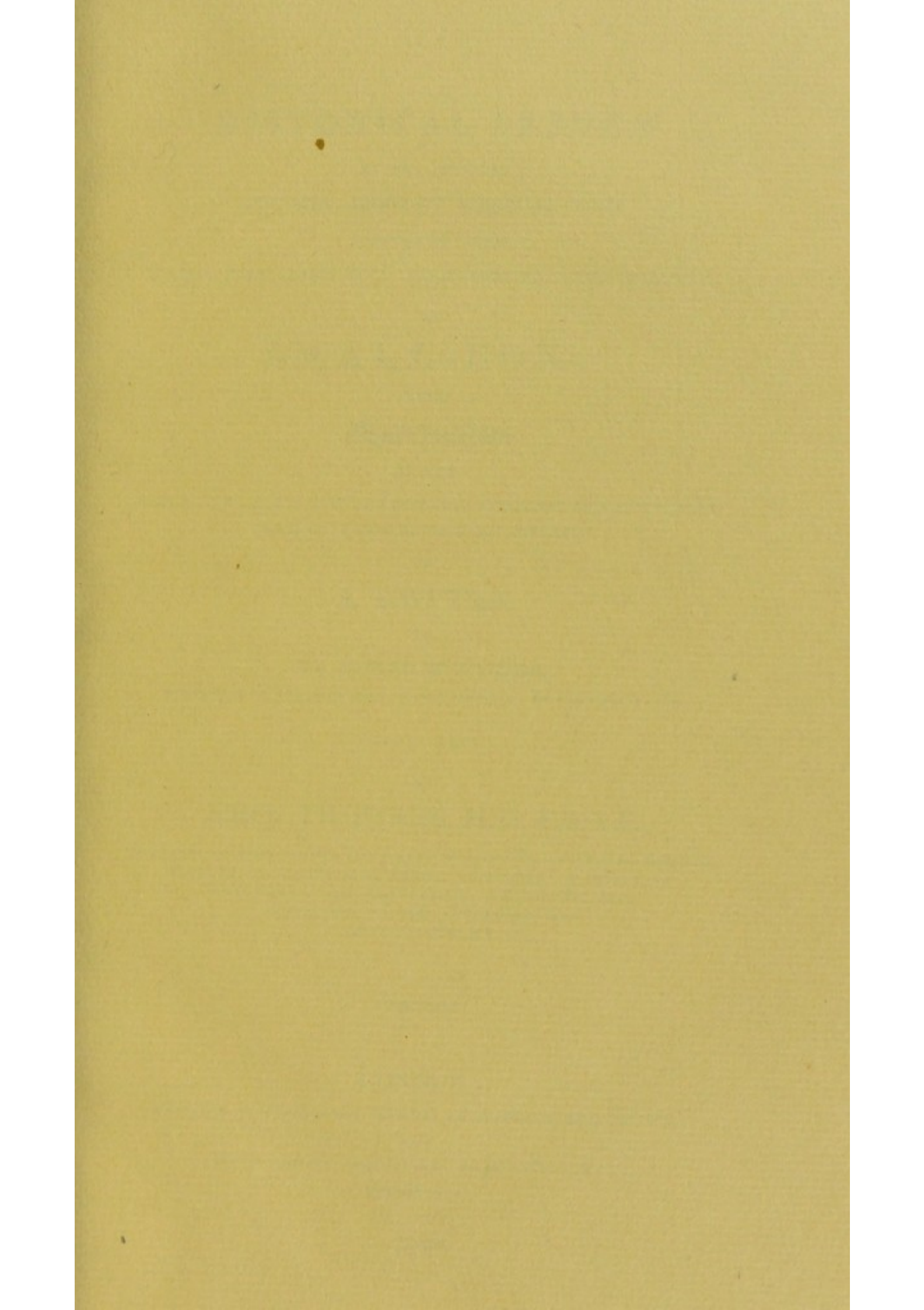
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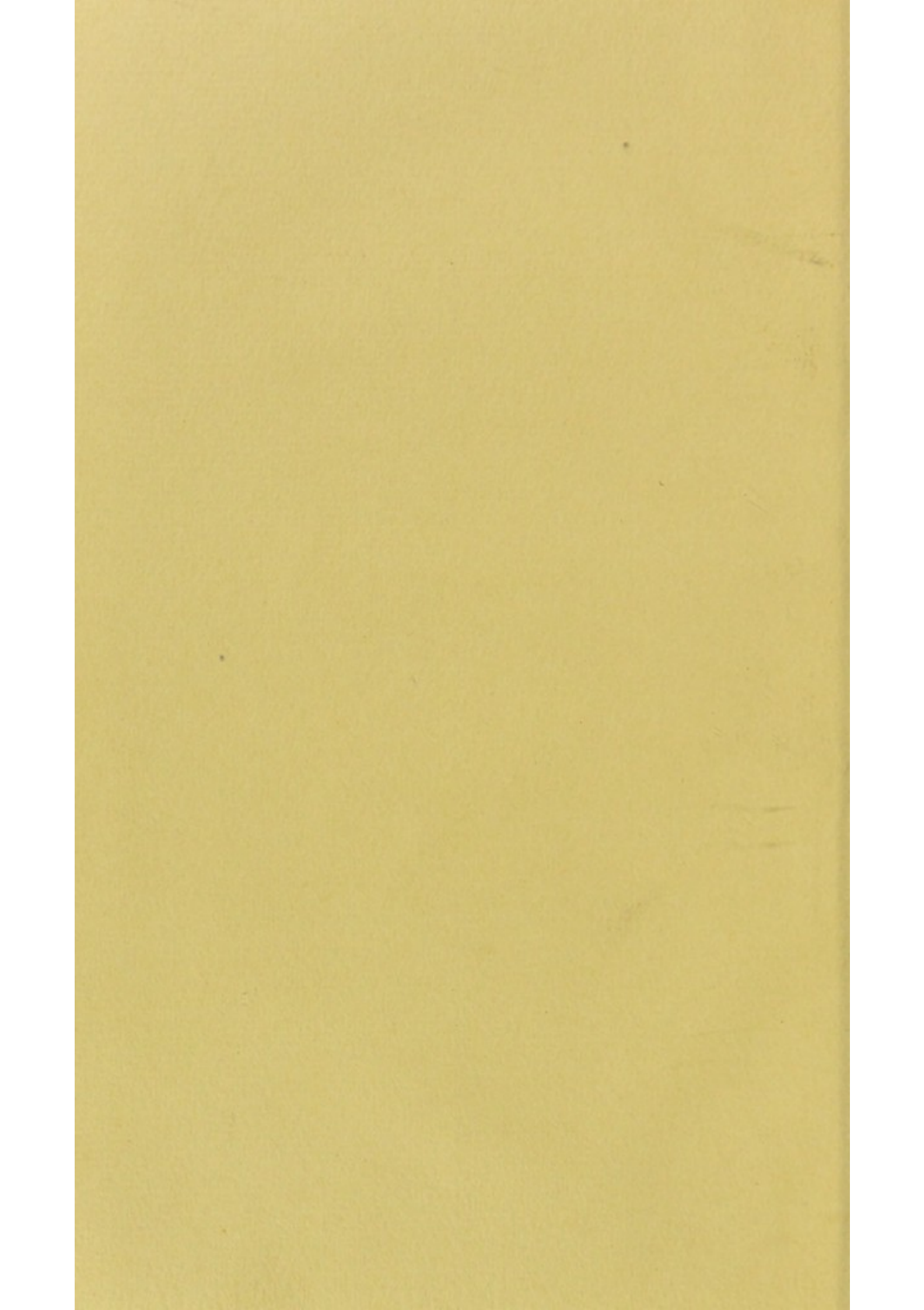
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HISTORICAL SKETCH
OF THE OPINIONS
ENTERTAINED BY MEDICAL MEN
RESPECTING THE
VARIETIES AND THE SECONDARY OCCURRENCE
OF
SMALL-POX;

WITH
Observations

ON THE
NATURE AND EXTENT OF THE SECURITY AFFORDED BY VACCINATION
AGAINST ATTACKS OF THAT DISEASE :

IN
A LETTER

TO
SIR JAMES M'GRIGOR,
DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT, &c.

BY
JOHN THOMSON, M.D. F.R.S.E.

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HISTORICAL SKETCH

OF THE

EXHIBITION AT BRISTOL

1863

AND THE SECOND OF THE

SMALL-POX

THE

CONTENTS

OF THE

REPORT OF THE COMMITTEE OF THE

LOCAL BOARD OF HEALTH



BY JAMES H. HOGAN

EDINBURGH: PUBLISHED BY BALFOUR AND CLARKE, 1822.

JOHN THOMSON, M.D. F.R.S.

Printed by Balfour and Clarke,
Edinburgh, 1822.

It is the nature of an hypothesis, when once a man has conceived it, that it assimilates every thing to itself as proper nourishment, and from the moment of your begetting it, it generally grows the stronger by every thing you see, hear, or understand.

TRISTREM SHANDY.

Mais une supposition qui lie le mieux un certain nombre de phénomènes connus, n'est au fond qu'une manière plus commode de les exprimer; elle ne prend le caractère de théorie qu'autant qu'elle est confirmée par des expériences suffisamment variées.

MAGENDIE.

This is the criterion of a true theory, that by legitimate inferences from its principles, it should constantly supply those new demands of explanation which the improved observation of phenomena, that are its objects, renders necessary.

WOODHOUSE.

It is the nature of an hypothesis when once a man has con-
sidered it, that it is not to be taken away from him as pro-
perly, and that the moment of his rejecting
it is generally, even the instant he says that he does
not, or understands.

This was supposed to be the nature of an hypothesis
the hypothesis cannot be taken away from him as pro-
perly, and that the moment of his rejecting
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not, or understands.

This is the nature of a true theory, that the hypothesis
cannot be taken away from him as properly, and that the
moment of his rejecting it is generally, even the instant
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HISTORICAL SKETCH,

&c.

MY DEAR SIR JAMES,

AFTER having been led, by the observation of the late Varioloid Epidemic, to believe that all the varieties which it exhibited were produced by the operation of one and the same contagion, and that cases of secondary small-pox must have been in former epidemics as in that which has lately prevailed, events of no uncommon occurrence, I became desirous to ascertain how far these opinions were supported or contradicted by the histories of small-pox epidemics to be found in our Medical records; and I accordingly engaged in a course of reading, which, for want of time, and many of the proper books to be consulted, has been less extensive than I could have wished. The general results, however, of this inquiry, imperfect as they are, I

now submit to your consideration, in the hope that, if they shall not appear to have satisfactorily established the hypothesis I have adopted, they may, at least, tend to induce others possessing more leisure, and better opportunities than I enjoy, to prosecute an investigation so important to mankind.

In tracing the opinions of authors upon the subject of small-pox, it will be found convenient, I conceive, to refer them to three epochs in medicine ; the first of these, extending from the time of Rhazes, in the commencement of the 10th down to the beginning of the 18th century, the period at which small-pox inoculation was first introduced into Europe—an epoch including nearly 800 years ; the second, from the time of the introduction of the practice of inoculation for the small-pox into Europe, to the discovery of vaccination, a period of nearly 80 years ; and the third, from the introduction of vaccination, down to the present time, a period of little more than twenty years.

By reverting to the original sources from which we have derived a great part of the information we at present possess respecting varioloid diseases, it will be found that there are two points which do not appear ever to have been satisfactorily established in the opinions of Medical practitioners. One of these relates to the causes of those diversities in the appearances of small-pox that have given rise to the well-known

distinction of that disease into true and spurious small-pox, the other to the question, whether the same person can pass oftener than once through small-pox. These two points, which at first sight would seem to have no apparent or necessary connection, have, in the progress of Medical science, become so closely connected, and so interwoven with one another, that it is difficult, if not impossible, to separate them, and to consider them as distinct objects, either of historical research or scientific investigation.

To those unacquainted with the history of medicine, it must seem remarkable, that the opinions of medical men with regard to the possibility of the recurrence of small-pox in the same individual, should have been at all times so various, unsettled, and fluctuating, and that a fact which one would conceive it was in the power of every observer to have ascertained for himself, should, notwithstanding the very great attention which has been given to it, have remained so long undetermined. There must surely be something in the nature of the fact in question, or in the opinions which have been supposed to be connected with, or deducible from it, that has rendered the attainment of certainty with regard to the secondary occurrence of small-pox a matter so peculiarly difficult. "The generality of mankind," as has been well observed by an acute and intelligent writer, "rarely discriminate facts from opinions, and instead of confin-

ing their assertions to those events which are cognizable by the senses, they superadd the judgments which they form respecting the causes or effects of the facts" that have been the object of their investigation. Many curious and striking illustrations of the truth of this remark are to be found in the history of small-pox.

The varieties observable in the appearances of small-pox have been supposed to be produced, *1st.* By differences of individual constitutions ; *2dly,* By certain unknown states of the atmosphere ; *3dly,* By the particular circumstances in which those affected with small-pox are placed, and the mode of treatment which is followed ; *4thly,* By the artificial communication of the disease ; and, *5thly,* By a specific difference in the nature of the contagion from which varioloid diseases have been supposed to proceed. Great, if not unsurmountable difficulties, unquestionably arise in tracing the diversities of small-pox, which occur in individual instances to the particular or combined operation of these different causes ; and there seems but too much reason to believe, that medical writers, in accounting for the diversities of this disease, have not always attended sufficiently to these difficulties, but have often referred diversities to the operation of one of these causes, which were in fact attributable to the separate or combined operation of the others.

1st. Effects produced by differences of Individual constitution.

THE effects of individual constitution in modifying the fever and eruption of small-pox, have been observed by all who have had occasion to attend to the varieties of this disease. These effects are perceptible, not only in persons of different families, but also in the individuals of the same family; and they have been observed to occur in the inoculated as well as in the natural small-pox. In some patients the eruptive fever in the natural small-pox is so slight as not to be observable, and in others severe; and the degree of mildness or severity has not always been found to be connected with the number of the pustules which have afterwards appeared. In some who have the variolous fever no pustules ever appear; in others, the number of pustules varies from one to some thousands. Nor are the appearances of the eruption less various; in some cases it never arrives at suppuration; in others, the patients have vesicles filled with a limpid fluid, in which pus does not appear; others have vesicles which gradually become pustular in their progress, and some have pustules only. Some vesicles and pustules dry by the 4th, 5th, 6th, or 7th; and others not before the 8th, 9th, 10th, 12th, or even 14th day. Some patients are affected with secondary fever, about the 8th, 9th, 10th, or 11th day of the eruption; and in others this

|| variol
some
eruption

fever does not at all occur. In some, the appearance of the vesicles or pustules is accompanied or followed by petechiæ and vesications; in others, these vesications and petechiæ do not appear. These diversities, proceeding from the operation of the same contagion, have been remarked by every observer of epidemical small-pox, and yet many of those who have attempted to distinguish genuine from spurious small-pox, have proceeded as if no such diversities had ever been observed to occur.

2d. Effects produced by unknown states of the Atmosphere.

THE general character of the fever, and the appearances of the eruption in natural small-pox, have been observed to vary exceedingly, not only in particular individuals, but also in different places, and even in the same places at different times. This fact, which is also acknowledged by every observer of small-pox, has been supposed to depend on a peculiar state of the atmosphere. It has been often remarked, that in some seasons and places, the small-pox have been all of a mild kind, producing few deaths; while in other seasons, and in the same, or in different places, they have been chiefly of a confluent or malignant sort, occasioning the death of a greater number of those affected with them than is produced even by the plague. In some

years the small-pox appear, and are propagated sporadically, attacking only a few individuals; in other years, and in the same countries and places in which they had formerly appeared sporadically, they prevail epidemically, and attack not only almost all those who have not had small-pox, but also some of those who had previously undergone this disease. In our ignorance of the physical causes which give rise to the local and partial existence, or to the general epidemic prevalence of small-pox in various seasons and places, we are under the necessity of attributing these differences to some unknown state of the air by which we are surrounded; a state which, so long as it is unknown, we may continue, I conceive, without any great impropriety to denominate the variolous constitution of the atmosphere.

3d. Effects from Situation and Treatment.

THE particular circumstances in which individuals are placed who are exposed to the contagion of small-pox, may perhaps have some influence in modifying the character of the eruptive fever, and the appearance of the eruption itself; but this influence is, I suspect, far less powerful than has usually been imagined. For how often has it been observed, during the prevalence of small-pox, in any particular situation, that the individuals affected with this disease

have had it in degrees and forms so different, as to induce practitioners to believe that such diversities could not have proceeded from the same source, but must have originated from the existence of at least two specific poisons. In the same family, it has often been remarked, that one takes small-pox in a malignant and fatal form,—another has them coherent, but not fatal—a third in a distinct and less severe form—a fourth in a form so extremely mild, as to be considered as spurious rather than as genuine small-pox—a fifth has smart variolous fever without an eruption—and a sixth a copious eruption, with little if any fever.

The same observation will be found applicable also, I believe, to the influence of the mode of treatment which is followed in small-pox. The violence of the eruptive fever, and, of course, the degree of its danger, may unquestionably be influenced by the employment of a hot or cool regimen; but I doubt much whether the character or type of this fever is in any degree altered by the different modes of treatment that are pursued. Whether the eruption shall occur at all in the disease, and whether it shall consist of one pustule or of several thousands; whether these shall be confluent or distinct, mild or malignant, filled with pus, with water, or with blood; whether they shall arrive at their height by the 4th or 5th, or not before the 11th day, are circumstances over which the medical treat-

ment, has, I am convinced, little if any influence. By judicious management we may alleviate particular symptoms, or relieve the general distress; but the type of the fever, and the kind as well as the number of the pustules in natural small-pox, and the occurrence of secondary fever, from which danger chiefly arises, are circumstances also over which art appears to have little if any control.

The effects produced upon the fever and the eruption of small-pox by the separate or combined operation of the three causes of variation enumerated, have been acknowledged in all periods of our art, and pointed out by almost every writer on that disease. Sometimes they have been supposed to occasion only a difference in the degree of the severity of the symptoms, and in other instances to produce eruptions differing in several respects from genuine small-pox.

FIRST PERIOD OF SMALL-POX.

It is well known that the earliest information we possess with respect to the varieties of small-pox, is contained in the few fragments of the four Arabian physicians, AHRON, ISAAC, JUDAEUS, and GEORGIUS, which have been preserved by RHAZES. The distinctions of these authors seem to have been chiefly founded upon the Galenical doctrine of the four temperaments; and it is to the supposed predominance of some one or other

of these temperaments in individual constitutions, that we find almost all the varieties that were observed in small-pox, referred for a succession of ages.

RHAZES, after describing the effects of individual constitution in modifying the appearances of small-pox and measles, adds, (Mead's Works, vol. ii. p. 163. Edin. 1765.) " But all these things admit of great differences, by reason of the diversities of countries and places, and occult dispositions in the air, which bring on those distempers, and render bodies subject to them." The account of the varieties of small-pox given by this author, evinces great knowledge of the phenomena of that disease, as well as much accuracy of discrimination ; and it seems to me to include most, if not all of those varied appearances of small-pox, which have served as the grounds of distinction to succeeding observers. It is evident that Rhazes has pointed out the distinguishing characters of the distinct, the coherent, and the confluent kinds ; that he has described the regular and the anomalous small-pox, the benign and the malignant, the hard or horny, and the warty, the slighter and the more severe. But whether the slighter, weaker, or more languid kind of small-pox alluded to by RHAZES, and which has been termed chicken-pox in the English edition of his treatise on small-pox, published by Dr. Mead, was the disease which, after a lapse of five hundred years, came to be denomina-

ted the improper, spurious, and illegitimate small-pox, must now be to us matter of mere conjecture. There seems to be the less reason for admitting the propriety of this interpretation, that AVICENNA, in stating that it often happens that the same person is attacked with small-pox a second time, should not have taken any notice of the distinction which had been made by Rhazes of small-pox into the weaker and stronger kinds, or of the question, whether the first or second attack of that disease was the more severe. It is obvious, however, that RHAZES regarded having passed through this languid variety of small-pox as affording no absolute security against a second attack of the disease, for he says, (*De Variol. et Morbill. Lond. 1766. p. 47.*) blood ought to be taken away from children and young people, who have either not laboured under small-pox, or who have had them at a former period, in a weak and mild form; he further observes, (*p. 256.*) that the same individual does sometimes suffer a second, or even a third attack.

Two of the more singular varieties of small-pox, which have occurred to my observation during the progress of the late epidemic, seem to have been taken notice of by the Arabians. One of these by GEORGIUS, (*Rhazes, de Var. et Morb. p. 237.*) in which one pock or more is included in another larger pock or vesication; and the other by AVICENNA, in which fresh pox are formed during the progress of

the disease, upon the tops of those which had first come out. It often happens, Avicenna affirms, that the same individual has the small-pox twice. (Lib. Can. lib. iv. fen. 1.) This author divides small-pox into species or varieties, according to the different temperaments of the individual in whom they occur, and the particular colour which the pustules assume; thus, as to temperaments they are sanguineous or choleric, phlegmatic or melancholic; as to colour, they are either white or yellow, red or green, violet or black. These distinctions seem to have been adopted by several succeeding authors.

AVERRHYES is the only Arabian physician, as has been remarked by Dr. Freind, (History of Physic, vol. ii. p. 117.) who maintains that the same person can have the small-pox only once.

To the account of the varieties of small-pox which has been left us by the Arabian physicians, very little new or important appears to have been added by their successors and copyists, the older physicians of the 12th and 13th centuries. The learned GRUNER, in his *Fragmenta Medicorum Arabistarum de Variolis et Morbillis*, has collected into a small space, the opinions of those authors, and has subjoined to the extracts which he has made from their writings, an excellent epitome of the principal facts which they contain. There is one distinction, however, mentioned by JOHN of GADDESSEN, which has escaped the observation of Gruner, and which seems

not only to have laid the foundation of the distinction that was afterwards made of small-pox into true and spurious, but also to accord in a remarkable manner with opinions which are beginning only now to be admitted since the introduction of vaccination. The distinction to which I allude, is to be found in the following passage : (Rosa Anglica, p. 1044.) “ Item notandum quod variolae sunt duplices, propriae et impropriae.” “ Et ideo dicit AVICENNA quarto canone, quod aliquando homo variolatur bis. Semel proprie et secundo improprie, ut dictum est satis.” The latter part of this quotation is not to be found in AVICENNA, but it would be difficult to conceive a more distinct anticipation of the opinion, that secondary small-pox are the improper, or spurious sort, than is contained in it.

SALICETUS, in his treatise on small-pox and measles, to be found in Gruner's collection, (p. 89.) seems to adopt the opinion of Avicenna, that one may have the small-pox twice ; and, with ISAAC, he agrees in believing that the small-pox may have their origin from any one of the four humours.

VALESCUS de THARANTA, in his treatise on small-pox and measles, to be found also in Gruner's *Fragmenta*, in speaking of the doubts which, at the time he wrote, were entertained with respect to the causes of small-pox and their secondary occurrence, says, (p. 53.) that it is possible for the small-pox to occur a second time,

or oftener, in the same individual, if nature, during the first attack, has not expelled all the morbid matter which is the cause of that disease.

From the time of JOHN of GADDESSEN, to that of VIDUS VIDIVS, an interval of upwards of two centuries, I do not find that any of the few intervening authors have made mention of the distinction into proper and improper small-pox, or have given any information from which it can be inferred that they were acquainted with that form of the varioloid disease which was afterwards denominated the chicken-pox. Vidius, however, in a passage which has often been quoted, (*Opera* tom. ii. *De Curat. Generat.* lib. vi. c. 6.) mentions a vesicular disease under the name of the *crystalli*, which was denominated *Ravaglione* by the Italians of his time, and which he considered as essentially different from small-pox and measles. Of this disease, he affirms, (p. 432.) that it does not attack nearly so many persons, nor with so much severity as the small-pox or measles do. But from the description which Vidius has given of this eruption, it would be difficult, I imagine, to decide whether by the term *crystalli*, he meant to designate lymphatic small-pox, herpes, or pemphigus. Vidius did not admit the existence of secondary small-pox, and he has made no mention of any of the spurious sorts.

The eruption denominated *crystalli* is taken notice of also by INGRASSIAS, the cotemporary of

Vidius. I have not myself had an opportunity of consulting this author, but Mr. MOORE states, (*History of Vaccination*, p. 91,) that Ingrassias observes "he has found by experience, when only a few small-pox pustules have broken out, that this distemper is apt, though rarely, to recur a second time, and even in some instances a third time." Neither of these authors seem to have mentioned the *crystalli* as occurring during the progress of variolous epidemics, or as having been regarded by the common people, who termed them *ravaglione*, as a species of real or spurious small-pox.

FRACASTORIUS states (*De Morbis Contag.* lib. ii. cap. 2.) that when the infection has not been secreted entirely during the first attack, the same person may suffer a second attack of small-pox.

FERNELIUS, (*De Abdit. rerum causis*, lib. ii. cap. xii. p. 503.) says the opinion that none can have the small-pox oftener than once, is proved by his experience to be erroneous.

AMATUS LUSITANUS, (*Curat. Med. Cent.* iii. p. 453.) affirms that during the prevalence of small-pox at Ancona in 1551, he had seen several children, and even old people, who passed twice through the small-pox.

FRANCISCUS DE PIEDMONT, in his commentaries on the works of Messua, (*Messuæ Opera Med. Supplem.* p. 138.) gives a more minute account of the diversities in the appearances of

small-pox than any of his predecessors, but without referring any of these diversities either to the four temperaments, or to the more or less perfect or imperfect, proper or improper nature of the disease. He mentions a second eruption among the varieties which small-pox occasionally present.

MERCURIALIS, in his treatise *De Morbis Puerorum*, published in 1583, mentions (p. 5.) the small-pox, properly so called, and those that were termed by his countrymen, *Cossi* and *Sturoli*; but he alleges that these varieties were all of the genus of small-pox, differing from one another chiefly in size.

FORESTUS, in the 1st vol. of his works, published in 1653, (lib. 6. ob. 43,) says that he has seen many attacked with small-pox a second time, and, in particular, mentions the case of his own son, who suffered two attacks of this disease; and who, immediately after the second attack, became affected with measles.

DUNCAN LIDDLE of Aberdeen, who was Professor of Medicine at Helmstadt in Germany, towards the end of the 16th century, in his work, *De Febris*, published at Hamburgh, in 1610, states (p. 724.) that besides the small-pox, properly so called, there were other pustules which resembled the blisters produced by boiling water, and that they were termed by some *crystalli*. He seems likewise to have believed in the recurrence of small-pox, for he says that

almost all men have them once during their lives; a few twice, but very few a third time.

SENNERTUS, in the 2d volume of his works, (lib. 4. cap. 12.) gives a fuller description of the varieties of small-pox than I have been able to find in any preceding author, and mentions several of these varieties, by names which have continued to be used to our own times, such as the *stone-pox*, the *wind-pox*, and *sheep-pox*. The description which this author has given of the *sheep-pox* and *wind-pox*, both of which, he says, were by some termed *crystalli*, resembles almost in every particular that which has since been given of the *chicken-pox*. But there is nothing in Sennertus that can lead us to suppose that he regarded these varieties as different in their nature, or as arising from more than one contagion.

JOHNSTON, in his *Idea Universae Medicinae*, published in 1652, describes (p. 347.) the *crystalli* as large shining vesicles, about the size of lupines, which discharge an aqueous fluid; these, he says, are called *schaafs-blattern*, (*sheep-pox*,) by the Germans. The tuberculated, the (*stone-pox*,) he adds, are those which contain little sanies, are few in number, are attended with little fever, and quickly die away.

FABRICIUS (*Vogel Prax. Med.* vol. iii. p. 18.) in describing an epidemic small-pox, says that many who had previously passed through that disease, suffered a second attack.

MAYERNE, in his Treatise on Small-pox, to be found in Mangetus Bibliotheca Practica, (tom. iv. p. 220.) mentions a case in which small-pox attacked the same individual a second time before the scabs of the first eruption had fallen off the body.

BOREL, in his *Historiæ et Observationes Rariores*, (Cent. 3d, Observat. 10.) says, that he has seen many individuals who had suffered two or three attacks of small-pox; and mentions the case of a woman who had passed through them seven times, and died of the 8th attack, in the 118th year of her age.

RIVERIUS, in his *Practice of Medicine*, published at Montpellier about the middle of the 17th Century, in treating of small-pox and measles, (lib. xvii. cap. 2. p. 490, Edit. Hagæ Com. 1658.) states that there is a third eruption common among children, the pustules of which are similar in size and figure to the small-pox. But they are to be distinguished from the small-pox, he says, which break out with redness and inflammation, while the others are of a white colour, and resemble vesicles, which break and dry up in the space of three days, are not dangerous, and are generally unpreceded by fever; and, he adds, this species of pustule is called by the common people in France, *la veirolette*, and by the Italians, *ravaglione*. Riverius is the first author in France, in whose writings I have found the term *la veirolette* employed.

SYLVIVS DELEBOE, at p. 617. of his works, published in 1679, says, he has often seen individuals attacked a second, and even a third time, with small-pox, though never in the same year.

REGIUS, in his *Observationes Praxis Medicæ*, (Edit. THEODOR CRAANEN, 1689, p. 741.) gives it as his opinion, that if any of the peccant matter which produces small-pox, remain in the body after the first attack, the same individual may have the same disease again, differing from the first only in degree.

DECKERS, in his *Exercitationes Practicæ*, published at Leyden in 1673, says, that he had seen individuals who had had the small-pox two or three times; and he mentions the case of a female, who, 50 years after she had had a severe attack of small-pox, by which she was much marked, suffered a second eruption.

DIEMERBROECK, in describing a small-pox epidemic which occurred at Utrecht in 1640, states, (*Opera Hist.* i. p. 290.) that he had seen patients, who, notwithstanding they had had a copious eruption in the first attack, took the small-pox a second and even a third time, within the space of six months, and that the subsequent attacks were not less severe than the first.

WILLIS, in his *Essay on Fevers*, published in 1661, in treating of small-pox and measles, (chap. 15.) says, “ Although the venemous seeds of this disease (small-pox) for the most part are wont to be dispersed or blown away at once, and

with one sickness; yet it sometimes happens that a part of the infection being still left, the sick have fallen into this disease twice or thrice.

FORTIS, in his Consultationes et Responsiones Medicæ, printed at Padua in 1678, (tom. ii. p. 604.) when treating of small-pox, says, that the constitution of the atmosphere is not the sole cause of them, for many suffer not only one but two attacks; and again he says, (p. 609.) when treating of measles, that if the impure menstrual blood is not expelled during the first attack of small-pox, the same person may labour under them a second or third time.

ANDREAS BUXBAUMIUS, in a Thesis published at Leipsic in 1679, states, (p. 6.) that small-pox had been distinguished by physicians and nurses into several varieties; from their symptoms they had been termed *mild* or *malignant*; from the contents of the pustules *water* and *wind-pox*; from their form *pointed* or *conoidal*, and from their occupying a greater portion of the surface of the body, the *fluxed* or *confluent* small-pox.

DRELINCURTIUS, (Opuscul. Med. p. 654.) mentions the sanious, sanguineous, and purulent small-pox, and considers the crystalli as intermediate between small-pox and measles. Merindolius, he remarks, calls the crystalli, ichorous and *imperfect* small-pox; and Sennertus ascribes them to Ingrassias, while Riverius refers them to Vidus Vidius; but neither of these authors, he adds, was the first describer of them, for they

were known to the Arabian writers under the names of Alhumera and Alhumica. He himself calls them the *lymphatic* small-pox, because they were wholly filled with a transparent lymph.

BLANCARD, in his *Traité des Maladies des Enfants*, published in 1680, says, that there are many who, before death, pass through small-pox two and even three times, and that, he adds, certainly not in a slight degree, but each time so severe as to produce blindness during the disease.

SYDENHAM employed the terms *genuine* and *bastard*, or *adulterine* small-pox ; and, as he states that these are diseases of a different nature, one would at first be inclined to think that he believed them to arise from different sources. This, however, does not appear to be borne out by the use which he makes of the words *kinds* and *species*, as applied to small-pox ; for he expressly states that the small-pox of different years are of quite different *species*, and that the distinct differ from the confluent as much as the confluent differ from the plague ; assertions which Sydenham never could have made, had he employed the terms *kind* and *species* in the sense that we attach to them at present.

DOLAEUS, in his *Encyclopedia Medica*, says, (p. 579.) that he had often seen children attacked with small-pox, without fever, or any other morbid symptom ; but this occurred only where the

small-pox were few in number, or of a spurious kind.

DOBRZENSKY DE NIGREPONTE, in the *Miscellanea Curiosa*, for the year 1686, (Dec. 2. An. 4. Observat. 29.) mentions the case of a young man who was attacked twice with the small-pox; the second attack occurred after an interval of ten years, and proved much more severe than the first. The fact of this case being one of secondary small-pox, is attested by the father of the young man who had been the subject of it.

A case of small-pox occurring for the 5th time is mentioned by SCHWEINSBERGER, in the volume of the *Miscellanea Curiosa*, published in 1688. (Dec. 2. An. 6. App. p. 12.)

VANDER WEIL, in his *Observationes Raræ Medicæ*, mentions, (Observat. 42.) the case of a child who suffered a second eruption of small-pox, three weeks after the first.

PECHLINUS, in his *Observationes Physico-Medicæ*, printed at Hamburgh in 1691, states, (p. 238.) that there are several kinds of small-pox, and that the having passed through one of these sorts does not afford any security against a subsequent attack of the others. His own children, he informs us, after passing through a copious eruption of *bastard* small-pox in autumn, suffered an attack of a severe genuine kind in the following spring. He mentions also that a Swiss physician had informed him, that it was not unusual in his country for a person to be

seized with three different sorts of small-pox in the course of the same year.

HOYER, (see De Haen's Refutation de l'Inoculation, p. 16.) says, that he has often seen individuals suffer three attacks of small-pox.

MORTON, in his Treatise upon Small-pox, published at London in 1694, divides small-pox into genuine and spurious, distinct, coherent, and confluent, benign and malignant. The benign, he says, (p. 93,) maturate and decline without the occurrence of secondary fever; so that the patients recover spontaneously, without the assistance of medicine. Of this kind, he adds, are the small-pox, called in our language the chicken-pox. This employment of the word *chicken-pox* is generally understood, I believe, to be the first time in which this term is used by any medical writer in England. This author again affirms, p. 186. that the very benign small-pox, which in our language are called the chicken-pox, maturate, scab, and dry within the period of four days. In illustration of this form of small-pox he refers to the 2d and 3d histories of the sixty-five cases which he has added to his Treatise, both of which appear from his statement to have been pustular eruptions that were preceded by fever, but which terminated more speedily than ordinary distinct small-pox usually do. He observes, at p. 124, that on a patient's being attacked with violent symptoms of fever during the prevalence of a small-pox epi-

demie, it is the duty of the physician to inquire whether he has formerly laboured under small-pox ; for it very rarely happens, he adds, that one is attacked a second time with the disease. In proof of this remark he refers to the 1st, 15th, and 65th of his cases. The first of these cases (p. 333.) seems to be one in which an eruption, supposed to be variolous, succeeding to fever of two days duration, speedily disappeared, yet the patient became affected twelve months after with coherent small-pox. The second case, (p. 363.) affords an example of a variolous eruption appearing twice in the same individual within the space of a month ; and the third case, (p. 509.) which was communicated to Morton by Dr. Atherton of Newcastle-upon-Tyne, occurred in a woman 22 years of age, who, after a slight and short fever, had an eruption of small-pox which came out gradually ; on the 15th or 16th day a new crop of variolous pustules appeared in the interstices of the former eruption, which were accompanied with severe constitutional symptoms, and began to decline by the 23d day, forming thin scales instead of scabs. This patient recovered slowly. Morton mentions, (p. 174.) that it sometimes happens, that in the interstices of the first eruption, fresh eruptions occur.

The next English author by whom I find the term *chicken-pox* applied to small pox is GIDEON HARVEY, in a Treatise on Small-pox and Measles,

published at London in 1696. The following passage is the more deserving of your notice that it contains the first reference to *swine-pox* I have met with, and a description of the particular forms of small-pox to which the words chicken-pox and swine-pox were in the time of Morton and Harvey applied. There seems every reason to believe that the term swine-pox was applied in England to that form of varioloid eruption which had previously been termed the sheep-pox, or *schaafs-blattern* by the Germans. "They (small-pox,) appear," says Harvey, (p. 71.) "either in a greater number or lesser; of which latter the bigger are called by the doctresses the *swine-pox*, and the lesser the *chicken-pox*. Either they come out gradually, (which is most common and best,) in three, four, and sometimes five, (though rarely,) in six days, or else they come forth in a few hours; or sometimes with intermissions, some appearing pretty abundantly the first and second day, or the first day only, then happens a stop for a day, and sometimes longer, after which new ones spring forth again. They appear most and biggest on the face, hands, and feet. Some go off without leaving any sordid ulcers behind, others are succeeded by very malign ulcers of long continuance." Harvey seems to have believed in the possibility of the recurrence of small-pox, for he says, (p. 17.) "However, it is agreeable with universal experience that three-fourths of those

Northern regions do once or oftener in their life-time pass through that sort of purification, many once, some twice, and some very few three times."

ETTMULLER, in the second volume of his works, published in 1697, describes (p. 403.) several varieties of small-pox under the names of conoidal, wind, sheep, and stone-pox, which differ, he says, little from the true kind, unless in their greater size, and their coming to maturity by the third day. He states, however, that they sometimes leave pits in the skin. He says that there are some people who never pass through the small-pox, and others who have them more than once.

LISTER, in his *Exercitationes Medicinales*, published at London in 1697, observes (p. 290.) that as the space of time which elapses between the occurrence of one epidemic small-pox and another, seldom exceeds four years, children may become affected with them twice or oftener, before they arrive at maturity. He farther adds, when speaking of small-pox in adults, that he does not recollect of seeing any one affected with small-pox a second time except one woman, who in the course of one year suffered two attacks.

HAGENDORN, in his *Historiae Medico-Physicae*, published in 1698, mentions (Hist. 59.) two cases of small-pox which occurred at the time small-pox were prevalent, the one of which

dried up on the 3d, and the second by the 4th day, and in both the eruptive fever was very mild. In his *Historia* 60, he mentions a case of secondary small-pox ; and in his 61st, is the relation of a case in which there were watery, sanious, and bloody small-pox on the body of a patient at one and the same time.

BEHERNS, in the *Act. Phys. Med. N. C.* says, (p. 133.) I had myself the small-pox three times in my youth, and each time severe, although many people never have this disease at all.

Low, in his *Tractatus de Variolis et Morbillis*, published at Normburgh in 1699, after enumerating the different names which had been given to the varieties of small-pox, by the Latin, Italian, French, and German authors, says, (p. 25.) that the *crystalli*, though similar to small pox in their size and figure, differ from them, however, 1st, in breaking and drying by the third day ; 2dly, in being without fever or danger ; and 3dly, in their attacking a much smaller number of persons ; from all which, he concludes, that the *crystalli* belong to a third species of small-pox and measles. He says, (p. 40.) that if any of the small-pox miasma be left in the body, as sometimes happens, a person may have that disease two or three times.

ISAAC, in an *Inaugural Dissertation* printed at Leipsic in 1700, describes the sheep, stone, and conoidal pox as varieties of small-pox. His opi-

nion with respect to this point may be regarded, I conceive, as coinciding with, if not the very opinion, of the Leipsic school, at the time he graduated there.

JUNCKER, in his *Conspectus Medicinæ Theoretico-Practicæ*, published at Halle in 1717, observes, (Tab. lxxvi. p. 618. edit. 1734.) that the small-pox are commonly divided into the true and the spurious; that by the spurious are understood those which are not copious, and form transparent vesicles filled with humour and without fever. When describing the spurious small-pox themselves, he says, (ibid. p. 623.) they are such as appear suddenly, and are called by the Germans *spitz-pocken*, (conoidal-pox,) or such as are large, quickly fill with a limpid humour, and after a few days burst and discharge the liquor which they contain, are much milder than the true small-pox, and are called by the Germans the wind and water pock. In the practical observations with which he concludes his chapter on small-pox, Juncker states, (ibid. p. 629.) that it sometimes happens that the small-pox come out progressively, and that when those which first appear, are arrived at maturation, others break out. The fact which is here mentioned as occurring in the true small-pox, has been considered as one of the most characteristic marks of the chicken pox, as described by Heberden.

CHESNEAU, in his *Observationes Medicæ*, printed in Holland in the year 1719, mentions, (p. 457.) that it is the occurrence of a spurious sort of small-pox, that are of short duration, without danger, and which leave no marks behind them, that gives rise to the belief that the same person may pass twice through the small-pox; yet he acknowledges that this occasionally happens in those in whom the virus of small-pox has not been completely eliminated during the first attack.

ZWINGERUS, in his *Pædoitrea Practica*, published at Basle in 1722, gives (p. 581.) a very singular account of a varioloid vesicular disease, which prevailed epidemically in the town and canton of Basle, in the year 1712, and attacked a great number of children of both sexes. This eruption, which was termed the *wild* small-pox by the common people, was of a nature uncommonly mild, nor did it prove fatal in any instance, unless where some disease of a different nature was induced. Many parents, he adds, who had indulged the hope that their children, by having passed through this eruption, would ever after be secure against an attack of small-pox, were cruelly disappointed; for in the following autumn and winter, these children were *all* attacked with malignant small-pox of which many of them died. I have not met with any thing similar to the account of this epidemic by Zwinger, in any preceding or succeeding author.

From this review of the opinions entertained by the medical writers I have mentioned, regarding the varieties of small-pox, and their secondary occurrence, you cannot have failed to perceive, *first*, that a distinction has very early been made of small-pox into proper and improper, genuine and spurious ; *secondly*, that all the varieties of this disease, whether mild or malignant, distinct or confluent, vesicular or pustular, genuine or spurious, chicken-pox, swine-pox, sheep-pox, wind-pox, stone-pox, and horn-pox. have generally, if not universally, been supposed to have had only one origin ; and, *thirdly*, that although the possibility of the recurrence of this disease in the same individual was denied by Averrhoes, and by a very few who have followed him, yet that this was an opinion almost universally adopted, and that many examples of secondary small-pox have been adduced by practical authors, before the commencement of the 18th century.

SECOND PERIOD.

4th, Effects produced by Artificial Communication.

THERE are few things in the history of natural knowledge more curious and interesting than the discovery that inoculation deprives small-pox of their usual malignity, and renders them a comparatively mild and harmless disease. This practice has been found to weaken the force of

the eruptive fever; to diminish the number, shorten the duration, and ameliorate the character of the pustules; to prevent the occurrence of secondary fever; and to lessen in a remarkable degree, the injurious effects as well as the fatality of the disease.

The most important advantage held out by the advocates for inoculation, and one which has since been completely verified by experience, was that it produced a disease infinitely milder and less dangerous than that of natural small-pox, while it afforded every security against a second attack which is obtained by having passed through that disease in the natural way. It was with some difficulty, however, that medical practitioners, or the public, could be brought to admit the truth of a fact so new, strange, and unexpected. Some of the opposers of this practice, maintained that the disease, produced by inoculation, was not genuine small-pox, and therefore could not afford any security against a subsequent attack of that disease; and others, admitting in some degree the genuine nature of the small-pox produced, contended that the security obtained was temporary, not permanent, and would be found to last but for a limited period. Experience, aided by time, gradually and most satisfactorily evinced the unsoundness of these objections, and reduced the opposers of inoculation to the singular predicament of being obliged to admit the utility of the practice, while they de-

clined to participate in its benefits from scruples strangely imagined to have a foundation in religion.

In support of their opinions, the opposers of inoculation at different times adduced instances of persons who had been inoculated, having been afterwards seized with small-pox. But the advocates for this practice, instead of admitting the possibility of a second occurrence of small-pox in those who had been inoculated, or of adducing, as might easily have been done, instances where this had happened to those who had passed through the disease in the natural way, endeavoured to prove, either that the matter with which the inoculations in these doubtful cases were performed, had not been that of genuine small-pox, or that the disease supposed to be small-pox occurring in those who had been inoculated, however striking the resemblance or severe the form, was a spurious, not a genuine small-pox. Many illustrations of the truth of these remarks will present themselves in the detail which I now proceed to lay before you, of the opinions respecting the varieties of small-pox, and their secondary occurrence, entertained by medical men in different countries of Europe during the period of inoculation.

Dr. KENNEDY, in his *Essay on External Remedies*, published at London in 1715, in speaking of inoculation, says, (p. 155.) "The greatest objection commonly proposed (against ino-

culatation) is, whether or not it hinders the patient from being infected a second time. But, in answer to this, it is advanced, that we do rarely or never find any to have been troubled with this distemper twice in the same manner, or in the same fulness of malignity : for when it happens the *second* time, it generally proves to be that called the bastard, or hog-pox, which is empty or skinny, and very little matter or malignity contained in it." Had this observation been made by a person who had seen the cases of secondary small-pox, which have occurred during the late varioloid epidemic in Edinburgh, it could not, I believe, have been more correctly expressed.

Mr. MAITLAND, who, at the request of the celebrated Lady Mary Wortley Montague, first practised inoculation in England, considered those who had been inoculated as in every respect secure against a second attack of small-pox ; but whether they were secure in the sense which Dr. Kennedy suggested, and which we now have reason to believe is the true one, does not appear from Mr. Maitland's statement. "I was," he says, at p. 6. of his *Account of Inoculating the Small-pox*, published at London in 1722, "assured by all (at Constantinople,) and they could have no design to impose upon me, that there was not an instance known of any one's being ever infected, who had had any pustules at all, how few soever, raised by *inoculation* ; though, for a farther trial, several had been once and again

ingrafted ; and others also had been confined to the room, and in the same bed too with the infected." This is the first mention which I have found made of the practice of re-inoculation as a test of security against a second attack of small-pox ; subsequent experience has shown that the fact stated by Mr. Maitland, though a general, is by no means an universal fact, for some have had the small-pox communicated to them a second time by inoculation, and many have taken the disease in the natural way who had repeatedly resisted this trial.

Dr. WAGSTAFFE, the first, and one of the ablest opposers of inoculation, in his Letter to Dr. Freind, published at London in 1722, in speaking of the eruption in the cases which had been inoculated by Mr. Maitland, observes, (p. 28.) " There was nothing like the small-pox, either in *symptoms, appearances, advancing the pustules, or course of the distemper*. And it would puzzle any one to conceive how it is possible the small-pox can ever be prevented by it. The chicken-pox has a much nearer affinity to the small-pox than this, in any of the instances we just now mentioned, and bids a great deal fairer for preventing the distemper, yet we know by experience it is no *preventive* at all. It is a rash, methinks, and over-hasty assertion in our inoculators to affirm, that they can throw out such a kind of small-pox by this experiment, as shall certainly prevent it for the future ; when we

know no reason, nor can they give us any, why, when we have once had this distemper in the most regular manner, we should not be liable to catch it a *second* time. Nor indeed, let inoculation go on as well as we could wish, can we be ever satisfied of this truth, that it will *prevent*, without the experience of many years."—In another part (p. 8.) of the same letter, Dr. Wagstaffe remarks, "There is scarcely, I believe, so great a difference between any two distempers in the world, as between the best and worst sort of small-pox, in respect to the danger which attends them; nor perhaps is there any thing that has been more prejudicial and unfortunate to many families, than the mistakes which have arisen from their want of knowing this *difference*. So true is that common observation, that there is one sort in which a nurse cannot kill; and another which even a physician can never cure."

Mr. Maitland, in a well written reply to Dr. Wagstaffe, entitled, Vindication of Small-pox, in which, it is said, he had the able assistance of the celebrated Dr. Arbuthnot, says, (p. 12.) "If the symptoms of the ingrafted *small-pox* are more mild than those of the natural sort, I hope the Doctor will not bring that as an objection against the practice. I believe the patient, in this case, has just as great certainty for not having the *small-pox* again, as any other person who has had them; *which is no absolute one*. Those who are infected by any method, I believe, are

much in the same condition as to the security from the disease for the future ; for which I will give the Doctor this one plain proof, which is sufficient to establish a moral certainty. This practice of *inoculation* has been continued for many years in several countries ; if the *inoculated* had been subject to catch the *small-pox* a second time, something of this kind must have happened ; and a very few instances of this must have put an end to the whole practice : For, can any one imagine that people in their senses would have continued a troublesome experiment, which was not effectual for the purpose for which it was designed ? I will take the freedom to say, that this single reflection is a stronger proof of this point, than all the Doctor's doubts and suggestions, who knows nothing to the contrary."—" But it is *possible, and even probable, the matter of the small-pox may communicate the diseases of the people from whom it is taken.* This is hard ! The Doctor will scarcely allow that the matter of the *small-pox* will communicate the *small-pox* ; but it is *probable* that it will communicate any other disease."

Dr. BRADY, in his remarks upon Dr. Wagstaffe's letter published in 1722, in speaking of the security afforded against a second attack of small-pox by inoculation, observes, (p. 39.) " Nor can its enemies produce any real instance, that those who had it by inoculation have it again ; and yet we almost every where meet with those

who will pretend to give instances of some who had the small-pox twice, even in the natural way. We have also assurances that inoculation has been performed on some who had the small-pox before, but produced it not again. What more would we have ?"—“ *But if this experiment should not prevent the small-pox for the future, why then, indeed, there would be an end of the practice. Let him produce, from amongst the many inoculated, but one undeniable evidence that any who really had the small-pox thus, have had them again, (though some are said to have them twice the natural way,) I dare promise him that would destroy its reputation. But there is all the proof given the negative will admit of, that they will not have them again who have really had them thus. The practice of it, from time immemorial, amongst the Circassians, for above forty years amongst the Grecians, in Turkey, and in the Levant, where Dr. Timoni and Pylarini, men of knowledge and character, and our own ambassador's train tell us, it had been experienced on thousands; and that the Quality, formerly averse to it, now for some years past have come into it without hesitation; and that though the inoculated had ever so few, yet they never had the small-pox again, though they cohabited with those who had it. What evidence more can be demanded? The New Englanders, men of the greatest judgment, learning, and character there, tell us, none of the inoculated, though they*

attended on others in the distemper, ever had them a second time."

Dr. NETTLETON, a strenuous supporter of inoculation, and who, during the first year of this practice, had inoculated forty persons at Halifax, in Yorkshire, in the account which he has published of these cases, denies the possibility of the recurrence of small-pox, either in those who have been inoculated, or in those who have passed through the disease in the natural way. In one of his letters upon inoculation, printed in the 370th Number of the Transactions of the Royal Society, he says, "We have not yet found that ever any had the distemper twice, neither is there any reason to suppose it possible, there being no difference that can be observed betwixt the natural and artificial sort, (if we may be allowed to call them so,) but only that in the latter the pustules are commonly fewer in number; and all the rest of the symptoms are in the same proportion more favourable."

Sir RICHARD BLACKMORE, in a pamphlet published in 1723, with the view of discouraging the practice of inoculation, founds the distinction between distinct small-pox and chicken-pox upon the periods of time which they respectively occupy. "They of this kindly sort," he says, (p. 19.) "are generally judged fully ripened by the tenth day from the first illness, or the sixth from their first appearance; the eleventh day therefore is not justly fixed for the completion of all of

this kind, as the eighth day from the first attack is not truly assigned as their most dangerous season. By the continuing of this sort so long, they are distinguished from the *chicken*, or *swine-pox*, which, as they are larger, and often full of water, so they disappear before the eighth day, though in that space they sometimes stay long enough to leave impressions or prints in the skin, and by this it may be known, that is, by their continuance till the tenth day, whether the eruptions or pustules were truly the small-pox or no."

"That inoculation," as has been justly observed by Dr. Davies of Bath, "was not stifled in the bud by the prevailing passions and prejudices of mankind, we owe chiefly to two favourable circumstances, viz. to the countenance it received from the Royal Family, and to the abilities and integrity of Dr. JURIN, who undertook the office of a candid historian, putting that practice to the fair test of experience." This eminent individual, in the valuable papers which he communicated to the Royal Society of London on the subject of inoculation, and which contributed so powerfully to procure for that practice a favourable reception among the more intelligent part of the community, in reply to the two following questions, viz. "1st, Whether the distemper given by inoculation be an effectual security to the patient against his having the small-pox afterwards in the natural way? And, 2d, whether

the hazard of inoculation be considerably less than that of natural small-pox?" observes, that, "If either of these questions should, by experience, be determined in the negative, the practice of inoculation is at an end. For, who will run the hazard, be it more or less, of being inoculated, unless he *believes* he shall thereby be secured against having the small-pox in the natural way? And again, why should we chuse the present hazard of inoculation, rather than the future and distant danger of the natural small-pox, unless we are convinced that the former is considerably less than the latter?" Dr. Jurin mentions three examples of secondary crops occurring during the progress of the first. "I know," he says, "by experience, that a person may have two sorts at the same time. I was with one who had a confluent species broke out on *Saturday*, and a distinct on *Tuesday* following, and both continued and held distinguishable to the last; and the person with great difficulty recovered. The youngest brother of the Lord Westmorland's had likewise two crops of two sorts: I was with him, but he died. A gentlewoman, under my care, in a flagrant fluxing pox, lay, the 12th day after eruption, senseless in convulsions all over, and with a pulse so suppressed, that with all the attention I could use, I could not perceive it move in the least. But that night a fresh crop of the distinct kind burst out, by which her senses returned, and she recovered

from that time. But though those variolæ came out in elevated pustules, yet they never grew, nor coloured, but went away again in a few days without breaking the skin."

The following letter from Serjeant Surgeon Amyand, to Dr. Jurin, affords an example of the manner in which varioloid eruptions, occurring in those who had been inoculated, were usually explained by the advocates for inoculation :—"SIR, The case of the Honourable Master George Percival having been differently reported, the Right Honourable the Lady Percival, his mother, has given me leave to take a copy of her journal of that case ; which, for the public's satisfaction, she is pleased to allow to be printed, as well as the enclosed letter, which I am directed to deliver to you. These make any account I could send you of that case altogether useless ; though it may not be improper to observe that all my Lord Percival's children, who have got through the small-pox in the natural way, had the chicken-pox in a few weeks after their recovery from that distemper, and that, considering all the circumstances of Master's second eruption, it appears that his distemper then was not very different from theirs, and that his pox was nothing more than the chicken-pox."

WALDTSCHMIEDT, in an Inaugural Dissertation, published in 1725, at Kilia, says, that the small-pox are divided into the true and the spurious ; that the latter are again divided into the

lymphatic, the emphysematic, and the dry, (the water, wind, and stone-pox of the Germans.) He mentions, likewise, that at the time he wrote there was prevailing in the city an epidemic lymphatic, or crystalline small-pox, which was without danger unless when there was some great error of diet, or in the method of cure. It is to be regretted that in the very few accounts which have been recorded of the prevalence of varioloid epidemics similar to that referred to by Walddtschmiedt, it should not have been stated whether the individuals attacked by it had previously passed through small-pox, or were afterwards observed to become affected with any other form of that disease.

Dr. FULLER is the first author I have met with who states expressly, that the true small-pox, of which he mentions four sorts, viz. the distinct, contiguous, confluent, and bleeding, is a disease specifically different from the chicken-pox and measles. At p. 167 of his *Exanthematologia*, published at London in 1730, he specifies four particulars with respect to small-pox. “ 1st, That they are peculiar to man. 2dly, That every man is liable to them. 3dly, That no man (*generally speaking*) hath them more than once; and 4thly, That they always breed in their own kind.” Or, as he says in another passage, (p. 184.) “ The small-pox keeps precisely to his own family, so as never to produce the chicken-pox,

measles, or any other distemper whatever, but the true small-pox only."

Of the spurious sorts of small-pox, Fuller mentions four, besides the chicken-pox, viz. the Brexias of the Spaniards, the Steinbecten, (stone-pox,) the Swine, or Hog-pox, and the Chrystals, or Chrystal-pox. After giving a description of the Rittelen, or chicken-pox, he says, (p. 161.) "This chicken-pox, and several of the other spurious sorts, are distempers that have all of them a distinct material cause, and therefore differ not only in degree, but in essence also from one another." He likewise (p. 171.) relates one case, and mentions two others, in which *one* variolous pustule proved sufficient in preventing a second attack of small-pox.

Dr. FREIND, in his letter to Dr. Mead, *De generibus Variolarum quibusdam*, written in 1723, (*Opera Omnia*, p. 358.) gives a particular description of two forms of small-pox, the siliquose or bladder-pox, and the verrucose or warty, forms which have usually been regarded as spurious, and of which, as I have already had occasion to mention to you, several well marked examples occurred in those who, during the late epidemic, were affected with secondary small-pox, or with small-pox after vaccination. In the same letter he mentions a case in which there existed at the same time verrucose, papular, chrystalline, and siliquose eruptions, and which terminated fatally on the 8th

day. He states, in opposition to Helvetius, that the chrystalline small-pox occur not only in the confluent but also in the distinct species of the disease.

Dr. HILLARY, in the preface to a very able treatise on Small-pox Inoculation, published in the year 1735, has justly rested the value of that practice upon the mildness of the inoculated disease, and the degree of security which this form of small-pox affords against a second attack. "Yet its success," he says, (p. 18.) "in this our colder climate, remains somewhat doubtful, and must be so till the two following propositions are clearly proved and confirmed by just observations, or their contraries; viz. 1st, That having the small-pox by inoculation, is less hazardous than having them by infection in the natural way is; and, 2dly, That the having them that way is a sufficient security against their having them a second time, as the other is. The clearly proving or disproving these, must either establish the practice of inoculation on a firm and lasting foundation, or justly explode it for ever after. This can only be done by unprejudiced observations, grounded on real facts; but such is the frailty of human nature, that in most cases, (even in the greatest concerns of life,) men first form to themselves opinions, and then think and agree with too strong prejudices for those opinions; this has been too much the case in the affair of inoculation, as is too

evident from the writings of several of the gentlemen both for and against it; for some have wrote with so much warmth, that they have shewn a strong prejudice against it; whilst others have so zealously espoused it, that their writings smell too much of levity, credulity, or an overweening bigotry for novelty. Certainly the best is to relate matters of fact, justly and truly as they are; (as I hope some have done,) and then leave mankind to judge for themselves."

This author, instead of referring many of the varieties of small-pox, such as the verrucose and the chrystalline, to different sources, as had been done by Fuller, ridicules the idea of physicians making so many sorts of them, all of which, he asserts, ought rather to be referred to the season of the year, to the virulence of the miasmata, or to particular constitutions, than to any specific difference in the diseases themselves. "To make more divisions," he says, "is but more critically trifling than really useful, since all the true kinds of *small-pox* are essentially of the same nature, and proceed from the same cause; and their different appearances and symptoms from the varieties of the then epidemical constitution and season of the year, the different virulency of the *miasmata*, and various dispositions of the persons infected; for from the variety of these, all the various symptoms and consequences of this disease may be clearly accounted for.

Whereas if physicians were to make as many sorts or kinds of *small-pox* as they find different symptoms and appearances of them in their patients; it is probable they must make as many kinds of them as the disease makes returns into different towns, if not as many as they have patients, which would be ridiculously trifling. Wherefore I shall here treat of it as one disease, divided into the *distinct*, *contiguous*, and *confluent*, and the *bleeding small-pox*, attended with purple spots and hæmorrhages: all which are sometimes intermixed with the *crystalline*, *siliquose*, and *verrucose*, when of a malignant sort."

Hillary likewise mentions a case (p. 83.) in which a second eruption came out on the fifth day after the first crop. "I have met with but one case of this kind, where the second crop or eruption was any thing considerably great, viz. T. T. Esq. the only son of an ancient and worthy family, aged twenty-one. I was not called into him till the fifth day after the eruption of the pustules, which had rather declined and sunk on the two last days; but upon giving him a gentle *cardiac medicine*, mixed with an *anodyne*, and repeating it twice, the first crop of pustules rose and filled very well, and a second came out in great numbers all over his body, yet never filled so well with matter as the first; (being of the confluent kind;) and though the second fever after was very high, yet by the use of antiphlogistic and antiputrescent medicines, with diacodium, a pro-

per clyster, and a gentle antiphlogistic purge or two, he recovered very well."—That this author believed in the possibility of the secondary occurrence of small-pox, appears from the following passage, which is the more deserving of your notice, that it seems to contain the expression of his belief that secondary differ from primary small-pox. "The *small-pox*," he says, "is a distemper so *epidemical*, that there are very few but who undergo it at one time or other in their life-time once; and some very few instances we have of those that have had it twice, (notwithstanding that *Averrhoës*, and several since him, have asserted the contrary;) but I believe they are of different kinds, when any one chances to have them a *second time*."

HOFFMAN, in the first volume of his works, in treating of the diagnosis of diseases, says, (Sect. I. cap. iii. p. 293, Genevæ, 1740.) that small-pox, considered with respect to the danger attendant upon them, are either malignant or mild, regular or irregular. But, he adds, the true small-pox require to be distinguished from the spurious, which are commonly called wasser pocken, (water-pox,) and spitz-pocken, (conoidal,) and which come out with malignant vesicles, filled with a pellucid fluid, and are attended with fewer symptoms, are less violent, and without danger.

Dr. O'CONNELL, in his work entitled, *Morb. Med. et Chir. Quorund. Observat. Med. Ex-*

periment. published at Dublin in 1746, in describing the benign and anomalous small-pox which prevailed during the years 1719-20, says, (p. 106.) that those who labour under the very mild species of distinct small-pox are seized with a very slight and scarcely perceptible fever, which continues for three or four days, but which entirely disappears upon the breaking out of a very few round pustules, which are very slightly inflamed, and arrive at maturation by the second or third day ; at length, being filled with true pus, they become warty and elevated, and dry into scabs, which fall off about the ninth day from the first attack of the disease. He says, (p. 113.) that in some cases he had seen a fresh eruption of pustules come out after the scabs of the first crop had fallen off, and run through their regular course ; and (p. 115.) he mentions, that he had often observed fresh pustules coming out till the eighth or ninth day of the disease, the fever continuing as long as pustules broke forth.

Dr. MEAD distinguished small-pox into the simple and malignant. He says, (Vol. ii. of his Works, p. 114.) “ The chief differences which have fallen under my observation, are these that follow. For the pustules are either crystalline, warty, or bloody. I am well aware that authors have run into a greater number of subdivisions ; but I look on the rest to be either a combination of some or all of these, or only different degrees

of the same kind, a thing which frequently happens in an irregular disease." "I call these pustules crystalline which, instead of thick well-digested matter, contain nothing but a thin, pale water, and are in some measure pellucid. And this sort is sometimes observed, not only in the confluent but also in the *distinct small-pox*." "They are called warty when the pustules contain no fluid, but grow hard and prominent above the skin, in the manner of warts. These are peculiar to the distinct sort." "The bloody pustules are produced more ways than one. For I have seen cases, where, at the very beginning of the disease, the pustules were so many small tubercles full of blackish blood, resembling those raised on the skin when pinched with a forceps. And these were followed by an intermixture of purple and livid spots, such as physicians describe in the true small-pox." Dr. Mead admitted the secondary recurrence of small-pox.

Dr. Frewen, in his Essay on Inoculation, published in 1749, makes an observation with regard to the quantity and quality of the matter employed for inoculation, which has often been confirmed. "It matters not," he says (p. 22.) "what quantity of the *pus* is made use of, the least discernible on the lint being sufficient to answer the purpose of inoculation; and experience has convinced me that it is, in reality, of no consequence from what kind of the small-pox it

is procured. I knew one-and-twenty persons inoculated the same day with matter taken from one who had a confluent small-pox, and died of it; yet these, notwithstanding, all had it in as favourable a way as could be wished for; and I have inoculated many more with matter of the malignant kind, without any manner of ill effect."

In a short time after the introduction of small-pox inoculation into England, much was written in France both in favour of and in opposition to that practice. The subject was considered by the Doctors of the Sorbonne in a religious, and by the Faculty of Medicine at Paris, in a medical point of view; and it must now appear singular, that while the clergy were of opinion that some experiments with inoculation might lawfully be made with a view to public utility, the Medical Faculty should have judged it proper to withhold their approbation from the trials which were suggested.

From this period, the attention of the public in France was at various times directed to this important subject by different writers. The most distinguished of these was undoubtedly the celebrated M. de la CONDAMINE, who, in an account of his Voyages to the Levant and to the River of the Amazons, which he read before the Royal Academy of Sciences in the years 1732 and 1745, took an opportunity of speaking favourably of inoculation, and subsequently, in

1754, read before the same learned body a highly interesting memoir, on the progress of this practice in Europe.

The arguments which M. de la Condamine, in his memoir, urged in support of the practice of inoculation, were nearly the same with those which had been employed during the whole of the controversy on this subject in England. It must be allowed, however, that this eminent individual who, it ought to be remembered, did not belong to the medical profession, and was, it may be presumed, on that account little liable to be influenced by interested motives, or professional jealousy, has supported his opinions with equal candour, and with no less zeal than the most strenuous advocates of inoculation in any of the other countries of Europe. Indeed, from the moderation with which he in general conducted the share which he took in the controversy on this subject, and from the success with which inoculation was finally introduced into France, shortly after his interesting memoir was read before the Royal Academy of Sciences, it is but fair to state that France seems to have been as much indebted to him for the benefits which flowed from the diffusion of that practice, as our own country was to the candid and intelligent statements of Dr. Jurin.

In looking back to the history of the introduction of inoculation into France, it is agreeable to find that the first trial of it was

made at the suggestion, and under the immediate direction of the enlightened Turgot. On the 1st April, 1755, this patriotic statesman caused a child to be inoculated, and as he had never had the natural small-pox, he intended to have submitted himself to the same operation, had he not been under the necessity of going upon public business to Bourdeaux.

In the beginning of 1756, M. TRONCHIN, who had been for some years successfully employed in the practice of inoculation at Amsterdam, was invited to Paris by the Duke of Orleans, in order to superintend the inoculation of his son, the Duke of Chartres, and his daughter, Mademoiselle D'Orleans. Fortunately for the progress of inoculation in France, the trial was made on these young princes with every appearance of success. In the course of the same year, several of the nobility, M. Turgot, and other persons of distinction, having submitted themselves to this operation, the practice was introduced among the higher circles in Paris, so that by the end of the year 1758, not fewer than two hundred persons were reckoned to have been inoculated in that city.

Notwithstanding this successful introduction of inoculation into France, the clamours of the opposers of this practice were not silenced. Amongst other objections, they asserted that the inoculated small-pox did not afford sufficient protection against the recurrence of that disease.

A son of M. Delatour, about nine years of age, was inoculated in 1756 for small-pox, by Surgeon Martin, under the inspection of M. Tronchin, and passed through the disease in a satisfactory manner. This boy remained in good health for upwards of two years, when an eruption, supposed by some to be small-pox, appeared upon him, as well as upon four of his companions in the same boarding-school. The different opinions formed of the nature of this eruption by the medical practitioners who saw it, and who seem to have judged of it according to the pre-conceived notions they entertained with regard to the possibility of the recurrence of small-pox, present so true a picture of what has occurred in similar cases since the introduction of vaccination, and of the manner in which doubtful cases of varioloid eruptions continue still to be judged of, that I cannot avoid giving you an abstract of the discussions to which this case gave rise.

M. GAULARD, physician in ordinary to the king, was called to see the son of Delatour on the 3d day of an eruption, which he declared to be a mild case of small-pox, of the kind commonly called, he says, though improperly so, chicken-pox, and the disease in the boy's companions he considered to be of the same nature. This opinion of M. Gaulard having spread throughout Paris, he was summoned to meet in consultation with M.M. Vernage, Fournier, and Petit the father and son,

to whom he stated his opinion of the case. These four physicians published a report (see Condamine Histoire de l'Inoculation, p. 335.) in which they declare that they had visited the boy, and his four companions, on the 17th day of the disease, when there remained on their bodies no marks of the eruption, except *violet stains*, distinct from one another, but without any cicatrix or cavity in the skin, and that one of the patients had still some scales on the back ; they likewise give (as it had been related to them by M. Labat) an account of the progress of the disease, which contains a description of varioloid eruptions, very similar to those which have of late been described under the denomination of modified small-pox. M. Labat informed us, they say, that all the patients had, in a slight degree, the symptoms of small-pox, such as fever more or less severe, drowsiness, pain of the chest, and that one of them had vomiting; that in the commencement of the disease, when the fever first manifested itself, he saw and felt numerous red pimples, (*boutons*) which acquired in the course of 24 hours, their greatest size and height ; that these speedily became white, but were transparent and chrySTALLINE, and when they burst, discharged a clear yellowish serum ; that the fever lasted *only three or four days* ; that all the pustules, (*boutons*) dried very quickly, and that they never suppurated properly ; and that he, (Labat) considered the disease to be the chicken-

pox only. These gentlemen mention also that two of the other children affected, had previously passed through natural small-pox ; and conclude with declaring, that from these circumstances, and Labat's description, they believe that the disease in Delatour and his companion, *was neither the small-pox, nor the chicken-pox, but a chrystalline eruption, with which they were well acquainted.*

M. Hosty, who had been sent over to England in the year 1755, to acquire information upon the subject of inoculation, addressed a letter to the editor of the *Mercure de France*, in January 1759, respecting the case of Delatour, in which he states that this boy and his companions became affected with fever, headach, and stupor ; that in Delatour the eruption appeared on the first day, in the form of papulæ, which were sensible to the touch, and elevated ; that in 24 hours it became clear, transparent, and as it is termed chrystalline ; that the vesicles burst and discharged a serosity, but no pus, leaving behind them tubercles on some parts of the body ; that the attending surgeon, M. Labat, not considering the disease as genuine small-pox, had purged his patients on the 8th, and not on the 16th or 20th day, as he was accustomed to do in ordinary cases of small-pox ; that he had often observed the eruption with which they were affected, occur as the forerunner of small-pox ; and that he applied the term chicken-pox to this

disease, to signify a slight eruption of the skin of short duration, preceded by fever and the other symptoms which are common to small-pox, but which do not characterize that disease. Hosty maintains that the eruption with which Delatour had been affected was the chicken-pox, or the disease denominated the *chrystallines* by some authors. Besides this particular reference to the case of Delatour and his four companions, Hosty enters into a discussion with respect to the occurrence of secondary small-pox, in which he allows that there are several eruptive diseases with which a person may be affected, so like the small-pox, as scarcely to be distinguishable from them, and on that account liable to give rise to many mistakes, and he states, that although he does not deny absolutely the possibility of the recurrence of small-pox, he believes this to be rare. Yet, after this acknowledgment, Hosty attempts to draw a diagnosis between small-pox and those diseases which resemble them, and expresses his astonishment how any person could confound two diseases so different from each other as the chicken-pox and small-pox are; by the former, he says, everybody understands a disease similar to that which occurred in Delatour and his companions,—a disease which is attended with no danger, is of short duration, and which differs essentially from small-pox both in its progress and in the contagion from which it arises; considered in this

sense, he says, chicken-pox may return several times, but can neither protect against an attack of small-pox, nor be prevented by that disease, and that in conformity with other authors, he terms this eruption the *chrystallines*. Some, he adds, understand by the term chicken-pox, a very mild distinct variety of small-pox, in which there are few pustules; but which, nevertheless, contain a true variolous poison. He admitts this to be a variety of small-pox, which had afforded him points of comparison with the *chrystalline*. Hosty concludes his letter by stating, that reports as much destitute of foundation as those which had been circulated in France, had for a long time retarded the progress of inoculation in England, but that during a residence of three years in that country, he could not hear of a single individual belonging to the medical profession who did not approve of the practice.

The eruptive disease, which is described by Hosty under the denomination of *chrystalline*, bears a striking resemblance to the disease which has of late been described by the term *chicken-pox*, in contra-distinction to modified small-pox. It is much to be regretted, however, that the public in France were left in total ignorance with respect to the actual number of cases of the *chrystalline* eruption which the reporting physicians had seen; that before determining it to be a disease specifically different from small-pox and from chicken-pox, they had not

taken the trouble to inform themselves of the comparative liability to this disease, of those who had, and of those who had not previously passed through small-pox; that it should not have been stated whether they had ever seen this disease prevailing epidemically, independently of small-pox; nor have stated whether the vesicles were always preceded by papulæ; whether there was any particular period during the progress of the eruption, at which it could be more easily distinguished than at another from small-pox; whether, like small-pox and chicken-pox, it was communicable by inoculation; whether the chrystalline eruption, ever varied, like other varioloid diseases, in its symptoms, and the appearances which it exhibited in different constitutions, or, unlike all other eruptive diseases, maintained in the individuals whom it attacked, one definite, constant, and uniform character.

The letter of M. Hosty drew forth an able reply from M. Gaulard, (*Mercure de France* du mois Fevrier, 1759,) in which he states, that when he met the four physicians in consultation, he simply told them what he had seen, and his opinion of the nature of the disease through which young Delatour and his companions had passed. In answer to the statements of Hosty with respect to the progress of the disease in the patients in question, Gaulard affirmed, that when he saw the eruption on the 3d day, the pustules were of a milky whiteness, and full of a thin

purulent matter, similar to that which is generally seen on the 3d day of an eruption, in which suppuration is commencing; and in addition to the fact of *violet stains* being seen on the 17th day, he states that when he saw Delatour *six weeks* afterwards, *marks* were quite visible upon his body, which no candid and intelligent physician could deny were similar to those left by distinct small-pox.

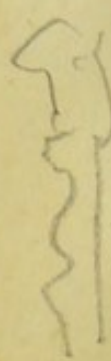
To Hosty's opinion, with regard to the unfrequency of the occurrence of secondary small-pox, Gaulard replied, that he had at that time under his charge two unequivocal examples of secondary natural small-pox, and that a nephew of the Archbishop of Paris, had, a month before, passed through the small-pox under the care of the celebrated M. Astruc, although he bore marks on his body of having formerly undergone the disease. From these cases Gaulard concluded, that if natural small-pox did not protect against the recurrence of the disease, much less could inoculated small-pox do so. In the course of this letter, he states that he was not hostile to the practice of inoculation; and that though reason dictates, and experience actually demonstrates, that this process does not infallibly afford protection against a subsequent attack of natural small-pox, he was still disposed to believe that it may be possessed of some real advantages, and concludes by subjoining a certificate from M. Labat, in which that person states that the eruption in Delatour

continued for eight days ; that he purged him on the ninth day, because the disease was a mild small-pox ; that he called it chicken-pox because the physicians themselves gave it no other name, but that it was nevertheless true small-pox, which, in medical language, ought to be called the distinct.

CONDAMINE, adopted the opinion of the four physicians, and that of Hosty, with respect to the nature of the disease which occurred in Delatour, and in a Reply to Gaulard, printed in the *Mercure* for June, 1759, in reasoning with respect to the degree of security afforded by inoculation against a subsequent attack of small-pox, laid down three propositions. *First*, there is, he says, no proof that a person may have the small-pox twice, and there are great reasons for doubting it ; *secondly*, Even if it were proved that small-pox may return a second time naturally, it does not follow that this will happen after inoculation ; and, *thirdly*, When an example of small-pox, occurring after inoculation, shall take place, such an occurrence will not prove that inoculation is useless.

The manner in which Condamine disposes of his first proposition is somewhat singular ; he says, that if secondary small-pox ever have occurred, the number of those cases which are recorded will, in our estimation, be greatly diminished, when it is considered that those who have related them have generally done so from

hearsay only ; that marks similar to those left by small-pox frequently remain after other cutaneous diseases which themselves last only three days ; and, that a distinct and abundant small-pox, or even a simple chrystalline eruption, when complicated with certain habitual diseases of the skin, may be mistaken by the inexperienced for confluent small-pox. These circumstances, he conceived, together with the ignorance of surgeons, apothecaries, and young physicians, who mistake for true small-pox diseases such as that which occurred in Delatour, and which are essentially different, both in their progress and effects, from small-pox, contribute greatly to strengthen the opinion of the possibility of the recurrence of small-pox ; and nothing, he adds, could tend more to propagate such a mistake than the letter of Gaulard, who had undertaken to establish a doctrine, founded upon a vulgar opinion, and which no physician would adopt. Yet, notwithstanding this statement, Condamine is obliged to confess that the positive and respectable testimonies of cases of secondary small-pox, joined to many other singular and inexplicable cases which are attested in the most authentic manner in every medical work, literary journal, and academical review, force him to suspend his opinion with respect to the recurrence of small-pox, to deny the possibility of which altogether, he says, would be somewhat rash.



In support of his second proposition, Condamine states, that as variolous matter, introduced a second time into the body by way of inoculation, has not been found to communicate the small-pox, it is reasonable to suppose that the variolous contagion which floats in the atmosphere during the epidemic prevalence of small-pox, and which can only be introduced by inhalation, will have still less effect upon an inoculated person. From this he concludes, that though it may be possible for a person to have the small-pox a second time naturally, it does not follow that one who has had the disease by inoculation can take them again. The mode of reasoning employed in support of this proposition, though it may have had considerable weight at the time it was used, can, in the present state of our knowledge, have no effect whatever in determining our belief with respect to the recurrence of small-pox; for though, with Condamine, we may still admit that it is difficult to communicate small-pox by inoculation to those who have passed through that disease, either naturally, or artificially; yet it is impossible for us to admit the validity of this argument as applied to secondary small-pox, caught in the natural way, knowing, as we now do, that those who have passed through inoculated small-pox are as liable to be again affected with this disease by atmospheric contagion as

those who have passed through natural small pox.

Condamine's third proposition, viz. that the occurrence of a case of secondary small-pox after inoculation would not prove the inutility of that practice, has been shown, by the test of experience, to be well founded. Even before the introduction of inoculation, it had been hinted by Kennedy that the second attack of small-pox was milder in degree than the first; and in a great proportion of the cases of this kind, which I have lately seen, the second attack has been peculiarly mild, and almost harmless.

From this account of the controversy which took place in France with respect to the possibility of the occurrence of secondary small-pox, and the nature of the varioloid eruptions which were observed to occur in persons who had passed through inoculation, it is obvious that chicken-pox was not at that period considered by the medical men in France, unless by Hosty, as a disease specifically different from small-pox, and it would appear that, on account of the similarity of the disease in Delatour and his companions to small-pox, it had become necessary to employ another term to designate it, in order to avoid the effect which a belief in the recurrence of small-pox, after inoculation, must necessarily have had in retarding the extension of that practice. You cannot have failed also to have remarked a striking similarity in the modes of explanation

adopted at that time to those which, since the introduction of vaccination, have generally been had recourse to in order to account for the varioloid eruptions which have occurred in those who have undergone this process, most of which have been considered as examples of chicken-pox, some of small-pox, and others of a disease specifically different from either of these affections.

For many years after the occurrence of the cases which gave rise to the discussion which has been mentioned, the possibility of the secondary occurrence of small-pox was keenly contested in France. The first individual who seems to have maintained the possibility of this occurrence, in opposition to the opinion of Condamine, as expressed in the memoirs which he read before the Royal Academy of Sciences, was Dr. Cantwell, who, in 1755, published a dissertation upon inoculation, the avowed object of which was to undeceive those who believed in the efficacy of that practice. In this Essay a great number of cases of small-pox, which had occurred both after natural and inoculated small-pox, are mentioned; and though Cantwell did not, like Wagstaffe, deny that true small-pox was communicated by inoculation, he seems to have been swayed considerably in the opinion which he formed with respect to the utility of that practice, by his belief that

small-pox communicated in that way not only did not protect against a subsequent attack, but even that it gave rise in those who submitted to this operation to many distressing diseases, which sometimes proved fatal. He seems to have been well acquainted with those varioloid eruptions which, previous to the introduction of inoculation, had received a variety of names, such as swine-pox, chicken-pox, &c. and which were considered not as specifically different from small-pox, but as spurious and bastard species of that disease. These eruptions, in his opinion, were nothing else than mild varieties of the true small-pox. His own words are, (p. 37.) “After all, what is the swine-pox, the duck-pox, and the chicken-pox which are observed among the English and the Irish? what is the *petite verole volante* which is seen in France? Many distinguished authors attest that they have seen small-pox occur twice in the same individual; and have not we reason to believe that in these cases the second attack was true small-pox, of which the infection was slight, and in which the vital actions were too weak to carry it to a certain extent?”

In 1758, M. de la Condamine read a second memoir before the Royal Academy of Sciences, containing an Account of the Progress of Inoculation in the different countries of Europe, from the year 1754 to 1758; when speaking of inoculation in Austria, he refers particularly to the

questions which had been published by the celebrated De Haen of Vienna upon that subject; and in answer to the fourth question, Does inoculation protect against an attack of small-pox in after life? although he is not disposed to deny absolutely the possibility of their recurrence, he endeavours to prove that it is an exceedingly rare event. There is no well authenticated case, he says, (*Hist. de l'Inoc. p. 203.*) of the return of small-pox in those in whom inoculation has produced its effects; those eruptions which have appeared, and which have been reported as cases of secondary small-pox, having been cases of chicken-pox. He cites, (*p. 206.*) the case of Timoni's daughter, who died in 1741, at Constantinople, of small-pox, as an example of small-pox after inoculation, and maintains that in this case the inoculation had been *imperfect*; he produces a certificate, however, in which it is stated that ten pustules appeared on her body on the 11th day of inoculation, but he affirms that these pustules were not true small-pox pustules; he says they were flea-bites, accompanied with elevation and redness, which might be produced by the heat of the room in which the child lay. One case, and one only, does Condamine allow to have been an unequivocal example of small-pox after inoculation; (*Note, p. 216.*) it is the case of a Mademoiselle Chatellain, who was inoculated by M. Tenon at Paris in 1755, and attacked with small-pox fourteen years afterwards. In fact,

Condamine rests the weight of his answer to De Haen's question upon the testimony of certain celebrated English practitioners, who declared, that in the course of a long life and extensive practice, they had never met with an example of the recurrence of small-pox, and, upon calculations with respect to the number of individuals affected with secondary small-pox, which are not only known now to have been erroneous, but which were disputed even at the time they were made, by several individuals who were equally strenuous with Condamine in their support of inoculation. According to Tissot, the proportion of cases of secondary small-pox is as 1 in 100; according to Heberden, as 1 in 5000; and, according to Condamine, as 1 in 10,000. How uncertain the data!

A case is mentioned by MACQUART, in the 8th Vol. (p. 49.) of the *Journal de Medecine* for 1758, in which the symptoms of eruptive fever, followed by a crop of true variolous pustules, occurred on the 17th day after an attack of small-pox.

DE HAEN published, in 1757, some questions and reflections upon small-pox inoculation, which were answered by Condamine and Tissot. To the answers of these authors De Haen replied in 1759, in an essay entitled "*Refutation de l'Inoculation*," and endeavoured to shew, on the one hand, that there are many people who are never attacked with small-pox; and, on the other, that there are many who suffer two attacks of that

disease. In proof of his assertions, he quotes (p. 4. *et seq.*) the opinions of several ancient and modern writers, and refers to cases of secondary small-pox which are recorded by no fewer than eighteen practitioners, who had written previous to the introduction of inoculation, and who, as is justly remarked by De Haen, could have had no interest in adopting any particular doctrine with regard to this point. Besides these authorities, he quotes (p. 24, *et seq.*) those of eight other physicians who were contemporaries of inoculation, and relates several cases of secondary small-pox which he had himself seen, or which had been communicated to him by the practitioners under whose observation they had come. One of the cases (p. 34.) which had been communicated to De Haen deserves to be mentioned, as the individual who was the subject of it, and the physician who attended him, were at variance with respect to the nature of the disease ; the physician denied that a person could have the true small-pox more than once, but his patient had formed a different opinion with respect to the recurrence of that disease, from having himself passed three times through a varioloid eruption, which, as it did not correspond with the definitions his physician had given him of chicken-pox, could not, he conceived, have been that disease, but which, on account of its severity, and the length of time it occupied during each attack, he was induced to think must have been small-pox.

De Haen appears to have been the first author

who collected into a body the numerous cases of secondary small-pox, which are to be found in the writings of physicians who lived previous to, and during the infancy of, the practice of inoculation in Europe. Had the number of these cases, and respectability of the individuals by whom they are related, been duly considered, they surely were more than sufficient to have satisfied the minds of the most incredulous, of the possibility, and even of the frequency, of secondary small-pox, but De Haen unfortunately mingled with his statement of such occurrences so many unreasonable prejudices, and futile arguments against the practice of small-pox inoculation, as completely to prevent his observations from obtaining an impartial consideration, and to seem to justify the supporters of inoculation in their almost universal disbelief of the facts upon which his erroneous reasonings were founded.

In the 9th part of his *Ratio Medendi*, published in 1765, he has circumstantially related the histories of several additional cases of secondary small-pox, and of secondary eruption. (See *Rat. Med.* vol. ii. p. 119, 20, 21, 24.)

BURGRAVIUS, in the appendix to the 4th vol. of the *Nova Acta Francofurti* for 1759, says, that he had seen many individuals pass through the spurious small-pox a second or third time; but that, during thirty-six years which he had practised medicine in a populous city, he had

nevers een any one attacked a second time with the true small-pox.

CALURI, in the *Acta Academiae Scientiarum Senensis* for 1760, mentions (p. 13.) the case of a girl, nine years of age, who, although she bore true and lasting marks of the spurious small-pox, passed afterwards through the inoculated small-pox. He relates also (p. 109.) the case of a boy, seven years of age, who suffered two variolous eruptions from the same infection; on the 10th day after inoculation, the patient was seized with the usual eruptive fever, and a few small-pox pustules came out, which ran their usual course; on the 25th day he again experienced an attack of fever, which was followed, on the 3d day, by a fresh eruption, which likewise ran through the usual course of small-pox.

In the 11th Vol. of the *Journal de Medecine* for 1761, (p. 417.) M. OLIVIER, a practitioner at St. Tropez, relates a case of secondary small-pox which occurred in a girl who bore evident marks of a previous attack. From the description which is given of this case, it appears to have been similar, both in its symptoms and appearances, to modified small-pox; the eruptive fever was so severe as to require blood-letting, but immediately upon the appearance of the eruption, which is said to have followed the same progress as that of distinct small-pox, the fever entirely left her, and she suffered so little inconvenience from the disease that she went about doing her duty in the house.

M. LECAT, Perpetual Secretary of the Academy of Sciences at Rouen, in a Letter upon Inoculation, printed in the *Journal de Médecine* for 1761, (Tom. 14.) states it as his opinion, that neither natural nor inoculated small-pox protect the constitution from a second attack of the disease. He says, (p. 464.) that examples of secondary small-pox are innumerable, but contents himself with mentioning the case of his own daughter, who he was perfectly assured had suffered twice all the horrors of the disease. In concluding his letter, M. Lecat expresses sentiments respecting inoculation not unworthy the consideration of those who, on the one hand, maintain that vaccination infallibly protects against an attack of small-pox, and of those who, on the other, would rashly reject this practice because, though it deprives small-pox of their malignity, it does not in all circumstances prevent their occurrence. "Let us be contented," he says, (p. 468.) with these precious advantages of inoculation, they are the only solid principles of its success and of its great superiority over the natural small-pox, demonstrated by the most universal and exact calculation. To push our pretensions farther, is to indulge in chimeras and the wonderful; it is to imitate the enthusiasts for novelty; it is to lend weapons to the enemies of inoculation. Nothing is more pernicious to true religion than superstition and false miracles." In a second letter to Pouteau, (*Jour. de Med.* tom. xvi. p. 556, 1762.) Lecat mentions

a case of secondary small-pox which proved fatal in an individual who 30 years before had passed through the inoculated small-pox.

In addition to the examples of secondary small-pox, published by Dr. De Haen, the learned Dr. Hensler of Altona, in his excellent Inaugural Thesis "*de Morbo Varioloso*," printed at Gottingen in 1762, relates the histories of several cases of this kind, which had been observed by Drs. Roederer, Vogel, himself, and others, during the progress of an epidemical small-pox, which prevailed extensively at Gottingen and its neighbourhood in the course of that year. These cases, of which, so far as I know, no account has ever been given by any English author, appear to me to be particularly valuable, not only on account of the minuteness and apparent accuracy with which they have been described, but also on account of the confirmation which they afford of the statements of other observers, and their perfect agreement in almost every particular with the appearances produced by the epidemic small-pox which lately prevailed in Scotland, in many of those who had formerly passed through small-pox. Dr. Hensler, who, from having himself twice passed through this disease, was the better prepared to observe the recurrence of it in others, divides secondary small-pox into three varieties: the first, including cases in which the first attack of small-pox having been of a mild description, and the whole of the variolous poison not having been expelled from

the system, this is afterwards elicited in consequence of some irregularity of diet, &c. ; the second variety comprehends those cases in which the eruption is simply local, caused by the actual contact of the part affected with the small-pox matter, and unaccompanied by any constitutional symptom—this variety, Hensler justly remarks, scarcely deserves the name of true small-pox ; his third variety, which he calls the true secondary small-pox, occurs in individuals in whom the whole of the variolous poison had been expelled during the first attack, but is again generated in the system by constant intercourse with others labouring under small-pox. Of the accuracy of this distinction of secondary small-pox, strong doubts may be entertained, when we consider that the difference which Hensler supposed to exist between his first and third variety, rests partly upon an hypothesis which has not been established with respect to the total expulsion of the variolous poison, during the first attack, and partly upon the nature of the exciting cause by which the secondary attack is produced. As to his second variety, it may not be improper to mention, that the remark which is made concerning it, viz. that it scarcely deserves the name of a disease, has been almost universally allowed to be correct, for even those who have been most assiduous in collecting cases of secondary small-pox, and most careful in observing them, have not generally considered as

examples of that disease, such as have been purely local affections, and unaccompanied by constitutional symptoms. Hensler was an advocate for inoculation, but besides his desire to support that practice, what grounds he had for believing that secondary small-pox were more frequent after the natural than after the artificial, it is impossible to ascertain from his writings.

PLENCIZ, in his *Tractatus de Variolis*, printed in 1762, (p. 29,) divides small-pox into the true and the spurious, and gives to the varieties of the latter, the same names as had been assigned to them in Germany and other countries. This author relates the history of a well marked case of secondary eruption of small-pox which proved fatal. The patient, a boy about 15 years of age, a few days after having passed through the measles, was attacked with fever and restlessness, to which succeeded an eruption of chrySTALLINE, or lymphatic small-pox, with depressions in their centres, and containing a watery fluid. On the second day of the eruption, the vesicles were surrounded with areolae and hardness, which disappeared about the fifth day, at which time the vesicles dried up without suppurating. In about ten days after his recovery from this attack of spurious small-pox, as Plenciz called them, the boy was seized with vomiting, anorexia, thirst, pain of head, &c. followed on the succeeding day by the true malignant confluent small-pox, of which he died, convulsed, on the 11th day.

In 1763, the Parliament of Paris, in consequence of complaints which had been made of the conduct of inoculators, and of those who, having been inoculated, mixed in society during its progress, issued an order to the Faculties of Theology and Medicine, to report, 1st, Whether or no inoculation ought to be tolerated ; and 2d, If tolerated, to state under what restrictions inoculators and the inoculated ought to be placed. In consequence of this order, the Faculty of Medicine appointed a committee, consisting of twelve of their number, to report upon this subject; the committee were divided in their opinion, six declaring for, and six against inoculation. A report by each party was accordingly presented—the one in favour of inoculation was drawn up by Petit, (*Jour. de Med.* tom. xxv. p. 291, 1766.) and signed by MM. Geoffrey, Lorry, Maleot, and Thierry ; and the report against that practice drawn up by L'Epine, (*Jour. de Med.* tom. xxii. p. 291, 1765.) was signed by MM. Astruc, Bouvart, Baron, Verdelhan, and Macquart. Upon a perusal of these reports, it is agreeable to find that both parties seem to have been actuated by an anxious desire to fulfil the important task assigned them with a due regard to truth in the statements which they made, in the reasonings by which they supported their opinions, and in the conclusions which they drew from both ; for, unlike most of those who have engaged in this controversy, while, on

the one hand, the advocates for inoculation did not deny the possibility of the recurrence of small-pox, nor the danger to which the public might be exposed by the intercourse of the inoculated with society in general, so, on the other hand, those who were of opinion that inoculation ought not to be tolerated, nevertheless admitted that it was possessed of certain advantages over the natural small-pox.

M. LE Hoc, who was the anonymous author of a pamphlet entitled, "Avis sur l'Inoculation de la Petite Verole, par Candide," published in 1763, with the view of justifying the opinion which he had adopted, that small-pox inoculation ought not to be tolerated, among other questions, asks, (p. 4.) *first*, Whether it is possible for a person to be attacked with the small-pox twice? and, *second*, Whether inoculation protects against the dangers to be apprehended from a subsequent attack of natural small-pox? In answering the first question, which he does in the affirmative, Le Hoc, besides citing a case of secondary natural small-pox which occurred in a patient of M. de Lepy, and the case of the son of a master of requests, who passed through small-pox twice after an interval of four months, mentions the cases of two of his own children who had likewise suffered two attacks of that disease. The *second* question he answers in the negative; the occurrence of small-pox after inoculation, he says, (p. 7.) is a fact which can be attested by many members of the faculty of medicine. He

makes a remark which, from all that we have seen of the history of inoculation, both in France and in our own country, we are much inclined to believe had its foundation in truth. An individual, he says, who has been inoculated, takes the natural-pox a year or two afterwards; this attack is endeavoured to be concealed with great care, both on account of the patient himself, of the inoculator, and of the distinguished personages who have formerly submitted themselves to inoculation. The disease is disguised under different names; it is nothing, it is said, but a pustulary eruption, (*ebullition boutounée*,) or the hog-pox, (*petite verole de Cochon*,) &c. although these pustules are preceded by fever, proceed to suppuration, leave upon the skin the same marks as the small-pox, and run through all the periods of that disease.

M. STRACK, Professor of Medicine at Mayence, in a letter upon inoculation, addressed to M. Roux, in 1765, (*Jour. de Med. tom. xxii.*) maintains that natural small-pox do not, any more than the artificial, protect against a second attack. In proof of his opinion, he mentions six cases of secondary natural small-pox which he himself had attended. The argument which he uses in support of inoculation in opposition to those who were hostile to that practice, and who asserted that it does not protect against a subsequent attack, though novel at the time it was employed, has since been sufficiently confirmed by repeated observation. He says, that

those who have passed through the small-pox twice, whether naturally or artificially, have, in general, escaped without danger ; those patients, he adds, who have had the small-pox at two different periods, are fortunate, because, if the variolous miasma had operated with its full force during the first attack, they probably would have fallen victims to the disease.

The six following cases, (p. 136.) which Strack adduces in support of the opinion which has just been mentioned, deserve to be particularly stated. During the epidemic prevalence of small-pox at Mayence, six children of the same family were in succession attacked with a disease, which, with every appearance of small-pox, had, notwithstanding, a particular character that distinguished it from this disease. It ran its course in seven days : the pustules pointed on the 1st day, filled on the 2d and 3d, suppurated on the 4th, 5th, and 6th, and scabbed very quickly on the 7th. It was a species of chicken-pox, says Dr. Strack, with this difference, however, that the suppuration was the same as in the true small-pox, and that it likewise left marks on some of the patients. The four youngest of these children had this species of small-pox only once, the two eldest had them twice, after an interval of fifteen days. The four youngest sometime afterwards were seized with the ordinary small-pox, the same with those which were then prevailing in the city ; they occupied a period of about fifteen days, the space of time which the true

small-pox take to run their different periods ; but what is remarkable is, that in these children this last attack was much slighter, and produced much fewer pustules than in other patients who had them at the same time. Would these last small-pox, he asks, have produced as few pustules ; and would they have been so mild if these children had not previously had the chicken-pox ? I think, says he, it is reasonable to suppose that they would not. The two eldest children, who, as has been stated, had this species of chicken-pox twice, were not affected with the small-pox, which were then epidemic, although they were day and night with their brothers who had been attacked with the ordinary small-pox. There is every reason, Dr. Strack adds, to believe that the two attacks of chicken-pox in these children were equivalent to an attack of true small-pox, and that the variolous miasma had passed at two different times through their bodies, and consequently without danger. It appeared to him that the miasma which had produced the disease in the two eldest was truly variolous, in as much as it protected them against the natural small-pox. It is obvious from this statement, that Dr. Strack considered the chicken-pox as constituting merely a milder species of small-pox.

Mademoiselle D'Orleans, who had been inoculated with success by M. Tronchin, in the year 1755, was, in the month of January,

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1765, seized with an eruption, which in some of its characters bore a resemblance to small-pox. The fever did not in this case, as in that of Delatour, precede the eruption, but accompanied it, and lasted nearly four days. The eruption came out in successive crops, and several of the vesicles in their progress became pustular. The eruption appears to have been copious, since it is stated, that 100 pustules, (boutons,) might be counted on the face, which, after becoming yellow and depressed on the fifth day, dried into scabs by the end of the 6th. How long these scabs remained, we are not informed, but the five physicians appointed to inquire into the nature of the eruption, unanimously agreed that it exhibited none of the symptoms of small-pox; but they did not venture, as in the case of Delatour, to give to it any specific appellation. Can it be that the great number of pustules which appeared on the face, prevented their supposing it to be chicken-pox, or that from several of the vesicles having become pustular in their progress, it did not correspond with the definition of the chrystalline, which had been given by the physicians who reported upon the case of Delatour, three of whom likewise were among those who reported upon this case? It is singular to remark, that in the verified reports of these two cases, they are both represented as diseases of only four days duration.

Dr. Monro *primus*, in the excellent account which he has given of the Inoculation of Small-pox in Scotland, in his Letter to the Dean and Delegates of the faculty of Medicine at Paris, appointed to inquire into the advantages and disadvantages of that practice, informs us, in the following paragraph, of the manner in which he was accustomed to determine for himself the genuine or spurious character of varioloid eruptions. “ My correspondents,” he says, (p. 42.) “ almost all agree with me in affirming that they never saw any attacked by *true* small-pox after they had the *true* kind, whether communicated by art or nature. I have been several times told by parents and relations, that the children then under my care in the *true* small-pox had formerly undergone that disease : but, upon my desiring them to recollect whether the same individual pimples had, in the former disease, remained turgid, till at least the seventh day of their eruption, as they might see the present ones would do ; or whether there was only a succession of pimples, each of which collapsed in the third, fourth, or fifth day after the eruption of each, and by their succession there was an appearance of turgid pimples on some part of the skin, during eight, nine, or ten days, they acknowledged that each of the pimples in the former disease seemed ripe, and collapsed before the seventh day ; and thence I concluded that former dis-

ease to have been one of the *bastard* kinds of small-pox."

It is evident from this paragraph that Dr. Monro must have been familiar with the appearances of the *bastard* kinds of small-pox, though he no where gives us any reason to believe that they proceeded from any other cause than from variolous infection; and it is obvious that, by adopting his diagnosis, founded upon the recollection of the parents and nurses, we must regard a great portion of the distinct small-pox as belonging to the *bastard* kind, in as much as in the distinct small-pox, the pimples are frequently ripe, and are collapsed by the seventh day.

5. Effects produced by a Supposed Difference in the Nature of the Contagion.

THE idea that one of the varieties of spurious small-pox, known in England by the name of chicken-pox, arises from the operation of a contagion specifically different from that which produces genuine small-pox, though conceived by Fuller in England, and Hosty in France, does not seem to have been adopted by practitioners, nor to have been embodied into a regular doctrine before the time at which the venerable Dr. Heberden read his paper upon Chicken-Pox to the Royal College of Physicians of London, in the year 1767. (See Medical Transactions, vol. i. p. 427.) From this paper

it appears that Dr. Heberden was led to the belief, that the disease termed chicken-pox was specifically different from genuine small-pox. *1st*, From his observing that chicken-pox attack those who have passed through small-pox; *2dly*, From having observed that those who had gone through the chicken-pox were still liable to be affected with small-pox; and, *3dly*, From observing that the mode of attack, the appearances, progress, and termination of chicken-pox, were different from those of small-pox; and he appears to have been confirmed in his opinion by his belief that neither of these two diseases ever attack the same person a second time.

It is to be regretted that Dr. Heberden should have given so imperfect an account of the nature and extent of the data upon which his observations were founded; that he should not have informed us whether he had ever seen chicken-pox prevailing epidemically independently of small-pox; that he should not have given any information with respect to the comparative liability to chicken-pox in those who had not passed, as well as in those who had passed, through small-pox; that he should not have stated the circumstances which led him to believe that chicken-pox were communicable by inoculation; and that he should not have assigned any reason for his believing that chicken-pox were the same with swine-pox; nor for his separating these

two forms of varioloid eruption from the other spurious kinds of small-pox.

There are two circumstances connected with Dr. Heberden's hypothesis, each of which appear to be somewhat singular. The first is, that if chicken-pox be indeed a disease, *sui generis*, and so easily distinguishable from small-pox, that this opinion should not have suggested itself to the mind of some former observers, with the exception perhaps of Hosty, and of Fuller who believed that all the spurious kinds of small-pox were specifically different from one another, as well as from the genuine. Previously to the time of Dr. Heberden, small-pox and chicken-pox were represented as two varieties, sorts, or kinds of the same disease, which usually accompanied each other in their appearance and progress, as epidemics which came in and went out together, though in particular seasons and districts sometimes the one and sometimes the other form of the disease is reported to have been first observed in the order of its appearance. The second circumstance which seems singular is, that an opinion so new should have been so readily and so very generally adopted by medical practitioners. Surely there must have been something in the nature of this opinion which accorded remarkably well either with the general observation, or with the general wishes of the profession. On the subject of secondary small-pox, Dr. Heberden observes, (p. 436.) "It would be no

extravagant assertion to say, that here, in England, not above one among ten thousand patients is pretended to have had it twice; and wherever it is pretended it will always be as likely that the persons about the patient were mistaken, and supposed that to be the small-pox which was an eruption of a different nature, as that there was such an extraordinary exception to what we are sure is so general a law."

Dr. RUSTON, in his Essay on Inoculation, published in 1768, has related two cases of secondary eruption. He informs us, that he had two reasons for laying them before the public, the one to prevent "practitioners from being too dogmatical and rash in pronouncing their patients to be over the small-pox who have only very slight appearances;" and the other and principal one, "because it had been currently reported that these were instances of patients having the small-pox twice, and certainly they are the best attested of any I have yet met with; but hence I conclude," says Dr. Ruston, "that if all that have been reported to be such, were as minutely inquired into, none of them would be found by any means conclusive." One of the cases, the particulars of which Dr. Ruston has related, appears to have been a case of secondary eruption, occurring during the same attack of small-pox, and the other a case of secondary small-pox. The following is a short abstract of these cases, as they were communicated by Mr. Brad-

ney to Dr. Ruston :—A young lady of nine years of age, and her brother about seven and half years old, were, with the coachman of the family, inoculated by Mr. Bradney, with fluid matter taken on the ninth day ; on the third day after inoculation, the young lady shewed signs of infection ; and on the seventh, four pustules appeared around the orifice of the wound, preceded by giddiness and slight fever ; the eruption did not last long enough for maturation ; the inoculator, however, declared the eruption to be small-pox, and the whole affair over. On the seventh day after inoculation, two pustules appeared on the forehead of the coachman, which came to maturity, and lasted seven or eight days, being preceded by a giddiness in the head and slight fever. The boy's arm did not inflame till the seventh or eighth day ; and on the tenth, one complete large pustule appeared on the cheek, which continued seven days, and scabbed over on the eighth ; this was likewise pronounced to be true small-pox, and the patient secure against another attack of the same disease. On the 19th day after inoculation, however, the boy's arm again began to inflame, and he was affected with drowsiness, sickness at stomach, and very slight fever ; and on the 22d day, he had a fresh eruption of pustules, which matured early. "The parents," says Mr. Bradney," imagined he caught a second eruption from his sister with whom he lay ; but as the first sign shewed

itself in the orifice, I could not agree with them, and the issue, I think, plainly shews the contrary,"—the issue was, that the young lady about three weeks after she had recovered from the inoculated, upon being exposed to contagion, was seized with the natural small-pox. After three days fever, the eruption appeared on the 3d June, "which," says Mr. Bradney, "I saw to be small-pox, and it spread itself gradually all over the body, till the pustules amounted to three or four hundred, the fever in the meantime proportionally abating as the eruption advanced, and on the 6th of June, it entirely subsided; on the 10th, the pustules scabbed over, and she was well enough to walk in the garden."

It is obvious from the account which Dr. Ruston has given of these cases, that a varioloid eruption, which was preceded in all by the state of fever, and which followed the usual course of small-pox, had been produced in three individuals by inoculation with the same matter. This eruption, however, Dr. Ruston did not consider as genuine small-pox, though he has not informed us whether he conceived it to be the chicken-pox of Dr. Heberden, or some of the other spurious kinds of small-pox which had been represented by Fuller, as specifically different both from chicken-pox and from genuine small-pox. I need not point out to your notice the striking resemblance in the occurrence of

the secondary eruption in the case related by Dr. Ruston, to those secondary eruptions which I have mentioned as occurring in the varioloid epidemic that has lately prevailed in this country.

From the account Dr. Huxham has given of the varioloid epidemic which prevailed towards the end of 1745, it appears that the chicken and swine-pox were prevailing at the same time with the confluent small-pox, and that the midwives considered the chicken-pox as true small-pox, from the marks which they frequently left behind them. "The event, however," says Huxham, (*De Aere et Morb. Epidem.* p. 142.) "shewed them their error, for many of those who, during this epidemic, had passed through the chicken-pox, were afterwards seized with the malignant small-pox."

GANDOGER DE FOIGNY, in a work entitled *Practical Treatise on Inoculation*, published at Paris in 1768, has been at great pains to draw a diagnosis between small-pox and chicken-pox. It is to be remarked, however, that this author, though circumstantial in his diagnosis, does not assert that the chicken-pox are essentially different from small-pox. The chicken-pox are to be distinguished from the small-pox, he says, 1st, By running their course in four or six days; 2d, By being so mild as scarcely to deserve the appellation of a disease; 3d, By the eruption breaking out suddenly, without any precursory symptoms; 4th, By the fever,

when present, being without shivering, and disappearing in the course of 15 or 18 hours, and never afterwards returning; 5th, By the disease being so mild as not to prevent children from following their ordinary amusements; 6th, By the pustules acquiring their full size in the course of 24 hours; 7th, By never being accompanied with œdema; 8th, By the pustules being filled with a reddish serum, which empty, fall down, and dry by the fifth or sixth day without suppurating—(this circumstance Gandoger considers as constituting the essential and characteristic difference between the chicken-pox and small-pox);—9th, By the violet stains which are left behind disappearing very shortly after the scabs have fallen off; and 10th, By the chicken-pox not protecting against the true small-pox, nor this against chicken-pox. Notwithstanding the supposed accuracy of these diagnostic marks, Gandoger mentions another species of varioloid eruption besides the chicken-pox, which, in some of its symptoms, resembles this disease, particularly in the rapidity with which it runs its course. On account of this peculiarity he calls it the quick species of small-pox, (*courte espece.*)

LIEUTAUD, in the third edition of his “*Precis de la Medecine Pratique*,” printed at Paris in 1769, in speaking of inoculation in his chapter on small-pox, says, (p. 417.) that when he published the first edition of his work in 1759, he believed that inoculation afforded the only ade-

quate means of arresting the mortality of small-pox, but that since that time the practice had been violently opposed, and that the controversy which it excited was not likely to be soon terminated. Undoubtedly there would be nothing, he adds, more favourable to the practice of inoculation, if it was true, as was said, and as I myself at the time believed, than that it should protect against a second attack of small-pox ; but experience has taught us that this precaution has been useless to many, who, lulled into security by inoculation, have been again attacked with this cruel disease, and some of whom even have perished.

Lieutaud divides small-pox into the distinct and confluent species, besides which, he says, there is another sort that are called the chicken-pox, (*volante, variolæ nothæ*,) which have less affinity to the small-pox than to the measles and scarlatina. The pustules of this kind of small-pox are similar to the other species, but when examined attentively they are discovered to be chrySTALLINE, that is, their summit is formed by a small vesicle, containing serum ; this eruption is preceded by slight fever, and is finished in the course of three days.

BUCHOLTZ, in the *Nova Acta*, vol. v. Ob. 8th, mentions, that during the epidemic prevalence of small-pox at Venaria in 1767-68, he had seen many who were affected with a spurious, or water-pock, which broke out without fever, and

terminated on the 5th or 6th day. These cases of *spurious* small-pox were distinguished by Bucholtz from the *true* by the length of time which they took to run their different periods. He mentions also that some of those who had passed through the spurious, were shortly afterwards attacked with the true small-pox.

BARON DIMSDALE, in one of his popular tracts on inoculation, published in Russia in 1768, by order of the Empress Catherine the Second, supports the opinion that true small-pox attacks the same person only once during life, and adduces a number of instances, in which the small-pox having been supposed to have occurred a second time, he had, on a careful examination, satisfied himself by experiment, as well as by observation, that the eruption at one of the periods of this supposed occurrence was either chicken-pox or swine-pox, or some other kind of spurious small-pox. A short review of the facts and reasonings which he employed in this tract to disprove the occurrence of secondary small-pox, will best enable you to judge how far, in the present state of our knowledge, we can safely trust to Baron Dimsdale's authority in the views which he has taken of this subject.

The first case of an eruptive disease described by this author is brought forward to shew the difficulty which exists of discriminating in particular instances between genuine and spurious small-pox. "I was desired," he says, (p. 168.)

“ to visit a child ill of the small-pox, where an ingenious surgeon attended, and informed me, before I saw the patient, that I should find the disease so mild as to be quite free from danger ; but that it was a serious consideration what course to advise to the family, which consisted of the mistress of the house, with a child at the breast, two other children, and two maid-servants, who, not suspecting it to be the small-pox, had continued with the sick child. I found the pustules more numerous than I had ever seen in the chicken-pox, and about the state which is usually called the turn ; indeed, they so much resembled true small-pox, that on my first seeing them I had no suspicion to the contrary ; but upon inspecting them more minutely, there seemed an irregularity in their size, and manner of being placed, that, entertaining some doubt, I made a strict inquiry into the progress of the eruption, and was informed there had been scarce any previous illness, and that from the first appearance it was not completely five days : I therefore gave it as my opinion that it was not small-pox, but chicken-pox. A fresh difficulty then arose ; the family being unanimous in asserting that the chicken-pox had been very much in the village the preceding year, and that this child amongst the rest undoubtedly had it. Under this uncertainty, the family, dreading the consequence of a mistake, determined to be inoculated, and were immediately placed under my

care. They all passed through the disease effectually, but favourably. After they recovered, and before they returned to live with the child above-mentioned, I requested that I might be permitted to inoculate it, both for its security and for the family's and my own satisfaction; this was complied with, and the child had a considerable number of true small-pox from the inoculation, accompanied with the usual symptoms.

“This is produced as a remarkable instance, where a mistake might have been made as to the disease, and seems to support the opinion, that the swine and chicken-pox are distinct disorders, as by the account of the family this child must have passed through both.”

It is obvious from the Baron's account that the eruption in this patient bore so striking a resemblance to small-pox as not to be distinguishable from that disease by the symptoms which it exhibited, and that it was by reasoning, not by observation, that he was led to conclude that the eruption was that of swine-pox, not of chicken-pox, nor of small-pox. It is obvious also that the Baron conceived swine-pox to be a disease specifically different from chicken-pox as well as from small-pox; an opinion which rests solely on the succession of the three varioloid eruptions which took place in this case, and which is at variance with the opinions of almost all preceding and succeeding authors. Yet we must either admit that the chicken-pox, swine-

pox, and small-pox, are diseases specifically different, or allow that this boy passed either through chicken-pox or small-pox a second time.

The second and third cases (p. 170.) mentioned by the Baron, are adduced to shew the mistakes that medical men were liable to commit in the practice of inoculation. They are those of a lady and her daughter who were seized with small-pox, although they had each of them been previously inoculated, and had been assured by their respective medical practitioners that they had gone through small-pox in a regular and effectual manner. The Baron endeavoured to trace the history of the disease in the person from whom the daughter had been inoculated, and found that the boy from whom the matter had been taken had had the disease in a very mild form at a time when the small-pox were prevailing epidemically in the place where he lived. This boy was inoculated, at Baron Dimsdale's desire, with matter taken from the girl, and had an eruptive fever at the proper time, with a considerable number of pustules, proving to the Baron's satisfaction the true small-pox to have been produced by the inoculation. From this he infers that this boy had originally had the chicken-pox, and not the small-pox. But what the criteria were by which this point was ascertained, and by which the Baron satisfied himself that the last inoculation was not made with the matter of chicken-pox, are things con-

cerning which we find no satisfactory information in the narrative. A particular statement of these criteria however was the more necessary, that the mother had been inoculated twenty years before her daughter by an eminent practitioner, with matter supposed to be that of true small-pox, so that even from the baron's own statement, the chances seem to have been two to one in favour of the supposition that the matter with which the inoculations were first performed was that of true small-pox, not that of chicken-pox. This supposition seems also to be justified by the circumstance, that the boy from whom the girl was inoculated had the disease which the baron presumed to have been chicken-pox, during the prevalence of epidemical small-pox. It is stated that the matter with which the inoculation was performed, was sufficient to produce a fit in the girl, although it had produced little if any effect upon the constitution of the boy from whom it was taken.

The fourth example which the Baron adduces of a similar mistake having been committed, is of a very remarkable nature, and one which, from the consequences that it involved, and which, if admitted to be correct, it would still involve, deserved a much fuller, and more minute investigation than it appears to have received. It is related in the following words : (p. 176.) " I had received well authenticated information, that a general inoculation having been performed

ed in a parish in the country, where all the patients were supposed to have taken the infection, and to have gone through the disease favourably, it happened a few years after, that the natural small-pox broke out in the same neighbourhood; and these people, supposing themselves safe, went without fear into the houses where the disease raged; that most of them fell ill of the natural small-pox, and many of them died. To be further confirmed in the veracity of this account, I lately applied to a gentleman of character, resident in the parish; and the following is an extract from his letter,

“ The subject of your letter was a real fact.
 “ Towards the latter end of the year —, and
 “ the beginning of the year following, the burials in the parish were very much increased;
 “ many had gone through inoculation, and as
 “ they were told, and they judged themselves,
 “ they were safe from any danger from the small-pox; some made the trial, and went into
 “ houses where the real small-pox raged; this
 “ trial cost them dear, for I believe most, if not
 “ all, fell with the real small-pox, and died. On
 “ a stricter inquiry it was reported, that the
 “ matter used in inoculation was taken from a
 “ subject having the chicken-pox.”

What degree of credit this relation merits, I shall not now pretend to determine; but could we suppose the events to have taken place, they must be regarded as very extraordinary. That

a whole parish should have been inoculated with the matter of chicken-pox, and that the disease produced should have so undoubtingly been regarded as true small-pox, would seem to prove, 1st, That chicken-pox are very readily communicable by inoculation; and 2dly, That when so communicated, they are not easily, if at all distinguishable, from small-pox. But to have established the truth of these suppositions, so important in themselves, and to have proved that the disease communicated to the inhabitants of this nameless parish was different from small-pox, would have required a very different kind of evidence from a vague report, supported only by a letter written long after the time, by a person apparently ignorant of the subject upon which he writes. The facts which have been lately established respecting the frequency of the secondary occurrence of small-pox, seem to me to afford a much more simple and satisfactory explanation of the phenomena which gave rise to this report, than that which has been suggested by Baron Dimsdale, and enables us to account for the events reported to have occurred, without making any supposition injurious to the professional character of the person, or persons, by whom the inoculations in this parish were performed. Even if the Baron had had an opportunity of satisfying himself by a personal examination of the occurrence of small-pox in those who had been previously inoculated, it may be

asked, what grounds could he have for believing that a mistake, such as he supposes, had been committed, except the pre-conceived opinion which he entertained of the impossibility of the same person having the small-pox a second time.

The Baron's fifth, sixth, and seventh cases, the account of which he received from an experienced and sensible apothecary, are examples of a pock, which, after a careful examination, he pronounced to be of a spurious kind. It was small in size, perfectly distinct, and more numerous than he had ever seen in the chicken-pox. The disease was communicated from one child to another by inoculation, but did not prevent a satisfactory eruption, it is said, of small-pox from being produced by a subsequent inoculation. "The child
 " had been two days indisposed with a diarrhæa,
 " accompanied with lassitude. On Saturday, in
 " the afternoon, he was seized with a regular fit
 " of fever, which continued the following day,
 " and in the night following, his sleep was dis-
 " turbed with frequent startings; on the Monday
 " the fever was more moderate; on the Tuesday
 " morning some eruptions were perceived,
 " though but little regarded; but on the Thurs-
 " day they were considerably elevated, and much
 " resembled small-pox; they continued to ad-
 " vance until Saturday, the greatest number be-
 " ing on the face, arms, and loins; some began
 " to dry, but in general they were so advanced

“ that every casual visitor pronounced them to
 “ be small-pox. At this time an eminent physi-
 “ cian was called in, who, being in doubt whe-
 “ ther it was real small-pox, recommended that
 “ inoculation should be performed with the
 “ matter, to determine clearly the point. This
 “ was complied with. On the Saturday, another
 “ child in the same family was inoculated with
 “ some white viscid matter, taken from a pustule.
 “ The effect was, that the inoculated arm shewed
 “ signs of having received the infection, though
 “ rather later than is usual from small-pox ; and
 “ after a slight indisposition, an eruption appear-
 “ ed similar to the former, but not so numerous.
 “ On the following day, which was the 11th
 “ from the inoculation, Baron Dimsdale was de-
 “ sired to visit the patient.”

“ Both the patients were shewn me ; on the
 first, the pustules were in many parts, even then,
 moist ; they appeared small in size, perfectly
 distinct, but more numerous, especially in the
 parts above mentioned, than I had ever seen in
 chicken-pox. The place of insertion on the
 inoculated child was inflamed, and had some
 matter in it ; the eruption was evidently of the
 same kind as that from whence it had been
 taken, and such as rendered a determination
 extremely difficult ; however, taking all the cir-
 cumstances into consideration, I gave it as my
 opinion that the disease was a spurious kind of
 pock, and proposed inoculating these children

from real small-pox, to determine the point ; this was consented to, and the event was, that a mild, but satisfactory eruption of small-pox was produced from the inoculation ; and, as a further confirmation, a third child was shewn me at the time when I inoculated the first with real small-pox matter, who, in consequence of having cohabited with the other two, caught the same distemper, and had also, after a slight fever, eruptions of the same kind.

“ From these and many other cases,” the Baron adds, (p. 181.) “ it appears very evident, that other diseases, resembling small-pox, may be propagated by inoculation, as well as by an infected air ; every practitioner should therefore be very attentive to take his matter from the real disease.”

Of what nature the varioloid eruption really was in these examples, the Baron has not informed us, and I shall not presume to conjecture ; but that he did not regard it either as swine-pox or chicken-pox, is evident from his not applying to it either of these appellations, and by his inferring from these and many other cases, that there are other diseases resembling small-pox, which may be propagated by inoculation, as well as by infected air.

In reviewing these cases adduced by Baron Dimsdale, to disprove the occurrence of secondary small-pox, one cannot but regret that in a matter of so much importance to the public wel-

fare, and which involved so deeply the professional character of other practitioners, as well as the safety of their patients, no particular reference is made to the places where, nor to the persons in whom these mistakes are said to have occurred, and that in reporting these mistakes, the reporter had so evident an interest, that the public, to which his tract was addressed, should place the highest confidence in the superior accuracy of his practice in inoculation.

In the same tract the Baron gives an account of the inoculation of the Empress Catherine and of the Grand Duke of Russia, the latter of whom, he informs us, (p. 84.) was attacked with chicken-pox at the time when it was intended to have inoculated him with matter from the Empress. That small-pox prevailed in Petersburg at this time, we learn from the Baron's own account, but what the precise marks were by which he ascertained the varioloid disease with which the Grand Duke was affected previously to inoculation, to be chicken-pox, and not small-pox, we are not informed.

Dr. ROSENSTEIN, physician to the King of Sweden, in his treatise on the diseases of children, informs us that inoculation met with no declared opposition in that country. He himself did not believe in the recurrence of small-pox, but he makes mention of a chrystalline, or watery, and of a warty, or stony kind of small-pox, with both of which a person, who has passed

through the true sort, may be affected either simultaneously, or in succession. "The warty, or stony, and the chrystalline, or watery small-pox," he says, (Note, p. 68. Trans. by Sparrman, Lond. 1776.) "break out within twenty-four hours, and disappear within five, or at most six days. The eruptions of the former sort are hard as stones, and may leave some scars after them; the latter resemble clear water-bladders. Before breaking out, they are attended with anxiety in some persons; but after the eruption, the evil is generally over. A lady, 48 years old, became affected with both these sorts at once, accompanied with so great uneasiness and anxiety, even after the eruption, that every one present took it to be the true small-pox. The report would certainly have spread, he adds, that she was affected with the small-pox for the second time, had not I myself, together with several other physicians, seen and known the disease. The same is perhaps the case with all those who are said to have had the small-pox twice, or several times; therefore physicians ought not to assert any thing but what they have seen themselves." From the account which Dr. MURRAY, in his Dissertation "*De Fatis Variolarum Insitiones in Suecia*," has given of the progress of inoculation in Sweden, it would appear that this practice had been almost universally adopted, and that if it had any opposer, he must, as Rosenstein said, have been a secret one,

for little or no discussion had taken place with respect to the secondary occurrence of small-pox, although the advocates for inoculation stated roundly, that of many thousands who had been inoculated for the small-pox, not one example of the recurrence of that disease had been observed.

VAN SWIETEN, in his commentary upon Boerhaave's 1381st Aphorism, (*"It (small-pox) seizes every age and sex, but especially children, and such as have not already had it,"*) says, "Physicians are not agreed concerning the certainty of a person who has once had the small-pox, never having it again. Some assert it, others deny it; and there are to be found very great medical names on both sides of the question. I have a thousand times heard people speak of their having had the small-pox twice, thrice, and even four times; nay, they took offence at my not giving entire credit to these tales of theirs." Again, "It is well known to all practising physicians, that there sometimes occur certain disorders, which, as at first sight they do not appear different from the genuine small-pox, are called so by people who know little of the matter, whilst physicians call them a *bastard small-pox*. I have observed three kinds of this bastard small-pox. They are generally preceded by a little slight fever, sometimes only by a little faintness, and a spontaneous lassitude. Then prominent red pimples

break out here and there on the skin, sometimes the first day, and sometimes not till the second or third ; and sometimes these pimples immediately harden, dry up, and fall off. These pimples the common people in this country generally call the stone-pox. Sometimes they seem distended with a thin lymph, especially at the point ; these too, however, immediately dry up and fall off ; they are called water-pox ; sometimes that lymph is wanting, and nothing appears but empty vesicles, but distended notwithstanding, which likewise soon fall off. These are called wind-pox. These disorders have several other names in different places ; but there is no occasion for my giving them. But it is to be noted, that all these kinds of spurious small-pox have this one character in common, that they are not attended with the same symptoms that the true kind is in its first stage ; that they break out at no stated times, and that their pimples never contain a genuine pus, or leave any marks on the skin. I have seen the spurious small-pox break out on the ceasing of the true kind, which had prevailed epidemically for a long time, and seize both the young and the old in great numbers ; nay, they had the appearance of being contagious, since they attacked almost every body who frequented the same school. However, I never saw any person violently ill of them ; I do not remember any one to have died of them ; nay, it is so slight a disorder,

that it is seldom those ill of it trouble a physician, and seldomer still, that, though they all get the better of it, they take any kind of physic. Hence it appears that we are not to be surprised at ignorant people's mistaking the spurious for the genuine small-pox. Is there, then, the same infection in the former as in the latter, with this difference, that the former, as either already worn out, or become more inert, is from its own nature, less apt to disorder the body, or more apt to be easily carried off by suppuration? Some at least have thought so, in consequence of seeing the spurious small-pox prevail when the genuine small-pox had done raging. But to this opinion it may be objected, that the small-pox did not spare those who but a few months before had got over the genuine kind, though such persons are wont to be ever after exempt from the variolous contagion; add to this, that those who had the spurious small-pox, were often seized a short time after with the genuine sort, if it happened to be rife."

The three kinds of bastard small-pox which Van Swieten describes, viz. the stone, water, and wind-pox, are exactly the same with those which have so frequently been observed during the progress of the late varioloid epidemic among those who had previously passed through small-pox, or had undergone the process of vaccination, and which are now known under the names of horn, chicken, and wind-pox. These

varieties of bastard or spurious small-pox, we are informed, affect not only those who had previously passed through the genuine small-pox, but those also who had never suffered that disease, and these last are often seized a short time after with genuine small-pox, when they happened to be rife. From these statements there can be no doubt but that many, if not all of the cases referred to, as occurring in those who previously had small-pox, were cases of modified small-pox ; while in those who never had passed through that disease, the eruption may have assumed the appearance of mild vesicular small-pox, or, as it has sometimes been called chicken-pox, a disease, it is affirmed, which leaves the individuals so affected less perfectly secure against a subsequent attack of small-pox, and not at all against vaccination. Besides, it ought to be remembered that Van Swieten does not say that the spurious small-pox arise from a contagion different from that which produces the genuine ; nay, he seems to think that they are one and the same disease, when he informs us that the genuine small-pox towards the end of the epidemic gave place to the spurious, which at first sight could be distinguished from the genuine, and which from Van Swieten's own account appears to have differed from them only in having been milder and less regular in their progress.

Van Swieten has been at infinite pains to convince his readers that the ignorant have confounded the spurious with the genuine small-pox. He remarks, that "if we now likewise take into consideration, that sometimes the genuine small-pox happens to be very mild, as causing very little disorder in the body, bringing with it but very few, and those very slight symptoms, and soon drying up and falling off, it cannot appear strange that the ignorant should confound the two kinds one with another. And as the spurious sort often attacks the same person two or three times, it is plain that the many accounts we have of the same person having had the genuine small-pox more than once, are not well enough grounded to command our entire belief." It certainly does not appear strange that the ignorant should have confounded these two diseases, but undoubtedly one is at a loss to conceive how Van Swieten was able to discover the difference between diseases which he himself has described as having at all times some resemblance, and occasionally agreeing in every essential particular one with another. Speaking, however, more particularly of secondary small-pox, Van Swieten says, "We are not to think so slightly of the testimony of physicians long skilled in the treatment of this disorder, and of course perfectly well acquainted with its nature, when they aver that they themselves have seen

the same person twice, and even oftener, infected with the genuine small-pox."

Dr. SIMS, in his *Observations on Epidemical Disorders*, published at London in 1776, gives an account of a varioloid eruption which occurred in the County of Tyrone, and which has often since been referred to as an example of epidemical chicken-pox. But it is evident from the description which he has given of it, that this disease was a very mild kind of small-pox, possessing but few if any of the symptoms which have of late been considered as characteristic of chicken-pox, and that it agreed with the chicken-pox of Dr. Heberden only in being communicable by inoculation.

"During the autumn and winter of 1769," he says, (p. 115.) "a disorder prevailed which they call here the chicken or swine-pock, according to the size of the pustules; it is likewise named nerls or blibes, from trifling differences in the appearance. The first symptoms, and even the beginning eruption in some cases resembled the small-pox so nearly, that they were only to be distinguished by knowing which distemper prevailed at the time, and by the want of that peculiar smell which I have always found accompanying the latter. In general, however, the disease was milder, and it never proved fatal. The stomach was often affected with a slight nausea, the head with heaviness, the eyes were dull and languid, and the fever various and remittent."

The feverish symptoms, when high, did not abate immediately on the eruption, but as soon as they did, no return of them was to be dreaded. The eruption usually happened on the second night, and so early as the third night, or fourth morning, the pock assumed a pimply form, which readily distinguished it from small-pox. It commonly dried on the sixth day; yet I have known cases wherein the symptoms running high, the pock growing large and filling with yellow matter, it remained until the seventh or even eighth day, so as to be mistaken for the small-pox, and to have matter taken from it for inoculation. A similar error may have induced some to believe that they readily underwent the small-pox a second time, neither disorder being perhaps ever caught twice."

Dr. BAYLIES, an English physician, after having for some time successfully practised inoculation at Dresden, was invited, in 1774, to Berlin, and encouraged by the King of Prussia, as well as by several of the nobility, to remain there, with the view of promoting the practice of inoculation, which had fallen into great discredit in consequence of the unfortunate results which had occurred in some of the first trials which had been made of it in that country. One of the patients whom Dr. Baylies had first inoculated at Berlin, and who had passed through the small-pox in a satisfactory manner, was seized about six weeks afterwards with severe symptoms of fever, followed by an eruption which

proved fatal, and which Dr. Muzel, and the other physicians who attended, pronounced to be not only the true small-pox, but also a mixture of the very best and worst species of that disease, but which Dr. Baylies could not allow himself to believe was small-pox. In order to satisfy his own mind, as well as to justify to the public the opinion which he had formed, Dr. Baylies drew up the following particular, and evidently faithful narrative, of his patient's case, and submitted it separately for their respective opinions, to Dr. Watson, Dr. Archer, and Baron Dimsdale, who at that time, from their extensive opportunities of observation, were regarded as the first authorities in England on the subject of varioloid diseases.

“Augustus de Blumenthal, (Facts and Observations relative to Inoculation in Berlin, p. 27.) a healthy child, five years old, on the 21st of November, 1774 was inoculated with matter taken from an inoculated patient, who was loaded with the small-pox, and is greatly marked by it. On the eleventh and succeeding days from the operation, the fever and eruptions regularly followed. The pustules appeared on different parts over his whole body, were more numerous than they generally are from inoculation, and matured, dried, and fell off as they ought to do, and with those of his brother and sister, who were inoculated with him, and with whom he was constantly kept from the time

the fever began till the disease was over. He was then repeatedly purged, as is usual in such cases, and continued well above six weeks afterwards, making no complaints till the last day of January, 1775, when, while he was at dinner, he complained of being cold, yet afterwards amused himself at play with his companions, and in the evening said that he perceived a great weakness in his feet. He continued to be more or less affected with febrile symptoms, accompanied with occasional delirium, till the 12th of February, and thirteenth of the disease; when, in the evening, the surgeon, in giving him a glyster, perceived some small red spots like flea-bites, to appear on his posteriors, but made no mention of it at that time. On the 13th of the month, and fourteenth of the disease, in the morning, his anxiety and restlessness perfectly left him, and in the course of the day the delirium so diminished, that about nine in the evening he was quite sensible, when the surgeon, being ordered to repeat the glyster, observed that the small red spots which he had before seen and not spoken of, were some of them increased to the size of lentils. On the 14th of the month, and fifteenth of the illness, early in the morning, the attendant physician again examined the eruptions, and said that he had not only found their number great, but that many of them on the back were broke and subsided, while at the same time others were only perceptible to his

touch in the skin. A very few on the face and neck, though flat, were round and reddish in their circumference, and white on the tops, so resembling eruptions of the small-pox that they were suspected to be it; on which the physician that had inoculated the child was called to see if they were so or not, who, when he came, observed two or three flat eruptions on the face to be round-edged, with a reddish colour, and whitish on the top, as is above described; but, on uncovering the body, and examining the rest, the chief of which were situated on the back, he looked on them to have more the appearance of burns or scalds than of small-pox pustules; and seeing them of irregular forms, making flaccid and almost transparent vesicles, implete with a reddish watery fluid, with a visible blackness underneath, he could not, from their appearance, considered with the time of their eruption and the early fluidity of their contents after their appearance, see any reason to think them at all variolous, especially as the child had so evidently had the disease from inoculation under his own eyes. On the 15th of the month, and 16th of the disease, the physician who had inoculated the child, called again to see him, when he was informed, that he had totally lost all power of swallowing, which was suspected to be caused from pustules in the throat. He then went to the child's bed-side, when he not only found many of the before described bladdery eruptions

broke, and their water discharged, but all those that were not so more flaccid and empty than the day before. On the 16th of the month, and seventeenth of the disease, there was very little or no observable change in the morning to the circumstances which had attended the preceding day, yet some glimmering hopes were conceived of the child's recovery; but about two in the afternoon the melancholy scene was closed by an easy death."

On the day following the child's death the body was opened. "On one of the four places on the arms in which the infection had been inserted in the inoculation, there was found adhering a small dry scab: the throat was perfectly free from any pustulary appearance, but upon opening the skull there was found in the lower and back part of the head eight ounces of extravasated water, or serum, except which, nothing deviated from a healthy and natural state."

"Query. Was the disease above described the natural small-pox, the effect of any variolous matter left in the blood in consequence of the previous inoculation; or were the pustulary eruptions which shewed themselves on the twelfth day of the disease a critical discharge of a putrid or other kind of fever?"

It is impossible for us now, I conceive, to read the history of this case, without perceiving that it exhibited the symptoms of a well marked example of malignant small-pox, in the form de-

nominated water-pox, accompanied with petechiæ and vesications ; yet it appears from the following answers to Dr. Baylies' communications, that the gentlemen to whom this case was referred, after a full consideration, gave it as their deliberate opinion, that the disease which had proved fatal to Dr. Baylies' patient, was not small-pox, and that it did not exhibit any one of the genuine symptoms of that disease.

" I have perused," says Dr. Watson, (p. 44.) " the case of Augustus de Blumenthal, and from a diligent attention thereto, am of opinion that the disease which occasioned his death was not the small-pox, nor any thing which had relation thereto." " To the query subjoined to the transmitted case, I answer, that, in my opinion, the disease in question was not the small-pox, nor the effect of any variolous matter left in the blood in consequence of inoculation, but that it was a fever of the malignant kind ; and that the eruptions which shewed themselves first on the thirteenth day, were not critical discharges, as they did not appear to relieve the patient ; but that they were symptomatic only, and attendant on the disease, and evince the great degree of acrimony in the humours at the time. From the great experience I have had in inoculation, I have seen in no one instance that the patient has had the small-pox a second time ; though, when the eruptions have been very few, in order to be assured of their having had the

disease, I have frequently caused the patient to be punctured a second, and even a third time, with active variolous matter, but always without producing the small-pox a second time. The possibility of having the small-pox a second time, whether after the disease has been brought on by natural contagion, or by inoculation, is not credited here by any persons whose testimony is considered of any importance in matters of this sort."

"I am of opinion," says Dr. Archer, (p. 49.) "that the first distemper was the genuine small-pox; and that the other, which seized this patient in good health on the last day of January, came at such a distant time from the inoculation, and was attended with such symptoms and eruptions, as prove it to be a putrid fever, unconnected with the first distemper, and such as might happen without any previous inoculation; and not its consequence, nor the natural small-pox, as the child had that before by inoculation. I have never seen this disorder, in all my practice, twice in the same person, though I have been physician to the hospitals for small-pox and inoculation above six-and-twenty years, and have had under my care, without reckoning private patients, above twenty-six thousand."

"I have carefully perused," says Baron Dimsdale, (p. 51.) "the above case, and am of opi-

nion, *that the disease above described was not the natural small-pox.* In the whole course of my practice, which, it is well known, has been extensive, I never knew a single instance of any one having the natural small-pox after having been inoculated. Nor have I ever known any person to have the disease a second time in the natural way. I shall not pretend to decide on what may have happened to others, but this I aver to be true so far as relates to my own experience.”—“Permit me to add,” says the Baron, in a letter which accompanied his opinion of Blumenthal’s case, “that in giving an opinion in a matter of so much consequence to mankind, as the inoculation of the small-pox, one cannot be too careful to avoid being influenced by prejudices, or any other motives that might warp the judgment. It is the part of an honest man to relate the whole truth without the least reserve; and I have now the honour of adding this declaration: That my opinion respecting the case of Augustus de Blumenthal, contains my real sentiments: And that what I have said relative to having the small-pox a second time, is strictly true so far as relates to all my own patients.” It must be obvious to every person acquainted with the appearances of malignant waterpox, that Drs.

Watson, Archer, and Dimsdale could have no foundation whatever for the opinion so confidently delivered in these answers, except their belief that it was impossible for the same person to have the small-pox a second time. They have left us, however, a memorable example of a pretension on the part of three physicians to determine the nature of a varioloid eruption, which occurred in a patient whom they had not seen, in opposition to the opinion formed by the physicians who had attended the patient during the progress of the disease, and of a mode of reasoning which has been but too frequently had recourse to in judging of those varioloid eruptions which have occurred more immediately in our own times. But though these opinions respecting the impossibility of the recurrence of small-pox, so strongly expressed in the answers to Dr. Baylies' queries, seem to have been generally received and acted upon in England from the first introduction of inoculation, till that practice was superseded by cow-pox inoculation, they were far from being generally adopted in any of the other countries of Europe.

Dr. Baylies mentions, (p. 70.) two other cases of varioloid eruptions of a doubtful nature as having occurred at Potsdam. They were those of two children of Major de Goetzen, that had been inoculated by Professor Meckel in the year 1768. The eruptions which followed the ino-

culation, according to Dr. Baylies, "in a very few days, all naturally broke out and disappeared without being succeeded by any sort of crusts or scabs, and without leaving any pits or marks on the places they occupied." In the winter following, the natural small-pox became epidemic at Potsdam, and one of the Major's children who had not been inoculated caught the disease, and communicated it to all the other children, (five in number,) including the two who had been inoculated by Professor Meckel. The disease in these two in particular was very severe, and the eruption itself, which was copious, dried into scabs, and left pits or marks in the skin. These cases were inserted in the Berlin Gazette, as examples of the occurrence of natural after inoculated small-pox. Dr. Baylies was fully satisfied that the disease with which these children became affected in the winter of 1768, was the genuine natural small-pox, and in order to demonstrate that they were not examples of secondary small-pox, it only remained for him to prove that the disease which they had received from inoculation, was not the small-pox. He was aware of the striking similarity that not unfrequently obtained between chicken-pox and small-pox. Both diseases, he allowed, are equally communicable by nature or art; but his preconceived opinions, in support of which he quotes Drs. Heberden and Sims, that they are distinct diseases to which

the human body is liable once, and once only, and that the having undergone one, is no security against the contagion of the other, seem to have prevented him from considering these cases with an unprejudiced mind, and to have induced him to believe that the disease communicated by the inoculation must have been chicken-pox.

The medical practitioners of Holland seem at all times to have believed in the possibility of a second occurrence of small-pox, and their writings must be allowed to contain the greatest number of well authenticated examples of this fact that are to be found upon record. CAMPER, in his "*Dissertatio de Emolumentis et Optimo Methodo Insitionis Variolarum*," printed in Groningen in 1774, a work in every part of which the native good sense, and talent for observation of its author is conspicuous, states, that although the possibility of the recurrence of small-pox was denied in England, it was impossible for him to disbelieve it, not only on account of the credit due to those who had reported cases of this nature, but also on account of the numerous examples of it that had come under his own observation. He seems to have instituted a series of experiments with the view of ascertaining whether the number of punctures made, or the quantity of variolous matter introduced into the punctures bore any relation to the number of pustules which afterwards appeared. The following is a tabular view of the results of these experiments :

No.		Punct.	Pustules
1.	Two Punctures in each arm . . .	4	produced 15
2.	Ditto, Ditto, . . .	4	_____ 12
3.	Ditto, Ditto, . . .	4	_____ 300
4.	Two Punct. in one arm, 1 in the other	3	_____ 3
5.	Ditto, Ditto, Ditto, . . .	3	_____ 50
6.	Three Ditto in one arm, . . .	3	_____ 4
7.	Two Ditto, Ditto, . . .	2	_____ 1000
8.	Three Ditto in one arm, 2 in the other	5	_____ 4
9.	Two Ditto in one arm . . .	2	_____ 230
10.	Three Ditto in both arms . . .	6	_____ 12
11.	Four Ditto in one arm, 3 in the other	7	_____ 4
12.	Two Ditto in one arm . . .	2	_____ 1500

From these experiments, Camper justly concluded, that the number of small-pox pustules, succeeding to inoculation, depends neither upon the number of the punctures which are made, nor upon the quantity of matter introduced into the system. From the knowledge which we possess of the action of other specific poisons upon the human body, such results are exactly what might have been expected ; and the great difference in respect to the relative proportion of the number of punctures made and pustules produced, can only be referred to particular diversities in the constitutions of those upon whom the experiments were performed.

M. GEOFFROY, in the account which he has given of the constitution of the atmosphere, for 1777, in the *Memoires de la Société Royale Médecine* for that year, mentions a case of varioloid eruption, which led him to conjecture that small-pox and chicken-pox might probably arise from the same contagion. "The month of March," he says, (p. 29.) "ushered in, some cases of small-pox

which had been more rare during the two preceding months. Fortunately they had been mild and distinct. I have likewise observed among children several cases of chicken-pox (*petites veroles volantes ou verolettes*.) This disease appeared to resemble small-pox in its commencement, but was distinguished from that disease by its being generally without fever, by the pustules, (*boutons*,) drying without suppurating, and by running through all its stages in the course of four or five days. Notwithstanding this diversity of the symptoms which distinguishes these two diseases, and though every practitioner considers them as being of a different nature, I have made in this month of March an observation which, if it were repeated, would seem to identify them. A child was attacked with chicken-pox, (*petite verole volante*,) which terminated in the space of four days without pitting. A few days afterwards, his eldest sister, about eight years old, and who had been constantly with her brother, was seized with the same disease, which latterly became a very abundant true small-pox, but distinct, possessing all the characters, running through all the stages, and followed by boils, as is but too frequently the case after small-pox." "A similar fact," he adds, "if it frequently took place, would prove that the chicken-pox and the small-pox are not of so different a nature as is commonly believed, but that the one is perhaps merely a diminutive of the other." I

cannot help thinking that had this observation of Geoffroy's received from medical men the attention which it merited, it might have rendered much of the present investigation unnecessary.

MEZA, in his *Compendium Medicinæ Practicæ*, published in 1780, says, (p. 7.) that the same person is seldom affected twice with small-pox, either natural or artificial, and he seems inclined to believe that the great proportion of the cases recorded as examples of secondary small-pox, were in reality cases of the spurious or chrystalline small-pox. He mentions one case, however, of secondary small-pox which he himself saw, in company with Dr. Buchwald, who had attended the patient during the first attack. We are not informed what the circumstances were which led Meza to believe that this was a case of secondary small-pox, or in what particular points it agreed with, or differed from the other cases reported as of a similar nature.

An account of a varioloid epidemic, which prevailed at Dax in the year 1783, is given by M. Grateloup, in the 86th volume of the *Journal de Medecine*. This epidemic, it is said, attacked indiscriminately persons of all ages; adults however, resisting it more effectually than children. In some cases a second crop of pustules supervened when the first were pretty far advanced, and it was observed that the maturity of the last crop went on so quickly, that it arrived

at its height at the same time with the first. Towards the end of the same year also, when the epidemic small-pox were declining, a number of adults became affected with a slight pustular eruption, which was chiefly confined to the upper extremities, and was unaccompanied by fever. This epidemic, says Grateloup, presented many varieties; the suppuration was in general imperfect, and of a bad quality; the pustules often contained a watery and ill concocted humour, and at other times they contained nothing, but were flaccid and dried, without shewing the least appearance of suppuration.

The learned and judicious BURSERIUS, in his excellent treatise on small-pox, to be found in the 2d volume of his *Institutiones Medicinæ*, divides small-pox into the distinct, coherent, and confluent; the distinct and confluent he subdivides into the benign and malignant distinct, and the benign and malignant confluent. He refers the chrystalline or lymphatic species of small-pox to the malignant distinct; they sometimes become confluent, he says, and are to be distinguished from the spurious small-pox, between which and the chrystalline he confesses there is some resemblance, by the continued fever, the danger of the symptoms, and their longer duration. When treating of the benign confluent, he says, that sometimes after the pox have dried and fallen off, they are

succeeded by smaller distinct ones, which carry the remains of the morbid matter to the surface, and these are called secondary small-pox, or repullantes. Of the spurious small-pox, he says, that they differ greatly, both from the natural and artificial, but particularly in slighness and short duration. The description which Burserius has given of them corresponds in almost every particular with that given by Dr. Heberden of chicken-pox. He makes two species of spurious small-pox, the chrystalline and the verrucose; he is, however, disposed to doubt the propriety of considering the latter as a species of spurious small-pox. Burserius believed firmly in the possibility of the recurrence of small-pox. The information on this subject contained in his 163d and 164th paragraphs contrasts strangely with the broad assertions and unqualified statements of those who denied the possibility of this event.

Dr. ROBERT WALKER, of Edinburgh, in his Inquiry into the Small-pox, published in 1790, mentions a family in which three children had an eruption resembling small-pox, which he conceived to be chicken-pox, some days previous to their being affected with true small-pox. He has not, however, informed us why the first eruption should be supposed to proceed from a contagion different from that which produced the second, nor why we ought not to regard these and all similar cases as examples of two crops of pustules from the same infection. "A gentle-

man," he says, (p. 44.) "whose child was at nurse in the country, was alarmed upon hearing that the small-pox was in the nurse's family. He consulted his surgeon how far it was proper to inoculate his own child, at this time only three months old. The surgeon, upon visiting the nurse's child, found an eruption of two days' standing, resembling the small-pox, but more advanced than the true kind commonly are in that space of time, and with little or no fever. He suspected it to be the chicken-pox, and delayed doing any thing with his patient's child. In a few days the nurse's child was seized with vomiting and fever, which was followed with a new eruption, which soon appeared to be the true small-pox. As soon as he could obtain matter, he inoculated his patient's child from the pustules of the second eruption. In two days the arm discovered plain marks of inflammation. Between the fifth and sixth day a distinct eruption appeared, without fever or any other distress; these pustules continued four or five days, and withered. The inflammation continued to make progress in the inoculated part, and two pustules arose near it and filled. The ninth day from the insertion, the child became feverish: a fresh eruption appeared, not numerous but better filled than the former; these continued the usual time, and the child recovered without any bad symptom.

"Another child, in the same house, first took

the chicken-pox, without fever, which continued four days, and disappeared on the fifth. A few days after, symptoms of fever commenced, which were followed with a mild eruption of the true small-pox.

“ A girl in the same family, near three years of age, was seized with fever, followed with the true small-pox ; these were intermixed with a number of small pimples, like chicken-pox, which disappeared in a few days, the others continued the full time, and she recovered.

“ From the cases related above, and from others of the same kind that have fallen under my own inspection, it will appear, that in the combination of chicken-pox with small-pox, the eruption of the one is always distinct from, and commonly precedes the eruption of the other ; though sometimes both kinds appear at the same time, but are easily distinguished. The chicken-pox being seldom accompanied with any considerable degree of fever, is of little or no prejudice to the subsequent small-pox, nor does it seem to influence the common period of their eruption, or in any other respect to augment the disease.”

MUMSEN, in the 3d volume of the *Acta Hauniensia*, (p. 33.) relates the history of an inoculation he made with matter, which he afterwards conceived to be that of chicken-pox, though it was taken by his own recommendation from the sister of his patient, whom he at the time con-

sidered as being affected with small-pox during their epidemical prevalence in the winter of 1785. No reason is assigned in this case for regarding the inoculated small-pox to be of the spurious kind, except that they were remarkably slight and of short duration. Three years after this, the boy whom he had formerly inoculated, having much intercourse with children under the small-pox from inoculation, caught the disease. He had few pox, and those of the best kind. Mumsen now inoculated the sister from whom he had formerly inoculated the brother. She sickened about the 8th day, and had an eruption which he conceived to be that of genuine small-pox. He remarks, with regard to the girl, that the symptoms accompanying the spurious small-pox had been more severe than those of the true, and that pits had been left by the former, but none by the latter. Of the boy, he remarks, that the punctures made by the inoculation of the spurious small-pox remained distinct and remarkable at the time of the natural infection.

From the history of these cases Mumsen infers, 1st, That the spurious small-pox may be a more severe disease than the genuine; 2dly, That they cannot be distinguished from the genuine unless by a sagacious and strict attention to the most minute differences; and, 3dly, That spurious small-pox may be communicated by inoculation. The facts stated by Mumsen are cu-

rious, but he seems to have had no reason whatever for supposing that the varioloid eruptions at one of these periods was the spurious, and at the other the genuine small-pox, except his belief of the impossibility of secondary occurrence of this disease.

ASHEIM, in the same volume of the *Acta Hauniensia*, mentions a case in which the small-pox occurring a second time, he ventured to pronounce that they were of the spurious kind, but the severity and long continuance of the disease obliged him to alter his opinion, and to believe that there is nothing in the appearance or progress of the spurious small-pox by which we can with absolute certainty distinguish them from the genuine. A case is given in the same volume in which the small-pox were produced by inoculation without the wounds suppurating by which matter had been introduced, and another in which an eruptive fever supervened, as in the cases which I saw at Lanark, about the third or fourth day of mild small-pox.

Dr. THOMAS BOND of Philadelphia, in his defence of Inoculation, printed at Strasburgh in 1784, alleges that if the variolous poison has been completely evolved by inoculated small-pox, and the variolous eruption appears at the place of insertion, accompanied with the usual symptoms, a fresh attack of small-pox is not to be dreaded ; but that if after inoculation pain shall

not occur in the axilla, and if the slight degree of fever which supervenes shall not last longer than 48 hours, and be succeeded by a copious eruption, filled with limpid humour, which disappears by the fourth or fifth day, without leaving behind it any redness or erosion, then it may be doubted whether such an eruption, however like it may be to the small-pox, be that disease. When the eruption runs such a course, it always indicates, according to this author, that the poison has not penetrated deep enough, and that the body has not been rendered perfectly secure against future infection. Bond informs us that he inoculated several individuals by means of threads well charged with putrid virus. Slight fever followed, and an eruption of *spurious* small-pox broke forth; but after a second inoculation *true* artificial small-pox was produced. He adduces other similar examples to prove that the variolous poison may be debilitated from various causes, and that eruptions may be produced which in their progress and consequences differ from genuine inoculated small-pox.

In 1792, Dr. NIEDT of Halle, printed an Inaugural Dissertation, entitled “*Dissertatio Inauguralis monstrans Variolarum Spuriarum ex Verarum pure ortum*,” in which he relates the results of some experiments which he made with diluted variolous virus. The children inoculated with this virus were three in number, viz. a boy four years

of age, a girl about two years, and another boy about six months ; the matter was taken from a patient labouring under mild coherent small-pox. They were all inoculated on the same day, the oldest with the matter diluted, and the other two with it rediluted. In all, the punctures inflamed on the seventh day ; the eldest fevered on the ninth, and a general eruption came out on the thirteenth, which suppurated and began to scab by the nineteenth day. In the other two, the punctures were not so much inflamed on the seventh day ; but on the seventeenth an eruption, preceded by little if any fever, broke out on the youngest, which, when the medical attendant saw it on the nineteenth day, consisted of pustules of different sizes, full of a watery humour, and with little if any inflammation round their bases. The girl passed through an eruption of a similar description. On the twenty-sixth day after inoculation, the two youngest were seized with violent fever, followed by the appearance of a purpureous eruption. At this time, which was the tenth day of the varioloid eruption, the pustules being all dried up, with the exception of a few which contained a watery fluid underneath the scabs, the purpureous eruption turned out to be the *true* small-pox, which were abundant and coherent, and from which the patients recovered with difficulty. The cicatrices left by both eruptions, says Niedt, shewed that the diseases were of different

natures, for while the *true* small-pox left behind them round foveolae, the foveolae left by the first eruption were plain, as if indicating that the scabs had not penetrated farther than the cuticle. These children having been inoculated with the same matter, it is not easy to conceive what ground Níedt had for believing, that in the two younger the inoculation had produced an eruption of the spurious, not of the true small-pox, except his preconceived opinion of the impossibility of the recurrence of small-pox in the same individual. There exists, you will perceive, a striking similarity between these cases and some of the cases of secondary eruption which have occurred during the late varioloid epidemic in Edinburgh.

The celebrated HUFELAND, in his *Observations upon Natural and Inoculated Small-pox*, published at Leipsig in 1793, in describing the varieties of natural small-pox as they occur epidemically; says, that at the commencement of an epidemic the disease is generally exceedingly mild, that during its progress it becomes more malignant, and again towards its termination assumes a mild form. The varieties of small-pox which he mentions, are, 1st, The chrystal-line or bullose, which run together and form large vesicles, not unlike pemphigus; the 2d variety he describes as resembling millet seeds, which sometimes occur in clusters like herpes, are not dangerous when they fill properly, and

generally dry in the form of scales, which are frequently renewed; his 3d variety is the siliquose or windy; his 4th the verrucose, warty, or swine-pox; these, he says, he never saw by themselves, but frequently mixed with the chrySTALLINE; the last variety which he mentions, but which he says he himself never saw, are the bloody small-pox.

HUFELAND not only believed in the recurrence of small-pox, but from his own observation, was likewise disposed to think that, under certain circumstances, the matter of *true* small-pox might produce a *spurious* kind of small-pox, which would not protect against a subsequent attack of the disease. Experiments, he says, shew that matter which has been taken from the true natural small-pox is rendered in some subjects so mild by inoculation, as to produce a pustulation which runs the course of *spurious* small-pox, and which do not protect against an attack of *true* small-pox. The difference between the true and spurious small-pox, he says, is not to be found in the character, or kind of the pustule, or of the fever, nor yet in the marks which are left behind, but in the duration of the disease. Hufeland mentions the cases of two children, the one six, and the other eight years old, whom he had inoculated with variolous matter: in the younger, the pustules were confined to the surface of the skin surrounding the punctures, and in the other the eruption, though more general, was mild;

yet during an epidemic which followed shortly after, both these children became affected with the natural small-pox.

Dr. JENNER, in his *Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, published in 1798, informs us, (p. 56.) that “A medical gentleman, who, for many years inoculated in this neighbourhood, (Berkley,) frequently preserved the variolous matter intended for his use on a piece of lint or cotton, which in its fluid state was put into a phial, corked, and conveyed into a warm pocket; a situation certainly favourable for speedily producing putrefaction in it. In this state (not unfrequently after it had been taken several days from the pustules,) it was inserted into the arms of his patients, and brought on inflammation of the incised parts, swellings of the axillary glands, fever, and sometimes eruptions. But what was this disease? says Dr. Jenner; certainly not the small-pox, for the matter having from putrefaction lost, or suffered a derangement in its specific properties, was no longer capable of producing that malady, those who had been inoculated in this manner being as much subject to the contagion of the small-pox as if they had never been under the influence of this artificial disease, and many unfortunately fell victims to it who thought themselves in perfect security.”

Mr. CHARLES KITE, in the 4th Volume of the *Memoirs of the Medical Society of London*, has

given an account of some anomalous appearances which occurred in children whom he had inoculated, and which, if they are not to be considered as examples of chicken-pox or swine-pox produced by inoculation, must, I conceive, be regarded as examples of secondary small-pox, notwithstanding Mr. Kite's opinion, that the "first eruption arose from a certain degree of variolous infection, but which infection was not sufficiently powerful to propagate the disease fully and completely." His first and second cases are those of a girl and her sister whom he inoculated with fresh variolous matter, and who passed through the disease in such a manner as to make Mr. Kite declare that they were "perfectly secure from any future inconvenience from the small-pox;" doubts however having been entertained by some of the family whether the eldest girl had really passed through the small-pox, he inoculated them both on the fourteenth day; the elder had a variolous eruption of 72 pustules, but on the other the inoculation produced no effect. His third, fourth, and fifth cases are those of three children in the same family whom he inoculated with matter from a woman on the fifteenth day after the eruption of the natural small-pox. Mr. Kite was satisfied these children had all had the disease effectually; but about a month from the time of inoculation, the eldest became affected with a varioloid eruption which

he saw on "the seventh day, and found it to be beyond the possibility of doubt, the small-pox;" the other two children likewise passed through a similar eruption, which, though milder, "was most evidently the true small-pox." "About the latter end of September all these children caught the chicken-pox, (varicella of Dr. Cullen;) after a slight fever of two days, watery eruptions made their appearance; these continued about two days, never more than three, then scabbed over, and soon became well." His sixth, seventh, and eight cases afford similar examples of children who were affected with natural small-pox seven weeks after having passed through the disease by inoculation. "It is clear," Mr. Kite remarks, "in the cases just related, that a disease of some kind was propagated by inoculation; *the incisions inflamed as they usually do in the real small-pox; the fever commenced at the most common period; continued the same length of time; and terminated in the eruption of pustules;* but few of these pustules indeed, as I understood, have matured completely; but every one knows that this is frequently the case in the real small-pox when the eruptive symptoms have been moderate. Such was the real state of these patients, and every one is at liberty to draw such conclusions from them as he may think they will admit of." "That the first diseases were not the true small-pox, will, I imagine, be universally allowed, as

all the patients had it some time after in a manner so decisive as not to leave the least room for doubt; and I do not believe that there ever was one well authenticated instance of the small-pox occurring twice in the same person."

PENADA, in his Account of the Epidemic Constitution of Padua in the year 1789, mentions, that during the prevalence of a most malignant small-pox, of which there died 600 of a population of 30,000, there occurred the case of a girl of twelve years of age, who in her infancy had passed through the small-pox, and was under his observation seized with a very mild species, which left a few cicatrices on the face; and another of a young girl, who, after the small-pox had run through its four regular stages, was seized on the eighteenth day with a fresh attack of fever, which was followed by a copious eruption of small pustules, many of which were filled with purulent matter by the third day, and began to dry by the ninth. He observes, in speaking of this case, that one usually terms the small-pox which occur after the common small-pox, wild or spurious, (*vajuolo salvatico, spurio*;) but that he agrees perfectly with Azzoguidi, when he says, "Since the common small-pox and spurious small-pox evolve themselves under similar circumstances, have almost similar appearances, terminate in a similar manner, and often leave behind them similar consequences, why should one distinguish by differ-

ent names things which are not different in reality."

From this review of the opinions entertained by medical men respecting small-pox during the period of inoculation, it would appear :

1st, That most, if not all, of the advocates for this practice denied the possibility of the secondary occurrence of small-pox, and were anxious to disprove this opinion, conceiving that its admission might be injurious to the cause of inoculation :

2dly, That notwithstanding this unwillingness on the part of inoculators to admit the occurrence of secondary small-pox, cases of this kind have often presented themselves to the observation of medical practitioners in the epidemic prevalence of this disease at different times, and in various countries of Europe, and that these cases have occurred in circumstances, and with symptoms which do not appear to have left any room for doubt with regard to the genuine nature of the disease :

3dly, That the varioloid eruptions occurring in those who had previously passed through either natural or inoculated small-pox, have had the appellations applied to them which had been given during the first period to spurious or illegitimate small-pox, such as wind, water, horn, sheep, swine, and stone-pox, but apparently without the belief that these diseases arise from more than one contagion :

4thly, That the opinion suggested by Dr.

Fuller, that all the varieties of spurious small-pox are specifically different from one another, as well as from the genuine small-pox, does not appear ever to have been adopted by medical practitioners :

5thly, That the chrystalline, or lymphatic varioloid eruption, was considered by some of the advocates for inoculation in France as an eruption different not only from small-pox, but also from chicken-pox :

6thly, That all the different forms of the varioloid eruptions which had been previously considered by medical practitioners as spurious small-pox, were, about the year 1767, conceived by Dr. Heberden to arise from a contagion specifically different from that of small-pox, and that to all the diversities of these eruptions he gave the specific appellation of the varicella, or chicken-pox, and, by means of this hypothesis, was enabled to account for the apparent secondary occurrence of small-pox :

7thly, That though this opinion of Dr. Heberden was almost universally adopted by medical practitioners, yet that a few practical observers were on particular occasions under the necessity of regarding that form of varioloid eruption, which had usually been denominated swine-pox, to be specifically different from chicken-pox, as well as from small-pox, because they had observed it to occur in those who had previously passed through both of these diseases :

8thly, That chicken-pox was declared to be a disease equally capable of being communicated by inoculation as small-pox, and that many examples have been recorded by the first medical authorities of the inoculation of chicken-pox :

9thly, That notwithstanding the prevalence of the opinion of the distinct nature of chicken-pox and of small-pox, and the assertion so frequently repeated, that these two diseases had been observed to prevail separately, there is no satisfactory proof to be found in our medical records of their ever having done so ; but many proofs of the fact, that all the varieties of the genuine, as well as of the spurious sorts of small-pox, have in the same epidemics come in and gone out together, in the same manner as it will be seen that they have uniformly been observed to do during the period of vaccination :

And, 10thly, That various authors have attempted to prove, by their observations and experiments, that small-pox virus may undergo such a deterioration in its qualities from heat, dilution, age, &c. as to render infection with it no security against small-pox, either natural or artificial, even though it may have been sufficient to produce febrile action, and a varioloid eruption so like that of *true* inoculated small-pox, as not to be distinguishable from them by the appearances which present themselves.

THIRD PERIOD.

THE amelioration of the symptoms of small-pox, and the great diminution of their fatality in those who were subjected to the process of inoculation, seem to have led to the belief, that it was possible, by the universal adoption of that practice under proper regulations, to prevent the casual occurrence, if not to effectuate the total extermination of the disease. But the benevolent plans suggested for this purpose by the venerable Dr. Haygarth, and by other individuals, and the arrangements to which they were giving rise in various parts of the world, were suddenly superseded by a discovery, the most wonderful and important of any that is to be found in the annals of medicine. The idea of employing the infection of a new and peculiar disease as a preventive of small-pox, and the ascertainment of the facility and safety with which this protecting power can be communicated from one human being to another, are benefits for which the gratitude of mankind must ever remain due to Dr. Jenner. If the observation of the production of an electric phenomenon, by the approach of two metallic bodies placed in contact with an animal substance, has been deemed sufficient to immortalize the name of Galvani, surely the novelty and importance of Dr. Jenner's discoveries seem still to require, that the name of their illustrious au-

thor should be identified with the actual communication of the blessings which the practice he has introduced ensures.

I should not now recall to your recollection the opposition which the practice of vaccination met with at its first introduction in this country, were it not to draw your attention to the striking similarity which obtains, in the arguments that were adduced against it, and those which had formerly been urged against inoculation for the small-pox ; and, at the same time, to the similarity also of the manner in which these arguments have been answered by the advocates of vaccination. The opposers of this practice, like those who formerly opposed small-pox inoculation, endeavoured to shew, that no security against small-pox was to be obtained by passing through the cow-pock, and adduced instances of persons in whom this process had been properly performed, suffering afterwards an attack of small-pox. The supporters, again, of vaccination, like those of inoculation, denied, that small-pox ever occurred in those on whom this process had been *properly* performed ; but when examples of this occurrence became so numerous and obvious as no longer to admit of doubt, the varioloid eruptions occurring in the vaccinated were supposed to be satisfactorily accounted for by the adoption of two hypotheses : The 1st, That as there are several kinds of spurious cow-pox, as well as of spurious small-pox, which do not give that com-

plete security against an attack of small-pox, which is obtained by passing through genuine cow-pock, the vaccination, in the instances alluded to, must have been performed with matter of a spurious sort; the 2d, That in those cases in which varioloid eruptions succeed to *perfect* vaccination, the disease is not the small-pox, but an eruption specifically different, the chicken-pox. With regard to these hypotheses, it seems sufficient to remark, that the first was obviously of a kind which did not admit of direct proof, and that it took for granted the very point at issue, in as much as it presupposed, that a person who had passed through the genuine cow-pock was rendered absolutely unsusceptible of variolous contagion; and that the second not only assumed it to be a law of nature, that perfect vaccination renders the human constitution unsusceptible of variolous contagion, but also the additional supposition, that chicken-pox is a disease specifically different from small-pox. But whatever may be thought of the validity of the grounds upon which vaccination was at first opposed, or of the soundness of the hypotheses by which the advocates for this practice defended it against the attacks that were made upon it, it must now be universally allowed, that the protection which vaccination affords against the fatality of small-pox, is at least equal, if not superior, to that which is afforded by having passed through the small-pox themselves, even in the

natural way, a degree of security which, though by the laws of nature in disease, it may not be absolute, is surely as great as can reasonably be expected of any human invention.

It was in 1798 that Dr. Jenner first published his *Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, and recommended infection with the virus of this disease as a complete preventive against attacks of small-pox; and it is now interesting to find, that most of the important facts which have since been ascertained respecting the vaccine virus are contained in the original communication which Dr. Jenner made of his discoveries—a striking proof of the degree of maturity to which he had brought them before they were given to the public. Though led by report, as well as by his own observations and experiments, to believe, that infection with the matter of cow-pock is a complete preventive of small-pox, it is obvious, from the statement which he has given of the progress of his discoveries, that Dr. Jenner had met with various examples of individuals supposed to have had cow-pock, who, nevertheless, had afterwards been affected with small-pox. To account for this, he had recourse to the supposition that these individuals must have been infected, either from sores on the teat of the cow of a nature specifically different from the genuine cow-pox, or from matter which, though originally possessing the specific virus of cow-pox, had lost its anti-

variolous quality. "Dr. Ingenhouz informed me," he says, (p. 2. of his further observations,) "that, on making inquiry into the subject in the county of Wilts, he discovered that a farmer near Calne had been infected with the small-pox after having had the cow-pox, and that the disease, in each instance, was so strongly characterized as to render the facts *incontrovertible*. The cow-pox, it seems, from the Doctor's information, was communicated to the farmer from his cows at the time that they gave out *an offensive stench from their udders*. Some other instances have likewise been represented to me of the appearance of the disease, apparently marked with its characteristic symptoms, and yet that the patients have afterwards had the small-pox. On these cases, I shall, for the present, suspend any particular remarks, but hope that the general observations I have to offer in the sequel, will prove of sufficient weight to render the idea of their ever having had existence, but as cases of spurious small-pox, extremely doubtful."

In tracing, as Dr. Jenner has most ingeniously and satisfactorily done, the origin of the cow-pox virus to the grease of the heel of the horse, he found that though it was believed that blacksmiths and farriers who had been infected by this grease, were considered as unsusceptible of variolous contagion, yet that examples also were not wanting of some of these persons having af-

terwards suffered an attack of small-pox. "One instance," he says, (p. 27 of his Inquiry,) "has occurred to me of the system being affected from the matter issuing from the heels of horses, and of its remaining afterwards unsusceptible of the variolous contagion; another where the small-pox appeared obscurely; and a third, in which its complete existence was positively ascertained." To account again for this occurrence, Dr. Jenner was obliged to have recourse to an opinion which he has since relinquished, that though the virus of the grease possessed a certain degree of antivariolous quality, yet that it required to pass through the teat of the cow in order to render it a complete preventive of small-pox. "We have seen," he remarks (p. 37 of his Inquiry,) "that the virus from the horse when it proves infectious to the human subject, is not to be relied upon as rendering the system secure from variolous infection, but that the matter produced by it upon the nipple of the cow is perfectly so." "What renders," he says, p. 6 of his Inquiry, "the cow-pock virus so extremely singular is, that the person who has been thus affected is for ever after secure from the infection of the small-pox; neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper." By means of these hypotheses, Dr. Jenner was enabled to account for the apparent exceptions which had occurred

to his conclusion of *cow-pox* being an infallible preventive of small-pox ; and but for the encouragement which he derived from his belief in their being well founded, the world perhaps would never have been indebted to him for the invaluable benefits which have sprung from his inquiries.

In watching the appearances and progress of small-pox, as they occurred in those who had been previously inoculated by the grease of the horse, Dr. Jenner observed a circumstance of great curiosity, and one, the full value of which seems only beginning to be understood. " It is a remarkable fact," he says, (note, p. 28 of Inquiry,) " and well known to many, that we are frequently foiled in our endeavours to communicate the small-pox by inoculation to blacksmiths, who in the country are farriers. They often either resist the contagion entirely, or have the disease *anomalously*." And again, (p. 30.) in speaking of a case in which the existence of small-pox, subsequent to equine infection, was positively ascertained, he says " There certainly was a *difference* perceptible, although it is not easy to describe it, in the general appearance of the pustules from that which we commonly see. Other practitioners, who visited the patient at my request, agreed with me in this point, though there was no room left for suspicion as to the reality of the disease, as I inoculated some of his family from the pustules, who had the small-pox, with its usual appearances, in consequence."

In these quotations you will not fail to recognize the germs of the doctrine of modified small-pox, the diversified appearances of which have proved such stumbling-blocks to the friends, as well as to the enemies of vaccination. By the one party the occurrence of these varioloid eruptions in the vaccinated was considered as a proof of the inutility of vaccination; and by the other as affording the strongest evidence that could be adduced of the preventive power of the cow-pock virus against small-pox, in as much as these eruptions appeared to exhibit the usual characters of chicken-pox, not those of small-pox; fortunately for mankind the latter became the prevailing opinion, and it still continues to be that, I believe, which is expressed by most vaccinators in relation to the varioloid eruptions which occur in individuals whom they themselves have vaccinated.

It is a singular enough fact in the history of small-pox, that the opinion of their occurring only once during life, should have been adhered to with so much pertinacity, so long as the practice of inoculation for small-pox was generally followed, but that when this practice came to be superseded by vaccination, the belief that small-pox may occur twice or oftener in the same individual, should immediately have begun to gain ground, and that it should have been so speedily and generally adopted. We owe, indeed, the confirmation of this belief

chiefly to those who have interested themselves in defending the preventive power of vaccination. "It should be remembered," says Dr. Jenner, at p. 44 of his "Further Observations," "that the constitution cannot by previous infection be rendered totally unsusceptible of the variolous poison ; neither the casual nor the inoculated small-pox, whether it produces the disease in a mild or in a violent way, can perfectly extinguish the susceptibility." The truth of this remark has been amply verified by the numerous cases of secondary small-pox which are recorded as having occurred since the introduction of vaccination ; but whether infection with the matter of small-pox be, as Dr. Jenner seems to have believed, less efficacious in preserving from attacks of this disease, than the infection of the constitution with the matter of cow-pox, is a point which does not appear to have been hitherto minutely investigated, and must therefore be left to future inquiry. For examples of the secondary occurrence of small-pox, both before and since the introduction of vaccination, I beg leave to refer you to a paper subjoined to this letter, that was drawn up at my request by my friend, and formerly my assistant at the dépôt hospital, Dr. Andrew Smith. I have taken the liberty to insert in their proper places a few cases additional to those which he has collected with so much industry—more, I doubt not, may still be added by those who have access to bet-

ter collections of medical writings than either Dr. Smith or I have had an opportunity of consulting.

In a few months after the publication of Dr. Jenner's discovery, Dr. George Pearson brought forward, in his "Inquiry concerning the History of Cow-pox," a variety of communications which he had received from professional gentlemen residing in the different dairy counties of England, confirmatory of the antivariolous effects of cow-pox infection, to which he added a just and useful comparison of the relative advantages of cow-pox and small-pox inoculations. The value of these communications seems to have been fully appreciated by Dr. Jenner; for, in a letter dated Cheltenham, 27th Sept. 1798, he says, "The perusal of your proof sheets has afforded me great pleasure, both from the handsome manner in which you mention my name, and from the mass of evidence which has poured in upon you from different counties, in support of the fact which I so ardently wish to see established on a steady and durable basis." "Truth," he adds, "must appear at last, and, from your researches, its appearance will certainly be expedited."

Dr. Pearson appears to have met with an example of a person who, after having passed through the casual cow-pox, suffered an attack of a varioloid eruption, which was conceived to be the small-pox, but which, both from his confidence in the preventive power of cow-pox, and

from the mildness and sudden disappearance of the eruption, he could not admit to be that disease. "On making inquiries," he says, (p. 28.) "at Mr Kendall's farm, for milch cows, on the new road, Marybone, a female servant informed me that she laboured under the cow-pox many years ago, when she lived in Suffolk, where this disease prevails. From her description I could not doubt that she had really been affected with the cow-pox. After this, she took what she believed to be the small-pox, from an infant which was nourished by her breasts. A fever preceded the eruptions, which were only about fifty in number, and they *disappeared in a few days* after they came out. If the latter part of this testimony is accurate," continues Dr. P. "*one cannot admit this case to be an example of the small-pox*, taking place in a constitution which had previously been affected with the cow-pox.

Doubts of the general accuracy of Dr Jenner's statements respecting the Variolæ Vaccinæ were in danger of being created, by the publication, in 1799, of the results of a series of experiments, made with vaccine matter, by Dr Woodville, at the small-pox hospital in London. This physician not only performed his experiments with the vaccine matter in a place, as has been justly remarked, "the least proper that could have been selected," but he inoculated with variolous matter several of his patients, soon after he had subjected them to the process of vacci-

nation. Eruptions resembling those of small-pox, occurred in about three-fifths of 500 individuals whom he vaccinated, and "in not more than a fourth part of them was there experienced any perceptible disorder of the constitution;" an infant, however, at the breast, is mentioned as having died of convulsions, "after an eruption of eighty or a hundred pustules." That but one patient should have died in these experiments, can be accounted for only, I conceive, by supposing, either that the small-pox epidemic which prevailed at the time was of a nature uncommonly mild; or, what now seems more probable, that the vaccine inoculation had modified the small-pox caught in the hospital by atmospheric contagion, and deprived them of their usual malignity. Dr Woodville's experiments, notwithstanding the mischief they were likely to have occasioned, have tended to elucidate three points of considerable importance, connected with the action of the cow-pock virus upon the human body; 1st, that the pustules produced by the cow-pox, and those produced by the small-pox, though inserted into the body at the same time, preserve throughout the course of the disease their specific properties; 2d, that those who have undergone cow-pock inoculation seem in general to be rendered unsusceptible of receiving small-pox by inoculation; and 3d, that "if a person be alternately inoculated with variolous mat-

ter, and with that of the cow-pox, every day till fever is excited, all the inoculations make a progress; and as soon as the whole system becomes disordered, they appear to be all equally advanced in maturation."

Varioloid eruptions, similar to those which had occurred in Dr. Woodville's experiments, having been mentioned by Dr. Pearson and others, as the effects of vaccination in their practice, Dr. Jenner found it necessary to take notice of them in a letter addressed, in January 1800, to the editors of the London Medical and Physical Journal, and also in his "Continuation of Facts and Observations," published in the course of the same year. In his letter he states, "that, from the commencement of my inoculation with the vaccine virus to the present day, no pustules similar to the variolous have in any instance appeared;" and adds, "I very much suspect that where *variolous pustules* have appeared, *variolous matter* has occasioned them." In his Continuation of Facts, &c. he says, "When I consider that the matter with which my inoculations were conducted in the years 1797, 1798, and 1799, was taken from different cows, and that in no instance any thing like a variolous pustule appeared, I cannot feel disposed to imagine that eruptions, similar to those described by Dr Woodville, have ever been produced by the *pure uncontaminated cow-pox virus*."

Dr. Woodville, in a second pamphlet, pub-

lished in July 1800, was obliged to admit that, "as the different effects of the disease (cow-pox) between the patients in and those out of the small-pox hospital, did not depend upon any difference or alteration of the matter with which the inoculations were performed, the only cause remaining to which the frequent occurrence of pustules on the former can be rationally referred, is the variolated atmosphere of the hospital, which those patients were necessarily obliged to inspire during the progress of the cow-pox infection." That he should not sooner have discovered the true cause of the varioloid eruptions in those whom he vaccinated, must now appear the more surprising that we find, in his first publication, information sufficient to have pointed out to him the error into which he had fallen: "At the request of Dr. Jenner," he says, (p. 140.) "I transmitted to him in Gloucester some of the cow-pox matter from the patients then under my care, which he used for the purpose of inoculation; after a trial of it, he informed me, that 'the rise, progress, and termination of the pustule, created by this virus on the arm, was exactly that of the true uncontaminated cow-pox virus.' The matter sent was taken from the arm of Ann Bumpus, who had 310 pustules, all of which suppurated; yet, with the matter of this stock, Dr. Jenner inoculated twenty, and another gentleman in the same county, 140 persons, without producing any pustules which ma-

turated." That the cow-pox matter thus transmitted had not been contaminated with variolous contagion is evident, since, when removed out of a variolous atmosphere, it did not produce any eruptions resembling those of small-pox.

Dr. Willan, in his Reports on the Diseases in London, published in 1801, states, (p. 319.) "When the small-pox and vaccine disease had been inoculated about the same time, the eruptions were, in all the cases I saw at the (small-pox) hospital, of the species vulgarly termed hornpock, being hard and semitransparent. They contained little fluid, and, though of long duration, did not maturate, or break by suppuration. Whether," he adds, "we should, from these premises, infer that the two diseases, when communicated together, limit each other's operation on the human body, so that the small-pox may be checked, or the vaccine disease be variolated by inoculation, by exposure to an infected atmosphere, &c. or whether, as I before ventured to conjecture, they go through their course in the same person, at the same time, without influencing each other, must be decided by farther experience."

After the publication of Dr. Woodville's second letter, it seems to have been universally admitted in this country, that vaccine matter was incapable of producing varioloid eruptions, and that, when any such eruptions presented themselves during the progress of vaccination, they must have been produced by variolous or

varicellous infection. Soon after this, however, various examples began to be observed of vario-
loid eruptions occurring in individuals who had
passed through cow-pock inoculation: some of
these cases seem to be related with great can-
dour and impartiality, and others with such evi-
dent marks of prejudice and party spirit, as to
render it doubtful what degree of credit ought
to be attached to them. The writings of Drs.
Moseley, Rowley, Squirrel, and Mr. Birch, may
now be passed over in silence.

DR. HOOPER, of St. Mary-le-Bone Infirmary, in
the London Medical Review for July 1799, re-
lates the cases of two brothers, who, after suf-
fering considerably, in consequence of milking
some cows afflicted with a pustular disease, had
repeatedly exposed themselves to the contagion
of small-pox, without catching them: at the
end of five years, however, one of these brothers
was taken ill, and died of the confluent small-
pox; and the other, though afterwards twice
inoculated with variolous matter, was found un-
susceptible of the disease.

MR. COOKE of Gloucester, in a communica-
tion to Dr. Beddoes, (see Contributions to Me-
dical and Physical Knowledge, p. 388,) men-
tions the still more uncommon case of a Mrs.
Carter, who, many years after having passed
through casual cow-pox in a severe manner,
received small-pox by inoculation; but who, in
the interval, had frequently been with persons

infected with small-pox, both in the natural way and from inoculation, without catching them.

In the London Medical and Physical Journal for September 1799, Mr. WARD of Manchester relates the case of a child, in whom small-pox appeared on the 15th day of apparently regular vaccination. The eruption, which is said to have consisted of not fewer than 1600 or 1800 pustules, scabbed and began to fall off by the eighth day, leaving the skin of a deep red colour, but not pitted. In another child whom this practitioner variolated, on the 12th day after vaccination, about thirty pustules of a mild kind appeared on the 22d day.

Mr. LITTLE, of Plymouth, relates (see Dunning's Observations on Vaccination, London, 1800, p. 48.) the histories of two cases in which varioloid eruptions occurred; one upon the 10th, and the other on the 20th day of the vaccination, but which, from the vesicular character of the eruption, he conceived to be chicken-pox. Mr. Dunning states that, on seeing these cases, he immediately recognised the pustular eruptions to be those which he had always been accustomed to call the chicken-pox; and he mentions also, that small-pox and chicken-pox co-existed in Plymouth at the time these cases occurred.

Mr. MALIM, of Carey Street, in the London Medical Review for July 1800, mentions the case of a child, in whom, after a severe attack of

fever, a varioloid eruption appeared on the 12th day of vaccination, which had proceeded regularly. Doubts having been entertained with regard to the nature of this eruption, Mr Malim inoculated with the matter of it, and produced small-pox in the most satisfactory manner.

Dr. STOKES, of Chesterfield, in the London Medical and Physical Journal for January 1801, mentions the case of an individual whom he had vaccinated, and in whom some pustules, very much resembling those of small-pox, appeared on the fourth day. His belief was, "that the cow-pox inoculation *modified* the progress of the small-pox." In this case, both the inoculated and the general pustules went regularly through their respective stages. With matter taken from the inoculated pustule, a child was vaccinated, and went through the cow-pox in a regular way; and with matter from the general eruption, another child was inoculated, which produced a general eruption.

Dr. HARRISON of Horncastle, in a letter to Sir Joseph Banks, inserted in the number for February of the same Journal, relates the case of a child (Miss Fanny Allington) who, six months after vaccination, received a mild small-pox with a moderate eruption from inoculation, yet several individuals who had been vaccinated with matter taken from her arm resisted the same trial; "hence it appears," the Doctor observes, "that Fanny communicated a security against

the small-pox to others, although she herself remained liable to its influence."

Dr. Woodforde, of Castle Cary, in the same number of this Journal, informs us of a case of distinct small-pox which he was called to see, occurring in a woman who had laboured under the casual cow-pox twenty-eight years before, and who, in the interval, had frequently been exposed to the contagion of small-pox, without being infected by them.

In the number for May of this Journal, Mr. Bevan, of Stock upon Trent, mentions the cases of two children whom he vaccinated on the 5th day after the small-pox eruption had appeared upon their mother. On the 12th and 13th days after vaccination, they were both seized with symptoms of fever resembling that which generally precedes the small-pox; these disappeared the next day, but recurred on the 16th, and were followed in the one by 60, and in the other by 20 eruptions, which exactly resembled in every respect those of small-pox, except that they arrived at maturity on the third day after their appearance. "From these facts it appears probable," says Mr. Bevan, "that the vaccine inoculation had produced a change in the system, though not such as completely to prevent the influence of the variolous contagion, yet sufficient to mitigate the violence of its effects, and indeed to occasion the disease to deviate from its natural progress."

In the same Journal, for the month of August, Mr. Stevenson of Kegworth gives an account of two cases of small-pox produced by inoculation in children, six months after they had appeared to him to have passed through the process of vaccination in a regular manner. The occurrence of these cases led Mr. Stevenson, though a friend to cow-pock inoculation, to doubt whether it be universally and infallibly an antidote against the small-pox. That they were cases of small-pox, was proved by matter taken from the eruption in one of the children producing small-pox, in several others who were inoculated with it.

Mr. RING, in his "Treatise on Cow-pox," published in 1801, mentions (p. 416.) the case of a child who had been vaccinated at the vaccine institution, and upon whom a pustulous eruption appeared sometime after, which the neighbours imagined to be the small-pox. "The mother carried the child to the institution, and was informed that the disorder was not such as had been suspected. Not satisfied with this opinion, she consulted others, who declared that, at so late a period of the distemper, it was difficult to determine its nature." Mr. Ring, at the request of an eminent physician, instituted a minute investigation of all the particulars of the case, and was fully convinced that the distemper was the *chicken-pox*, which was easily demonstrated, he says, to be so, by the mother having gone to Westminster, and, on her return, perceiving a

number of small vesicles on the child's face, which continued some days, and matured at last.

Two cases of small-pox, after vaccination, are mentioned by Mr. BRYCE, in his "Practical observations on the inoculation of the Cow-pox," published at Edinburgh in 1802. In one of the children who had been vaccinated at the cow-pock institution in Edinburgh, the pustules, which were in number about three dozen, and had been preceded by smart fever for three days, remained out seven days, when they suppurated and dried into crusts. Mr. Bryce at first suspected this eruption to be the chicken-pox; but from his not being able to trace chicken-pox in the neighbourhood, and from the occurrence of small-pox in the same house with his patient, he was satisfied that the disease was small-pox. The other case occurred in a child who had been vaccinated about twelve months before, but in whom, upon inquiry at the mother and nurse, Mr. B. found that the areola of the cow-pox affection had not proceeded to so great an extent as on the arm of a younger child of the same family, who completely resisted the disease. In this case the small-pox were produced by inoculation.

Dr. WINTERBOTTOM, of South Shields, in the Medical and Physical Journal for the month of April 1802, states, that in a family in which one of the children laboured under confluent small-

pox, he inoculated three others with vaccine matter on the 5th day of the eruption. In all, the vaccine disease went through its regular course : "One of the children fevered on the eighth day, and on the tenth, about 20 or 30 pustules, resembling varicellæ, appeared upon the face and neck, which, after continuing out three or four days, fell off. In another child a trifling eruption of hard dry spots appeared about the 10th day, which soon disappeared."

Mr. PEARs, of Newington Butts, in the Number for August of the same Journal, relates the cases of two children, in each of whom, upon being exposed to the contagion of small-pox, a varioloid eruption occurred eighteen months after they had been vaccinated by Mr. Ring. These eruptions, during the two first days of their appearance, were conceived, by some practitioners who saw them, to be those of small-pox, but as they disappeared in the course of *four days*, they were afterwards declared not to have been variolous. In the Number for December of the same Journal, this gentleman relates the history of another case of varioloid eruption succeeding to vaccination, which, on account of the size of the vesicles, gave him, he says, "the idea of its having been what is called *swine-pock*."

In the report of the Vaccine Pock Institution published in 1803, (Medical and Chirurgical Review, vol. x. p. 48.) the reporters observe, "it may be useful to notice, that we have been alarmed



two or three times with the intelligence of the small-pox occurring several weeks or months after our patients had undergone the cow-pox. We thought it our duty to visit and examine these patients, and also to inquire into their history among their attendants, and by these means we obtained the completest satisfaction, that the pretended small-pox was generally the chicken-pox." The case of a child is then related, who it appears had been inoculated with one puncture only, in April 1800, and returned to the Institution in the August following, with above 100 eruptions of blackish scabs and red spots, "apparently the chicken-pox in the scabbing state." This eruption had come out during five days, and had been preceded by fever for three days. Small pits were left, as was observed some months after the eruption.

Mr. GOLDSON, in a pamphlet published at Portsmouth in 1804, relates the histories of seven cases in which variolous eruptions occurred in individuals, who, he had reason to believe, had gone through the process of vaccination in a regular and satisfactory manner. In three of these cases, the eruptions were produced by inoculation with the matter of small-pox, and in the other four by casual infection; three of those who caught the disease by casual infection, and one in whom it was produced by inoculation, had been previously exposed to the contagion of small-pox, without receiving the disease. In four a varioloid

eruption, supposed to be varicella, had occurred between the period of vaccination, and the time at which they were attacked with small-pox. Of these cases Mr. Goldson remarks, (p. 52,) "If they should be deemed as so many instances of imperfect vaccination, for I understand, it has lately been advanced, that the degree of security depends upon the degree of vaccination, it is time that some line should be drawn, and a more accurate criterion be adopted, to enable us distinctly to ascertain where imperfect vaccination ends, and where permanent security begins."

The occurrence of events so different from those which had been observed in the practice of other vaccinators, and the doubts to which this gave rise, necessarily excited a considerable degree of alarm in the public mind, and produced a great sensation among the friends of vaccination. Numerous attempts were made in pamphlets, and in the periodical Journals of the day, to set aside Mr. Goldson's authority as an observer, and to throw discredit upon the whole of his statements, by endeavouring to shew that, in some of the cases which he had related, the eruptions were not those of small-pox, and that in those in which small-pox had occurred, the individuals must have passed through a spurious, not a genuine cow-pock. Yet, after a careful perusal of the different publications in this controversy, it is impossible, I conceive, not to feel satisfied that the accuracy of Mr. Goldson's

statements was in no one particular affected by the reasoning of his opponents, and that he erred only in believing that the security afforded by vaccination was of a temporary and not of a permanent nature. He seems also not to have been aware that the small-pox, which had occurred in his vaccinated patients, were modified so as to be deprived of the severity and danger with which that disease is usually attended.

In reference to Mr. Goldson's cases, Mr. Ring, in his answer to that gentleman, remarks, p. 43, "there is one circumstance which has given rise to a number of erroneous conclusions, and brought considerable discredit upon vaccination. This is the similarity of the chicken-pox to the small-pox, which has occasioned it to be mistaken for that disease in many instances by the first physicians in Europe. It has often deceived practitioners, even after successive inoculations, and their unhappy patients have been left to discover the fatal error. How far this complaint has been mistaken for the small-pox, at Portsmouth, I cannot pretend to determine; but, in the metropolis, it is easy to produce cases in abundance."

Of Mr. Goldson's second and third cases, and the two related in the postscript, viz. those of Worsfold, Luscombe, Callard, and Warner, in all of whom, after having been vaccinated, small-pox had occurred on being exposed to the contagion of that disease, Dr. M'Donald observes, (Med. and

Phys. Journ. Oct. 1804,) " I myself am firmly convinced that it was the effect of variolous contagion; but it is far from my opinion that they were cases of small-pox, as Mr. Goldson supposes; and I firmly believe that, under similar circumstances, the same train of symptoms would have been produced in persons who had already undergone the small-pox. There is nothing very extraordinary in this; for I believe it is well proved, that although a person may have had the small-pox, the skin will retain the susceptibility of being infected, when again exposed to the variolous contagion, and a local eruption will take place, frequently attended with fever and other symptoms of irritation. This eruption has obtained several denominations. The French call it, *petite verole volante*; the Germans, according to the variety of its external characters, have called it *water-pock*, *wind-pock*, *sheep-pock*, *swine-pock*, &c. &c.; the English, in general, have called it the chicken-pox, and sometimes the spurious or bastard small-pox. In Latin, it has been styled *varicella*; but it signifies little by what name we call it; it is sufficient for us to state, that medical records abound with cases of spurious eruptions produced by the variolous contagion, which, before the discovery of vaccine inoculation, were frequently mistaken for the small-pox, and looked upon as a second infection, and, since that discovery, have as frequently, either been considered from ignorance,

or misrepresented from a spirit of opposition, as cases of small-pox subsequent to vaccination."

In a few months after the publication of Mr. Goldson's cases, Dr. Jenner, in the number for August of the same Journal, inserted a paper on the modifications which the vaccine vesicle undergoes from "those herpetic affections which so frequently appear among the children of the poor, which are evidently contagious, and often prevent the vaccine virus from producing its correct action." "The skin," he says, "although it be apparently sound at the point of insertion, is nevertheless so influenced by the disease, as frequently to baffle all our efforts to produce a correct pustule, and consequently to secure the constitution from the contagion of the small-pox."—"I do not mean to say that the pustule is always imperfect, and not effective, when the inoculated patient has this malady; on the contrary, it is sometimes perfectly correct, and much more frequently so when it has been of long standing, than when in its recent state; and, what is remarkable, the disease is then (when of long duration) sometimes swept entirely away. I have noticed this impediment to the perfect formation and progress of the vaccine pustule in my general correspondence for more than two years past, and conceive it to be a more frequent source of the spurious pustule than any other, or indeed than all the rest unit-

ed."—"I have abundant testimony," he further remarks, "to prove, that the fluid taken from a spurious vaccine pustule thus excited, is capable of propagating and perpetuating its like. Indeed, the vaccine fluid, even in a pustule going through its course perfectly, if taken in its far advanced stage, is capable of producing varieties which will be permanent, if we continue to vaccinate from it."—"I cannot call it a general change in every case, as I have sometimes found a correct pustule on one arm, and a spurious pustule on the other. Indeed I have sometimes found the perfect and imperfect pustule on the same arm, within two inches of each other, when the virus inserted was taken the same instant from the same perfect pustule."—"I have seen many instances," he adds, "where pre-existing pimples have been converted into vaccine pocks, which have kept pace with those on the arms in their progressive changes." In the review of Mr. Ring's Answer to Mr. Goldson, (Med. and Phys. Journal, Aug. 1804,) the Reviewer, in allusion to the supposed spurious nature of the cow-pox matter employed by Mr. G., and its producing in children inoculated with it the genuine disease, remarks, that "if Mr. G.'s account be correct, vaccine inoculation from the same source has produced, in numerous instances, the perfect disease, and has proved a complete prophylactic against repeated exposure to small-pox. Allowing the facts, the contradiction can only be explained

by admitting the possibility of both perfect and imperfect vaccination from a vitiated source, under similar circumstances, and in each case with an entirely regular progress of the inoculated vesicle."

Dr. ADAMS, physician to the Small-pox Hospital, in an article on cutaneous eruptions, (Med. and Phys. Journal, Sept. 1804,) says, "I very much think this occurrence (of eruptions in the vaccinated) is more general than is supposed, and that some of those eruptions which have appeared at a remote period after vaccination, and which the zealots on the one side have called small-pox, and those on the other side chicken-pox, have been vaccine vesicles." On this passage, Mr. Ring justly remarks, in the Number of the Journal for the month following, "I know no reason to suppose that eruptions which appear at a *remote period* are owing to vaccine inoculation; nor do I know of any new species of vesicular eruption which has lately appeared. Instead, therefore, of our supposed cases of chicken-pox being the cow-pox, I am inclined to think Dr. Adams' supposed cases of cow-pox were the chicken-pox."

Mr. Dunning of Plymouth, who had distinguished himself as a zealous promoter of vaccination, published in 1804 the "Minutes of some Experiments" which he had made, in order to establish the preventive power of cow-pock inoculation. At p. 12, he says, "Having vaccinated

with my own hands considerably more than a thousand subjects, since the latter end of the year 1799, when I began the Jennerian practice, many of whom have been subjected to variolation, and many constantly and fully exposed to casual infection of the variolous principle; and having never met with a single instance of subsequent small-pox, nor known a case in the practice of any surgeon in this town and neighbourhood, I should fail egregiously in my duty, were I not to take this and every opportunity to assert and re-assert my entire belief that the protection against the small-pox which we obtain from the practice of vaccination, is not casual, nor of a limited duration, but regular and permanent."

In a postscript, however, to the "Minutes, &c." is a letter communicated by Dr. Stewart of Plymouth to Drs. Remmett and Woollcombe, containing the history of a case of secondary small-pox, and another of small-pox after vaccination, both produced by inoculation with the matter of small-pox. The individual in whom the case of secondary small-pox occurred, was Dr. Stewart's own daughter. She had passed through the disease by inoculation, in a satisfactory manner, six years before. The other case occurred in a boy whom Dr. Stewart had vaccinated upwards of four years previously, and from the matter of whose eruption small-pox had been produced in another individual. On these cases Drs. Rem-

mett and Woolcombe remark, that "although in by far the greater number of instances no inconvenience has resulted from the practice, (test of variolous inoculation,) yet experience in these and other cases sufficiently proves that variolous matter cannot always be introduced into the system with impunity. In those in whom it cannot exert its specific power, it is still capable of exerting the pernicious influence of a morbid poison." And Mr. Dunning, although he did not believe that the eruptions were specific small-pox, says, "If the events which took place in the preceding cases have not immediately opened to us new sources of information, they have amply taught us how unwise it is to introduce morbid poisons into the system;" and he accordingly seems to have desisted from subjecting his vaccinated patients to the test of variolous inoculation.

Not long after the publication of Mr Goldson's pamphlet, two fresh cases of small-pox, in children of the names of Nancy and Mary Hodges, who had passed through regular cow-pock inoculation, occurred in Fullwood's Rents, Holborn. With matter taken from one of them, small-pox were produced in several individuals. These cases also attracted great attention, and were the subjects of much medical discussion. In the Medical and Physical Journal for October 1804, (p. 384,) we are informed, that "a case has occurred in Fullwood's Rents, of sup-

posed small-pox after vacciolation ; but that, at a very large meeting of the profession held this day, (Sept. 26,) it was the general opinion that it was not small-pox. Most of the gentlemen who entertained the first idea, declined appearing ; while the few who had considered the eruption varicella, were confirmed in their conclusion by the observations of those who had not previously seen the case." In a Report, however, of fourteen medical gentlemen, who, at a numerous meeting of the medical profession, had been appointed a committee for the investigation of these cases, it is allowed, (Report, p. 31.) "that there seems no reason to question the regular progress of the vaccination in Nancy and Mary Hodges, nor the existence of small-pox in the latter, there being no material variation from the usual course of symptoms, either in the disease of Mary Hodges, or in the cases of inoculation with matter taken from her pustules. The committee, however, feels it a duty to remark, that the above facts are not to be considered as militating against the general practice of vaccination."

Dr. ROLLO, in his Medical Report of Cases of Inoculation and Re-inoculation with Variolous and Vaccine Matter, &c. published at London in 1804, mentions four cases of casual small-pox occurring after vaccination. The disease was in each case exceedingly mild. In two the eruption had more of a warty than of a pustular or vesicular character.

In the Medical and Physical Journal for December 1804, Dr. WALKER relates the following case : “ A father,” he says, “ called upon me a few days ago, and told me, that, of two children whom I had inoculated last spring, one was now covered with the small-pox, the other sickening ; and that he was advised to advertise it. On consulting the Register, I found them both marked perfect cases ; and told him it was impossible for either of them to be infected with the *small-pox*. I immediately called upon our vice-president John Ring, and challenged him to come and detect my failure, remarking, that I could scarcely expect my own report, if favourable, to be confidently received. He had the goodness to accompany me ; and on our seeing the child, he immediately declared it chicken-pox.”

In the 11th volume of the Medical and Chirurgical Review, (p. lxvi. *et seq.*) the following extracts from the Minutes of the Vaccine Pock Institution appear. Nov. 1804.—“ Anthony Stroud was vaccinated on the 1st of May 1804, at the *Vaccine Pock Institution*. The appearances were those of regular cow-pock, and pits were left on the inoculated parts. This child was brought to the *Institution* on the 6th of November, being supposed, by some medical gentlemen who saw it, to be then in the small-pox.” It had been feverish for about a fortnight, when an eruption, “ as small, or smaller than chicken-

pox," appeared. "They were small flat vesicles, instead of being acuminate, as is usual in chicken-pox." "The child had not had the chicken-pox, nor was this disease known to be in the neighbourhood. It was the universal opinion of the gentlemen who saw it at the Institution, that it was not small-pox." (*Same date.*)—The case of a girl who had been vaccinated in 1800, leaving a scar behind, but in whom the cow-pock was declared by the officers of the *Institution* not to have gone through its regular course, although the appearances which presented themselves were nearly the same with those in her sister, who had been vaccinated at the same time with matter from the same source, and who had hitherto resisted the contagion of small-pox. The eruption in this case was proved to be small-pox, by the matter producing that disease in other patients inoculated with it. *Dec. 18th.*—Two cases of small-pox after vaccination were communicated to the directors—the one by Mr. Bowen, and the other by Mr. Evans, the parents of the children who were the subjects of them. Mr. B.'s child had been vaccinated with matter from that of Mr. E. Mr. B. had variolated his child at three different times subsequent to vaccination without effect, and on a fourth trial it produced an eruption of twenty or thirty pustules, the greater part of which died away in four or five days. Besides an unvaccinated child who was inoculated with the matter of this eruption, and

in whom it produced upwards of 1000 pustules, Mr. E.'s vaccinated child was likewise inoculated. An eruption followed, the matter of which communicated small-pox to an unprotected child. (*Same date.*)—"Four children, who had been vaccinated from two to five years, were brought to the *Institution* with eruptions which were supposed by the mother to be small-pox; but they appeared to all present to be chicken-pox."

In 1805, Mr. GOLDSON published an account of eight additional cases of small-pox subsequent to vaccination. In five of these cases the disease was communicated by casual infection, during the progress of a severe small-pox epidemic; and in the other three the small-pox were produced by inoculation. One of the latter had been, at three different times, previously subjected to this trial, but without effect. Of one of the cases from casual infection, Mr. G. remarks, "that it could not be varicella, because the child had undergone that disease, and has three pits in the arms from some of the pustules." In concluding this pamphlet, Mr. Goldson says, "Unawed by clamour, I have now performed a duty I owed to society, and have only to add, that, for some time past, the small-pox has been comparatively mild; the risk, therefore, to vaccination has been small in proportion. But the full extent of its powers can only be ascertained whenever it shall again become the

prevailing epidemic. When the state of the atmosphere shall again be so far variolated, that seclusion can be of little avail, then will be the time to prove, how far the security it gives will extend."

Mr. DUNNING, in "a Short Detail of some Circumstances" connected with the case of Miss Hitchings, which he communicated to Mr. Goldson, and which forms one of the eight additional cases just alluded to, observes, (p. 24.) "that small-pox of the same benign and *modified* character as recurred in Miss Hitchings, will sometimes, but indeed very rarely, happen in subjects of highly susceptible habits, (placed under exposure to a concentrated and epidemical variolous atmosphere,) who had been previously and *duly* vaccinated, I am inclined, from some late observations, to believe, but, thank God, not to fear."

And again, in answer to the following question proposed by the editors of the Edinburgh Medical and Surgical Journal, (vol. i. p. 126,) Does vaccination *modify* the symptoms of small-pox, when it is unable to prevent the recurrence of the disease? he remarks, (p. 37,) "the object of these pages has been entirely to shew that it does. I have adduced some cases, and offered some conjectures, which, although they cannot be received other than as presumptive evidence, will yet, I flatter myself, have a direct tendency to establish this opinion." In speaking (p. 39,) of secondary small-pox, he justly remarks, that "the lia-

bility to recurrences of variolous infection, after the inoculated small-pox, was never formerly adverted to. Whenever eruptions, or pustules resembling small-pox, or of an ambiguous character, presented themselves to medical men, they were immediately, without reflection, or calling in question for a moment the established opinion, referred to the chicken-pox, or swine-pox, or phlyctenæ, or some of those varieties of non-descript cutaneous pustules and eruptions, which sometimes have and will occur."

Mr. DUNNING, in his "Further Observations on the practice of vaccination," says, (p.7.) "the small-pox have prevailed epidemically, in this large town and neighbourhood for several weeks, with their usual mortality. During this time I have seen, unquestionably, some instances of small-pox happening in subjects after cases of vaccination, which, till lately, I had deemed regular and complete."

Mr. MERRIMAN, in his "Observations on some late attempts to depreciate the value and efficacy of Vaccine Inoculation," published in 1805, mentions (p. 28,) the case of a boy who had been vaccinated by Mr. Ring, and some months after had what the mother thought was the small-pox, but which two medical practitioners declared to be the chicken-pox. The eruption dried away at the end of five days, and left several marks on the breast.

In the Medical and Physical Journal for January, 1806, Mr. Bond of Glastonbury relates the history of a case, in which a varioloid eruption was produced by inoculation, ten months after the patient had passed through regular vaccination. Mr. Bond supposed that the eruption in this case was the cow-pox, which had lain dormant for that length of time in the child's constitution.

In the number for June of the same Journal, a case is related by Dr. Forbes, in which casual small-pox occurred three years after vaccination, during the time that the disease prevailed in the neighbourhood of his patient. In the same Number of the Journal, Mr. Ring says, "I have lately seen two cases, one at Clapham, and the other in Edgeware-road, in which persons supposed to have undergone vaccination, had the small-pox. These cases I went to see by desire of Mr. Forbes and Mr. Griffiths, by whom the patients were vaccinated. Whether the operations were perfectly successful, or whether imperfect, it is impossible for me to say, but the small-pox appearing in a very mild form, I am rather inclined to suspect the latter. Otherwise, it must be allowed, that they are exceptions to the general rule; and that the cow-pox is not always a preventative of the small-pox."

Dr. Farquharson, Mr. Bryce, and Mr. Gillespie, surgeons to the Vaccine Institution of Edinburgh, in a letter to Dr. Walker of London, (Med. and Phys. Jour. March, 1805,) remark,

that "on many children, who had passed regularly through the process of vaccination, eruptions have appeared at different periods afterwards, which by some ignorant people were supposed to be variolous; but which, upon investigation, uniformly turned out to be chicken-pox; although, in some of these cases, the eruptive fever was very severe—sometimes even attended with convulsions—the consequent eruption very numerous, and in a few cases the last of the pustules did not disappear until the fifth or sixth day." "These cases," they add, "were repeatedly visited by many medical practitioners of this place, as well as by ourselves, and none of them entertained any doubt of the disease being chicken-pox."

In the *Med. and Chir. Review*, vol. xi. p. cvi, two cases of small-pox, which had occurred in children who had been satisfactorily vaccinated, are related. The first of these children had been vaccinated by one of the surgeons of the Newcastle Dispensary, and caught the small-pox, to the contagion of which it had been exposed, about four years after. This child had been ill for four or five days previous to the appearance of the eruption, which consisted of about 50 or 60 pustules. "They did not begin to turn or dry away till after the ninth day."—"The mother says she knew it was small-pox and not chicken-pox, because the pox in the latter are watery and not mattery." Dr. Haworth, and several others who saw it, said it was small-

pox. The other child had been “vaccinated at the *Castle Street Jennerian station* by Mr. Ring, who expressed himself perfectly satisfied with the progress of the inoculation.” “Three or four days after the pocks in the above case had turned, this child sickened, and after two or three days an eruption appeared exactly similar to the former, and which observed the same progress.” “This child was seen repeatedly during the progress of the eruption by Mr. Ellis, apothecary, Drury-Lane, who asserted it to be small-pox. The child was next taken to Mr. Soley, apothecary, in Bloomsbury Square, about the ninth day; he declared immediately, and without hesitation, that it was undoubtedly small-pox, and he chided the mother for not having taken means to prevent it by inoculation. She replied she had done all in her power, by having the child inoculated—‘By whom?’ ‘By surgeon Ring.’ ‘Then,’ said Mr. Soley, ‘it cannot be small-pox, for small-pox never occurs after cow-pock. It must be a rank kind of chicken-pox;’ and he sent her to Mr. Ring. On calling at his house, which she did immediately, she first saw Mr. R’s. assistant, who declared it to be small-pox, and upbraided the mother, as Mr. Soley had before done, for not having had the child inoculated. She of course said it had been done. Mr. Ring was now informed of this unusual circumstance, and, on seeing the child, he said, ‘it could not be small-pox, for the small-pox was never attended with itching; nor did it appear in clusters as

in this case.' Mr. Ring then told the mother she might rest satisfied that it was not small-pox, and he begged her to say nothing about it, as it might excite alarm.' On this conduct of Mr. Ring, the editors remark : " This attempt to conceal every thing that appears unfavourable, so frequently resorted to by certain pretended friends of vaccination, cannot be too much reprobated. It shews the business to have got into very bad hands ; were truth their only object, they would court investigation, not endeavour to suppress it."

At p. cxxv. of the same volume, five cases of small-pox, after vaccination, are related, for the accuracy of every material point, of which the Editors pledge themselves. In two of these cases the disease was caught by exposure to the contagion of small-pox, and proved fatal to one of them on the 17th day. This is the first case I have found recorded of death from small-pox, in a patient who had been vaccinated. In the other three it was produced by inoculation. The two former and one of the latter are said to have had chicken-pox previous to vaccination. In none of these cases was any doubt entertained of the genuine nature either of the cow-pox or of the subsequent small-pox.

At page xxiv. of the 12th volume of the same Review, seven cases of small-pox after vaccination are related. In all the vaccination, which is said to have been satisfactory, left scars behind, and in all, likewise, the subsequent small-pox were

mild. Of one of these patients it is said that "she had the chicken-pox and measles twelve months ago, and the swine-pox five years ago." One of them had been tested by Dr. Woodville with variolous matter, but resisted, and another had had the chicken-pox some time before the occurrence of the small-pox.

At p. cvii. of the same volume, a case of small-pox occurring in an individual, who had passed through the casual cow-pock, is related by Mr. Sawrey of London. Two years after having had the cow-pock, he was much exposed to the contagion of small-pox without catching them; but ten years after this, on being exposed to small-pox contagion, he caught the disease.

In the same volume, p. cxx. a case of small-pox is mentioned as having been produced by inoculation in a child, who had gone through the process of vaccination to the satisfaction of Mr. Eames, who vaccinated it, and who relates the history of the subsequent attack of small-pox.

Mr. Ring, in an article on inoculation, inserted in the Number for July of the Med. and Phys. Journal, says, (p. 6.) "False alarms are daily spread concerning vaccination; *but there are others which deserve attention.* The following is the first instance in which I have ever seen a failure in my own practice; and a clear case of the small-pox after the cow-pock. A child of Mr. Fairbrother, in Exeter Street, Brompton, vaccinated by me about two years ago, has at this time

the remains of a pustulous eruption, which appeared to be variolous, and was in some degree confluent ; but it turned on the 6th day, and is rapidly disappearing. Many of those eruptions which first appeared, had vanished by the 6th day, and the complaint has proved more favourable than could have been expected. When this child was vaccinated, which was about two years ago, he laboured under the tinea capitis, which sometimes occasions an irregularity of the vesicle ; but nothing of that kind was observable in the present instance. I am therefore inclined to suppose, that the morbid action already existing in the habit, partly or entirely, prevented the vaccine vesicle from producing its full effect on the constitution."

In the same Number, (p. 21.) a distinct case of small-pox occurring two years after perfect vaccination, is mentioned by Mr. Blair of Bloomsbury, Great Russel Street. This patient, he says, " I sent immediately to Dr. Adams, to prevent my giving an erroneous opinion respecting her case ; he agreed with me that it was certainly the small-pox ; and that this instance must be added to the few others which have occurred of the variolous infection taking place subsequent to complete vaccination."

In the same Number, (p. 23.) four cases of small-pox, after supposed vaccination, are mentioned by Dr. Winterbottom, as having occurred to a Mr. G. surgeon of South Shields, one of

which terminated fatally on the eleventh day. "When informed of these unfortunate cases," says Dr. W., "I visited the patients to be convinced of the truth of the report, and applied to the gentleman, (Mr. G.) himself; but he had forgotten the circumstance respecting them, further than that he supposed they had passed regularly through the inoculation, as his other patients had done, and particularly his own child, which he had afterwards submitted to the test of variolous inoculation without effect."

In a paper on inoculation by Mr. Dunning, in the same Number of the Journal, (p. 53.) we find three cases recorded of small-pox after vaccination which had been communicated to him by different practitioners. The first is by Mr. Magin, surgeon of the Royal Marine Infirmary. The interval in this case, between the time of vaccination, which is said to have been genuine, was about two and a half years. The small-pox were of an irregular appearance, and matured by the fifth day. The second case, which was communicated by Mr. Little, occurred in a child whom he had vaccinated about five years before, and who, though she had frequently resisted the contagion of small-pox, caught the disease upon being exposed to a highly variolated atmosphere. In the third case, which was communicated by Mr. Smith, the small-pox which followed vaccination at the distance of four years, were mild.

"I felt justified," says Mr. S. "in declaring it as my opinion, that they were *peculiarly affected by the previous vaccine inoculation.*"

In the Number for August of this Journal, Mr. Ring has given a description and delineation of a case of confluent chicken-pox, which occurred in a boy about four years of age, some time after he had been vaccinated. "When the chicken-pox broke out," says Mr. R. "in so formidable a manner, it was mistaken for the small-pox. On this account I was informed of the case. His mother told me, that when this eruption first appeared, he was scarcely recovered from the measles; and she was of opinion that the chicken-pox succeeded in every place where the measles had before appeared." In the same paper this practitioner mentions two other cases of small-pox which had occurred in patients vaccinated by himself.

In the Number for October of the same year, two cases are related by Mr. Dunning, in one of which small-pox of a severe kind occurred in a child whom he had vaccinated about eighteen months before. In the other the small-pox were very mild, few in number, and matured in five days. In this case Mr. D. suspected that the vaccination had been imperfect, as the child had torn the vaccine vesicle on the seventh or eighth day.

In the Number for November, Mr. Ring has mentioned other three cases of small-pox after

vaccination ; the two first of which occurred in his own practice, and the last in that of Dr. Nelson. " I am now inclined to believe," says Mr. Ring, " that these, and some other well authenticated cases of a similar kind, are to be ascribed to the greater susceptibility of small-pox in some habits than in others ; and not to any other disease with which the patient was affected, nor to the exhaustion (of the vaccine vesicle) of the arm."

Mr. HALL, of Clement's Inn, in the Number for November of the same year, mentions two cases which were supposed to be small-pox, on account of their occurring at the time that disease prevailed in the neighbourhood, in children, one of whom only had been vaccinated. In both the eruption was extremely copious, but more confluent in the unvaccinated than in the vaccinated. " In both cases," says Mr. Hall, " the pustules so exactly resembled small-pox, in form, figure, and other circumstances, that, had we founded our opinion on the external character alone, we should most unquestionably have deemed them both cases of genuine small-pox ; but as they neither went through the regular course, nor were attended with any of those symptoms which uniformly accompany violent cases of small-pox, we did not hesitate to consider them as cases of confluent varicella."

In the Number for December, Mr. DREW has related the case of a child, who, upon exposure

to the contagion of small-pox, twelve months after vaccination, was seized with fever to a high degree, followed by small-pox of the distinct kind.

The Editors of the Edinburgh Medical and Surgical Journal, in an article on the antivariolous power and progress of vaccination, inserted in their first volume, p. 248, justly observe, "It is undoubtedly to be regretted, that small-pox should have occurred, even in a single instance, in which vaccination seemed to have taken full and complete effect. But, since the cow-pock, or at least apparently perfect cow-pock, is not an universal preventive of small-pox, we are decidedly of opinion, that that inconsiderate zeal which will not permit itself to be convinced, but continues to be deceived and to deceive others, is fraught with infinitely greater dangers than any which could have arisen from false or unnecessary alarms. The community is therefore under obligations of the strongest kind to those gentlemen, who, in defiance of popular odium, illiberality, and prejudice, have dared to disclose an unpleasant truth, and have endeavoured, by experimental investigation, to ascertain how far our confidence in the antivariolous powers of vaccination are to be limited; what are the circumstances which counteract these powers; and by what criterion we may be enabled to judge, if vaccination has afforded a permanent security against small-pox."

The following are further extracts from the Minutes of the Vaccine Pock Institution ; (see Medical and Chirurgical Review, vol. xi. p. 103, *et seq.* and vol. xii. p. 15, *et seq.*)—*Feb.* 1, 1805. Dr. Pearson communicated a case of small-pox after cow-pock. It was in a child of the name of Gould, who had been vaccinated at the small-pox hospital, and was supposed to have gone through the disease regularly. A superficial scar was visible on the arm. “ Another child was vaccinated at the same time, in whom a deep scar was left in each arm ; but the mother said that both children, as far as she could observe, were alike affected with cow-pock, and that matter from each of them was taken at the hospital.” The eruption in the former child was distinct, not numerous, and equally dispersed over the body.—*Feb.* 12. “ Dr. Pearson communicated, that the second child of Gould, mentioned above, had been seized with an eruption, after several days previous ailment, which, at the time he saw it, appeared to be in number on different parts about one hundred. They had most of them red bases, were rather of a conical form, and about the usual size of chicken-pox.” “ The patient had, according to Dr. Pearson’s desire, slept in the same bed, and associated with her sister while ill of the eruptive disorder, as related in the former minute. The parents were requested to bring the children to the *Institution* at the next meeting, for the satisfaction of the committee.”—*Feb.* 15, Mrs. Gould

attended with her children this day. The pimples on the child mentioned in last minute are "red, irregular figured, with scarcely any scab upon them. Nor does it appear that any of them have been in a state of pustule. They appear to be too small to have ever been small-pox, and resemble chicken-pox; but the mother insists that the child has already gone through chicken-pox since the cow-pock."—*May 14.* Dr. Pearson reported that he had visited a child of Mr. Parker, which was rumoured to have had the small pox after cow-pock, and was published by Dr. Moseley as an adverse case. "The child was inoculated for the small-pox; a pimple arose; and though the child did not appear to be ill, a pimple broke out on another part of the inoculated arm, and two or three upon the face."—(*Same date.*) "Mr. Humby, a governor of the Institution, communicated that he had visited a child of Mr. Bryan, a grocer, it being asserted to be a case of natural small-pox after cow-pock. Mr. Humby was of opinion that the eruption in this case was not the small-pox, but most likely the chicken-pox."—"Mrs. Bryan insisted that the child had already gone through the chicken-pox along with her sisters some time before, and it was also declared that she had had the chicken-pox by Mr. Richardson, who attended the children at the time. It may be curious to observe, that a list of professional gentlemen was handed to Dr. Pearson, containing their opinions of the

case. As far as he recollects, there were about five who declared for its being chicken-pox, one for swine-pox, and three or four for small-pox ; among whom were Mr. Richardson, who attended the child, and Dr. Moseley. One gentleman was so cautious as to write his name, but gave no opinion."—*May 21*. At the request of Dr. Moseley, Dr. Pearson visited a child who was said to be ill of the small-pox, and who had been vaccinated fifteen months before. Dr. Pearson had no doubt of its being small-pox. Others (Mr. Griffiths and Dr. Willan) supposed it to be chicken-pox. "The woman herself insisted that the present eruption was not the chicken-pox, which she said had watery heads, and would die away before the sixth day into scabs. She did not know that the child had gone through the chicken-pox, but the small-pox had been in the neighbourhood, two children lying dead of it, and also two others expected to die."—*May 27*. Dr. Clutterbuck communicated the case of a child who had been vaccinated, and who was then labouring under small-pox, "so numerous and decidedly characterized, as to admit of no doubt."—*June 10*. Dr. Pearson visited a vaccinated child "who had an eruption upon it not unlike chicken-pox in a scabbing state ; but Dr. Pearson was told they had lasted about a week, and kept coming out at different times for a week before. From the jealousy of the neighbourhood, this was by some called a case of small-

pox, which it certainly was not. *Query*, Was it a variety of chicken-pox, or some undescribed eruption ?"—*June* 18. Dr. Pearson reported, that a child who had been inoculated at the Jennerian Institution two years previously, had an eruption "not unlike the small-pox, but much smaller and harder than usual." The eruptive fever continued three days ; the eruption began to scab on the eighth. *Query*, "Is this to be considered as a variety of small-pox, or of chicken-pox, or of some non-descript eruption ? All that can be said at present is, that it differs less from small-pox than any other disease." Matter taken from this patient produced regular small-pox in an unvaccinated child.—*July*. One of the physicians communicated that he and Mr. Thomas visited a vaccinated child, then in the seventh day of the eruption of small-pox.—*August* 6. "Dr. Pearson communicated a supposed case of small-pox after cow-pock. The child had been vaccinated about three years before by Mr. Barnett." "About a fortnight ago the small-pox broke out in this patient, of the distinct kind, but of shorter duration than usual."—*September* 10. Sophia Lee, who had been vaccinated three years before by Mr. Ring, attended at the Institution on the 16th day of August, with an eruption, which turned out to be the distinct well characterized small-pox. It was what the people commonly call a seven day pock.—*September* 17. James M'Pherson, vacci-

nated at the Institution in May 1803, suffered an eruption, which, "on the whole, had the appearances of the most benignant kind of small-pox, to the infection of which the child had been lately particularly exposed."—*October 8.*

"Dr. Pearson communicated the case of a child who had been vaccinated about eighteen months previously at the Institution, and was then unequivocally ill of the casual small-pox."

At a general quarterly meeting of this Institution, held November the 5th, 1805, it was *inter alia* resolved, "That, in future, every patient who shall be vaccinated at this Institution, on discharge, shall receive a certificate, stating, that such patient has gone through the cow-pock, and engaging, that if hereafter the said patient shall take the small-pox, he or she shall be entitled to the sum of L.5, 5s. to be paid from the funds of this Institution, at the first general court, after the proofs have been given, according to the rules of the medical establishment."

November 12. Mr. Marshall, a governor of the Institution, communicated the case of a child who had been vaccinated about three and a half years previously by Mr. Ring, and who, he conceived, had passed subsequently through small-pox. "Dr. Langslow was strongly of opinion that it was a case of true Variola Discreta, and Dr. Pearson, who did not positively pronounce it to be the small-pox, thought that it resembled small-pox so strongly that he con-

ceived nine practitioners out of ten would consider it as such."—(*Same date.*) "Dr. Pearson communicated the case of a girl 14 years of age who had been vaccinated by her grandmother three and a half years previously, and who has now a pretty numerous eruption, which seems to be clearly that of small-pox of the distinct benignant kind."—*November 26.* It was stated that the daughter of Mr. T. of Leicester Place, who had been vaccinated five years before, with the effect, as was supposed, of due vaccination, had taken the small-pox by inoculation. On the ninth day she fevered, and an eruption of seven pimples appeared, three or four of which only contained fluid, and that merely lymph.

In January 1806, the Committee of the Medical Council of the Royal Jennerian Society, appointed in August 1805 to inquire into the nature and evidence of those cases of small-pox which were said to have taken place subsequently to cow-pox, and which had excited prejudices against vaccine inoculation, gave in a report consisting of no fewer than twenty-two distinct propositions, in which they stated, *9th*, "That it is admitted by the committee that a few cases have been brought before them, of persons having the small-pox, who had apparently passed through the cow-pox in a regular way; *10th*, That cases, supported by evidence equally strong, have been also brought before them, of persons who, after having once regularly passed through

the small-pox, either by inoculation or natural infection, have had that disease a second time; and, 11th, That in many cases in which the small-pox has occurred a second time, after inoculation or the natural disease, such recurrence has been particularly severe, and often fatal; whereas, when it has appeared to occur after vaccination, the disease has generally been so mild as to lose some of its characteristic marks, and even sometimes to render its existence doubtful."

In the 12th volume of the Med. and Chir. Review, p. cxx. a case of small-pox is mentioned, produced by inoculation in a child three years after it had gone through the process of vaccination to the satisfaction of Mr. Eames, who vaccinated it, and who himself relates the circumstance of the small-pox affection.

At p. clxvi. of the same volume the history of a case of "irregular small-pox after vaccination" is related by Mr. Brettell of Bungay. The vaccination had been regular, and the small-pox, which were produced by inoculation, consisted "of two or three pustules upon the chest, which remained three or four days, going off like the chicken-pox."

A case of small-pox after vaccination is mentioned by Messrs. Scott and Taynton, surgeons at Bromley, Kent, in the number of the Med. and Phys. Journal for March 1806. The child had been vaccinated in March 1800; "the arm rose,

and the pustule went through the regular stages ; but the surrounding efflorescence was less than usual. Early in January last this child was attacked with fever, which was followed by a considerable eruption. The pustules were in general smaller than they are in the natural small-pox, but some of them lost the variolous character. In fact, there could be no doubt of the eruption being variolous, as the child's brother, who never had been vaccinated, died at the same time of the confluent small-pox."

Of a case conceived to have been small-pox after vaccination, and recorded in the Bath Journal of the 19th August 1805, Dr. Parry of that city remarks, (Med. and Phys. Journal, June 1806,) "On the whole, I have little doubt that this boy's complaint was the chicken-pox, which has been at all periods with difficulty distinguished from the small-pox by wiser men than Mr. Edward, (who believed it to be variolous,) and is often preceded by violent fever, and followed by at least as deep pits as the confluent small-pox."

Mr. Moore, in his "Reply to the Anti-vaccinists," published in 1806, says, (p. 58.) "although in some hundred thousand instances it (vaccination) has proved a complete preventive of small-pox, there are a very few cases where a slight variolous affection appears to have been excited by a strong application of contagion. I shall mention one I saw in North Row, Oxford Street, where the confluent small-pox raged at that

time and destroyed several children, owing to one or two having been inoculated in the neighbourhood. The vaccinated child had two brothers severely affected with the small-pox. They lived with their parents in a small close room, and the children slept together. This vaccinated child was therefore enveloped with variolous effluvia, and the matter from the numerous pustules of his brothers must have been applied to his skin. The effect of this powerful application of variolous poison was a febrile attack, followed by a slight eruption of small pustules which dried up on the fourth and fifth day." "Inoculation," he further remarks, "in some very rare instances, has had an effect of a similar kind," and he then mentions the case of a child who, upon being inoculated after vaccination, fevered at the usual period, and six or eight very small pustules broke out on the body, and dried away in three or four days. "In this case," he adds, "there was unquestionably a slight variolous affection of the same mild kind which I have described as occurring after true small-pox; and I think it highly probable that this child gained nothing by the second inoculation, and might be affected in a similar manner, if she was again exposed to a powerful variolous contagion."

In July 1806 the learned and acute Dr. Willan published his "Treatise on Vaccine Inoculation," containing an accurate and compre-

hensive analysis of the principal facts which had been ascertained with regard to the effects of that practice. In his 4th chapter, which treats of variolous eruptions subsequent to vaccination, Dr. Willan remarks, "Several cases of variolous eruption have occurred at different periods after vaccination, in London and some other places. The practitioners who observed them have generally reported that the disease was mild, and so modified as to exhibit an ambiguous appearance. The nature and extent of this modification of small-pox, however, should be fully understood." "It coincides," he says, "with the disease produced, when the vaccine and variolous matter, being inoculated nearly together, restrain the operation of each other on the skin, or when a person exposed to variolous contagion, has been inoculated with variolous lymph, early enough to mitigate the eruption of the small-pox, but not wholly to supersede it." He then relates the histories of nine cases of this eruption which he had seen occur in children at different periods after vaccination. "I have seen," he observes, (p. 60.) "many other instances of variolous eruption after vaccination, but as they resembled those above stated, it is unnecessary that I should particularly mention them. On examining the accounts of other writers on the same subject, I find their observations nearly correspond with my own." In illustration of this statement, besides referring

to the cases which are related in the London Medical and Physical Journal, to those of Mr. Goldson and of other authors, Dr. Willan has inserted into the 3d, 4th, 8th, 13th, and 14th Numbers of the Appendix to his Treatise, a variety of communications from respectable practitioners in different parts of England, containing an account of several cases of variolous eruptions which they had had occasion to observe in individuals who had passed through regular cow-pock inoculation. In one of the cases mentioned in the Appendix, (Mr. Kendrick's,) the vaccinated child had been inoculated with variolous matter without effect, but caught afterwards the infection on being exposed to the contagion of small-pox, when they raged with great violence. In another case, a difference of opinion with respect to the nature of the eruption existed among the medical men who saw it. Some asserted positively that it was small-pox, and others, among whom was Dr. Salmon, who relates the case, were equally positive that it was chicken-pox. "With a view to decide the question, matter was taken from the child, and inserted into the arms of three children who had never had small-pox or cow-pox," and the eruption in each "in every respect followed the course of the original disease." These children were frequently visited by all the surgeons in the town (Reading) except one, and they were

unanimous in their opinion that the disease was not small-pox, but chicken-pox. A second experiment was tried, which consisted in inoculating the three children with active variolous matter, and this experiment failing, Dr. Salmon informs us that the result had affected the minds of some with a degree of doubt as to the previous disease, "but my opinion," he adds, "remains unshaken."

Dr. Willan remarks, (p. 69.) "The effects produced by inoculating, with variolous matter, certain persons who have been vaccinated a considerable time before, are not less deserving of attention than the effects of variolous contagion in the cases above recorded. The most frequent result of variolous inoculation, is a small pustule not attended with disorder of the constitution; but some of the following circumstances and appearances take place after it in particular constitutions. 1. A pustule, having in some cases a diffuse inflammation or efflorescence around it. 2. Slight febrile symptoms, such as a pulse somewhat accelerated, a whitish fur on the tongue, languor and heaviness, but without any eruption. 3. A red efflorescence on the skin, which continues for a day or two. 4. Febrile symptoms for two days, attended with an eruption of some hard minute pustules, which usually disappear in three days. These circumstances and appearances have been repeatedly announced as proofs of the occurrence of small-pox after vac-

cination ; but such inferences against the new practice are not correctly made, nor can they have much weight, because we find that similar symptoms take place after the small-pox, in persons who have been inoculated with variolous matter, especially in children of an irritable constitution, who have a delicate skin."

" I shall perhaps be asked," says Dr. Willan, (p. 73,) " whether I think that the variolous eruptions, in all the cases adduced above, were the consequences of imperfect vaccination?"

" I have had reason, on minute inquiry, to conclude that, in a very great majority of the cases which appeared near London, the vaccination was imperfect." " But can it be denied, (p. 75.) that a vaccine vesicle of the most perfect form, after proceeding through the usual stages, has, in some persons, failed to remove the susceptibility of variolous contagion? I have already given my own experience on this head. If such failures do occur, they must occur in a very small proportion ; and I am convinced that the subjects of them will not be found liable to take the small-pox in the same manner and form as before the vaccination."

Dr. Willan observes, (p. 86.) " Since the beginning of the year 1800, I have seen seventy-four cases of the varicella or chicken-pox, which were by many persons deemed cases of small-pox after vaccination. I must observe, on the other hand, that the eruptive diseases after vaccina-

tion, which proved, on inoculation, to be varicellous, were at first thought by several physicians and surgeons to have been the chicken-pox. As the characteristics of varicella, therefore, seem not fully impressed on the minds of medical practitioners, I will endeavour to describe its appearances.

“ There are three varieties of the varicella, which, from the different forms of the vesicles, may be entitled the lenticular, conoidal, and globate.

“ 1. The lenticular varicella exhibits, on the first day of eruption, small red protuberances, not exactly circular, and having a flat shining surface, in the centre of which a minute vesicle is formed. This on the second day is filled with a whitish lymph, and it then somewhat resembles a miliary vesicle, but is not so prominent, so tense, or so regularly circumscribed; its diameter is about the tenth of an inch. On the third day the extent of the vesicles continues the same, but the lymph they contain becomes straw-coloured. On the fourth day many of the vesicles are broken at the most prominent part; the rest begin to shrink, and are puckered at their edges. Few of them remain entire on the fifth day, but the orifices of several broken vesicles are closed, or adhere to the skin, so as to confine a little opaque lymph within the puckered margins. On the sixth day, small thin brown scabs appear universally in place of the

vesicles. The scabs on the seventh and eighth days become yellowish, and gradually dry from the circumference towards the centre. On the ninth and tenth days they fall off, leaving, for a time, red marks on the skin, without depression. The eruption is generally first observed on the breast and back, and afterwards on the face and extremities. As fresh vesicles arise during two or three successive days, and go through the same stages as the first, the duration of the disease is sometimes longer than I have stated above.

“ 2. In the conoidal varicella, the vesicles rise suddenly, and have a hard inflamed border. They are, on the first day of their appearance, acuminate, and contain a bright transparent lymph. On the second day they appear somewhat more tinged, and are surrounded by more extensive inflammation than on the preceding day; the lymph contained in many of them is of a light straw-colour. On the third day the vesicles are shrivelled; those which have been broken exhibit at the top slight gummy scabs, formed by a concretion of the exuding lymph. Some of the shrivelled vesicles which remain entire, but have much inflammation round them, evidently contain on this day purulent fluid. Every vesicle of this kind leaves, after scabbing, a durable cicatrix or pit. On the fourth day, thin dark brown scabs appear intermixed with others, which are rounded, yellowish, and semitranspa-

rent. These scabs gradually dry, and separate, and fall off in four or five days. A fresh eruption of vesicles usually takes place on the second and third day; and as each set has a similar course, the whole duration of the eruptive stage in this species of varicella is six days; the last formed scabs, therefore, are not separated till the eleventh or twelfth day.

“3. In the swine-pox or hives, the vesicles are large and globated, but their base is not exactly circular. There is an inflammation round them, and they contain a transparent lymph, which, on the second day of eruption, resembles milk whey. On the third day the vesicles subside, and, as in the two former species, become puckered or shrivelled. They likewise appear yellowish, a small quantity of pus being mixed with the lymph. Some of them remain in the same state till the following morning, but, before the conclusion of the fourth day, the cuticle separates, and thin blackish scabs cover the bases of the vesicles. The scabs dry and fall off in four or five days. The eruption is usually completed in three days, but I have sometimes observed a few fresh vesicles on the fourth day; in which case, therefore, the eruptive stage occupied eight days.”

Dr. Willan, in addition to the diagnostic marks of chicken-pox given by Dr. Heberden, observes, (p. 95.) “that variolous pustules, on the first and second day of their eruption, are small, hard,

globular, red, and painful. The sensation of them to the touch, on passing the finger over them, is similar to that which one might conceive would be excited by the pressure of small round seeds under the cuticle. In the varicella almost every vesicle has, on the first day, a hard inflamed margin; but the sensation communicated to the finger, in this case, is like that from a round seed flattened by pressure."

"The globated vesicles (p. 96.) not having any resemblance to variolous pustules, distinguish the varicella from the small-pox, whenever they appear; for it is to be remembered that these large vesicles are occasionally intermixed both with the lenticular and conoidal vesicles of the chicken-pox. It may be said, that an acknowledged *co-existence* of different sets of vesicles in the same person tends to abrogate the distinctions I have made. The vesicles, however, are in many cases all of the same kind, or, where they are intermixed, one sort greatly predominates. I do not contend for the perfect accuracy of nosological arrangement, but I adopt it because it is in many respects convenient."

By these extracts, it appears that the possibility of the occurrence of small-pox after vaccination, the important fact of their being modified by that process, so as to be deprived of their malignity and danger, and the great similarity which exists between the appearances of small-pox modified by vaccination, and the eruptions

which had been denominated chicken-pox, are points distinctly admitted by Dr. Willan; and it is curious to remark that though many practitioners may have dissented from his conclusions, such was the opinion entertained in this country of his accuracy, intelligence, and candour, that no one ventured to oppose them, or call in question his authority, all concurring by tacit consent, in a tribute so deservedly due to his labours and talents.

At a meeting of the Board of the Vaccine Pock Institution, held 15th July, 1806, it was unanimously resolved "That it does appear on adequate evidence that persons who have gone through the cow-pock, in the manner commonly believed to give security, have in the proportion of one in a thousand subsequently taken the small-pox, according to the experience of this institution, up to the present time."

The Royal College of Physicians of London, in a Report on Vaccination, presented to the House of Commons in 1807, state that "The security derived from vaccination against the small-pox, if not absolutely perfect, is as nearly so as can perhaps be expected from any human discovery; for amongst several hundred thousand cases, with the results of which the College have been made acquainted, the number of alleged failures have been surprisingly small, so much so, as to form no reasonable objection to

the general adoption of vaccination ; for it appears that there is not nearly so many failures in a given number of vaccinated persons, as there are deaths in an equal number of persons inoculated for the small pox. Nothing can more clearly demonstrate the superiority of vaccination over the inoculation of the small-pox, than this consideration ; and it is a most important fact, which has been confirmed in the course of this inquiry, that in almost every case where the small-pox has succeeded vaccination, whether by inoculation, or by casual infection, the disease has varied much from its ordinary course ; it has neither been with the same violence, nor in the duration of its symptoms, but has, with very few exceptions, been remarkably mild, as if the small-pox had been deprived, by the previous vaccine disease, of its usual malignity."

" The College deemed it their duty, in a particular manner, to inquire upon what grounds and evidence the opposers of vaccination rested their opinions. From personal examination, as well as from their writings, they endeavoured to learn the full extent and weight of these objections. They found them without experience in vaccination, supporting their opinions by hearsay information, and hypothetical reasoning ; and upon investigating the facts which they advanced, they found them to be either misapprehended, or misrepresented ; or that they fell under the description of cases of imperfect small-

pox, which the college have endeavoured fairly to appreciate."

From a Report on Vaccination of the Royal College of Surgeons of London, dated 1807, we learn that the College, with the view of ascertaining as completely as possible the state of vaccination in the United Kingdom, had directed circular letters to be sent to all the members of the College, requesting information with respect to the number of vaccinations which had been performed, and the number of cases in which small-pox had followed vaccination. "To such letters the Board received 426 answers, and the following are the results of their investigation. The number of persons stated to have been vaccinated, is 164,381. The number of cases in which small-pox had followed vaccination is 56. The Board think it proper to remark, under this head, that in the enumeration of cases in which small-pox has succeeded vaccination, they have included none but those in which the subject was vaccinated by Surgeons reporting the fact."

In the same year, a report on vaccination was drawn up by a Committee of the King's and Queen's College of Physicians in Ireland, in which the Committee give it as their opinion, "that the practice of cow-pox inoculation is safe, and that it fully answers all the purposes that have been intended by its introduction. At the same time, your Committee is willing to allow that doubtful cases have been reported to

them as having occurred of persons suffering from small-pox, who had been previously vaccinated. Upon minute investigation, however, it has been found that these supposed instances originated generally in error, misrepresentation, or the difficulty of discriminating between small-pox and other eruptions ; no case having come to the knowledge of your Committee, duly authenticated by respectable and competent judges of genuine small-pox, succeeding the regular vaccine disease."

The Royal College of Surgeons of Ireland also appointed a Committee, in the same year, to report upon the state of vaccination. In their report, the Committee state that it is their opinion " That the cow-pox has been found to be a mild disease, and rarely attended with danger, or any alarming symptom ; and that the few cases of small-pox which have occurred in this country, after supposed vaccination, have been satisfactorily proved to have arisen from accidental circumstances, and cannot be attributed to the want of efficacy in the genuine vaccine infection as a preventive of small-pox."

In the Report of the Dublin Cow-pock Institution for 1807, the directors state, " that no case has occurred to them of small-pox succeeding perfect vaccination. They have additional satisfaction in observing, that the accounts of failure are less numerous within the last year than formerly. A few cases have been men-

tioned where small-pox attacked children who had been vaccinated at the institution ; there was no certainty, however, of their having regularly gone through the cow-pock, as they did not attend at the proper periods after being inoculated."

From the time of the publication of Dr. Willan's Treatise to the year 1809, including a period of nearly three years, several additional examples of the occurrence of small-pox, after vaccination, are recorded in our periodical publications. In the Medical and Physical Journal, vol. xvii. p. 233, a case is related by Mr. Millington, at p. 367, one by Mr. Hugo of Crediton, and a third by Mr. Golding at p. 514. In the 20th vol. p. 61, three cases are related by Mr. Key ; one at p. 257, by Mr. Hardy ; and at p. 363, Messrs. Staines and Everingham give an account of a general inoculation which was performed at Wareham about the beginning of June 1808. "Of 81 individuals previously inoculated for cow-pox, 46 were inoculated for small-pox, and of this number 10 had fever and eruption. In one case there was one eruption, in another two, in most of them less than 20 ; and in two cases there were upwards of 100 eruptions, preceded by severe fever : In all these cases the eruptions either did not mature, or matured prematurely, and all were gone in a week."

During the same period, two cases are recorded in the Edinburgh Medical and Surgical Journal. One in the 2d vol. p. 436, by Mr. Johnston

of this place, and another in the 3d vol. p. 157, by Mr. John Burns of Glasgow.

In 1809, Mr. Brown, Surgeon at Musselburgh, published an "Inquiry into the Antivariolous power of Vaccination," in which he relates the histories of 42 cases of varioloid eruptions that had occurred to his observation in individuals who appeared to have passed through the process of vaccination in a regular and satisfactory manner. This author gives an account also of the cases of twelve individuals whom he inoculated with the matter of small-pox, sometime after they had had the regular cow-pox; in two of these instances only was any general eruption produced. "These cases," says Mr. Brown, "*afford the most convincing proofs of the antivariolous power of vaccination being at best temporary,*" and "will be found to warrant the following conclusions, 1. That the antivariolous influence directly after vaccination is to be considered as *nearly* perfect. 2. That in proportion to the distance from the period of vaccination the antivariolous power is *proportionally* diminished. 3. That about *three* years after vaccination, the constitutional influence is so much diminished, as readily to allow the operation of the variolous contagion, but still exerting a considerable effect in mitigating the disease. 4. That at the distance of *five* or *six* years from vaccination, the facility is so much increased, as hardly to impart *any* security, and so much diminished in its powers of *mitigating* the

disease, that, at this period, the cases very *nearly* approach to the most common form of the distinct disease ; and, 5th, That the eruptive fever, and all the other peculiarities of small-pox, increase in severity, and assume the characteristic phenomena, according to the *foregoing* rule, so as to approach to the natural disease." These conclusions of Mr. Brown's, deduced from his observations with so great an appearance of mathematical precision, having excited in this part of the island some doubts with regard to the permanency of the security afforded by vaccination, it was unanimously agreed at a quarterly meeting of the managers of the Public Dispensary and Vaccine Institution of Edinburgh, held 4th August, 1809, "to request the surgeons of the vaccine institution to report their opinion of that (Mr. Brown's) publication, and to state the facts which have occurred in their experience tending to confirm or refute Mr. Brown's doctrine ;" and accordingly, on the 25th of the same month, the surgeons presented their report, which was directed to be published.

The reporters state, (p. 17.) that the mother of Mr. Brown's 11th and 12th cases assured them that "the eruption on two of her children had the appearance of blisters, filled with a watery fluid which began to dry up, and to form scabs about the 5th day ; and were perfectly different from the *small-pox*, with which two of her children who had not been vaccinated were affected

about the same time." "The small-pox," says Mr. Brown, p. 163. "were then raging in the village, and had carried off three or four children."

Of Mr. Brown's 13th case, the reporters remark, p. 18. "that the eruption was exactly similar to that on Ellison Baux," (11th case.) Mr. Brown says, (p. 163.) in the family in which this case occurred, "I found five children in all had the small-pox. Only one of this number had been vaccinated; she had a very considerable number of small-pox, which went through the regular course of the disease, and now has left a great number of pits."

Of Mr. Brown's 14th case, the reporters say, (p. 18.) "that the patient had an eruption of watery vesicles or blisters, which began to scab on the third day; this child, and about 20 others, had been vaccinated at the same time by Mr. Gillespie, and none of the others had any eruptive disease." Mr. Brown says, (p. 161.) "that this case occurred in the *"same village,"* (as cases 11th and 12th,) and that the patient "had three distinct convulsions; and in about the end of two days, extreme sickness and distress, a rash made its appearance, followed by a few pustules which kept out three or four days."

"In case 15th," say the reporters, (p. 18.) "an eruption occurred similar to that in the above cases, which was declared by a medical person, who saw it at the time, to be *chicken-pox.*" Mr. Brown says, (p. 165,) "the sickness in this case, after continuing about two or three

days, was succeeded by an eruption to the extent of one or two hundred—they did not decay until the 5th day.” “The small-pox were very prevalent in the village. Mr. Stevenson, who saw the child, “said he thought it was the chicken-pox; they were not, however, known nor heard of in the village at the time.”

“The mothers,” say the reporters, p. 20, “in describing the eruption on such of the children as had been *vaccinated*, uniformly mentioned it as similar to the *nirles*, or chicken-pox, and quite different from small-pox, which was at that time frequent and *fatal* in the village. Mr. Brown’s only argument to prove these cases to have been small-pox, is, that there was no chicken-pox raging in the neighbourhood. *We* (the reporters) however insist, that many of these very cases were chicken-pox; and, besides, Dr. Farquharson and Mr. Gillespie attended many cases of chicken-pox, both in children who had been *vaccinated*, and in *others who had passed through the small-pox* in that neighbourhood, at the time when this disease was prevalent in Easter Duddingston; and lest Mr. Brown should contend that his cases were cases of small-pox, modified by previous vaccination, the following case puts the matter beyond a doubt, as the child never had been vaccinated. Gilbert Mill, aged 10 months, living in Easter Duddingston, and who had neither been vaccinated nor had small-pox, was affected about the same time with the chil-

dren above mentioned, with an eruption of watery vesicles, resembling those on Ellison and Thomas Baux, which had decayed and were dried up by the fifth day." Of this case Mr. Brown says, in page 69. of his "Reply to the Reporters," that "the eruption came out on the Saturday, and continued to mature until the Friday following, and which the mother supposed to be small-pox."

In speaking of the remainder of Mr. Brown's cases, which the reporters admit they had had no opportunity of investigating, they remark, (p. 22.) "that the distinctive character of small-pox is, that the pustules do not attain their full size till the *eighth* day, then begin to turn, and are converted into scabs by the 11th or 12th. Chicken-pox forms more rapidly, consists during the first and second days of watery vesicles, which sometimes burst when in that state; but the *more perfect form* of it, as described by Willan, go on to maturation, contain thick yellow matter, and do not decay till the sixth day. The eruption is often preceded by a smart fever for two or three days, sometimes by convulsions, and frequently leaves *pits* in the skin, smaller than those of small-pox, but which continue for life." Mr. Brown (p. 223,) says, "With regard to confounding them with chicken-pox, I apprehend that no practitioner of moderate experience can possibly, at any time, commit the mistake. The chicken-pox vesicle, at all times, differs in so

striking a manner from the small-pox pustule, that with the least attention they may be readily distinguished. In less than twenty-four hours from the first appearance of the eruption, they acquire the appearance of a vesicle having a perfect resemblance to any blister produced by scalding or cantharides, and in about twenty-four hours more, either burst or rapidly mature, and present in their decay the appearance of a small pointed scab, attended with a diffused redness, and slight turgescence of the surrounding parts; nor even, upon their first appearance, are they attended with the *elevation* of the surface which attends the small-pox pustule, do not give the same *hard feel* under the finger, and are uniformly destitute of the *depression* in the centre. "But here," he adds, "we are not left to depend entirely upon the difference in the eruption, we have, over and above, the most decisive testimony. Small-pox were epidemic in every direction, and even existed under the same roof, with the most characteristic phenomena; none of the children in the family affected but those who had been vaccinated, and neither chicken-pox nor any other eruptive disease was known in the whole neighbourhood."

Upon these distinctive characters of chicken-pox, as delivered by Mr. Brown, the author of the Review of his Inquiry, in the 5th volume of Edin. Med. and Surgical Journal, remarks,

(p. 474.) "That the diagnosis between chicken-pox and small-pox, is by no means so easy as Mr. Brown has chosen to represent it. Were we to admit no case to be small-pox, except those which accorded exactly with the definitions of it in systematic writers, we should reject not only, as we certainly do, Mr. Brown's cases of pimples of two or three days standing, of rash, of sickness without any eruption, and of sneezing, but every case in which the eruptions did not subsist seven or eight days, and mature completely; and on the other hand, some kinds of chicken-pox, so far from always resembling little blisters, and bursting in twenty four hours, subsist for several days, become purulent, and leave a pit behind them. When to this we add, that in most cases of chicken-pox, successive crops of eruption take place for several days, it is evident how little we can trust to Mr. B.'s diagnosis, who will allow no eruption to be chicken-pox which subsists longer than twenty-four hours, and who will have every thing to be small-pox which is not this ephemeral chicken-pox."

In the Appendix (No. viii.) of his "Reply to the Surgeons of the Vaccine Institution," in answer to the following query by Dr. Duncan sen. "Have you found that any of the children which you vaccinated, prior to the 1st of January 1805, have been subjected to natural small-pox; and if so, what number?" Mr. Brown remarks, "Besides the cases of my own, which I have

published, as connected with the period you mention, and which occurred within these last twelve months, I have to add about ten, which happened during the same period, and about fifteen more, which I saw some years before, but which I always endeavoured to explain or defeat, from the trifling and uncharacteristic appearance of the eruption, but which, I am now perfectly convinced, are to be considered as cases arising from the variolous influence, however modified they may be, and which, in all, may therefore amount to about 40." Mr. Brown, in the 17th, 18th, 19th, and 24th numbers of the Appendix, mentions twenty-two cases of variolous eruptions, after vaccination, as having occurred in the practice of four of his correspondents. Two of these are related by Mr. Johnston of Dunbar. Four, two of which were the consequence of variolous inoculation by Mr. Turnbull, of the same place. Ten, four of which were produced by inoculation by Dr. Wightman, also of Dunbar. "No doubt," says Dr. W. "many of these cases *might have been explained away*, but from the appearance of the pustules, the symptoms of the eruptive fever, and from the small-pox being epidemic in their immediate neighbourhood, I never entertained a doubt of their being real small-pox, though modified and mitigated in consequence of the previous vaccination." The remaining six cases, one of which it is said proved fatal, are mentioned by Mr. Johnston of Lauder.

The National Vaccine Establishment, from its institution in 1808, has presented annually a report of the progress of vaccination in this country, to the Honourable the Secretary of State for the Home Department. A few extracts from these reports will put you in possession of the amount of the information they contain, respecting the varioloid eruptions which occur after vaccination. In their 1st report, dated May, 1809, the Board inform us, that they "have paid diligent attention to the investigation of such *anomalous* cases as have fallen under their notice, and have kept an exact register of every circumstance as it has occurred, by which they hope to render more perfect the knowledge of the subject, and to secure the public from errors and misrepresentations." In a subsequent report, dated January, 1810, they remark, that they "have thought it their duty to continue the investigation of the few *anomalous* cases which have fallen under their notice; the result of this investigation does not appear to them to afford any solid objection to the practice of vaccination; and on a due consideration of the whole body of evidence submitted to them on the subject, the board have the satisfaction to state, that they are still impressed with a full conviction of the importance of the discovery, and can recommend with confidence a perseverance in such measures as may lead to its universal adoption."

In the Report of the Dublin Cow-pock Institution, for 1809, it is stated, (Medical and Surgical Journal, volume vi. p. 258,) that, "It now appears by increasing experience, that in *a very few instances*, the vaccine infection will form fairly on the arm, and go through its regular stages without being absorbed into the blood. The same thing has repeatedly happened in inoculating for the small-pox, where no eruptive fever or eruption succeeded the inoculation. In the *three* cases of small-pox which have succeeded vaccination, the disease has been mild, and of short duration."—"The cases of small-pox following cow-pock which have been reported upon any reasonable authority to the institution, do not exceed *six*."

In the 21st vol. of the London Medical and Physical Journal, Mr. Pew of Sherborne, relates the history of a case of casual small-pox occurring five years after vaccination. "The pustules bore so general a resemblance," says Mr. Pew, "to real small-pox, that any one acquainted with the subject, must immediately have acknowledged them to be a *branch* of the *same family*, but he would immediately add, they are *much smaller* and *much less inflamed at the base*, have a *much more milky* appearance, and contain a much smaller quantity of matter than common small-pox usually do; they also seem likely to dry off much sooner, and to leave fewer marks or pits behind them, than is customary with common

small-pox." The eruption in this case, began to dry by the fifth day, and matter taken from it, produced small-pox in three individuals inoculated with it.

Dr. CLARKE, in his Report of the Nottingham Vaccine Institution, (Edin. Med. and Surg. Jour. vol. vi. p. 383,) mentions a case of small-pox which terminated fatally, occurring at a time when that disease was raging with great violence, in an individual who had passed through vaccination in a satisfactory manner.

In the Report of the National Vaccine Establishment for 1810, the Board observe, that, "They have to report, that *no case* of failure has occurred, in any individual vaccinated by the surgeons of the nine stations, since the commencement of this establishment; that the *few* instances of failure, submitted from other quarters to the investigation of this Board in the last year, have been asserted without sufficient proof; that such reports of failure as have been received from the country, have been ascertained to rest upon imperfect evidence. "By a report received from Glasgow, it appears, that of 15,500 persons who had undergone vaccine inoculation in that city, during the last ten years, *no individual* has been known to have been subsequently affected with small-pox." "The Board, guided by the inferences which facts, reported to them from undoubted authority and actual observations have furnished, declare their una-

bated confidence in the preventive power of vaccination, and their satisfaction with the gradual and temperate progress by which the practice is advancing."

In the Report of the Dublin Cow-pock Institution for 1810, the directors remark, that, "In the last report, three cases were recorded, in which the vaccine infection formed fairly on the arm, and appeared to go regularly through its several stages, though the patients were not constitutionally affected. During the year 1810, *one failure* of this kind only has occurred; there appears no good reason for supposing that contingencies of this nature will be more frequent in vaccine, than they have been in variolous inoculation."

At p. 306 of the 25th vol. of the Lond. Med. and Phys. Jour. Mr. Parke of Liverpool remarks, "I can say with truth that only three (children) have yet come to my knowledge, whose mothers say I expressed myself satisfied with their vaccine vesicle, that have since had a disease that might be taken for the small-pox."—"The crops were nearly as copious as could exist, to remain perfectly distinct. They had all the uniformity and purulence of small-pox, but were not so fleshy about the base, being more vesicular, and though so copious, the greater part of them turned on the face by the end of the sixth day, and in turning did not encrust, but burst, and fell flat on the skin." In a subsequent

communication, (p. 308.) Mr. Parke states, "that he has now met with one case, which he is convinced was a failure. The small-pox, though rather plentiful, were as usual so far mitigated, that they turned about the sixth day."

At p. 390. of the same volume, Mr. Barlow relates the history of a case of casual small-pox, which occurred in a child, who eight years before had passed through vaccination regularly and satisfactorily under his own care. "The pustules were pretty numerous and distinct, and gradually filled with matter, which dried away in eight or ten days from the time of their appearance, leaving bluish marks on the cuticle."

At p. 82. of the 26th volume of the same Journal, an account is recorded of the case of the Honourable Robert Grosvenor. "In 1801, this young gentleman was vaccinated by Dr. Jenner. In the month of May last, (1811,) he was attacked with febrile symptoms, succeeded on the third day by an eruption, which had the appearance in its early stage of small-pox. This eruption became confluent, was accompanied with fever and delirium of such violence, as to indicate great danger. On the eighth day the fever subsided, and the eruption took on appearances unusual, if they have ever occurred in confluent variola. At present we can only say, that facts have arisen in the course of this disease, which shew its progress to have

been much influenced, and its character modified, by the previous vaccination."

At p. 177. of the same volume, Mr. TEGART has given an account of the case of Sir Henry Martin's son, whom he had vaccinated in the year 1801, and who caught the small-pox in June 1811. The eruptive fever in this case continued for four days before the small-pox appeared, and for the same number of days after they came out. Neither Mr. TEGART nor Dr. HERDEN, who was called to see the patient, hesitated in pronouncing the disease to be the small-pox; but Mr. Moore, "from the peculiarities attending the case, entertained some doubts on the subject."

In the same volume, (p. 249.) the case of Miss Reynholds, who had been vaccinated ten years before, and took the small-pox in 1811, is related. The genuineness both of the vaccination, and of the subsequent small-pox, are attested by several respectable practitioners.

In the Edinburgh Medical and Surgical Journal, vol. vii. p. 410. Mr. Bryce has related a case of small-pox from inoculation, occurring in a child who had been regularly vaccinated, and who, in the interval, had passed through chicken-pox.

In their Report for 1811, the Board of the National Vaccine Establishment observe, "numerous mis-statements of cases are published of the occurrence of small-pox after

vaccination. That, in *some instances*, the small-pox has affected persons who have been most carefully vaccinated is sufficiently established; nor ought we to be surprised at this, when we consider that the inoculation for the small-pox sometimes fails, and that several cases may be produced, in which persons have been affected with the natural small-pox more than once in the course of life. The number of instances of small-pox after vaccination, however, is small; and we may fairly presume, that in proportion as *improvements* are made in the practice, such occurrences will be still more rare. The Board have infinite satisfaction in stating the two following important and decisive facts in proof of the efficacy and safety of vaccination, viz. that in the cases which have come to their knowledge, the small-pox after vaccination, with a very few exceptions, has been a mild disease; and that out of the many hundred thousand persons vaccinated, not a single well authenticated instance has been communicated to them, of the occurrence of a fatal case of small-pox after vaccination."

In the 28th volume, p. 111. of the London Medical and Physical Journal, the histories of three cases of children who had been vaccinated at the Original Vaccine Pock Institution, and afterwards affected with small-pox, are related as copied from the record book of that institution. Among other remarks and

conclusions upon these cases by Dr. PEARSON, we find the following.—“ 1st, That in a certain proportion of cases, the constitution is not rendered unsusceptible of the small-pox, after going through the cow-pock in the most characteristic manner; for the symptoms and progress of the disease in the above cases were too distinctly marked to admit of a doubt of their being small-pox. 2d, Two of these cases were much more severe than have ever occurred at this institution, and which perhaps have rarely happened in private practice after vaccination. The third was so rapid in its progress, and the eruptions dried up so speedily, that one cannot doubt, that although the susceptibility of the small-pox was not entirely destroyed, yet it was so partially destroyed as to produce an extremely mitigated small-pox, in respect to both symptoms and eruptions, agreeably to what commonly occurs in cases of failure of cow-pock.”

In the eighth volume of the Edinburgh Medical and Surgical Journal, p. 52. four cases of casual small-pox after vaccination are related by Mr. Haden of Derby. These cases, he remarks, seem to prove, “ 1st, that the cow-pox is capable of modifying the appearances of small-pox, of shortening its duration, and almost of changing it into a new disease. 2d, That although this modification of small-pox is mild in itself, yet it is capable of producing in others predisposed to the disease, a small-pox similar to the common

kind in its symptoms, its duration, and in its terminations. Hence they are one and the same disease. And, 3dly, that the modified small-pox is subject in its duration to a law, as certain as that which regulates the termination of common small-pox." The same gentleman has inserted at p. 55. of the same volume, a letter from Mr. Granger of Burton, containing an account of four cases of small-pox subsequent to vaccination, which had occurred in that town when the small-pox prevailed epidemically, and proved fatal to the greater number of unprotected individuals whom it attacked.

Mr. Johnston of this place, in an unpublished letter to Mr. Bryce, dated Sept. 1812, with a sight of which I have been favoured, mentions the case of his eldest son, who had been vaccinated, and afterwards twice subjected to variolous inoculation without effect. In the winter of 1811 this young man, after a few days fever, had an eruption of distinct pimples upon the skin; these were not in great number, and the disease was taken at the time for chicken-pox. But about eight or ten days after the appearance of this eruption, Mr. Johnston's infant son, then about six weeks old, and who had not been vaccinated, sickened, and in a few days had a great eruption, which proved to be confluent small-pox, terminating fatally about the eighth or ninth day. During this period, Mr. Johnston's other children, (all vaccinated,)

had more or less fever, of a suspicious nature, but without any eruption, except the youngest of the six, then a year old, who had a few pustules of the mildest kind, small, and decaying in two or three days, with scarcely any appearance of matter in them.

In the Report of the National Vaccine Establishment for 1812, the Board remark, "It may be proper to add, that the Surgeons at the nine stations of this metropolis, reported to us the 14th of last January, that they had *no complaint* of any person vaccinated by them having afterwards had the small-pox."

In a Report of the Royal College of Surgeons in Ireland, annexed to the above, it is stated that "*a few cases* of small-pox, succeeding to vaccination, have been reported to the College to have occurred since the last communication; but in these either the cow-pox vesicle was imperfectly formed, or the other appearances, the existence of which is necessary to mark the true disease, were unsatisfactory. And, further, the number of these cases is so small in proportion to that of vaccinated persons who are known to have resisted variolous contagion, particularly during the year 1812, that the confidence hitherto placed by the College in the antivariolous effects of cow-pox remains unshaken."

In 1813, DR. SANDERS of Edinburgh published
 "a comprehensive view of the small-pox, cow-

pox, and chicken-pox, with a concise history of their different stages and terminations, proving *that the real small-pox never have occurred more than once in the same person, nor ever after the cow-pox.*" "The third part of this treatise, (Introduction, p. 15.) contains (an account of) the illegitimate or spurious small-pox, called also varicella and chicken-pox, with their species and varieties. Here are examined those cases which the vaccinators have published as examples of small-pox after vaccination; and these, with others called secondary small-pox, are proved to belong to the illegitimate small-pox, or chicken-pox." "We shall perceive," says Dr. Sanders, "that a certain species of the chicken-pox, which closely imitates the small-pox during the greater part of its course, has been confounded with them. That this is the cause of the controversy agitated for centuries, with regard to the repetition of the small-pox in the same person. That this is also the cause of the recent controversy, with regard to the occurrence of small-pox after vaccination. But as soon as the cause appears, our doubts are removed, and we are convinced, that both the variolous and vaccine disorders invariably prevent the small-pox."

In speaking, (p. 153.) of the illegitimate small-pox, this author observes, "So vague indeed, are the prevalent ideas concerning this affection, that the name chicken-pox is vulgarly given to disorders as different in kind from one another

as from the legitimate small-pox. It is evident, however, that the varicella ought to denominate an eruptive disease, resembling that called the legitimate small-pox, but differing in the nature of the infection. And the only radical fact that ever constituted the legitimate and spurious small-pox, two distinct genera or kinds, is this, that they do not reciprocally prevent each other in the same person ; which should by observation, experiment, or some characteristic sign, be ascertained as a principle, before any eruption be decisively referred either to the one or to the other genus."

"There is an eruptive disease," Dr. Sanders observes, (p. 204.) "having all the symptoms requisite to constitute it of the same genus or kind, with those instances detailed in the report, of small-pox occurring after vaccination ; and not differing conspicuously from the legitimate small-pox, except in *the shortness and mildness of the last stage*. That these are all of the spurious kind would be confirmed, if we could shew that they occurred also, independently of the legitimate small-pox. That cases of this description do occur independently of the legitimate small-pox ; the following proof appears to be decisive.

"The records of Medicine do not furnish a detailed history of small-pox distinct in all its stages, which occurred twice in the same person. During the epidemic small-pox of 1810 and 1811, the cases of the spurious kind were by far the

most numerous ; you would have found them of all degrees of mildness and severity ; of shortness and of length, from a few days to the ninth or tenth before incrustation, and among them this fallacious suppurating species appeared frequently ; of those who had not been inoculated, some died of the most malignant small-pox, and others lingered through their long and dangerous fourth stage ; but not one instance in any, who had undergone either the legitimate small-pox or the cow-pox, that did not evince *this mildness of termination*.

“ After consulting my medical friends, I think it would be easy to produce several hundreds of such cases, that have occurred within these two or three years, both after the legitimate small-pox and after vaccination. In many of these cases, it would have been difficult during the second and third stages, to pronounce them not the legitimate small-pox ; but when the maturation with blackening came, they were all remarkable for the shortness and mildness of their termination. The cases of repeated small-pox, published in the different journals, are for the most part mild and short, at least *in their termination*.

“ There is still however one obstacle to be removed, before we agree, that this is the very species of eruption, which induced the opinion, that the legitimate small-pox recurred in the same person ; it must be explained *why* an erup-

tive disease occurs after the legitimate small-pox, which observes their complete course, a thing which never happens after vaccination? The answer is prepared, the former eruption was not of the legitimate, but this fallacious genus." "We cannot now hesitate to consent," Dr. Sanders remarks, p. 209. that this eruptive disease belongs to the illegitimate or spurious small-pox; that it is the chief cause of the notion, that the legitimate small-pox ever occur either more than once in the same person, or after vaccination; and of consequence, that all the conclusions, and all the fears founded on this notion are equally groundless; *in fine, the legitimate small-pox never have occurred in the same person either twice, or after vaccination.*"

In the 29th volume of the London Medical and Physical Journal, p. 281, Mr. Brown of Blackfriars Road has given an account of three cases of small-pox subsequent to vaccination, which had occurred in his own family. The child in whom the disease was most severe, had been vaccinated by Mr. Walker at the Jennerian Society; she caught the infection at a boarding school, where some of the young ladies had chicken-pox at the same time. In the other two cases, the disease was of a much milder description.

In the 30th volume of the same Journal, p. 34, a severe case of vesicular small-pox occurring after vaccination, is related by Mr. King of

Mortlake. The patient had been vaccinated about nine years previously, and caught the infection from a case of natural small-pox. The eruption in this case began to dry up on the seventh day.

In the Report of the National Vaccine Establishment for 1813, the Board inform us, that “the *failures* of vaccination, which *formerly* occasioned so much alarm, are now become extremely rare, from the *improved* methods which have been adopted. Most of these failures appear to have arisen from the practice of vaccinating with a *single puncture*, and afterwards opening the vesicle, and taking a portion of the lymph for the purpose of propagating the infection. Many practitioners, reasoning from the analogy of the small-pox, conceived that such a practice could be productive of no inconvenience; but experience has shewn that it *sometimes* frustrates. In one instance which had been thus treated, a fatal attack of the small-pox ensued. But in most of such cases, even when the small-pox actually occurred, the disease was so much mitigated as to be devoid of danger. *These accidents may, however, be almost always prevented, by exciting two or more vesicles, and carefully observing that one of them should pass completely through all the stages of the vaccine process unopened and undisturbed.* Whenever the slightest irregularity has occurred, the patient ought to be re-vaccinated, for his security. The extreme infrequency of failures, when due

precautions are employed, may be estimated by the success of an individual, who resides near Conway in North Wales, and who has informed the Board, that he has vaccinated above 10,000 persons, without a single failure. Since the commencement of this establishment, only *one failure* has been suspected at any of the stations under its immediate direction; and, even in that case, the eruption dried up and disappeared more rapidly than in the regular small-pox."

In the London Medical and Physical Journal, (vol. xxxii. p. 478,) Mr. Hugo of Crediton informs us of twenty-five persons, who, from the regular progress of the vaccine vesicles, were considered as secure against the small-pox, but who afterwards casually received the variolous infection. The "constant effect of vaccination," he remarks, "in producing a mild and distinct small-pox, gained it many proselytes among the poorer inhabitants, who frequently requested their children might be vaccinated, not with the view of preventing the small-pox altogether, but for the purpose of depriving it of its danger; and this, it must be acknowledged, is not an incorrect idea of the subject."

In a communication signed *Studens*, inserted in the London Medical Repository, (vol. i. p. 108,) a case of small-pox occurring after vaccination is related. The vaccine vesicle was, in this case, supposed to have been spurious, on account of the lymph having been diluted with water,

Mr. FIELD, in his Quarterly Report on the Diseases in Christ's Hospital, (Lond. Med. Repos. vol. i. p. 287,) mentions two cases of small-pox after vaccination. "The history," he says, "of their (children's) vaccination I have had no opportunity of inquiring into; but, from the appearances upon their arms, should suppose it to have been correctly performed. The secondary disease, in both instances, was very slight."

In the Report of the National Vaccine Establishment for 1814, it is stated, that, "from the introduction of vaccination in 1802, to the 28th February, 1814, it is computed that 200,000 persons have been vaccinated; and the medical practitioners unanimously declare, that *no instance* has occurred of small-pox being contracted after regular vaccination."

In the 33d volume of the London Medical and Physical Journal, (p. 274,) Mr. ROWE of Somers-Town has related a case which, he remarks, resembled "both varicella and variola." "The whole bore," he says, "a very strong resemblance to small-pox, but, upon inquiry, it was ascertained that he (the patient) had been vaccinated three or four years before, and that the disease had gone through its regular form. The following circumstance also tended very strongly to heighten my doubts as to the nature of the disease; six or seven boys of the school were then affected by varicella in its usual mild form; his brother, one of the number, with whom he slept,

and who had also been vaccinated." By the eighth day the boy was quite well, and on the 2d of March the skin was not pitted, but universally *elevated*; "this symptom," Mr. Rowe observes, "induced me more strongly to believe in its being varicella."

The Editors of the London Medical Repository, (vol. iii. p. 37,) remark, "We recently saw four children in one family with natural small-pox, who had gone through vaccination at different ages. The youngest child, which of course had been most recently vaccinated, sickened the first; the eldest had the greatest share of eruption. But although some of these children were very full, and the disease ran on to the usual period before it turned, the bases of the pustules were much less inflamed, and there was scarcely any secondary fever, as in natural small-pox in subjects that have not had the cow-pox."

In an Account of the Diseases in Christ's Hospital by Mr. Field, (Repository, vol. iv. p. 47,) this gentleman remarks, "Nine cases of small-pox took place during the last three months; all of the boys attacked by it had been inoculated, and I believe with the vaccine virus. These cases were universally mild, and nearly all of them terminated in a shorter period than occurs even in the most favourable form of the disease, where vaccination has not preceded." "I am by no means disposed to consider," he adds, "these events of small-pox after vaccina-

tion as an argument against that practice ; for it is well known that no species of inoculation is an absolute security against variolous infection ; and though more cases of small-pox may be expected to happen after vaccination than after variolous inoculation, yet the extreme mildness that generally attends small-pox after the former, when compared with small-pox after small-pox, is such as to make the danger arising from it very trifling indeed."

In the Report of the National Vaccine Establishment for 1815, the Board remark, " that, in consequence of the decisive measures adopted in Russia, Germany, France, and Italy, the small-pox has become a very rare disease in those countries ; and that, by like means, it is no longer known in Ceylon and at the Cape of Good Hope."

In the London Medical Repository, (vol. v. p. 295,) a case of small-pox subsequent to vaccination is mentioned as occurring in a young lady who was vaccinated in Batavia ; " and, as far as could be judged from the cicatrices on the arms," the reporter observes, " as well as from the account of her mother, in a manner quite satisfactory. She caught the small-pox, however, from her aunt, who had the disease in the natural way. The eruptive fever was exceedingly violent, and the eruption, though distinct, very considerable. The pustules did not increase in size after the fourth day of their ap-

pearance, and a few only arrived at maturity; for on the fifth day they began to dry off, and on the eighth the child seemed perfectly recovered. This case is one of the many which have occurred, where vaccination has not afforded a *complete security* against small-pox, but has so far influenced the constitution as to render that disease shorter in duration, and less violent in its effects."

In their Report for 1816, the Board of the National Vaccine Establishment remark—"We feel it our duty to state, that in the town of Ulverston, during the spring of the last year, various instances occurred of patients having had the small-pox, after they had been vaccinated; for the most part, however, it was that mitigated form of the disease which marks the previous vaccination: in all the cases it was mild, and in no instance fatal. The occurrence of these failures was confined to a very limited district; and as such events have since ceased, although great numbers of other individuals, previously vaccinated, were exposed to the variolous contagion, we are of opinion that the failures were owing to the employment of lymph in succession from a vesicle which had not gone through its stages with perfect regularity; and that even the imperfect vaccine vesicle thus produced, has very generally the power of rendering the human frame susceptible of none but the mitigated form of small-pox. A few cases

of similar failures have been reported, and most of these in London have been visited by the Director of this establishment, who states them to have arisen from imperfect vaccination."

In the Appendix to this Report, we are informed, "that a representation having been sent to Lord Viscount Sidmouth, from the overseer of the parish of St. Osyth, in Essex, that the small-pox was spreading through the town, and had attacked a great number of persons who had been previously vaccinated, his lordship immediately referred the statement to the Board of the National Vaccine Establishment. And more information of a similar kind, having been also transmitted by the Rev. Archdeacon Jefferson, a magistrate of the county, and by several of the neighbouring surgeons, the Board deputed their Director, James Moore, Esq. to investigate this business." In his Report, Mr. Moore mentions twenty-one cases of small-pox which had occurred after vaccination, into the particulars of which he had made inquiry. Of these, thirteen had been vaccinated by one puncture only, and of this number, in one the eruption was produced by inoculation; five had been vaccinated by two punctures, and three had been what Mr. Moore calls properly vaccinated in both arms. "The incidents," he says, "were in fact not of a novel description, as examples have before been occasionally communicated to the Board of some persons who had been vaccinated according to

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the *original* method, being subsequently affected with the small-pox, though usually in a very mitigated form. But such occurrences are most uncommon among those who have been vaccinated according to the *last improved* plan of practice promulgated by the Board. Some very rare instances of failures in vaccination, as exceptions to a general law, may however be expected as long as the small-pox is prevalent; since it has been fully ascertained that, when the air is strongly impregnated with the infectious vapour of the small-pox, some of those who have once had this disease are attacked a second time."

In a declaration, signed by the five surgeons who assisted Mr. Moore in his investigation, the subscribers remark—"We consider that the small-pox has, in very few instances, supervened to vaccination; but that in those instances, we are of opinion that vaccination, most probably, had not been perfectly introduced into the system, owing simply to the nature and progress of the disease not having been at that time thoroughly understood. In the remainder of the cases we have witnessed, we are of opinion, that although some cutaneous eruptions had taken place, they were by no means *decidedly varicellous*, and if any of them did put on that appearance, they were of a mild and transient nature."

The London Medical and Physical Journal for January, 1817, contains a letter to Mr. Harrison of Kendal, from Mr. Redhead of Ulverston, giving an account of 49 cases of small-pox after vaccination, which had occurred in that town in the spring of 1816. Of this number 40 received the disease by casual infection, and in nine it was produced by inoculation; 13 of the former and one of the latter had previously passed through chicken-pox. Mr. Redhead states, "We have repeatedly had the small-pox in Ulverston and the neighbourhood since the introduction of vaccination, yet until the late attacks, the complaint never extended beyond one or two cases. But I have no doubt in my mind as to there having been a great many failures amongst the children vaccinated in Ulverston; yet from what cause I am at a loss to know, but should be very glad to have the matter properly investigated, so as, if possible, to prevent such occurrences in future. It is, however, very extraordinary that the same disease and appearances have not spread beyond the town of Ulverston, for although persons infected with small-pox in Ulverston have been removed to the village of Booth, and to other parts of the country, yet the complaint has not spread. And, about two years ago, many children were inoculated with variolous matter at Pennybridge, a village a few miles from hence; yet no one previously vaccinated receiv-

ed the infection from them except probably in one instance."

Mr. Harrison, in his remarks on these cases, in answer to the question, Had the persons so affected been perfectly vaccinated? observes, that "this is a question of some difficulty, and which admit of no direct proof. But, that the medical men, by whom they had been vaccinated, were of opinion that many of them were secure, is evident, from their having taken matter from the arms of their patients to vaccinate others with: and that the constitutions of all the patients had been more or less affected by the cow-pox, may be fairly inferred from the succeeding small-pox being peculiarly mild in all. Had there been but a few patients who had been vaccinated by one person at the same time, or had they all been vaccinated at the same period by the respective medical men, with matter obtained from the *same* source, we might have concluded that the matter had been taken from a *spurious vesicle*; but when we perceive that they have been vaccinated by *ten* different medical men and two matrons, at *different periods*, and in parts of the country *far distant* from each other; and that they have been infected with small-pox, either by exposure or direct inoculation at one season, and therefore at various distances of time after vaccination; we cannot but feel our confidence in the *preventive* power of the cow-pox to be somewhat shaken."

This practitioner mentions three additional cases of small-pox after vaccination, one of which occurred in a child who had been vaccinated by Dr. Jenner himself, and pronounced by him secure from small-pox, and adds, "On reviewing the whole of these cases, one cannot but incline to believe that it is a difficult matter to discern that peculiar effect produced by the cow-pox on the human constitution, which renders it absolutely secure from the small-pox. That in the majority of cases this effect is produced, I would willingly hope : at the same time it is evident, that in the practice of the most experienced and attentive men, the cow-pock occasionally fails to furnish the constitution with any other power than that of moderating the violence of small-pox : consequently, in those cases which go through the regular appearances of cow-pox, one cannot but suspect that a criterion remains yet to be discovered by which we can be enabled to pronounce any patient to be absolutely secure from small-pox afterwards."

In his Quarterly Report of the diseases in Christ's Hospital, Mr. FIELD remarks, (Lond. Med. Repository, vol. vii. p. 73.) "there have been three instances of small-pox after vaccination ; the infection arising from a case of confluent small-pox. They were all extremely mild and of very short duration." And in another report, (Lond. Med. Report, vol. viii. p. 302.) he mentions two cases of the same kind.

Mr. MOORE, in his History of vaccination, published in 1817, has given a description of small-pox as they occur after vaccination. "This new species of small-pox," he says, (p. 78.) "which has attacked a few of those who had been vaccinated, is analogous to the secondary attacks of that disease; it has, however, occurred *much more frequently*, but on a strict examination, it has usually appeared that the vaccine process had been incomplete, or interrupted." Speaking of the difficulty of distinguishing in some cases between small-pox and chicken-pox, Mr. Moore remarks, (p. 97.) "I had an opportunity of seeing a case of this kind, in which the fever was highly inflammatory. The pustules on the sixth day were large and purulent. On the face they were so crowded, that several clusters were confluent, and the body and limbs were thickly studded. On inspection, several physicians pronounced the disease to be the small-pox; yet a number of circumstances *clearly proved* to the satisfaction of others that it was a varicella. The patient was a school-boy, and seven of his school-fellows who lived under the same roof, and sported in the same play-ground, were all attacked with the same symptoms of fever in the course of two days. Three of those boys had previously had the small-pox; the five others had been vaccinated, and none of them had before had the chicken-pox. In seven, this malady proved to

be varicella in its usual mild form ; and consequently it must be concluded that the specific infection was the same in the eighth, although he was affected with so much greater severity."

"Events like this evince, that varicella is still imperfectly discriminated from the small-pox."

After enumerating the distinctive characters of chicken-pox, Mr. MOORE observes, (p. 105.) "These distinctions are sufficiently clear in well-marked examples of small-pox and chicken-pox. But the former malady is sometimes peculiarly mild, and the latter extraordinarily violent, which obscure all the discriminating marks. For when the small-pox is mild, and when the eruption consists only of a few scattered pimples, the inflammation is slight, and the pustules appear to be arrested in their course, and quickly to decline, or desiccate." "If a case (p. 109.) of varicella should arise, in which none of those peculiarities could be perceived, and in which the eruption, from its commencement until its termination, was undistinguishable from small-pox, some light ought to be obtained by attending to the constitutional symptoms. The most remarkable of these is a *cough*, which has nothing to do with the small-pox ; and when the chicken-pox is severe on the eruption taking place, there is little or no remission of the fever, which continues during the successive crops of eruption, for two or three days."

In 1817, Dr. DEWAR published an account of

an epidemic small-pox which prevailed in Cupar in Fife in the summer of that year. He informs us that he received accounts of seventy cases; and of these, fifty-four were said to have gone through the vaccine disease, and the remaining sixteen "either had not been inoculated, or no vesicle had appeared after the insertion of the vaccine virus. In almost the whole, both the inoculated, and those who were not, there was a well marked eruptive fever. Very few of the cases were mild during their whole course, viz. about eight of the inoculated, (vaccinated,) and two of the uninoculated." Of the fifty-four who had been vaccinated, the operation had been performed in ten under the inspection of medical practitioners. The rest were inoculated by midwives, or other persons not of the medical profession. In some of these ten, the disease was remarkably mild. In others it was equally severe as in the subjects inoculated by other persons. In one case the disease proved fatal. Of these cases Dr. Dewar remarks, (p. 27.) "I found no particular reason for disputing the genuineness of the vaccine disease which the fifty-four patients had received by inoculation." "I have equally little hesitation," he observes, (p. 31.) in pronouncing the epidemic above described to be the genuine small-pox. It had all the characters of that disease as described by authors, and coincided in its appearances with those which I remember to have seen in early

life, in a place where inoculation was most generally omitted, and where the occurrence of that disease in the natural way was common. If it had existed only in that mild form, or with that short course in which it appeared in the whole of those who were vaccinated, room might have been left for supposing that this was a different disease which, as Morton describes it, "disappeared like a comet," being distinguished by the total absence of a secondary fever. But when this form of it was mingled with cases in which secondary fever occurred, and these different forms even appeared together in the same family, we are reduced to the conclusion that the contagion was the same in both."

Mr. GRACE, of Cupar in Fife, in a letter inserted in the 13th vol. of the Edinburgh Medical and Surgical Journal, page 405, mentions his having seen, in June 1817, a girl with small-pox, the most severe that he had seen subsequent to vaccination, which, in this girl, had been performed at the Public Dispensary in Edinburgh. He also mentions six cases of modified small-pox, in addition to those mentioned by Dr. Dewar. In two of these, and in one of the cases related by Dr. Dewar, varicella had occurred in the interval between the period of vaccination and subsequent small-pox.

Mr. FIELD, in his Report of the diseases in Christ's Hospital for September, October, and November, 1817, observes, (*Lond. Med. Repos.*

vol. ix. p. 72,) "The small-pox have been unusually frequent with *us*. Four cases have occurred in boys who have never been inoculated, and seven after vaccination. The former have been somewhat confluent, but all have recovered. The latter were, as usual, very mild, with the exception of one case, in which the eruption was very copious, and its termination protracted, but without any reason to apprehend danger."

In the Report of the National Vaccine Establishment for 1817, the Board observe, that "the continued investigation of the *failures* of vaccination which have taken place here, lead also to conclusions similar to those of the Directors of the Dublin Institution; and it has been found, that almost all the subjects of these cases have been vaccinated by *methods less effectual* than those which have been adopted and inculcated by the Establishment, the great success of the practice of which, since its foundation in 1808, is the strongest inducement for the plan being generally followed. For which reason the Board printed a new and corrected edition of their instructions, which contain the practice of the establishment; and they are now distributing the copies gratuitously over the whole empire. Should these be accurately followed, and every person vaccinated be thoroughly infected with the regular vaccine, the Board are fully convin-

ced that failures would become so rare, as *hardly* to merit the public attention."

In 1818 was published, the "Substance of a Correspondence between the Directors of the Cow-pock Institution, Sackville Street, Dublin, and their subscribers, or other gentlemen practitioners; and also with the Irish Medical Staff, and Militia Surgeons, being Replies to certain Queries circulated by the Directors, occasioned by alleged failures in Vaccination." From the answers of 172 correspondents, it appears that 120 of this number have either had no personal experience of small-pox after vaccination, or had only heard of them as occurring in the practice of others; and the remaining fifty-two correspondents acknowledge that cases of that description had come under their own observation. Of the cases of small-pox after vaccination, thirteen are reported to have been produced by inoculation. In four, it is stated that chicken-pox had occurred in the interval between vaccination and the subsequent small-pox; and in one case only in which it was ascertained that vaccination had been performed did the disease prove fatal. Six cases of secondary small-pox are recorded. In one the disease proved fatal, and in another the patient had passed through chicken-pox in the interval between the first and second attacks of small-pox.

It is curious to remark, that in this extensive correspondence notice should have been taken

of the modifying power which vaccination possesses over small-pox by two individuals only. The following extracts, however, will probably incline you to believe, that in no inconsiderable number of instances modified small-pox have been regarded as chicken-pox or swine-pox. "Dr. ATKINSON of Armagh was requested, last summer, by Mr. Barclay, the county surgeon, to visit two children of a gentleman in that town, who had been vaccinated two or three years before by Mr. Barclay, and were supposed to be then in the natural small-pox. The pustules were large and full; but, on inquiring the cause of the disease, Dr. Atkinson pronounced it to be swine-pock, and that the eruption would go off much sooner than in small-pox, and leave no mark; which happened accordingly."—The Rev. Mr. BROWN of Garva saw "a child, whom he had vaccinated some years ago, take a disease this summer, supposed at first to be small-pox; but its rapid course, subsiding in a few days, proved it to be chicken-pox, which was then prevalent in the neighbourhood." Dr. DERENZY of Carnew, "has seen some cases of varicella which might possibly be mistaken, on a hasty inspection, for the variolous eruption." Mr. EPSOM of North King Street "has heard of some who took eruptive diseases, which though (by the parents) generally considered small-pox, were easily distinguished by their appearance, but more easily by the short period which they

continued out." "Mr. DRAPES of New Ross has seen cases of varicella so exactly resembling small-pox, that a superficial practitioner might have pronounced them such; but the duration, and other diagnostic symptoms, sufficiently distinguished them." Mr. GOODISON of Wicklow, "learning, on his return to that town last year, that a numerous and respectable family, part of them vaccinated by himself, were then labouring under variola, he lost no time in visiting them, and found the disease to be varicella." Dr. GREGORY of Coleraine says, "There were a great many cases of chicken-pox last season, which very much resembled small-pox; a vast number of parents were deceived by them." Dr. GROGAN of Limerick "has seen cases, believed to be such (genuine variola) by other practitioners, but on comparing the progress of the eruption, filling, and decline, they appeared to be varicella." Dr. HEANAN of Tallow says, "An alarm was lately spread in Tallow, by an alleged case of small-pox, after cow-pock; but he found, upon inquiry, that the child was affected with chicken-pock, which was then prevalent." Dr. KELLY of Parsonstown says, "An inflammatory fever, in a high degree, followed by an eruption on the third day, sometimes the fourth, resembling varicella, (and which he considered to be such) attacked a number of children." "Mr. LOUGHLIN of Rostrevor, has been called to see several alleged cases of subsequent small-pox,

which proved to be chicken-pock, termed in that country the Nirles." "Mr. M'NABB of Castleknock has seen cases of chicken-pock, which it was extremely difficult to distinguish from small-pox." Dr. M'CLUNY of Belfast "has seen several children labouring under what was supposed to be small-pox, but which he found to be nothing but chicken-pock." Mr. MITCHELL of Tyrrell's-Pass saw a child ill, "of what the parent termed small-pox, but which appeared to him to be a case of chicken-pock." Dr. PARKE of Mohill says, "Two children in a respectable family being affected at the same time with a disease pronounced to be small-pox, much alarm was excited. I did not see them myself, but from the account given by a person who visited them occasionally during their illness, I conclude they were cases of chicken-pock." Dr. POTTER of Cookstown says, "There were eruptive diseases prevalent, but with less fever and fewer pustules (than in small-pox) which disappeared on the third day, and yielded a thin watery discharge." Mr. ROWE of Carrick-on-Suir, "apprehends that the ranker species of varicella is often mistaken for variola, and mentions, that some years ago he inoculated a child with small-pox matter, *as he supposed*, who went regularly through the disease, having regular pustules with highly inflamed bases. The parents were not satisfied as to the fever attending the eruption; and he having reinoculated the

patient (although he thought it unnecessary) from a case of natural small-pox, a genuine small-pox was produced. Mr. Rowe was then convinced that he had, by mistake, taken the virus, in the first inoculation, from a patient affected with *chicken-pock*." Mr. ROGAN of Strabane "heard of two or three such instances (small-pox after vaccination,) but as he saw only one of them, and had no opportunity of watching the progress of the eruption, he cannot say it really was small-pox, and is inclined to doubt it, as other children in the same family, who had also been vaccinated, were affected a few days before with a slight fever and eruption, which the medical gentleman in attendance pronounced to be *chicken-pock*." Mr. ROULSTON of Raphoe saw "two cases in the town of Raphoe, of children attacked with a disease resembling small-pox, which he at first imagined to be *chicken-pox*. But many children in Raphoe, who had previously had the *small-pox*, were attacked with this disease so nearly resembling it." Mr. SIMPSON of Roscommon says, "Where very cautious observation has not been bestowed, he has known *vari-cella*, and other eruptive complaints, mistaken for small-pox." Mr. SAUNDERSON of Banbridge says, "those cases represented as such, (as small-pox after vaccination,) and which came under his cognizance, he found, on examination, to be *chicken-pock*." "Dr. THOMPSON of Wexford has seen several cases of eruptive diseases, such as bird

or chicken-pock, which he believes have occasionally been taken for small-pox." "Mr. TIMMON of Navan has seen, during the past year, eruptive diseases, as swine or chicken-pock, so extensive and general as to make parents certainly believe they were cases of small-pox: Such an instance occurred in a child of his own. Mr. Timmon, however, has not a doubt upon his mind of these having been cases of chicken-pock." The Rev. Mr. TIGHE of Drumgooland says, "the swine or chicken-pox, as well as the small-pox, were very prevalent in his parishes last summer. He saw several children in swine-pock, who were not known to have had the small-pox." "Dr. WALSH of Glasnevin makes mention of a disease resembling small-pox, which attacked some of the children vaccinated at the dispensary. It never assumed such a form as to be mistaken for the small-pox, but was decided to be varicella, and entered as such in the register." Mr. HERON of Lucan, remarks, "that in the summer and autumn of 1810, a very bad kind of pustular eruption made its appearance among the children about Banagher and its neighbourhood, which many of the practitioners in these places took for small-pox, and inoculated with matter from it as such. From observations, however, then made, it appeared to Mr. Heron to be nothing more than a malignant chicken-pock, of which some died." Dr. LITTLE of Ballina states, that, "about three years ago, the regi-

ment to which he belonged, being quartered in Tuam, a very severe form of confluent varicella prevailed epidemically, and he was repeatedly called upon to see children as well of the town's people as the soldiers, whom he had vaccinated, and who were marked in his journal as having gone regularly through the disease ; but in no instance could he hesitate as to the nature of the disease, which, though often of a mixed nature, was genuine, and of the conoidal form, as described by Dr. Bateman." " Mr. MURPHY of Louth being in Dublin, was suddenly called home to see his eldest daughter, who was declared to be dangerously ill of the small-pox, by an eminent physician. Mr. Murphy has no doubt but that it was chicken-pock in a severe degree, commonly called swine-pock. Two others of his children took it in succession. Great alarm was excited at a public school, especially as the physician, an eminent man, pronounced it to be small-pox ; but on Mr. Murphy writing to him, and stating the progress and nature of the affection, he became of Mr. Murphy's opinion. This disease was very prevalent at that period, and for some time after, particularly about Dundalk, where the medical practitioners would have it to be the small-pox. Mr. Murphy saw several of these afterwards when convalescent, and had no hesitation in stating it as his firm conviction that it was *not* small-pox.

In the 14th volume of the Edinburgh Me-

dical and Surgical Journal, Mr. COLVILLE of Ayton, has related the history of two cases of small-pox after vaccination, which had occurred to his observation in October, 1817, when natural small-pox had attacked some unprotected individuals. "About this time," says Mr. Colville, (p. 40.) "several cases of chicken-pox and swine-pox appeared in the village, which created considerable alarm, as every case was magnified into small-pox. I made it my business to see them, and found no appearance of the latter disease, but in some a very slight fever for a day or two, in others none; some had an eruption of clear, horny, conical pox, without any surrounding inflammation; others had pox of a rounded square form, filled with yellow matter; some conical, others flatish, with a little surrounding inflammation; desquamation began in them all between the third and sixth days." At page 403. of the same volume, a case of small-pox occurring ten years after vaccination, is communicated to the Editor, by Dr. ASTBURY of Barlaston. In this case, the eruption, which was accompanied with sore throat, ptyalism, and secondary fever, did not turn till the eleventh day.

In the Report of the diseases in Christ's Hospital for December, 1817, and January and February, 1818, Mr. FIELD remarks, (Lond. Med. Repos. vol. ix. p. 288.) that the instances of *variola post vaccinationem*, although numerous,

(seven,) yet were generally very mild ; and in his report for March, April, and May, of the same year, (*Lond. Med. Repos.* vol. x. p. 31.) he mentions other two cases of the same kind.

Dr. MONRO of Edinburgh, in his *Observations, &c. upon Small-pox*, published in 1818, relates, among other cases of this disease in his own family, that of his eldest son, who had been vaccinated by Mr. Bryce. The eruption in this case, which appeared in spots like flea-bites, was preceded by febrile symptoms of three days duration. On the third day after their appearance, several of the spots contained a serous fluid, with a depression in the centre. On the fifth day, some of the pimples on the face were of different sizes, and filled with a watery fluid. "These transparent vesicles had distinct necks, and were very like blisters occasioned by boiling water ;" and others both on the face and other parts of the body were filled with pus. "The vesicles, which were filled by a watery fluid, in the course of four or five hours lost considerably of their prominence, were less tense, and were by no means so transparent, and seemed filled with whey, and some of them burst on turning the head and pressing them." These two different forms of eruption ran different courses ; some of the vesicular shrivelled on the day after their appearance, and others became pustular, and finally formed into scales, many of which did not all fall off before the twenty-fourth day, at which

time three pimples appeared upon the right thigh, which followed the usual course of modified small-pox.

In allusion to this case, Dr. Monro observes, p. 243. "It may be said that it was a case of chicken-pox, but not of small-pox after perfect vaccination, because on the ninth day of the disease, and fifth of the eruption, many vesicles, like blisters *filled by a watery fluid*, appeared on the face; and hence the disease was supposed by one or two of the medical gentlemen to bear a resemblance to the chicken-pox. But there were many differences between this eruption and chicken-pox. The period at which these watery vesicles appeared did not correspond with the period of the eruption of the chicken-pox. The vesicles in chicken-pox, according to the descriptions of the best authors, increase in size for three days at least; whereas in the above case, *the vesicular pimples began to change their colour, and to shrivel on the very day they appeared.*" It would appear that the subject of this case had, previous to the occurrence of this eruption, passed through chicken-pox. "If these were the vesicles of the genuine chicken-pox," Dr. MONRO observes, "there is no such instance to be found in the annals of physic, for there is no instance of the same individual having the chicken-pox *twice* in the course of his life, according to Heberden."

In the Report of the National Vaccine Establishment for 1818, the Board observe, "*Five*

cases have been reported of vaccinated persons who have subsequently died of small-pox. In one of these cases it was clearly ascertained that the only vaccine vesicle which had been excited, was disturbed and broken in its progress, which there is great reason for believing has been a frequent cause of the insecurity of vaccination; in the other cases no detail respecting the vaccination could be obtained, and they were, moreover, all vaccinated at a period of time when the mode of vaccination, and the management of the vesicle, were not well understood."

"In several parts of the United Kingdom, particularly near Edinburgh, an *anomalous* disease, bearing some resemblance to small-pox, has appeared in many persons. It has been described by several professional gentlemen of great eminence and experience. From these statements, it appears that this eruption attacked indiscriminately persons who had been previously vaccinated, who had had the small-pox, or who had not gone through either disease.

"Of whatever defined nature this eruption may be considered, it is highly gratifying to remark, that no death had occurred in any person who had been previously vaccinated, neither was it in them so violent; whereas in many others it was malignant, and proved fatal to several. It has therefore been justly concluded, from the investigation which has been instituted in Edinburgh, that the circumstances which have oc-

curred in the history of this eruption, more strongly confirm the utility of vaccination.

“ As a diversity of opinion, however, has prevailed of the precise nature of this eruption, among those who witnessed it, considerable alarm has been excited in the public mind. The Board are unable to form any very decided opinion upon this subject, because in the cases where this varioloid disease is stated to have occurred subsequently to small-pox, the symptoms of the small-pox have not been detailed ; and in the cases where it followed the vaccine, the particulars of the vaccine process, except in a few instances, are omitted. But in these few, it appears that the vaccine process had not been conducted on the plan recommended by this Board, and which experience has proved to be the most efficacious.

“ In London, some eruptive cases have occurred in persons who had been previously vaccinated : these the Board have had opportunities of examining ; and it has been *discovered* by the Directors, that the eruption, in most instances, was the *chicken-pox* ; in a few, the mitigated small-pox ; and it should not be passed unnoticed, that in all these latter cases, vaccination had been performed and conducted in the manner which was *originally* frequently practised, before the adoption of the *superior* method which has been recommended by the Board, and which they have taken much pains to inculcate in their printed directions.

“For it is a fact which cannot be too strongly impressed upon the public, that there is a considerable difference of success in the different modes of inserting and conducting the vaccine. Hence the Board are informed by some surgeons, that a portion of their vaccinated patients have been subsequently affected with the small-pox, though in a mild form; while other surgeons state, that they have vaccinated many thousands without a single failure. As, however, the cases vaccinated at the stations of the Board are all registered, they possess the sure means of ascertaining the real effects of correct vaccination.

“From the foundation of this establishment in the year 1808, to the present year, there have been vaccinated at these stations in London 52,253 persons. Only *four* of these are yet known to have had the small-pox afterwards, and these were never very seriously ill. The triumphant success of the national vaccine establishment in London, where the small-pox infection is always unfortunately prevalent, proves decidedly both the superior virtues of the vaccine, and the excellence of the method of practice adopted and recommended by the Board. They therefore feel it an imperious duty, strongly to urge the medical profession at large to sacrifice their peculiar notions of practice, however injurious, and to adopt literally *that* plan which by much experience has been found so effectual.

Mr. BLACK, in the 58th No. of the Edin. Med. and Surg. Jour. has given an account of an epidemic anomalous small-pox which prevailed in Newtown Stewart, in the summer of 1817. This epidemic, in regard to the variety of appearances which the disease presented, seems to have corresponded with those which have lately prevailed in other parts of the island. Of 100 cases, the greater number of which Mr. Black himself saw, forty-three, (ten of which occurred in vaccinated children,) assumed the usual appearance of regular small-pox, and proved fatal in two of the vaccinated, and in eleven of the unprotected. In forty-seven, the eruption appeared in the form of modified small-pox. Of this number forty-four had been vaccinated, and three wholly unprotected, and none died. The remaining ten cases, eight of which occurred in vaccinated, and two in unvaccinated children, corresponded to the description of varicella, and none proved fatal. "I may remark," says Mr. Black, p. 43, "a singularity in two of the above cases, namely, the appearance of modified small-pox leaving marks during the summer of 1817, after vaccination two years previous, and last summer, a secondary eruption, in the same individual, of milder appearance, or what is termed varicella; and in the other case unvaccinated, small-pox was preceded the year before by an eruption of varicella." "I have never observed," he remarks, p. 44. "varicella without small-pox, or

modified small-pox being in the neighbourhood, if not in the same house."

In the 59th No. of the same journal Dr. BARNES has mentioned forty-six cases of small-pox as occurring in the practice of the Carlisle Dispensary, during the years 1817-18. Of these cases forty-one occurred in unprotected children, seven of whom died. Four had passed through cow-pock inoculation, and one through inoculated small-pox. "The cases after vaccination were exceedingly mild, and of short duration." "In the case of small-pox after inoculated small-pox, the pustules were numerous and confluent; and the patient, a female, had a difficult recovery."

In the report of the National Vaccine Establishment for 1819, the Board, after mentioning the success of vaccination in many parts of Great Britain and Ireland, and on the continent of Europe, observe "The testimonies of some of our correspondents in this country are by no means so favourable. They concur in shewing, that great numbers of persons who had been vaccinated, have been subsequently seized with a disease presenting all the essential characters of small-pox, but that in the great majority of such cases, the disease has been of comparatively short duration, unattended by symptoms of danger. In several of these cases however, the malady has been prolonged to its ordinary period; and in eight reported cases it has proved fatal."

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" Under the immediate direction of the National Vaccine Establishment, more than 60,000 persons have now been vaccinated in London and its vicinity, and of this large number only *five* are reported to have been subsequently affected with small-pox, although positive orders are given at every station to report all such cases as are even suspected.

" This success in London, where the vaccinated are equally exposed to the contagion of small-pox, is strong evidence in favour of the practice adopted and inculcated by this Board, and induce us to believe that a departure from that practice is *one* source of the evil which has prevailed in different parts of the kingdom.

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" The great principle of that practice is to affect the constitution of each individual very completely with the vaccine disease; and the Board have thought it right to direct that lymph should never be employed from any vesicle in which the slightest irregularity or imperfection can be observed; nor even from a perfect vesicle after the areola is formed; that two be made in each arm, in order to secure at least three perfect vesicles; that one vesicle on each arm should be left unopened, and the lymph be suffered to be absorbed or desiccated. That if the vesicles be accidentally broken, or much injured, or if they present any irregularity, the patient should be carefully re-vaccinated as at first.

" From extensive experience, and numerous reports, the Board have become most earnestly

desirous that more rather than fewer vesicles should be produced. We think it especially wrong to confide in one vesicle, and highly imprudent to open all; but no treatment will be effective in certain constitutions; for twenty-one cases of small-pox occurring after small-pox, have been reported to us within the last thirteen months, three of which were fatal.

“We have regarded it,” the Board add, “as one of our first duties, to consider attentively the different cases of small-pox after vaccination, as they have been transmitted to us. We have endeavoured to investigate them, free from the influence of theory, and solely intent on the discovery of truth: And when we take into our view the immense number of the vaccinated, when compared with the reported failures; when we reflect on certain peculiarities of constitution, that will exempt some individuals from all common laws; when we think on the ignorance and carelessness which the vaccinator has but too often betrayed; when we recollect the mild form which small-pox is reported to have very generally, though not universally assumed in the vaccinated, we cannot hesitate to assert that our conviction of the experiment of universal vaccination is unshaken.”

In the Report of the cow-pock Institution, Sackville street, Dublin, for 1819, we are informed, that “several instances were reported of patients being attacked with variola after vaccina-

tion at the Institution, but none were brought labouring under such affection, nor were the cases communicated in time to observe the progress of the alleged small-pox, or such information given as to time and place, as to prove by searching the Record, whether the attendance had been regular or not. One family was visited, wherein three children who had not been inoculated, laboured under a most virulent small-pox, and of which one died. In the same apartment were a brother and sister, who had been vaccinated at the Institution upwards of six years ago. The boy was attacked with febrile symptoms, followed by a scanty eruption, which dried off in five or six days, the girl remained unaffected. An eminent practitioner in the country, communicated some cases of what he had reason to believe to be small-pox subsequent to vaccination, and from the known accuracy of the gentlemen under whose care the cow-pock inoculation had been conducted, and that the patients were in their own families, he presumed the progress had been satisfactory. He added, however, that no patient vaccinated by *himself* had ever taken small-pox, and that the disease being then prevalent under a confluent form in a neighbouring town, no vaccinated persons there, as far as he could learn, had taken it."

In 1820, Mr. Cross published "A History of the Variolous Epidemic which occurred in Norwich, in the year 1819, and destroyed 530 individuals,

with an estimate of the protection afforded by vaccination, and a review of past and present opinions upon chicken-pox, and modified small-pox." The epidemic was introduced into that city in the end of June 1818, and appears from Mr. Cross's description to have produced upon the unvaccinated, the vaccinated, and some who had previously passed through small-pox, effects in every respect similar to those which had been observed in the varioloid epidemic that has lately prevailed in Edinburgh.

He remarks, (p. 39.) "besides the exposure to variolous contagion, several hundreds of those vaccinated from the earliest period of the practice until within a few weeks, have been subjected to the additional test of inoculation with variolous matter, during the epidemic, and in no instance has regular small-pox, as far as I have been able to ascertain, been produced. In about one in 40 or 50, a *spurious* eruption has appeared, in some presenting a few irregular pimples, in others resembling the variolous pock; but I have not learned that the latter have ever proceeded regularly, invariably drying up in four or five days, and never taking the course of regular small-pox.

Mr. Cross, at p. 70, gives a description of an eruptive disease which occurred in the progress of the variolous epidemic, but which he says he is "*doubtful whether it had any direct connection with the variolous contagion.*" "The character-

istic mark of this eruptive disease has appeared to me to be, that *every vesicle* is a single cavity, and that all the fluid of one vesicle passes out by a single puncture, because it is not composed of separate cells." "It appeared to be very contagious, every child in the *few* families which I attended with it being attacked, whilst parents, who probably might have had it formerly, remained unaffected by it."

In describing, (p. 76.) the eruptive diseases which occurred, chiefly in those who had passed through the cow-pox, he observes, "In the months of April, May, and June, I repeatedly met with patients suffering from fever and sore throat, with a rash upon the limbs and chest, which, from some circumstances, there was ground to suspect proceeded from the *variolous* contagion. More frequently after a day or two of indisposition, pimples appeared, in the centre of which conoidal vesicles arose in twenty-four or forty-eight hours, filled with a clear lymph, and shining like a diamond. These never attained any considerable size, seldom 1-12th of an inch in diameter. Their contents became turbid, and often purulent, and on the fourth or fifth day they dried into irregular, rough, small scabs, *without having been at any time flat or indented*. These vesicles, though small and chryselline, were not so delicate as to be often broken, although they sometimes burst at the period when incrustation was commencing. These oc-

casionally occurred in the *same* family, where other children laboured under a disease of a severer character and longer duration."

In consequence of these observations, Mr. Cross proposes, p. 207, to make two divisions of varicella, naming each according to the structure of the eruption. "1. Varicella Cellulosa. The fluid of the eruption contained mostly in separate cells; the pocks often depressed in the centre, but sometimes presenting only conoidal and firm vesicles placed upon a thickened basis of the cutis; incrustation taking place without secondary fever at various periods, from the third to the seventh day; scabs mostly flat and circular, and on falling off leaving tubercular elevations, or convex surfaces of the cutis. It is produced by the variolous contagion, occurs sometimes after natural and inoculated small-pox, but more frequently after cow-pox. Its contagion may give rise to small-pox in those liable to that disorder; and it is capable of being inoculated, producing sometimes regular small-pox, and at others an incomplete and *non protecting* disease—(*Synonyma. Stone-pock; horn-pock; modified small-pox; pemphigus variolodes solidescens.*)

"2. Varicella Bullosa. The fluid every where contained in vesicles composed of one cavity; the covering of the contained fluid delicate and easily broken, drying into small irregular crusts from the third to the fifth day, and on falling off, leaving in every part a plane surface of the cuticle, rarely leaving pits, except from scratch-

ing, when the scars are large and lighter in colour than the surrounding skin. It is doubtful if this eruption proceed from the variolous contagion; certain that it does not give rise to small-pox; very contagious, and affecting a majority of people once during life; probably not communicable by inoculation. (*Synonima. Crystals; water-pox; varicella; chicken-pox; pemphigus variolodes vesicularis; mild vesicular small-pox.*)

“The arrangement I have offered,” Mr. Cross remarks, (p. 209.) “seems to show how a person may have varicella twice at a long or short interval; how this happens to a certain proportion only, and not to all; how some, looking to the former species, have regarded varicella as arising from variolous contagion, and as being communicable by inoculation; how others, looking to the latter, have made the incapability of inoculation a criterion of the disease, denying that it ever offers pocks depressed in the centre; and how a few, looking to both, without distinguishing between them, have asserted that varicella, of whatever character, is capable of giving rise to regular small-pox in those not previously protected against it.”

Dr. RODERICK M'LEOD, in his “Remarks on small-pox, as they occurred in London subsequent to vaccination,” inserted in the *Medical and Physical Journal* for July 1820, says, “It is singular that, while our northern and continental neighbours have published various accounts of this unwelcome epidemic, none should hither-

to have appeared in London. Those unacquainted with the truth might naturally conclude, from this silence, that here, at least, we had been spared this mortifying proof of the fallacy of our opinions, and give us credit for really possessing some of those superior methods of vaccination to which some among us have not failed to lay claim. It is now about three years since these cases which were then held to be accidental, and to proceed from failures in vaccination, first began to excite notice by their increasing frequency ; and, during last winter, they became so common, as almost wholly to lose the attraction of novelty." Speaking, p. 6. of imperfect vaccination as the cause of the small-pox in the vaccinated, he observes, " I may be permitted to remark, that I have seen too many instances of small-pox in children vaccinated in London, where that process is carried on in the way which the National Vaccine Establishment has recommended as most efficacious, to retain much faith in its preventive powers, in whatever manner conducted."

In another paper inserted in the No. for August of the same Journal, Dr. M'Leod relates the histories of four cases of a vesicular disease, which he conceived might tend to illustrate the opinion of the identity of small-pox and chicken-pox, as their origin was traced to the contagion of the former of these diseases. The first of these cases occurred in a vaccinated child who had been freely exposed to the contagion of a varioloid disease, " which corresponded with that

of the papular form of small-pox, as it frequently occurs after vaccination." The eruption was vesicular *without any previous appearance of papulæ*; on the second day the vesicles became opaque, and on the third began to shrink. Fresh ones continued to come out, which, like the former, consisted of a mere separation of the cuticle from the cutis. "On being punctured, a drop of clear fluid was *immediately* evacuated, and the *skin fell so flat*, that neither Dr. Gregory nor I could detect *any induration on running our fingers over the part*." The subject of the second case had been likewise vaccinated, and presented four perfect cicatrices; after being exposed for some days to the contagion of natural small-pox, an eruption of vesicles like blisters appeared, none of which presented any thing of the papular character. Fresh vesicles continued to come out, particularly about the arms and thighs; they were about the size of a split pea; had scarcely any perceptible inflammation, and *no perceptible induration round them*. On being punctured, clear lymph was evacuated, the *skin fell flat down*, and Dr. Harrison, on *running his finger gently over the part with his eyes shut*, could not detect the site of the pock. The third of these cases, which occurred in a vaccinated child, also arose from the contagion of unmodified small-pox. The eruption consisted in a few vesicles which seemed to be formed "*by a separation of the cuticle from the cutis, filled with clear water, and without any surrounding hardness or inflammation*; some of them

were broader at the bottom than at the base, and they had nothing like central depression." Successive vesicles appeared for several days, but none individually lasted for more than three days, without shrinking and becoming covered with a crust, which on falling off left some induration behind. "I remember," says Dr. M'Leod, "pointing out this case to the pupils at the Dispensary, as agreeing in every particular with varicella, as described by Mr. Bryce, &c. from the striking resemblance it bore to little blisters from drops of boiling water." The fourth case, which likewise arose from the contagion of natural small-pox, occurred in a girl who had previously passed through that disease, and was much pitted by them. The eruption was vesicular, and on being punctured the vesicles *fell flat*, so that nothing like papular induration could be felt on running the finger over them. "Dr. ASHBURNER, on dissecting one of the pocks with much care, could not detect the slough which he regards as characteristic of small-pox."

In the No. for December of the same Journal, a case is mentioned, (p. 505,) "of the simplest and mildest vesicular disease, (in which the vesicles were formed rapidly in a few hours; came out in successive crops, were in the highest degree pellucid; formed more than half a sphere; were broader at the summit than the base; had no depression in the centre of any one of them; and disappeared on

the third day after their full formation, without having become at all pustular, leaving the cuticle in a shrivelled state,) in an infant eight months old, which had passed through neither small-pox nor cow-pox, that appeared a week after the death of a child, in the same house, on the floor below it, from confluent natural small-pox."

Dr. CRANE, junr. of Boston, in a paper upon the effects of vaccination, inserted in the 62d No. of the Edin. Med. and Surg. Journal, relates the history of a case of small-pox after vaccination, occurring in a woman forty years of age, who had been vaccinated six months previously. Speaking of the identity of small-pox and chicken-pox, he says, "The small-pox has been very prevalent in this town and its neighbourhood, the greater part of this year, (1819.) Before its appearance, there were several cases of varicella; but since, I find upon inquiry, that there have been only a very few instances; and certainly there are several who have had varicella, and afterwards gone through small-pox in the usual manner."

In the Report of the National Vaccine Establishment for 1820, the Board remark, "We find that the multitude, in many places, have been so infatuated, as to accept the proffered services even of itinerant inoculators. Hence a perpetual source of contagion is supplied and kept up, to the constant danger of all such as have not yet been vaccinated, or who may have undergone an imperfect process, or whose pecu-

liarity of constitution makes them still susceptible of the variolous disease—a peculiarity similar to that which renders some persons capable of taking the small-pox twice, of which, within the period of three years only, we have received evidence of not less than 52 instances.

“ It is true that we have received accounts from different parts of the country, of numerous cases of small-pox having occurred after vaccination, and we cannot doubt that the prejudices of the people against this preventive expedient are assignable, (and not altogether unreasonably, perhaps,) to this cause. These cases the board has been industriously employed in investigating; and though it appears that many of them rest only on hearsay evidence, and that others seem to have undergone the vaccine process imperfectly, some years since, when it was less well understood, and practised less skilfully than it ought to be; yet, after every reasonable deduction, we are compelled to allow that too many still remain on undeniable proof, to leave any doubt that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox, were admitted at first rather too unreservedly. Yet the value of this important resource is not disparaged in our judgment; for, after all, these cases bear a very small proportion to the number of those who are effectually protected by it. The reports of the vaccinators at the several stations in the metro-

polis give only *eight* cases of small-pox out of nearly 67,000 vaccinated by them, since the first establishment of this board ; and as the small-pox has prevailed extensively in London, these persons so vaccinated must have been frequently exposed to contagion, and consequently the protecting effect of vaccination must have been submitted to as severe a test as can well be imagined. Moreover, we have the most undoubted proofs from experience, that where vaccination has been performed perfectly, small-pox occurring after it is almost universally a safe disease ; and though ushered in by severe symptoms, has hardly ever failed to be cut short before it had reached that period at which it becomes dangerous to life.

“ This controlling power of vaccination must be admitted as next in importance to its preventive influence, and surely justifies our high estimation of the value of this great discovery. The board has taken care to promulgate to all its correspondents, by repeated admonitions, those modes of conducting the process of vaccination, which ample experience within its own immediate sphere of observation, has ascertained to be the most successful. It cannot be denied that the continuance of the practice of inoculation for the small-pox is the main source of whatever disappointment we have met with ; for, in those countries where the legislature has interfered to prohibit it and to enforce

vaccination, the small-pox has become almost unknown, and the full benefit of this valuable discovery is enjoyed ; but similar results, we know, cannot be looked for in the united kingdom, until the whole community shall concur voluntarily in this salutary practice."

Dr. STOKER, in his "Observations on the Varioloid Disease," published at Dublin in 1821, gives an account of seven cases of varioloid eruptions which he had occasion to observe in the Free School of St. Peter's Parish, in the month of January last. In the first of these cases, the disease occurred in a girl who had been vaccinated three different times without effect, and proved fatal on the thirteenth day. The next four cases, two of which assumed a pustular and the other two a vesicular appearance, occurred in children who had been vaccinated, and in all of them the scabs on falling off left tubercular elevations behind them. The matron of the school who attended upon these children, and who had previously passed through small-pox, likewise suffered a vesicular eruption on the face, unaccompanied by any sickness, and two of her own children who had been vaccinated, both experienced slight sickness at the same time, followed by an eruption, which at first looked like that on their mother, but did not rise into vesicles. "Very different opinions," says Dr. Stoker, (p. 4.) "were expressed by several of my medical friends, who, at my request, visited

those cases, and whose judgment deserves the highest respect ; those who witnessed the early stage of the disease deemed it variolous, whilst those who saw the later appearances considered them equivocal or actually those of chicken-pock." " I must confess," he remarks, (p. 10.) " that my own opinion has often been very decided, that similar cases which I witnessed but partially were to be considered as instances of chicken or swine-pock, and not at all of a variolous nature ; but on connecting the details of the whole of these cases in one view, I am no longer inclined to that opinion."

The two remaining cases which occurred in unprotected children, Dr. Stoker, on account of the mildness of the symptoms attending them, believed to have arisen from the contagion of the small-pox which occurred in the vaccinated children, not from that of genuine small-pox, and being doubtful of the protection which small-pox from such a source might afford, he subsequently subjected these children to inoculation with the matter of genuine variolous matter without effect. " Recurring to these experiments," he remarks, p. 33, " I own, notwithstanding the protection afforded by the modified small-pox in these two instances, I still hold the opinion, that similarly ingrafted diseases do generally, by repeated transfer, produce varieties, differing as they recede, more and more, both in qualities and semblances, from those of

the original parts of the parent stock." "By such processes (p. 35.) of nature perhaps, the varieties of swine-pock, chicken-pock, water-pock, and horn-pock, have diverged from the small-pox, the common centre from whence they sprung."

Mr. Carmichael, in a letter to Dr. Stoker, gives an account of a varioloid eruption occurring in a girl whom he had vaccinated in a satisfactory manner ten years before. Entertaining some doubts with regard to the nature of this eruption, he inoculated four children with matter taken from it. Two of these children had never been affected with variola or vaccinia, but the other two had gone through the former disease. "Only one out of the four took the infection so as to affect the constitution; and this individual was one of those who it was stated had gone through small-pox. This girl's arm began to inflame about the eighth day, and afterwards formed a small vesicle which finally became a pustule. On the twenty-first day numerous spots (without being preceded by any perceptible fever) made their appearance on her face and body, which never filled like those on the young lady from whom the infection was taken, or at all resembled those of small-pox. On the contrary, they were more vesicular than pustular, and evidently of the varicellous character. In four or five days these spots all dried up and rapidly disappeared."

In the Medical and Surgical Journal for April, 1821, Mr. HILL, Assistant-Surgeon to the Forces in North Britain, has related the histories of nine cases of small-pox after vaccination, and five of secondary small-pox. The eruption in the vaccinated "assumed two distinct forms, that of horn-pock, and that of varicella, though there was no reason to believe that these two forms of the disease could have had separate origins. The two cases which assumed the form of varicella occurred at different places and periods, in situations surrounded by individuals labouring under small-pox in its other various forms." In one case, the history of which was obtained from the mother, the patient appears to have gone twice through a varioloid eruption, the first time about two, and the second about twelve years after vaccination. Both attacks were, at the time they occurred, considered as cases of chicken-pox, and both left cicatrices behind them. "Of the five cases where the individuals were supposed to have been protected by having previously passed through an eruptive disease, considered to have been small-pox, the histories of it furnished by two, were not so precise in their nature as could have been wished; but the cicatrices on the bodies and faces of these patients were obviously similar in their number and form to those which are not unfrequently left by that disease." With respect to the facts and circumstances connect-

ed with the histories of the first attacks of the eruptive disease in the remaining three patients, (in one of whom the disease proved fatal on the eleventh day,) the proofs were so strong as to leave no doubt of its having been genuine small-pox.

Since the publication of my "Account of the Varioloid Epidemic," I have seen above *two hundred* additional examples of small-pox in Edinburgh, making in all *eight hundred and thirty-six* cases of this disease which have come under my observation since June, 1818. Of the whole number, *two hundred and eighty-one* have occurred in individuals who had neither had small-pox nor cow-pox, and of these fully more than *one in four* has died; *seventy-one* had previously passed through small-pox, and of these *two* have died; and *four hundred and eighty-four* had undergone the process of vaccination, and of this number *one* only has died; results which evince beyond the power of cavil the beneficial effects of vaccination in protecting the human constitution from the dangers of small-pox, and the great advantages which must ultimately arise from the universal adoption of this practice.

Upon this statement, two questions, I am aware, may be proposed; the 1st, Is it certain that the whole of the varioloid eruptions which have occurred in the vaccinated, proceeded from the contagion of small-pox? and the 2d, Supposing all these cases to have proceeded from

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the contagion of small-pox, might not the whole, or the greater part of them at least, have been prevented, had the vaccination been performed with a purer sort of vaccine matter, or by a method of inoculating different from that which had been employed? I feel unwilling to enter into the discussion of either of these questions, as I have already, I conceive, dilated upon them at sufficient length in my former letter, pp. 76—121; 191—211; 312—317.

With respect to the first question, however, I think it right to observe, that I have not myself seen, nor have I been able to learn from others, any occurrences in the latter stages of the epidemic, which should lead me to doubt the soundness of the conclusion I had formed respecting the common origin of all the varieties it has exhibited; these varieties every where appearing to me mutually to have produced, and to have been produced, by one another. And when I recollect how very few of the unvaccinated have been attacked with the epidemic in a form which could be considered as chicken-pox, even by those who believe in the specific existence of that disease, it is impossible for me to admit, that the numerous cases of the eruption exhibiting a varicelloid form in the vaccinated, could have had an origin different from that which gave rise to the other varieties of the epidemic. Indeed, in the characters by which it has of late been supposed that chicken-pox may be distinguished

from modified small-pox, observation leads me to place no confidence whatever. I have not found them applicable to varioloid eruptions, as they occur in nature; but, on the contrary, have repeatedly seen, in the same individual, the appearances considered to be peculiar to one of these forms of eruption, coexisting with those which have been supposed to be characteristic of the other.

With regard to the second question, I need scarcely remark, that it was impossible for me, in the examination of the 484 cases of the varioloid eruptions in the vaccinated, to learn what the appearances were which the cow-pock pustule had exhibited in the arms of these patients, or what eruptions may have existed upon their bodies at the time the vaccination had been performed; but I know that in all of them the vaccine vesicle was reported to have gone through its course in a regular manner; that distinct marks of vaccine cicatrices were visible; that the degree of mildness or severity of the eruption in those who had been vaccinated, did not appear to be influenced by the more or less remote period of vaccination from that of the small-pox infection, or to have any dependence upon the size or number of the cicatrices; and I know also that the small-pox with which the vaccinated were affected, were equally mild, if not milder, than the small-pox were in the greater number of those affected with them who had previously

passed through this disease. With my knowledge of these circumstances, and the observation of the uniformly powerful effect of vaccination in mitigating the symptoms of small-pox, I cannot but believe that the vaccination in all of these individuals had been as perfect as the laws of nature permit.

From this historical review of the progress of the observations and opinions of medical practitioners in this country respecting the occurrence of small-pox after vaccination, it appears,

1. That from the introduction of vaccination, up to the present time, eruptions resembling small-pox have been observed to occur in a greater or less proportion of those who had appeared to have passed through that process in a regular and satisfactory manner.

2. That these eruptions have occurred during the epidemic prevalence of natural small-pox, and have appeared to bear a certain proportion in their frequency and severity, to the extent and malignity of that disease.

3. That in the earlier period of vaccination these eruptions were generally regarded as chicken-pox; but in the progress of this practice they came to be considered by medical practitioners sometimes as chicken-pox, and at other times as small-pox modified by vaccination, and that they have not unfrequently been denominated *anomalous* eruptions.

4. That the diagnosis between chicken-pox

and modified small-pox has usually been allowed to be very difficult, on account of the great resemblance which these eruptions bear to one another; and accordingly it has not unfrequently happened that the same individual eruption which had been denominated chicken-pox by one practitioner, has been pronounced by another to be small-pox modified by vaccination.

5. That the descriptions given of chicken-pox by Drs. Heberden and Willan, having included appearances similar to those observed in secondary small-pox, and in small-pox modified by vaccination, it became necessary, in order to distinguish these two forms of variolous eruptions from chicken-pox, to seek for some more precise characteristics of this disease.

6. That the first attempt in this country to fix more precisely than had formerly been done, the diagnosis between chicken-pox and small-pox, appears to have been made in 1809, by Mr. Brown of Musselburgh.

7. That to the diagnostic marks of chicken-pox, suggested by Mr. Brown, there have been lately added—the disease being incommunicable by inoculation—the susceptibility in those who have passed through this form of varioloid eruption of regular cow-pock infection; (See Account of Varioloid Epidemic, &c. p. 73, 75, and 188.) and the eruption being bullose, not cellular like small-pox.

8. That none of those who contend for the

existence of this species of chicken-pox as distinct from modified small-pox, have given us any information with regard to the duration of the disease which they have denominated chicken-pox, nor of the proportional number of cases in which this particular form of eruption occurs in individuals who have neither had small-pox nor cow-pox, compared with that in which it occurs in those who have gone through these diseases.

9. That the vesicular or bullose chicken-pox have been observed to arise in unvaccinated infants from the contagion of small-pox, and that this form of varioloid eruption has not hitherto been observed to prevail epidemically, independently of small-pox.

10. That it was originally supposed, and is still by some believed, that those who pass through cow-pock inoculation in a regular and satisfactory manner, are by this process rendered wholly unsusceptible of small-pox contagion.

11. That those who have adopted this belief, have at different times endeavoured to account for the occurrence of small-pox in those who have been vaccinated, by supposing that the vaccination had been *imperfect*.

12. That this imperfect vaccination has been supposed to have arisen from various causes. 1st, From inoculation with the matter of spurious cow-pox in the cow ; 2d, From inoculation with

equine matter; 3d, From inoculation with matter taken at too late a period from a vesicle produced on the human body, or kept too long after having been taken; 4th, From the production of of a local pustule by genuine cow-pox matter, without constitutional affection; 5th, From the rupture, accidental or intentional, of the cow-pock vesicle or from exhaustion of its contents; 6th, From the occurrence of cutaneous eruptions during the progress of vaccination; and, 7thly, from too small a number of punctures.

13. That it is to the three last of these causes, that those who believe in the *preventive* power of vaccination have chiefly attributed the occurrence of small-pox in the vaccinated, during the late very general prevalence of that disease.

14. That there does not seem to be any sufficient grounds for believing that cutaneous eruptions have been more frequent among those of the vaccinated who have been afterwards affected with small-pox, than among those who have escaped the contagion of this disease.

15. That the records of vaccination abundantly testify that during the first ten years of this practice, there was obtained from inoculation with one or two punctures, a security equal to, if not greater, than that which has since been supposed to be obtainable only by making three or four punctures.

And, *lastly*, That it has at length been acknowledged by the Board of the National Vac-

cine Establishment, " that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox, were admitted at first rather too unreservedly."

It would be desirable to compare the account that has been given of the varioloid eruptions which have been observed to occur in the vaccinated in this country, and of the opinions which medical men have entertained respecting them, with the accounts that have been recorded of similar eruptions in the other parts of the world in which vaccination has been practised. My information, however, with regard to these points, is by far too limited to enable me to execute this comparison in so full and accurate a manner as the importance of the subject requires. I must therefore content myself with stating to you such particulars as I have been able to collect from the writings relative to this subject which I have had it in my power to consult.

In perusing the extracts from these writings which I purpose to lay before you, you will perceive that, previous to the late general prevalence of the variolous epidemic, in but few countries besides Britain has the occurrence of small-pox after vaccination been recognized as a possible

event; and that in these countries there are many practitioners who still continue to maintain that the varioloid eruptions observed in the vaccinated cannot be genuine small-pox, or that the vaccination which they had undergone must have been imperfect.

In Hanover, Dr. BALLHORN and Mr. STROM-EYER, began to vaccinate in the end of 1799, during the prevalence in that country of a severe epidemic small-pox. In their "Traité de l'Inoculation Vaccine," printed at Leipsig in 1801, these practitioners have given an account of a number of cases in which varioloid eruptions had occurred in their patients from the ninth to the sixteenth day of vaccination. These eruptions they denominated subsequent *vaccine* eruptions; and, though fully aware of the error committed by Dr. Woodville in the Inoculation hospital in London, they do not appear to have had any suspicion whatever that they themselves had fallen into the same error, in supposing that the eruptions which they have described, arose from the action of the vaccine virus, and not from the contagion of small-pox. Of these eruptions which are said sometimes to have resembled small-pox, and sometimes chicken-pox, two circumstances deserve to be mentioned on account of their diagnostic relations; 1st, that the pustules were not depressed in the centre like those of small-pox; and 2d, that matter taken from them produced by inoculation only a local pustule.

My late friend and pupil Dr. MACDONALD of Hamburg, in his "Kritische Uebersicht der Theorie und Praxis der Kuhpockenimpfung," published in 1802, mentions, p. 37, that several of the children whom he had vaccinated afterwards became affected with the water or wind-pox, which were regarded by some who saw them, though, in his opinion, without any good reason, as true small-pox; he likewise mentions that he had met with eruptions similar to those described by Ballhorn and Stromeyer, in patients whom he had vaccinated during the prevalence of an epidemic small-pox in Hamburg and Altona; but instead of regarding, as they had done, these eruptions as proceeding from the action of vaccine matter, he considered them as nothing else but varicella produced by the infection of a variolated atmosphere, which his patients had breathed during the period of cow-pock inoculation.

Dr. MICHAELIS of Harburg, in his defence of vaccination, in answer to the objections of Dr. MARCUS HERZ of Berlin, inserted in the twelfth volume of Hufeland's Journal, mentions that some children at Altona became affected, a few weeks after vaccination, with a small-pox like eruption, which a practitioner declared to be true small-pox, but which Michaelis says seemed, from the description, to have been nothing else than a kind of spurious pox, which were at

the time very prevalent at that place. He also states that in Hesse, several cases had occurred of small-pox after vaccination, but in these he did not know whether the vaccination had been perfect.

Dr. SPOHR of Seesen, in Brunswick, mentions, (*Hufelands Journal*, 1802, vol. xv. St. 2. p. 12.) his having inoculated with small-pox matter three children who had appeared to him to have passed through the process of vaccination in a satisfactory manner. In two of these children, local pustules only were produced, but the third underwent a pretty severe attack of regular small-pox.

From this period I do not find any cases of varioloid eruptions supposed to be small-pox after vaccination, recorded as having occurred in Germany till the year 1809, when Dr. MUHRY of Hanover, who had translated Dr. Willan's treatise on Cow-pox Inoculation into the German language, published the particulars of a case of an eruption, which he conceived to be an example of the disease denominated in England small-pox modified by vaccination, occurring in a child of the name of Götte, who had been vaccinated to his satisfaction four years before, and who in the interval had passed through chicken-pox in rather a severe form. The publication of this case, as well as those of a similar nature detailed in Dr. Willan's work, excited by their novelty a considerable degree of interest in that

country, and gave occasion to a very able and ingenious Essay by Dr. Heim of Berlin, on the Diagnosis between spurious and genuine small-pox, which he inserted in the tenth volume of Horn's Archives for the year 1809. The object which Dr. Heim proposed to himself in this essay, was to prove that "the cases recently communicated by some English and German physicians of the occurrence of the genuine small-pox after previous and complete vaccination, are to be regarded as instances, in which the common spurious small-pox have been mistaken for the genuine, or cases in which the previous inoculation for the cow-pox having failed, it could afford no protection against the genuine small-pox."

"In 1776," Dr. HEIM remarks, (p. 184.) "when I was physician for the town and country at Spandau, both the genuine and spurious small-pox prevailed universally. Although before this time, I had seen and treated this disease very frequently, and imagined myself tolerably skilled in both sorts of eruption, yet I often met with cases which placed me in the greatest perplexity, and made it impossible for me to determine whether they should be classed with the genuine or the spurious small-pox. I remember one instance in particular, in which on the sixth day of the eruption, I confidently pronounced the disease to be the genuine small-pox. An old, and in some respects an ignorant surgeon, maintained the contrary; and it was not a

little mortifying to me, when some time afterwards, this child was really seized with the genuine small-pox. In the following years, I sometimes observed a kind of small-pox so very similar to the genuine, that I remained uncertain whether it should be reckoned genuine or spurious, and I am not ashamed to acknowledge, that in such cases I preferred waiting for the opinion of an old nurse, before venturing myself to form a decisive judgment. I have likewise sometimes remarked, that in seasons when no genuine small-pox were prevailing, the spurious sort were so frequent, that I was forced to consider them as epidemical. Families of six or eight children, were almost all seized with them. It often happened that one of these children had a sort of spurious small-pox, which not only resembled the genuine small-pox most remarkably, but which ran likewise almost exactly the same course; this resemblance went so far, that without doubt I should have considered them as the genuine small-pox, if any such had been prevalent at the time."

Dr. HEIM states, (p. 186.) that during the period of inoculation for small-pox, when he heard of any reports of the occurrence of small-pox after that process, he always examined such cases most minutely, and was invariably convinced that the eruptions supposed to be the genuine, were only the spurious small-pox. He mentions also, (p. 187.) that soon after the in-

troduction of vaccination into Berlin, "a number of cases were brought before the public, in which the genuine small-pox were said to have occurred after vaccination. But, upon a more narrow investigation, they were always found to be of a spurious kind, with which very few practitioners were familiar. Of above twenty cases, (he says,) which were brought forward, I shall only mention one which happened in 1802, in the family of Mr. Prahmer, private secretary to the forests. Three of his children had been vaccinated half a year before, by Dr. Kleeman of the upper Medical Board. They were seized with what was supposed to be the genuine small-pox. Herz, who was called to the children, exclaimed on entering the room where they lay, and before he had seen any of them: 'Oh! I smell it already, it is indeed the genuine small-pox;' and after having examined the children, he confirmed this assertion; but sixteen other physicians, among whom were Brown, Hufeland, Formey, Richter, Welper, Mursinna, Meyer, Koenen and myself, declared with one voice for the spurious small-pox."

"One of the children," he says, (p. 191.) "of a respectable banker in Berlin, Mr. Schickler, jun. took the spurious small-pox a short time after having been with two children who were ill of this disease. Fourteen days later, this child's sister was seized with the same disease, after having been unwell for three days, with violent fever,

thirst, and constant sickness. These symptoms having ceased, the spurious small-pox appeared, and the fever continued some days longer. A great quantity of pox now came out, which, from the fourth to the fifth day of the eruption, had much resemblance to the genuine small-pox. A number of them, both on the face and the other parts of the body, particularly on the feet, filled, and remained in that state for ten days, so that, after the twelfth or fourteenth day, all the pustules had formed a crust. Both of the children had been vaccinated a considerable time before. Their governess believed these small-pox to be genuine, and is still of that opinion. Every time that I examined this eruption with attention, she constantly declared that it was the genuine small-pox, and that my only reason for denying it was not to injure vaccination. All her acquaintance who had seen the child were of her opinion. And although she was seized herself with the disease, but in its mildest form, still nothing could alter her conviction. The supuration in the second of these cases lasted as long as in the genuine small-pox; but every thing, and in particular the nature of the pits that remained, the peculiarities of which I shall endeavour afterwards to explain, confirm the correctness of my opinion."

"In 1776, 1786, and 1799," he remarks, (p. 188,) "when the spurious small-pox prevailed very generally, I had the best opportuni-

ties of observing them in all their varieties. Upon a very moderate calculation, I can affirm, that, in the course of my practice, I have at least seen two thousand cases of spurious small-pox, and among these there might be from sixty to eighty cases which bore a most remarkable resemblance to the genuine small-pox."

Dr. Heim, at p. 194, gives a full and very interesting account of the occurrence of natural small-pox in two individuals of the same family, who some years before, had passed through a varioloid eruption, produced by inoculation with matter taken from a child conceived by all the practitioners who saw it, except himself, to be affected with genuine small-pox, but which both in the individual from whom the matter was taken, and in those to whom the disease was communicated, he regarded as spurious small-pox. "Many sorts," he remarks, (p. 199.) "of this spurious small-pox are familiar to every one; of these it is not my intention to take notice. I shall confine myself entirely to those which have so remarkable a resemblance to genuine small-pox, and which have lately given rise to so many mistakes and errors." He then enters into a very full detail of the peculiarities of this kind of small-pox, in regard to the eruption itself, to the pits which it leaves behind, and to the effects of inoculation with the matter of it. 1. Of the eruption, he says, (p. 209.) that it appears on all parts of the body at the same time, and continues to

come out even after the third day ; that it is itchy ; that it has a peculiar smell, different from that of the genuine small-pox ; that the areolæ surrounding the pustules are of a dark red colour, that the pustules on the face more frequently suppurate than on any other part of the body ; that some of the papulæ never come on to supuration, or only contain a watery fluid ; that the swelling of the face comes on at the first appearance of the eruption, and subsides as the pustules arrive at maturity ; and that the secondary fever is always absent. When a single pustule of this spurious eruption is examined, it is found to be soft and inelastic, and of a spherical figure ; when opened, a small quantity only of a fluid, which is never like pus, but thin and milky, flows out ; the skin, surrounding the pustule, is never elevated ; and when the crusts fall off, the red spots left behind are not long visible, and the number of pits is very small.

2. Of the pits left by the spurious small-pox, he remarks, (p. 220.) 1st, That their bases are always white, whiter than the rest of the skin ; that they are always smooth, as smooth as the shell of an egg ; that they have none of those points or little hollows which are frequently to be seen on the forehead, and particularly on the nose of a grown person ; and that no hairs are ever to be found in a pit of the spurious small-pox ; 2d, That the edge of the pit is round and smooth, of the same colour with the skin ; 3d,

That the figure of the pit is generally quite round, sometimes oval, and very seldom of an irregular form; 4th, That the depth of the pit is very various, and depends partly on its situation, and partly on its age; 5th, That no individual has above twenty pits of the spurious small-pox; 6th, That they are commonly left on the forehead, just above the nose, or on the nose itself; and lastly, That pits which have remained from forty to fifty years continue always white, and the edges are not indented, but round. After this description of the appearances and forms of the pits left behind by the spurious small-pox, Dr. Heim points out, at great length, the peculiarities of those produced by the genuine small-pox, by leech bites, by chronic eruptions, such as pemphigus, herpes, &c. and by venereal and scrophulous ulcers, and concludes this part of the subject by remarking, (p. 230.) that "although there are many cases where the perfect pits of the spurious small-pox are so distinct, that we discover at once their characteristic form, yet there are others in which it is really difficult to be able to say, positively, that such and such pits are formed by the spurious, and such others by the genuine small-pox. A long time indeed, and great attention, are necessary to apprehend and judge correctly of such delicate forms and outlines. I must likewise be permitted to observe, that this art of acquiring a quick and distinct perception of minute ob-

jects seems to demand a peculiar talent. It is the same as in other arts, which require a very high degree of improvement in some of the external senses."

3. Of inoculation with the matter of spurious small-pox, he remarks, (p. 234.) that the spot where the matter was introduced is on the second day somewhat raised and inflamed, which never happens in inoculation for the genuine small-pox; that the eruption in the spurious small-pox appears on the ninth day after inoculation, while in the genuine it does not appear till the twelfth day after inoculation; and that in the spurious small-pox a fresh and even a greater eruption takes place after the ninth day, whereas in the genuine small-pox no new pustules appear after the third day of the eruption.

"I am thoroughly convinced," Dr. Heim observes, p. 239. "that the spurious small-pox have been often mistaken for the genuine small-pox, by reputable and experienced physicians, as well as by the inexperienced. This error must have been frequently occasioned by an ineffective kind of inoculation, where the matter being commonly taken from the pustules of a very mild small-pox, instead of the genuine, has produced the spurious small-pox. One frequently inoculates with fresh matter from the pustules of the genuine small-pox; but this matter does not produce a completely formed

pustule, even at the place where it was introduced. From this there arises a very imperfect eruption of small-pox, which disappears in the course of three or four days; but we are greatly mistaken if we imagine that this kind of small-pox is sufficient to remove our susceptibility to a new infection from that disease. Children are also often so imperfectly vaccinated, that the pustule is never completely formed, and consequently they remain as much exposed as ever to infection from small-pox. Dr. Willan's book proves in many places," he continues, (p. 242.) "that I have been guilty of no injustice to those practical physicians, principally employed in large cities, in asserting that from them, least of all men, an accurate acquaintance with the spurious small-pox is to be expected. Dr. Willan maintains, that in London many instances have been observed of the genuine small-pox taking place after previous and successful vaccination. The same thing has been affirmed in Berlin, and in other large cities; but the truth of the assertion has never yet been established. According to my judgment, the English physicians, and particularly the most eminent in London, are precisely the persons most liable to form an erroneous opinion of a disease which is generally attended with so little danger as the spurious small-pox." "If Dr. Willan, (p. 245.) in place of the numerous instances he has advanced, of supposed genuine small-pox

after regular vaccination, not one of which in my opinion proves at all what he wishes to maintain, had only given one single case so accurately detailed as to remove all doubts upon so important a fact, his book would have been of the greatest value. After what I have stated," Dr. Heim remarks, (p. 248.) "it cannot be imagined, that I can assent to the theory of Dr. Mühry, of the modification of genuine small-pox, after previous and successful vaccination."

Dr. STIEGLITZ of Hanover, who had seen Dr. Mühry's case of modified small-pox, and had reviewed Dr. Willan's treatise on Vaccination, in the *Hallische Allgem. Lit. Zeit.* undertook, in a subsequent Number of Horn's Archives, (1809) to establish, in opposition to the opinion of Heim, the existence of small-pox modified by vaccination, and to prove that this is a disease specifically different from the spurious small-pox or chicken-pox. "Although I had read and heard much," he says, (p. 200.) "of the observations made in England, tending to prove that in a few very rare instances, genuine small-pox had taken place after the most successful vaccination, still I remained unconvinced." "And though (p. 201.) I was much struck by the public confession made even by the Vaccine Institutions, formed by Jenner and Pearson, that in some few instances the protective power of the cow-pox had entirely failed, they were not sufficient

to overcome my incredulity. And my scepticism was strengthened by the assurances, that after vaccination the small-pox did not hold its regular course, but was of much shorter duration, more gentle, and less dangerous. I deemed it a duty, therefore, to read and examine Willan's treatise with the utmost attention, as the author who has most fully treated the point in question. After much reflection, this work completely convinced me of the possibility of the occurrence of small-pox after vaccination, and of the modification which they undergo from this process." "In considering," Dr. Stieglitz remarks, (p. 212.) "the very few instances which have given rise to any grounds of complaint against vaccination, nothing can be more interesting, or more calculated to excite our astonishment, than the circumstance, that although, in some extremely rare exceptions, the cow-pox is not capable of destroying all future susceptibility for variolous infection, still it possesses the wonderful and peculiar property of influencing the whole system, for ever afterwards, in such a manner, that though genuine small-pox were to occur even at the distance of years, the nature of the disease would be entirely altered, would wear another aspect, hold another course, and consequently would be much less severe or dangerous. It was never discovered," he adds, "that when small-pox, measles, or scarlet fever, attacked an individual a second or even a third

time, there was any peculiar modification of the disease; that its form was altered, its course abridged, or its symptoms less decided. And yet by the cow-pox, which hardly merits the name of a disease, are all these effects, and in the most remarkable manner produced, upon a malady so formidable as the small-pox, in those rare instances where vaccination does not place an attack of small-pox beyond the reach of possibility. When this deviation from the general rule is more fully established, which I cannot doubt must take place, it will be indeed a new and certainly not one of the least triumphs of the glorious discovery of vaccination."—"We can desire no more satisfactory proofs of the power of any cause, than that it should manifest its influence in a way so astonishing as is done by vaccination, even in those cases which deviate from the most general rule, whether small-pox occur at a longer or shorter interval after the cow-pox. From thence, it should serve as a proof that vaccination has been *perfect*, when it is followed by precisely the same sort of modified small-pox which Willan and others have observed and described. To my apprehension this conclusion is so evident and decisive, that it seems to repel every objection; yet the English physicians have overlooked it entirely, and are of opinion that even these rare cases of modified small-pox may be prevented, by a *further improvement* in

the methods employed in vaccination."—"Had Willan," he observes, (p. 215.) "drawn the same conclusion as I have done, he would not have spent so much fruitless trouble in endeavouring to find something suspicious in the vaccination, whenever he met with a case of modified natural small-pox. If the case has not fallen within the observation of an experienced physician, it is always an easy matter for the public to raise some objection, and place the cow-pox, which has taken place long before, in an unfavourable point of view. But the presence of this modified small-pox is the most certain proof that the cow-pox has been genuine and successful."—"I cannot renounce, however," Dr. Stieglitz observes, (p. 230.) "the opinion which I have so long entertained, that genuine small-pox and varicella have a distinct origin and contagion, and that the difference in the two diseases is by no means occasioned by the same virus being in the one possessed of its full powers, and in the other weakened and degenerated. I have observed an epidemic small-pox, without hearing of chicken-pox, either before, after, or during the time it was prevailing; and, on the other hand, I have frequently seen chicken-pox very general when there was no epidemic small-pox."

Dr. MUHRY, in a paper inserted in the 10th volume of Hufeland's Journal, admits the accuracy of Dr. Heim's diagnosis between genuine

small-pox and chicken-pox, but contends that the eruption with which his patient Götté had been affected, was different from either of these diseases.

Dr. HEIM, again, in his reply to Drs. Stieglitz and Mühry, observes, (Horn's Archives, 1811, p. 270.) that "these meritorious physicians have not convinced me of the truth of their assertions, that, in some rare cases, genuine small-pox could occur, and have actually occurred sooner or later, after genuine cow-pox; and as I am as little in a situation to prove that this occurrence is physically impossible, nothing remains for us but to wait patiently the result of future decisive discoveries."—"It must not be forgotten, however, (p. 276.) that it is often difficult to distinguish the genuine protecting from the spurious imperfect non-protecting cow-pox; and that it is impossible to prove that the cases maintained by the English to be genuine small-pox, which occurred after previous supposed genuine cow-pox, were really genuine. We may see, from a multitude of passages in Willan's work, how frequently they are confounded even by the best inoculators. Those, then, who think they have themselves met with this truly wonderful occurrence, will have to prove not merely that the pox now observed are the true genuine small-pox, but also that the previous cow-pox inoculation was perfect and genuine. How much is necessary in order to prove the first!

how very difficult it is to remove every doubt respecting the second!"

In the 28th volume of Hufeland's Journal, (St. iv. p. 101. 1809.) Dr. ELFES mentions the case of a boy, who in 1801, passed through regular cow-pock inoculation under his own observation, but who, two years after, was attacked by small-pox at the time that his brother was affected with this disease; and in the 30th volume of the same Journal for 1810, Dr. NOLDE mentions, (St. iv. p. 73.) that during the prevalence of a very malignant small-pox epidemic that prevailed in Westphalia in 1808-9, only one case occurred to him of a child dying of small-pox that had previously undergone vaccination. As the surgeon by whom the child had been vaccinated was dead before this occurrence took place, Dr. Nolde could not ascertain whether the cow-pox had been genuine.

Dr. BREMER, Director of the Royal Inoculation Institution in Berlin, in a paper inserted in Horn's Archives for 1811, states, (p. 301.) that of 14,621 individuals whom he had vaccinated, *no one* had subsequently become affected with genuine small-pox. "Instances indeed are not wanting," he says, (p. 301.) "of children having been attacked with small-pox some years after vaccination, and there seldom passes a week in which some such are not made known to me, and I am urgently called to see them, but on an accurate investigation I have *always found*

that the disease was either *spurious small-pox*, or a *scrophulous eruption*." In illustration of this statement, he relates (p. 307.) the following case. "Professor Zeneker, one of the most experienced inoculators, vaccinated the child of a respectable person, who underwent the regular course of perfect cow-pox. This child, one year and a half after, took an eruption, which the then physician of the house declared to be genuine small-pox; and almost all the physicians and surgeons who visited it supported his opinion. Professor Zeneker was called in, and much as he was convinced to the contrary by his former experience, still, from their great similarity to genuine small-pox, and from the exclamation of the physicians present, partly of the first rank, 'they are true small-pox;' and from the information of the parents, he was embarrassed and began to doubt. Astonished at this occurrence, Zeneker requested of me my free opinion. I saw the child with the pox on the seventh day of the disease. The fact was as follows:—The child, six years old, was attacked with heat, headache, vomiting, constipation, watery eyes, aversion to light; the following day small red spots appeared on the face, neck, and breast, which gradually became visible over the whole body, on the palms of the hands and the soles of the feet, and then grew to a considerable size, and filled with yellow matter; they

became round and elevated, and part of them began to scab on the fifth and sixth day, so that by the seventh or eighth, I found only a very few pox filled with matter. Although I had convinced most of the physicians, by the description of the facts, that these were spurious pox, still two respectable physicians retained their opinion. In order to convince these also, I caused a circular to be sent on the seventh day of the disease to the physicians and surgeons, and invited them to inoculate five children with this matter the next day, in order to convince them of its uninoculability. The inoculation was performed before witnesses. A journal of the circumstances of the case was kept, and it shewed that no one of the inoculated received small-pox, either spurious or genuine. The places of inoculation, of which I had made three upon each arm, had inflamed much by the second and third days, a proof that the matter had taken effect. But by the fifth day every thing had disappeared, and the children likewise remained sound; from this time all was quiet, and it was forgotten." "I found here," he adds, (p. 309.) "a similar case at a Jewish banker's where I was called by two of my respectable colleagues, but which did not excite so much public attention. The physicians, indeed, were convinced that the small-pox were spurious, but not the parents of the

child, though they became satisfied of this from the proofs I laid before them."

In the 35th vol. of Hufeland's Journ. 1812, (St. viii. p. 98.) Mr. RAVE relates the cases of three children of one family, two of whom he vaccinated in 1807, and the third in 1809, and who underwent cow-pox in a perfectly regular manner, but who in the course of 1810 were siezed with small-pox, from which the eldest with difficulty recovered. He likewise mentions that some children at the same place who had been vaccinated three or four years before by surgeon Heyne, and who, from his description, seemed to have passed through regular cow-pox, suffered attacks of small-pox at the same time as those vaccinated by himself.

In the 41st vol. of Hufeland's Journal, 1815, Dr. ALBERS mentions, (St. ii. p. 52.) that he had never seen more than five cases of genuine small-pox occurring after regular vaccination, and that these cases were all of a very mild nature. In the 44th vol. of the same Journal, 1817, Dr. FISCHER of Lüneburg mentions (St. ii. p. 27.) that during the prevalence of a variolous epidemic by which several imperfectly vaccinated children were affected, one who had passed through regular vaccination took a pustular eruption which at first appeared to resemble the small-pox, but did not come to perfection and suppuration, and on its drying up left the child in good health. In the 50th volume of the same Journal, Dr. KAUSCH

of Leignitz, mentions, (St. vi. p. 10.) that during the course of the genuine small-pox epidemic that prevailed in several villages in the district of Haynau Goldberg in the spring of 1820, some individuals who had passed through perfect vaccination, were affected with an eruption consisting of small pustules, which ran through their course rapidly, were accompanied with very little sickness, and no secondary fever. Such cases Dr. Kausch considered as examples of modified small-pox. The disease, he informs us, was much more severe in those individuals in whom the cow-pock had either run an imperfect course, or whose vaccine cicatrices shewed that the vaccination had failed.

M. DE LA ROCHEFOUCAULT LIANCOURT had the merit of first calling the attention of his countrymen in France to the practice of vaccination. "This nobleman," (See Bulletin de la Vaccination, No. I.) "on his return from the United States, having seen in London the success obtained from inoculation with cow-pox, immediately after his arrival in France, announced in the public papers the astonishing results which had come under his own observation. He persuaded several individuals, animated like himself for the public welfare, to open a subscription for the purpose of repeating in Paris the experiments which had been performed in London. This idea was eagerly adopted, and a meeting of the subscribers was held on the 11th

May, 1800, at the Ecole de Medicine. These subscribers, among whom we may reckon several of the principal functionaries of the state, formed a committee of administration, charged with superintending the employment of the funds of the society, and appointing physicians and surgeons who were to watch over the experiments relative to the new inoculation, and to give an account of them to the subscribers. It was this combination of professional men which, under the name of the Medical Committee of Vaccination, made the attempt to procure, through the intervention of the minister for foreign affairs, the matter with which the first inoculations were performed." The first experiments, however, which this committee made failed, and it was not until Dr. Woodville arrived in Paris that the operation of cow-pock inoculation was successfully performed in France.

From that period to the present, vaccination has been very generally adopted in France, and regular reports of its success have been from time to time published by M. HUSSON, secretary to the Central Committee of Vaccination, whose zeal and perseverance seem to have tended greatly to the general diffusion of the benefits of this practice. These reports contain a great mass of interesting information respecting the progress of vaccination in France; but we shall look into them in vain for accounts of any varioloid eruptions similar to those which have been reported to have

occurred in the vaccinated during the same period in this country ; and, of course, in vain also for any of those delightful proofs of the wonderful power which cow-pock inoculation possesses of mitigating the severity of small-pox, and of rendering them a comparatively mild disease. *Vaccinal* eruptions, indeed, are mentioned as having occurred at different periods during the progress of vaccination, as well as after it, but they are uniformly referred to the action of the cow-pock virus. It is curious to remark, that while in England the introduction of vaccination has procured a greater degree of attention for chicken-pox than they had ever previously received, and that while so great a proportion of the varioloid eruptions in the vaccinated have been declared to be such,—in France, varioloid eruptions are not admitted by the central committee ever to have occurred in the vaccinated, and chicken-pox are not even mentioned among the eruptions which are reported to have occurred in those who had gone through the salutary process of vaccination. Another circumstance, not a little singular, is, that while in England we have dreaded the production of a spurious cow-pock from the presence of cutaneous eruptions, in France the practice of vaccination should have been believed, not only to be an universal preservative against small-pox, but a cure also for cutaneous eruptions, as well as for a great por-

tion of the other diseases to which the human body is liable.

In their first report, dated 29th December, 1800, the Central Committee of Vaccination state, (*Journal de Medecine*, t. ii. p. 36.) "that although one puncture is sufficient to constitute perfect vaccination, and to preserve against small-pox; yet from three to six punctures are generally made. The more numerous they are the more certainty there is of some of them producing vesicles, and the more likelihood is there of obtaining matter in abundance."

It having been asserted that small-pox might follow vaccination, the committee, in a report, dated January 27, 1801, (*Journal de Med.* t. ii. p. 71.) state, that "they take this opportunity to assure the public, when reports of small-pox occurring after vaccination are spread, that *no authenticated* case of this kind had come to their knowledge."

In a report of the Committee of Vaccination at Reims, (*Journ. de Med.* t. ii. p. 72.) we are informed, that "of 164 individuals who had been vaccinated, in two or three the vaccine vesicles were not developed until the 20th or 22d day; and that, in one case, true cow-pock was followed by an *eruption* of 60 or 80 pustules, which were similar to those produced by vaccination." Small-pox were prevalent at Reims at the time these inoculations were performed.

M. MERCHIER mentions (*Jour. de Med.* t. ii. p. 111.) that of 234 individuals whom he had vaccinated when small-pox were raging epidemically at Peronne, there were five children, in whom, from the tenth to the twentieth day, white solid pustules appeared, some of which, in one child, only furnished a transparent fluid.

In a report of the Central Committee of Vaccination, dated 2d March, 1801, (*Journal de Medecine*, t. ii. p. 166.) we are informed of a case in which an eruption occurred forty-six days after vaccination in a child of the name of Victoire Cronier. In a letter addressed to the Committee of Vaccination, it is mentioned, that "the nausea and vomiting, &c. which in the small-pox always precede the eruption, did not, in this case, occur till three days after it had made its appearance; and that, by the seventh day, the desiccation was nearly complete." With respect to the nature of this eruption there seems to have been a difference of opinion. Some having conceived that it was variolous, the committee, in order to do away with any uncertainty that might exist on this point, inoculated five children with matter taken from the eruption on the eighth day. "It was found, on examining these children on the ninth day after inoculation, that the punctures were healed, and that no suppuration had taken place." From a report, however, of the committee, dated the 18th of the same month, we learn that

they had heard of another child who had been inoculated with matter from Cronier, in whom it was said to have produced eruptions. "Having visited this child, the committee found that" it had been vaccinated some time previously, that the punctures of the last inoculation had not suppurated, but that it was affected with a fugacious *eruption* which was then prevalent, but which no well informed person could confound with small-pox. Indeed, the nature of the eruption, its rapid progress, the appearance of the fever during, instead of before the eruption, and its frequency in children who had not been vaccinated, all tended to remove any suspicion of its being small-pox." In a third report on this case, dated the 27th of same month, the committee state, "that they had received a letter from M. DESESSARTZ, in which he says that the eruption had neither the progress nor the character of small-pox; that it came out successively, and in great numbers at a time; that fresh pustules appeared as those which had come out previously dried up; that the desiccation was rapid; and that the pustules contained no pus, but only a little thick humour."—"Well informed men," the committee add, "can have no doubt with respect to the character of this *eruption*. It is known that it is epidemic at this moment in Paris and throughout France. A great number of physicians have observed it in children who have not

been vaccinated, in individuals who have been inoculated for the small-pox, and in those who have had that disease in the natural way."

The late Professor ODIER of Geneva, who was the first physician that employed cow-pock inoculation in that Republic, published several articles upon the progress of this practice, in the *Bibliothèque Britannique*, of which he was, for many years previous to his death, one of the editors. In speaking of the preservative power of some cow-pock matter, which he had received from Dr. De Carro of Vienna, and with which he had vaccinated three children, one of whom afterwards took small-pox by inoculation, Professor Odier says, (*Bib. Brit. T. 13. p. 417.*) "It appears, 1st, That the virus which had been sent from Vienna by Dr. De Carro, and which had been taken from the arm of Count M. had lost, *in part*, its power of protecting from the small-pox. 2d, That it had, however, preserved that of producing a spurious cow-pock, very active and susceptible of being communicated by inoculation from one individual to another with the same spurious characters—that is, capable of exciting in all a premature and extensive inflammation around the puncture, with some symptoms of constitutional affection, but incapable of protecting *completely* from the small-pox."

In another communication, (*Bib. Brit. T. 14. p. 394.*) Dr. Odier informs us, that "on account of the prevalence of a malignant small-pox, the

number of vaccinations had, in the course of the month of July, been greatly increased; that some of the vaccinated had had the red spots of which Dr. Pearson makes mention, and others an abundant eruption of pustules, which evidently appeared to arise from small-pox contagion." "It is quite clear," he remarks, "that if we vaccinate a child who has already the germs of small-pox in his constitution, it is an accident which we have no means of foreseeing, and which may naturally be expected to present itself during the course of a severe epidemic; and if the small-pox appear before the vaccination has taken effect, it does not modify them, they are neither more fortunate in their termination, nor less abundant, they are, in short, what they would be independent of the vaccination; but if the small-pox do not appear before the development of the vaccine vesicle, especially until after it has produced a constitutional effect, then the small-pox are modified by the vaccination, as they would have been by inoculation; they are incomparably more mild than the natural small-pox, and the pustules dry up much more quickly. Finally, with respect to the fear of small-pox occurring after vaccination, it appears to be ill-founded; and we believe we may affirm, from our own experience, that vaccination assuredly protects against the small-pox."

In a memoir upon inoculation, (Bib. Brit. T.

15.) Dr. Odier states, (p. 83.) that eruptions resembling small-pox have been observed in some vaccinated patients in the proportion of two or three in the hundred; and (p. 85.) he remarks, "of 400 vaccinated, in five or six, after the development of the vaccine vesicle, pustules presented themselves on all parts of the body, similar to those of chicken-pox, or rather to that variety of chicken-pox in which the pustules remain only three days, but are succeeded by others, so as to prolong the disease for several days. These pustules are vesicular, filled with a fluid limpid as water, and surrounded with a small areola. May we also attribute this eruption to the prevailing epidemic which frequently produced the *small-pox* and the *chicken-pox simultaneously*; or rather ought we to consider them as true vaccine pustules, similar to those produced by the punctures? I incline to this latter opinion, because the children who had been inoculated with the limpid fluid contained in the pustules at a *distance* from the punctures, had the cow-pock as if they had been inoculated with matter from the vesicles of the punctures themselves; but why this general eruption should be so rare as two in one hundred, I am unable to say."

M. GRANIER, in a memoir upon vaccination, read before the Society of practical medicine at Montpellier in May 1806, and which procured for him the prize given by that society, for the

best essay upon the subject of cow-pox, remarks, (Actes de la Societé de Med. Prat. de Montpelier, T. 1. p. 409.) "It must be allowed that vaccination, during its course, produces certain *eruptions* in every respect similar to those which appear at the points of insertion, and that true vaccine pustules are developed either generally or partially, on the bodies of some individuals, at places not exposed to the contact of the vaccine matter. There are facts which prove it." He relates the cases of three children who had had these *vaccinal eruptions*. In the first case, the eruption appeared on the 7th day of vaccination, was preceded for two days by fever; the eruption did not come out all at once, but some pustules appeared at the same time that others, which had come out previously, were dying away. In the second case the vaccinal eruptions appeared on the 10th; and in the third on the 11th day of vaccination. Two cases of partial secondary eruptions are also related, in the one supervening on the 5th, and in the other on the 10th day of vaccination. Miliary and urticarious eruptions are also mentioned as a consequence of vaccination; and in one case it is said to have rendered worse, a crusta lactea, which was present at the time the operation was performed.

M. FAUCHIER, in a memoir on vaccination, which shared the prize with that of M. Granier, remarks, (Actes, &c. T. i. p. 553.) "that there

is an accident which sometimes accompanies vaccination, and really depends upon it,—the appearance of some pustules truly *vaccinal* upon different parts of the body. In a small number of these cases, the pustules have a perfect resemblance to the pustule at the place of insertion; the areola, the swelling, the central depression, and the pearly colour, are all present; there is only a difference in the size; the secondary pustules are always smaller than the primary; they never appear before the fifth or sixth day of vaccination; sometimes they are vesicular when the others are almost dried up, but in general their progress is more rapid; and although they do appear later, the areola shews itself at the same time, and they run their course together in the most regular manner.”

“In the examples which I have described,” he says, “the pustules are very few in number, three or four, sometimes only one. In other cases they are much more numerous, amounting even to five hundred; but then their *vaccinal* character is not marked in so distinct a manner. They present, indeed, some resemblance to the pustules of insertion; thus they have a small areola, sometimes a slight depression in the centre, or they only contain serum and not pus. These pustules have appeared at different periods after vaccination, from the first day to the eleventh or twelfth day, and their course has never been similar to that of the pus-

tule of insertion." In speaking, (p. 584.) of chicken-pox, Fauchier remarks, "that they appear sometimes shortly before or after small-pox; more rarely they exist at the same time upon the same individual, without influencing each other, and go through their different stages without experiencing any derangement. They also sometimes follow vaccination; more frequently they co-exist with it. This co-existence and succession of chicken-pox to vaccination has not been much noticed in England; it was observed chiefly at Paris in 1801 and 1802, at that period of the year when the constitution was eruptive. The chicken-pox also were then epidemic, and were very common among children. They attacked not only those who had been vaccinated, but a great number likewise of those who had not been so."

In the Report on Vaccination in France for 1806 and 1807, published in 1809, the committee state, that six practitioners had met, as a consequence of vaccination, with *horny eruptions*, composed of small confluent *boutons*, about the size of a millet seed, without matter, and so hard that a needle could not be introduced into them; that nine practitioners had observed another species of *eruption*, formed of transparent *vesicles* surrounded with a red areola, accompanied with slight fever, and which were cured in six or eight days by emollient washes. Inoculation with the matter of this eruption produ-

ced no effect ; that thirteen practitioners had seen miliary eruptions of different kinds with or without fever appearing, along with or after vaccination, and terminating in a shorter or longer time ; that eighteen practitioners had met with certain cases which prove that *vaccinal* eruptions occur on all parts of the surface of the body ; and that nine other practitioners had seen these eruptions distributed upon some parts of the body only. From the external characters which these eruptions exhibited, from the inoculations which were made with the matter they contained, there could be no doubt that they were either of a *vaccinal* nature, or that they were the produce of accidental vaccination, and to be regarded, therefore, as supernumerary pustules. “ Fourteen of our correspondents,” the committee remark (p. 45.) “ fearing that, in similar circumstances, some might be imposed upon by superficial appearances, have inoculated with the matter of these eruptions, children who had neither had small-pox nor cow-pox, and have produced the true vaccine disease.”

Dr. ODIER, in a note upon the Report of the Royal College of Physicians of London for 1807, states, (Bib. Brit. t. 36. p. 355.) that he himself had never seen a case of small-pox after efficacious vaccination. “ There has not,” he says, “ a single case occurred to my knowledge in Geneva. Three or four years ago a report was spread that such an occurrence had taken place ;

I went with Drs. Vignier and Mathey to see the child; it was a well marked and mild case of *chicken-pox*, but we had much difficulty in persuading the parents and neighbours that it was such."

In their report for 1808 and 1809, the Central Committee of Vaccination remark, (p. 47.) "It must not be imagined, that the action of the vaccine virus is always confined to the inoculated part, and that it does not react in a manifest manner upon the whole system. Certain constitutions, more irritable than others, are rendered more sensible by this to every stimulus; and there are examples which prove the effect of this new irritation. The committee can attribute to this action only, the supernumerary *vaccine* pustules, and the *vaccinal* or *vacciniform* eruptions which, in the course of 1808-1809, have been observed upon a small number of subjects." "Thirteen practitioners report their having seen these *vaccinal* eruptions appear on different parts of the body from the sixteenth to the twentieth day of vaccination. The matter of these eruptions produced the *true vaccine*." "Two practitioners had seen them produced by the patient sucking the vaccine pustule; the matter of this eruption likewise produced on others inoculated with it the true vaccine."—"Vesicular eruptions," they continue, (p. 50.) "which may be attributed as much to the action of the atmosphere as to the stimulus of the vaccine, have been observed in

the departments of Liamone, and of Leman, and MM. Danois, and Piccault, have observed the same thing."

In their report for 1810, the Committee state, that the *horny* and *vesicular* eruptions are connected with a kind of general change produced in the constitution by the absorption of the vaccine virus. "Eleven practitioners," they say, "have met with cases in which *vaccinal* eruptions were dispersed on different parts of the body, and besides these, seven others have produced vaccine pustules by inoculation with the matter of these eruptions."

After giving examples of the antivariolous power of vaccination, the committee observe, (p. 81.) "It appears, however, that in some cases the *preservative* effect of vaccination has been defective, and that small-pox have appeared upon some individuals who had been vaccinated."

One case is then mentioned as having occurred to M. Cheflet of Orly; two to M. Daniel of Beauvais; two to the Subprefect of Vire; one to M. Auger of the same department, and one to M. Cattin of Nolay. In all these cases, the vaccination is reported to have been regular.

The committee further remark, (p. 83.) "that in all the cases in which they had been called upon to judge of the nature of eruptions occurring in the vaccinated, as well as in the unvaccinated, they have first acquired every possible information with respect to the character of the vaccina-

tion; they have then inoculated with the matter of the doubtful eruption, and they have *never* seen that the inoculation reproduced the disease of the patient from whom the matter had been taken."

Professor ODIER, in the 45th volume of the *Bibliothèque Britannique*, (note, p. 272.) after mentioning that varicella is in Britain called chicken-pox or swine-pox, asks whether these two diseases are different from one another; "I do not know," he says, "but I am inclined to believe that if they have the same origin, there are at least several varieties of them, the passing through one of which does not protect against an attack of the other. For I have seen children pass several times through what we commonly call chicken-pox, sometimes under one form sometimes under another; and these diseases have often so striking a resemblance to the small-pox themselves, as to have given rise to ill founded apprehensions or prejudices, formerly against inoculation, and now against vaccination."

In their Report for 1811, The Central Committee say, that "they will no longer insist upon the description of the ordinary phenomena of the cow-pock, nor even upon the irregularities which it sometimes presents; these questions having been sufficiently considered in the preceding reports; they will confine themselves to pointing out the internal action which is every day proved by the movement which the vaccine

stimulus exerts over the economy. This action is manifested daily by those *vaccinal* eruptions which appear at a distance from the place of insertion, and which, if they were more frequent, would overturn one of the fundamental doctrines of the new inoculation, viz. that the vaccine pustules are developed only on those places where the matter is inserted. Now, there can no longer remain any doubt upon the existence of these eruptions ; but they are observed so seldom, and in a proportion so small, compared with that in which they do not occur, that they ought to be considered as exceptions which confirm the general rule."

In a report of the Society of Medicine and Vaccination of the Department of Eure for 1811, by M. DELARUE, (Journ. de Med. t. 25. p. 106.) we are informed that "several children who had passed through cow-pock inoculation regularly, have been affected with eruptions which were taken for small-pox, but which, when examined attentively, presented very different characters." "We have seen also," he remarks, "a vaccinated child, in whom to all appearance the vaccination had proceeded regularly, who was covered with pustules, the greater number of which had the appearance of small-pox ; but we know that it was not this disease, from the following circumstances ; 1st, The child had neither fever, sickness, vomiting, nor nausea, previous to the eruption ; 2^d, The fever supervened two days

after the appearance of the eruption, and during the night only; 3d, On the fifth day, the pustules were unequal in form and size; and, 4thly, They did not all contain purulent matter.” “It has also been remarked in this department, that the small-pox occurred a long time after vaccination; but it has been ascertained in these instances, either that the vaccination had produced no effect, or that it had followed the course of spurious cow-pock.”

In a Memoir upon Vaccination, read before the Imperial Institute of France on the 17th August, 1812, by MM. Berthollet, Percy, and Hallé, among other questions proposed is the following: “Will a vaccinated person, when exposed to the contagion of the small-pox in circumstances fit for their development, be exempted from contracting that disease?” In answering this question, the memorialists, in the 1st place, exclude all individuals in whom the character of the vaccination had not been properly ascertained, all in short who had passed through spurious cow-pox, the distinctive characters of which they say have been satisfactorily ascertained. In the 2d place, They exclude all those individuals who have suffered eruptive diseases, designated under the name of *small-pox*, but the characters of which evidently belong to the *chicken-pox*, or to some *anomalous* eruption, which has only an imperfect resemblance in its form to small-pox, but which has no other analogy to that disease. And

in the 3d place, They exclude those cases in which the small-pox had occurred during the progress of vaccination. After these deductions, the memorialists admit, “ 1st, That cases of small-pox after vaccination have occurred at the Jennerian Institution of London. 2d, That fifty-six cases have been communicated to the College of Surgeons of London. 3d, That two cases have been reported by the National Vaccine Establishment. (Report, 1811.) 4th, That the correspondence of the Central Committee of Vaccination at Paris affords six examples; and, lastly, that they themselves had seen a child on the 7th Dec. 1806, covered with a very abundant, but very regular and mild small-pox. This child had been vaccinated satisfactorily in March 1804, by M. Laune, who kept an account of its progress.” “ It is evident then,” they continue, “ that it is not impossible for a person who has been vaccinated to take the small-pox. But what degree of probability do these observations afford that vaccination will protect against small-pox?” The memorialists calculate, that 2,671,662 individuals have been vaccinated in France, and that seven is the whole number of cases in which small-pox have occurred, thus making the proportion as one in 381,666.

In their Report for 1813 and 1814, the Committee remark, (p. 34.) “ We will no longer insist upon the very slight irregularities of the

cow-pock. We will limit ourselves to the consideration of the internal action, the intestinal movement which the vaccine stimulus exerts upon the economy. This action is evidently proved by the *eruptions* which present themselves at a distance from the place of insertion, by the changes which take place in certain weak individuals and in certain diseases. It is to this action that we would call the attention of physicians, as the only part of the doctrine of the new inoculation upon which anything of interest can now be offered." Thus, (p. 35.) M. BARRAILON, physician at Chambon, and M. RIEFFEL, surgeon at Dampierre, have seen *vaccine* pustules developed in different children upon the shoulders, shoulder-blades, and the loins. The last mentioned gentleman has inoculated with the matter, and produced regular vaccine vesicles without eruption. In other cases, as those which have been observed by MM. Regal of Gaillac, and Madin of Verdun, these eruptions have not had the characters of cow-pock, they have been dispersed over the body without redness, and have terminated without supuration; and their progress has not had any manner of influence upon the health of the individuals upon whom they occurred."

In the Report for 1815, the Committee observe, (p. 25.) "The internal action of the vaccine virus sometimes produces, after the vaccination has run its course, an eruption, the cha-

racter of which is not well determined. Sometimes this eruption is of a nature completely *vaccinal*; that is, the pustules which are formed have the same external appearance, and run through the same stages as those which were developed at the place of insertion. These eruptions occur after a longer or shorter interval subsequent to vaccination, and the matter which they contain produces the true cow-pock." The committee, after giving proofs of the anti-variola powers of vaccination, as evinced by the exposure of the vaccinated to the contagion of small-pox, to inoculation, and to the return of variolous epidemics, remark, (p. 40.) "that to all these facts, which establish so decidedly the antivariolous power of small-pox, they are obliged to oppose others, in which it would appear that this power was defective. Always impartial, always seeking after truth, they hesitate so much the less to state the facts entire, that even when authentic they are in a proportion so small, when compared with those which are favourable to the new inoculation, that they appear to be rare exceptions, which confirm the general rule." Some cases of the occurrence of small-pox in the vaccinated are then mentioned, but the committee seem to attach no weight to them, because the vaccination had been performed either by Curates or Midwives. There is one case, however, which they admit as unequivocal. Two sisters were vaccinated at one of the dispensaries

in Paris in 1806 ; nine years after, one of them was admitted, for a severe complaint, into the Hospital *des Enfants*, where small-pox then were ; four days after her dismissal she was seized with all the symptoms of small-pox, of the nature of which the committee had no doubt. “ In this case the vaccination had been so regular, that other children were inoculated with matter taken from it. The small-pox were caught in the hospital at the time they existed there, and the child was visited by different members of the committee, all of whom acknowledged the disease to be small-pox. This then is a fact, the authenticity of which we admit, but it proves, notwithstanding, the efficacy of vaccination, for, during the course of this disease, the other sister, who had been vaccinated at the same time, had all the precursory symptoms of small-pox, without the eruption. What conclusion is to be drawn from this fact, which we regard at present as *unique* ? nothing more than that *one* individual, out of several millions, has had the small-pox after vaccination.”

In a discourse delivered to the committee of vaccination, in 1815, by M. CHAUSSIER, this distinguished physician says, “ Among the number of facts which have been brought forward against the efficacy of cow-pox, it has been alleged sometimes that the cow-pox was not developed after the inoculation, sometimes that the pustules were spurious. These cases merit no atten-

tion ; but at other times we have seen a *pustular eruption* supervene after vaccination, the progress of which appeared to have been regular ; this demands particular attention. Thus, in the course of the month of August last, three children of M. Boullay, a distinguished apothecary in Paris, who had been vaccinated several years before, and bore on their arms the marks or cicatrices of the punctures of inoculation, and in whom the vaccination had been regular, experienced a general uneasiness, and well marked fever, which was very soon followed by an eruption of isolated pustules, distributed over the whole surface of the body. The eruption at first was regarded by the parents, and by some physicians, friends of the family, as true, distinct, and benign small-pox. The Central Committee of Vaccination, being informed of these events by M. Boullay, thought it their duty to collect carefully all the circumstances connected with the cases, and to satisfy themselves of their correctness. Every day some of the members of the committee visited these children, and followed the disease throughout its whole course. At first sight one might be easily deceived by the appearances which presented themselves. The pustular eruption with which these children were affected had indeed some resemblance to small-pox ; it differed from them, however, in the mildness and benignity of the symptoms, the rapidity of its progress, and the quickness of the desic-

cation which took place on the fifth day of the disease. Finally, to ascertain as distinctly as possible the nature of this affection, matter was taken from the pustules, and six children who had neither had small-pox nor cow-pox were inoculated with it, and, notwithstanding all the attention which was bestowed upon these inoculations, *none* of the six children experienced the least inconvenience. There was nothing then," Chaussier continues, "which proved incontestibly that M. Boullay's children had had the true small-pox. But we will go farther: admitting this fact as certain, allowing even, if you will, that among millions of individuals, some, and we could cite more than *eight* or *ten*, have been afterwards attacked with true small-pox, ought it to be from this concluded that we are at present deceived with respect to the preservative efficacy of vaccination? undoubtedly not."

In their Report for 1817, the Committee remark, (p. 44.) "If, upon an infinitely small number of individuals no pustule has been developed by vaccination, there are others, on the contrary, in whom an *eruption of pustules*, more or less copious, and possessing all the characters of those of insertion, has manifested itself. M. BARRE, physician at Chalans, has inoculated with success six persons, with matter taken from pustules which appeared upon the fore-arm and legs of a girl eleven years of age, who, after regular vaccination, had had, besides the pustules of insertion,

a smart attack of fever on the 11th day, followed by a *general eruption* of vaccine pustules. The same fact has been observed by MM. Hutin, Enguin, Roché, Martin, and Henri, who have not, like M. Barre, inoculated with the matter of the eruption, but who have perceived in the action which was going on at the *circumference*, a proof of the internal action of the vaccine."

" In examining supposed cases of small-pox after vaccination, the committee have found either that the vaccination had not proceeded regularly through all its stages, or that the small-pox infection had been caught before the vaccination had been performed, or finally, that an *abundant chicken-pox* has been mistaken for the true small-pox. The committee will only say, that besides the examples related in the report of M. Salmade, the chicken-pox have been observed by M. M. Rogery, Colin, Tuefferd, Esmenard of Salon, and Pignot, in individuals who had been vaccinated at different periods of time ; that in several of them the eruption was very copious, and preceded by smart fever ; that this eruption has appeared in some to have *at first* all the characters of small-pox, but that the quickness of the maturation, and of the desiccation of the pustules, has left no room to doubt of the nature of the eruption, which was nothing but chicken-pox. The committee, however, do not pretend to say that no case has ever occurred where the small-pox appeared subsequent to vac-

cination. The old inoculation has furnished examples of the recurrence of small-pox, which, although few in number, are too well authenticated for us to doubt them. It would not be fair, then, to require of vaccination a greater security than that which we require of the small-pox themselves."

Vaccination, from its earliest introduction into France, was supposed to be a remedy for certain diseases, and in the reports of the Central Committee of Vaccination, from the year 1806 to the present time, numerous cases in proof of this supposed salutary influence are brought forward. The Committee seem to be of opinion that vaccination operates upon the constitution through the medium of the lymphatic system, and that it communicates to this system an energy proportional to the intensity of the inflammation produced. The diseases which in France are said to be ameliorated, and even cured by the action of the cow-pock virus, are very numerous, viz. recent Scrophulous affections, Dartres, Crusta lactea, serous Ophthalmies, Intermittent Fevers, Marasmus, Tinea, Itch, Chlorosis, Epilepsy, Paralysis, Rachitis, and Nervous affections. The salutary effects of cow-pox are said also to be in proportion to the number of pustules produced; thus we are informed that the sequelæ of measles were removed by thirty-four pustules, a deep seated articular pain cured

by eighteen; curvature of the spine by six; paralysis by thirty; scrophula by from six to twenty-five, and neuralgia by twenty. In their reports for 1813, 1814, 1815, 1816, and 1817, the committee, in reference to this curative property of vaccination, remark, "that in considering all these observations, they do not pretend that it ought to be considered as an universal remedy. They have no other object in view but to give new proofs in favour of an opinion which has long been entertained and adopted by very celebrated practitioners, viz. that the movement produced in the whole economy by the vaccinal action can modify it so as to produce a new action in the weakened solids, and give a salutary impulse to the stagnating fluids. The amelioration in all these cases is owing to the vaccine considered as a cause of prolonged irritation of an action which goes through well-marked periods, which excites fever, accelerates the circulation, induces a longer or shorter suppuration, which, in a word, changes the habitual state of the body, and not to the vaccine considered simply as a preservative from small-pox."

In 1818, Professor BERARD and Dr. De LAVIT of Montpellier, published the work to which I have already referred in my former letter, entitled "*Essai sur les Anomalies de la Variole et de la Varicelle*," containing an account of the varioloid epidemic which prevailed in that city and neighbourhood in 1816. These authors give

a general history of the epidemic, from which we learn that the disease was first observed in the month of February, in one vaccinated and in two unvaccinated children living together in a house situated at a short distance from Montpellier. In the unvaccinated, the eruption assumed the form of *true*, and in the vaccinated child that of *spurious* small-pox. In the following month the disease attacked several children, but it was then so mild, that if some of the vaccinated had not been attacked by it, it would in all probability have excited little if any attention. At this period the eruption presented a great variety of appearances in the form and number of the pustules, the nature of the fluid they contained, the length of time which they remained before drying into scales or scabs, and in the duration and severity of the eruptive, as well as in the absence or presence of the secondary fever. After continuing to exhibit for the first two months these irregularities, the eruption assumed two different forms, which, though distinct in some cases, were in many others blended together. In the first form the eruptive fever was not very severe; the eruption was scanty and of short duration; there was no distinct suppuration or secondary fever; and the desiccation was rapid, beginning sometimes on the second or third day of the eruption, and always terminating in the space of six or seven days. This form of eruption was very frequent

in the commencement of the epidemic. In the second form the eruptive fever was more severe and of longer duration; the eruption itself was more abundant, and the pustules were depressed in the centre; the secondary fever supervened from the eighth to the eleventh day, and the whole duration of the disease varied from eight to fourteen days. "We have observed," Berard and De Lavit remark, "eruptions which appeared and disappeared in the course of three or four days. The vaccinated were particularly subject to these fugitive and *anomalous* eruptions; and there would not have been any room for difference of opinion, if the eruption with which they became affected had always been as rapid in its progress; but sometimes the disease was prolonged to the sixth or seventh day, reckoning from the first appearance of the pustules." "Up to the month of June the epidemic had been very mild; it was doubtful whether the disease was the small-pox or the chicken-pox; a few children only died here and there. About the month of July, however, the character of the epidemic began to change; the disease continued longer, and was combined with gangrene, worms, colliquative diarrhoea, &c.; it became more and more aggravated in the month of August, at which time it was most fatal, and it again began to diminish in severity in September and October, when it entirely disappeared. When the disease was most severe, the fugitive and ir-

regular eruptions, which had been so common in the commencement of the epidemic, became very rare, but towards the close they again became more numerous. "We think," Berard and De Lavit say, (p. 27.) "that there prevailed two eruptive diseases, the chicken-pox, (*la varicelle ou petite verole volante*,) and the small-pox, (*la variole ou petite verole vraie*.) The first presented itself particularly in the commencement of the epidemic, and perhaps re-appeared towards the end of it, occurring always, however, from time to time in the interval. The second, or the true small-pox, crept in and mixed itself from the beginning with the chicken-pox; it must be confessed, however, that the small-pox were themselves of an anomalous and irregular character." "Never, perhaps, did the chicken-pox in their symptoms resemble so nearly those of small-pox, nor these diseases assume more the appearances of each other. "Quel esprit d'analyse, a la fois subtil et solide, adroit et ferme, ne faudrait-il pas pour tirer la ligne de demarcation, qui doit les separer?"

Berard and De Lavit state, (p. 177.) that it was the coincidence of the chicken-pox and small-pox, and the uncertainty of their diagnosis, which led them to inquire whether these two diseases did not arise from the same contagion; that they give their ideas upon this doctrine as conjectural only, and that, after considering the epidemic as medical naturalists, as practitioners,

and as theorists, they are inclined to regard this identity as probable, for the following reasons : 1st, " Because the first appearance of chicken-pox is precisely of the same date with that of small-pox." 2d, " Because the epidemics of both eruptions have almost always gone on together." " May we not presume," they say, " that the chicken-pox, which shew themselves at the commencement of small-pox epidemics, are only spurious small-pox, by which nature paves the way, in some measure, for the establishment of small-pox properly so called." In support of the probability of this suggestion, they quote as authorities, Huxham, Gandoger, and Bergius, the latter of whom says, " I have often met with serous small-pox (*varicella*) which were so like the true small-pox, that I have been for several days uncertain to which species to refer them ; the pustules appeared so precisely similar to those of the true small-pox, that they might easily be mistaken ; but their rapid progress removed all doubts." 3d, " Because we have several times seen small-pox and chicken-pox in the same houses ; and it was not uncommon, when we had several small-pox patients together, that there were likewise one or two individuals attacked with chicken-pox. In these circumstances every thing seemed to prove that it was to intercourse with small-pox patients that the chicken-pox were to be attributed. In particular we had an opportunity of being convinced of

this in the four children Boyer, (Quarré de Roi,) three of whom had the true small-pox, and one of them chicken-pox, which, to all appearance, he had caught from his sick young companions. We have observed a similar example in a house below Peryou; a whole family were infected with small-pox; there were three children, two had the true small-pox, and the third chicken-pox. A child living under the same roof also had chicken-pox." 4th, "Because Frank and Reil affirm that they have seen the spurious small-pox produced by inoculation with the matter of the true small-pox; and M. Chrestien mentions his having observed the same thing." 5th, "Because the most regular small-pox have always pustules which do not come to maturity; we have frequently had an opportunity of being convinced of this, particularly on the face; the greater number appeared varicellous, at least we judged them to be such, and this circumstance would have imposed upon us more than once, if we had not been guided by a certain rule, viz. that it was according to the nature of the greater number of the pustules that the character of the eruption itself ought to be determined. 6th, "Because chicken-pox and small-pox in particular cases, succeed each other with so much rapidity in the same individual, that we are forced to refer them to the same origin." 7th, "Because the chicken-pox bear the strongest analogies to the small-pox; they exhibit the same

symptoms, the same progress, the same form of the pustules, the same contagion, the same property of attacking the same individuals only once during life." 8th, "Because chicken-pox present precisely the same irregular forms as small-pox. Indeed there are chicken-pox which, like small-pox, are designated by the names siliquose, windy, verrucose, &c. Frank, Van Swieten, &c. have admitted all these distinctions of chicken-pox, without so much as perceiving that they had previously assigned them to anomalous small-pox, which connect as it were the small-pox and the chicken-pox by insensible gradations." 9th, "Because every thing seems to prove that there is between small-pox and chicken-pox the same affinity, as well as the same difference, that there is between the genuine and spurious cow-pox." "Whatever may be the cause of it, inoculation with variolous matter seems to give rise to chicken-pox, if it be altered by any circumstance. We have observed in certain cases, that the insertion of this virus in individuals who have already had the small-pox, produced an eruption which was not the true and complete, but the spurious imperfect small-pox, or, according to us, true chicken-pox." And, 10th, "Because physicians, as well as the common people, have perceived such a resemblance between chicken-pox and small-pox, that they have, without reflection, given to chicken-pox names which always point out the resemblance

which confounds them with small-pox, as well as the points of difference which distinguish them."

"There is no doubt," say Berard and De Lavit, (p. 201.) "that several of the vaccinated have been affected by the epidemic disease. But with what eruption have they been attacked? Is it with the true small-pox, or with the chicken-pox? We have established it, as an incontestible fact, that a very great many of those who were affected by the epidemic, had only the latter. It can be shewn that in certain cases of chicken-pox, the character of the eruption was so equivocal, that many physicians might have taken them for the true small-pox." They admit that the true small-pox have occurred in some of the vaccinated, but assert that this number is in itself very small, and much more so when compared with the whole number of the vaccinated; and seem to think that even in those individuals in whom true small-pox had followed vaccination, that this had not been genuine. They give a minute detail of the histories of eleven cases of the disease which they have termed chicken-pox. In two of these, the disease occurred in individuals who had previously passed through small-pox; in one of them the eruption was without depression in the centre, and began to dry up on the fourth day without suppurating; and in the second, the eruption, which was depressed in the centre, began to dry up on the fifth day, but the scabs did not fall off

before the tenth day. In the remaining nine cases, it appears that the patients had been vaccinated with from three to six punctures; in all, the eruptive fever was more or less severe; in all, the pustules assumed a milky appearance; in three, the pustules were depressed in the centre, and surrounded with inflammatory areolæ. The eruption began to dry up from the fourth to the ninth day; but in none was there any appearance of secondary fever. Of one of these cases, (third) they say, "that the disease occurred at the time that the brother of their patient, who had been vaccinated, was labouring under true small-pox, and at the same time also that other two children of the same family, who had been vaccinated, were affected with fugitive eruptions, which came out in succession for two weeks." Of another case, (fourth) they remark "that the pustules presented great differences in their form and size, and in the nature of the fluid which they contained; four or five had a strong resemblance to vaccine pustules of the eighth day; they were very large and surrounded with a silvery areola and inflammatory circle; some were filled with a kind of purulent matter; others with a limpid serum; and a certain number preserved the form of a small inflammatory pustule." In one case, (fifth) the eruption appeared on the thirteenth day of vaccination; and the eleventh is the case of Victoire Cronier, (See p. 312.). In the conclusion of this

interesting work, a reference is made to a number of examples of the occurrence of secondary small-pox from the time of AMATUS LUSITANUS down to the present time.

M. SALMADE, in a report read before the Central Committee of Vaccination on the 19th December, 1818, states that "MM. HUSSON, CHAUSIER, GUERBOIS, JADELLOT, and himself, had examined some children, who, it was *pretended* had been attacked with small-pox after having been vaccinated, and had *uniformly found* that the precursory symptoms, the progress, and different stages of the eruption, proved that the disease with which they were affected was *only the chicken-pox*, more or less abundant, and that they are persuaded that this eruption cannot, in the eyes of experienced physicians, excite any doubts with respect to the power which cow-pock *incontestably* possesses of preserving from small-pox." He further states, "that the season of the year and state of the atmosphere had rendered the chicken-pox more frequent; and that this occurrence had renewed the popular prejudices against vaccination, and even deterred parents from submitting their children to cow-pock inoculation."

One of the children who were visited had been vaccinated some years before; and the marks left by the vaccination did not permit of doubt with respect to the genuine nature of the cow-pock. The eruptive fever in this case was

pretty smart, and the eruption, which was *vesicular*, appeared without any regularity, and almost simultaneously on the face, back, and extremities. The vesicles were spherical at the summit; and the fluid they contained assumed slowly a yellowish and purulent appearance. There was no secondary fever; and the desiccation was finished at the end of nine or ten days.

Another case which had been visited occurred in a young man of the name of Bordereau. He bore upon his arms cicatrices which proved that he had undergone the true cow-pock. He had been slightly indisposed on the 30th of October, but he went to school both that day and the day following; on the afternoon of the 31st he became feverish and took to bed. The fever continued on the 1st and 2d of November, at which time pustules were perceived upon his face, and especially upon his body. The pustules increased rapidly in size. When examined the 5th November, the third (fourth) day of the eruption, the greater part were in full suppuration; others had already begun to desiccate, and a few were only coming out. On the 7th November, the fifth (sixth) day of the eruption, the patient was in tolerable health; there was no fetid or nauseous smell of small-pox, and the desiccation was going on rapidly. The progress of the eruption had been so rapid, that by the 9th November, the seventh (eighth) day, all the

pustules were dried, and the crusts which followed fell off without leaving pits in the skin.

It is stated that *eruptions similar to the foregoing* had occurred in other three vaccinated children, who had likewise been visited; and that the *same eruptions* had been observed to occur in *many parts of France*. The report concludes with a request to his Excellency the Secretary of State for the Interior, to order 2000 copies of it to be published, to be sent with the cow-pock matter by the Committee in order that it may be circulated as widely as possible.

M. GASTELLIER, in a pamphlet entitled "*Expose Fidèle de Petites Veroles survenues apres la Vaccination,*" &c. published at Paris in 1819, has given a detailed account, (as read before the Society of the Ecole de la Faculte de Medecine,) of a case which he conceived to be an example of small-pox after perfect vaccination, occurring in a young man of the name of Bordereau, one of the cases referred to in the report of Salmade. This young man had been vaccinated when two months old with four punctures, one of which only took effect, and left a large cicatrix. He had been complaining for some time previous to the appearance of the eruption; but on the 30th October the febrile symptoms became much more severe. On the 1st November the fever was unabated, and a redness was observed on the face and chest. On the day following the fever was accompanied by sore throat, swell-

ing of the face and eyelids, with occasional delirium, and an eruption was observed on the cheeks and forehead, which was attributed to the intensity of the fever. On the 3d November the fever continued, the number and size of the eruption were increased. Gastellier conceived it to be one of those *anomalous* eruptions which are *daily* met with, but which have no particular character. "I had no idea," he says, "of its being small-pox; so great was my confidence in vaccination as the most powerful preservative from that disease, that I considered it even as infallible." On the 4th, the swelling and inflammation of the face and eyelids were increased; the eruption was so far advanced as to shew that it was distinct small-pox. On the 5th, the fever, which had continued during the night, was entirely gone. "Although," says Gastellier, "I was almost convinced of the nature of the disease, yet it (the occurrence of small-pox after vaccination) being absolutely new to me, I thought it my duty to refer the case to a society of enlightened physicians." He did so, and a committee, consisting of MM. HUSSON, DESORMEAUX, and ROUX, were appointed to examine the patient. On the 6th, the patient had passed a better night; M. Husson visited him. On the 7th, M. Husson, accompanied by Chaussier, Salmade, and Guerbois, visited the patient. Chaussier immediately pronounced the disease to be the *chicken-pox*. MM. Salmade and

Guerbois, after examining him deliberately from head to foot, were of the same opinion, and said that it was similar to the disease with which the children Boullay had been affected. On the 8th, and following days, the patient continued to go on well ; and four weeks after the disappearance of the eruption, there were to be seen variolous seams and cicatrices on different parts of his body. Gastellier informs us that several of his professional brethren had likewise visited Bordereau, among whom were MM. Jacques Léveillé and Jussieu ; the latter, after an attentive examination of the eruption, said, that if it was not a case of *small-pox*, he had never seen one.

At p. 26. Gastellier mentions another case of small-pox occurring in a young girl who had been vaccinated three years before ; and he informs us (p. 27.) that M. Freidlander had called the attention of the Society to the *small-pox* which had prevailed at Paris for some time, and had attacked several individuals who had *gone through genuine cow-pox*. M. Geoffroi de Saint Hilaire stated, that his nephew, who had passed regularly through cow-pock inoculation, which had left *six* distinct cicatrices behind, had suffered an attack of small-pox. This case M. Husson admitted to be a case of small-pox after vaccination. M. Percy likewise stated that he had a perfect recollection of having seen several individuals, who had been vaccinated, suffer an attack of true small-pox ; and M. Desormeaux re-

ported that he had seen a case of small-pox which went through its regular stages, with secondary fever occurring, in a girl who had been vaccinated when at nurse, and on whom two distinct vaccine cicatrices were visible.

At p. 39. Gastellier quotes the following extract from the *Journal de Constitutionel*, of the 7th June, 1819. "The small-pox have been very numerous in the Canton of Schaffhausen; a few have fallen victims to them. According to reports from the country, many vaccinated individuals have received the contagion. It remains to be proved whether they had been properly vaccinated. Those who think that vaccination is not an absolute preservative, regard it at least as a means of neutralizing usefully, and moderating properly, the action of the variolous contagion." In reference to the reports of the Royal College of Surgeons in London, upon vaccination, in which it is admitted that fifty-six examples of small-pox after vaccination, have occurred, independent of others which *they had rejected* on account of their not being related by the gentlemen who vaccinated them, Gastellier remarks, "This reason does not appear to me sufficient for rejecting the facts, especially as the cicatrices, which are infallible marks of vaccination, existed. It is not necessary for a person to vaccinate a patient himself, to be assured of the individual having been properly vaccinated, for the failures which have been attributed to false

vaccination are idle pretexts. There is no vaccinator who, after five or ten days at most, cannot pronounce upon the nature and effect of the vaccination. This futile distinction of *true* and of *false* vaccination, of which continued mention is made, is a *subterfuge* which only deceives those who wish to be deceived, or who wish to deceive others."

M. Legrand, in an Essay upon the actual state of medicine in the ports of the Levant, inserted in the *Nouveau Journal de Medicine* for August, 1819, informs us, p. 281. "that he had witnessed in Smyrna, in November and December, 1816, an epidemic small-pox which committed great ravages even among individuals who had been vaccinated. The mortality was great among the Greeks and the Armenians. This occurrence shook, at the time, the confidence reposed in the precious effects of vaccination, which proves how attentive we ought to be in following out the progress of vaccination, and distinguishing between the true and the false. After having made inquiries, I am convinced that the Greek and Armenian children had been vaccinated by a Barber, who was perfectly ignorant of the results of the operation. The inexperienced parents thought that they found a preservative against small-pox in the development of a pustule which bore false characters. A circumstance which confirms the truth of what I have now said, is, that in the French quarter the epi-

demic did not make its appearance, and that among 1000 children vaccinated by M. Ferrand, there were only three who were attacked by small-pox. In these three children, the vaccination was uncertain, and the physician could not say that it was genuine. Those who depreciate this important discovery, cite the example of a child vaccinated at Malta by a distinguished English physician. It is notorious, however, that in this young person the small-pox were mild, the disease created no alarm, and the symptoms never presented the alarming characters which are observed in others; and five of his vaccinated brothers and sisters who constantly communicated with him did not contract the disease. If it is true, then, that the child had the genuine cow-pox, it will be in favour of vaccination, since we can attribute to it only the mildness of the small-pox. The same remark applies to the three patients of M. Ferrand, whose small-pox were not accompanied with any danger."

M. DUDON, in his little work, entitled, "Entretiens Familiars sur les faux préjugés contre la Vaccine," published at Paris in 1819, says, (p. 38.) "that by *spurious cow-pock* is not to be understood that which results from inoculation with spurious vaccine matter, or with any other kind of matter, but *only that which has no preservative* powers against small-pox." "It has been ascertained by numerous and varied expe-

riments, (p. 74.) that the vaccine fluid can produce cow-pox only, from whatever subject the matter is taken ; it may be taken from an individual whether he has small-pox, itch, tinea, measles, syphilis, or scrophula ; it may be taken from the dying, but no alteration in its essence, or modification in its development will be produced.” “ It is objected,” he says, (p. 79,) “ to vaccination, that eruptions, sometimes partial, sometimes general, supervene. But these eruptions consist simply of pustules, which sometimes resemble small vesicles, and at other times millet seeds ; they are never malignant, and never leave behind them marks similar to those left by small-pox.”

I have not been able to obtain any information of importance with regard to the progress of vaccination in Austria, besides that which has been communicated in the writings of Dr. De Carro of Vienna. In his “ *Observations et Experience sur l’Inoculation de la Vaccine*,” printed at Vienna in 1801, this zealous vaccinator states expressly, (Chap. xiv. p. 140,) that he did not know of any cases of small-pox occurring after vaccination which had the slightest authenticity. In a letter written so lately as the 5th February 1820, and addressed to the editors of the *Bibliothèque Universelle*, Dr. De Carro, in allusion to the accounts which had been given in that journal of the very different states of vaccination in England and in Denmark, says, (tom. xiii. p.

136,) “ not having any public employment, I cannot give you any official communication, but it will be sufficient to assure you ; 1st, that since the 10th of May 1799, the date of my first vaccination, up to the present day, notwithstanding the constant pains which I have taken to explain every circumstance which appeared to me to be doubtful, only three well authenticated cases of small-pox after vaccination have come to my knowledge. The two first, (which I did not see,) were related to me by a physician of this city, of whose accuracy and veracity I cannot entertain any doubts. The small-pox were mild, but well characterized and abundant. The third case, which I have seen very lately, is so remarkable that it deserves a more detailed account. Dr. DE PORTENSCHLEG, the father, one of our most respectable practitioners, whose zeal equals his accuracy, had vaccinated successively since 1803, nine children of the same family. About two months ago, this physician requested me to see with him these nine children, four of whom had slight eruptions, mild, and of short duration, which it was impossible not to recognize as the *chicken-pox*; four others remained unaffected; but the ninth, a young man of eighteen, who had been vaccinated in his infancy, had *small-pox* well characterized in their progress, as well as in their form, and as copious as they could be without being confluent. They terminated happily, although they could scarcely be qualified

with the name of *mitigated small-pox*. Other physicians, whose curiosity had been excited by a phenomenon so exceedingly rare in this country, went to see this patient, upon the nature of whose case there was but one opinion. When we consider that these nine individuals lived in three contiguous apartments, the doors of which communicated with one another, and were constantly open, it will be confessed that the history of vaccination presents but few examples so singular, or results so different, upon nine children placed precisely in the same circumstances. *2dly*, That the physicians of the government, whom I have frequently questioned upon this subject, have constantly assured me that every thing with respect to vaccination went on well; that in every situation in which the small-pox appeared in spite of the wise measures of our medical police, the vaccinated have not been affected; that the different exanthematous eruptions which the ignorant have taken for small-pox, were *nothing else than the chicken-pox*, the progress of which was sufficient to point out their nature when simple inspection created any doubts."

"Some physicians have spread a report that the cow-pock virus had degenerated, and that it would be necessary to renew it from England." "With regard to this pretended degeneration," says Dr. DE CARRO, "I must declare that I have not observed the slightest dif-

ference in the patients whom I vaccinated in 1799, and those I vaccinated in 1820, and that I am absolutely ignorant upon what grounds such an assertion rests." "I do not see," he continues, "the necessity of renewing the vaccine lymph, by obtaining it from England; but if, as it is pretended in that country, and as is confirmed by our learned compatriot Dr. Marcet, who has practised medicine for the last twenty years in London, the small-pox have attacked many more vaccinated individuals there than any where else, I think that we ought to be very careful in guarding against English vaccine lymph, at least we ought to be well assured that it has been taken immediately from the teat of the cow; an opportunity of doing which is, as we know, very seldom to be found even in dairy counties. About a year ago, a traveller of very high rank, who had probably heard of this pretended necessity of renewing the vaccine matter in Austria, brought some from England. His physician offered it to me; but I refused it, telling him that we had too much reason to be satisfied with our own, to run the risk of substituting in its place matter brought from a country which appeared to furnish the greatest number of examples of its inefficacy as a preservative. I advised him even to destroy this English vaccine lymph, that it might not be mixed with our own, which, although from the same source, had continued for twenty-one years the same as when I received it." "But, what-

ever be the cause," Dr. De Carro adds, " of the great number of cases of small-pox after vaccination which have occurred in England, and other countries, I must repeat that these occurrences are extremely rare in Vienna, and throughout the Austrian monarchy, that I have never seen a single example of small-pox in any of the patients whom I have vaccinated; and that the result of my researches (without denying the possibility of a greater number) has been confined to the three cases which I have mentioned."

The information which I have been able to obtain with respect to the occurrence of small-pox after vaccination in Italy, is also extremely limited. It is well known, that it was chiefly through the active exertions of Dr. SACCO of Milan that the practice of vaccination was introduced, and soon very widely diffused in that country. In 1801 he published a treatise, entitled "*Osservazioni pratiche sul Vajuolo Vaccino*," &c. in which he has given a full account of Dr. Jenner's discovery, and of the progress which vaccination had made in Italy. In this treatise he makes no mention of the occurrence of small-pox in the vaccinated. In a subsequent edition of his work, however, published in 1809, he has devoted a chapter to the consideration of those cutaneous eruptions which are liable to be confounded with small-pox, and to give rise to the belief that those of the vaccinated who have become affected by them, have

been but imperfectly protected by the cow-pox against the contagion of small-pox. Among the eruptions which Sacco has mentioned, are the chicken-pox, the chrystalline small-pox, pemphigus, the vesicular disease, &c. all of which eruptions, the Editors of the *Bibliothèque Britannique*, from whom I have derived my information with respect to this edition of Sacco's work, remark, (tom. xlv. p. 190.) have from their apparent resemblance to small-pox, deceived even well informed physicians, but which differ from them so widely, that, provided we are not forced to give an opinion, at first sight, and that time is allowed to watch the disease from its commencement to its termination, we can scarcely be mistaken with respect to its nature.

It appears from a passage in Loder's *Bemerkungen über Arztliche Verfassung und Unterricht in Italien*, printed at Leipsig in 1812, (p. 352.) that previous to his visit to Florence in 1811, numerous cases had occurred, which, by some, were regarded as examples of genuine small-pox, in children who had been vaccinated some years before by Dr. Sacco. From this work it also appears, (p. 382.) that in 1811, an essay was published at Pisa by Dr. Pucciardi against the practice of vaccination, in which a number of cases of the occurrence of genuine small-pox after vaccination are mentioned. According to Loder's statement, Pucciardi himself had seen only one of these cases, his account of which, Loder remarks, could

scarcely have been more indefinite or more confused. The remainder of his cases are said to have been taken from the mouths of nurses and prejudiced unprofessional people.

The most accurate information which I have received from Italy upon the subject of varioloid diseases, is contained in a letter with which Professor Brera of Padua favoured me, in answer to the queries which I circulated in 1818. He states, *1st*, That in the year 1810, the chicken-pox (*ra-vaglione*) had prevailed epidemically for about three months in Padua, chiefly attacking children, and that some cases of small-pox (*vajuolo arabo*) had also occurred at the same time. *2dly*, That the chicken-pox, which were mild in the unvaccinated, were in the vaccinated so severe as to be taken for small-pox, and that he had not heard of any case in which chicken-pox had occurred in an individual who had formerly been affected with small-pox. *3d*, That he had seen several examples of a person being twice affected with the genuine small-pox. He mentions the case of his own daughter, on whom the eruption in both attacks had left some cicatrices. He had remarked that the small-pox were very mild either during the first or second attack of the disease. *4th*, That in Treviso many vaccinated individuals had been affected with severe small-pox, and in some it was said to have proved fatal. *5th*, That the chicken-pox were preceded by all the eruptive and febrile appearances of small-

pox, but that they were distinguished from these by the pustules suppurating and desiccating in the space of three days, and by possessing all the characters described by Heberden. *6th*, That the chicken-pox were not severe in all the cases, but appeared to be so in those who had formerly passed through small-pox or cow-pox in a mild manner. *7th*, That the observations contained in the 56th Number of the Edinburgh Med. and Surgical Journal, on the varioloid disease which occurred in Edinburgh, agree perfectly with those which he has made at Padua; and, *8thly*, That he is inclined to believe that chicken-pox and small-pox arise from the same contagion, which, when altered or weakened, occasions the development of the chicken-pox, and when preserved in its perfect quality of aggregation, becomes the origin of the small-pox.

Small-pox prevailed epidemically in Holland in the years 1817 and 1818, and appear, from the statements which have been published by the practitioners of that country, to have attacked several of those who had undergone the process of vaccination. Dr. HODENPYL of Rotterdam, in his *Waarnemingen omtrent Kinderziekte*, published in 1818, states, that many vaccinated children were exposed to the contagion of confluent small-pox, without being affected by them, and he mentions in particular, that in a glass-work, in which there were thirty-seven unvaccinated, and twelve vaccinated children, thirty-three of the unprotected were attacked by the

small-pox, of which two died, but that the twelve who had been vaccinated remained unaffected. This author relates the histories of fourteen cases of varioloid eruptions, which he conceived to be examples of small-pox modified by vaccination, partly because five of the individuals affected by them had previously passed through chicken-pox, and partly because the constitutional and local symptoms accompanying these eruptions were more severe, and of longer duration than usually occurs in chicken-pox. The chicken-pox, he says, prevailed extensively in Rotterdam at the *same time* ; but he has not informed us of the frequency of their occurrence compared with that of natural or of modified small-pox. He seems inclined to attribute the occurrence of small-pox in the vaccinated to some scrophulous or other morbid disposition inherent in the constitutions of those who become affected by them.

Dr. Hodenpyl, in a paper inserted in the 50th volume of Hufeland's Journal, asks, " Ought we not to take it for granted that the chicken-pox constitute the primitive degree of the small-pox ; that the irregular small-pox, in which the suppurative stage is completely wanting, constitutes the second, and a general variolous epidemic the highest degree of varicella ?" He then relates the histories of three cases of varioloid eruptions occurring in vaccinated children of the same family. In one of these cases the disease assumed the form

of irregular small-pox, in another that of chicken-pox, and in a third that of genuine small-pox.

Dr. Bosch of Rotterdam, in a letter addressed to Dr. Crol of Dort, (*Het Voortdurend nut der Enting met Koepokstof, &c. Rotterdam, 1817,*) upon the occurrence of small-pox after vaccination, mentions seven cases of this kind which had come to his knowledge. In these cases the vaccination appeared to have been satisfactory, and the subsequent small-pox were of a mild nature, drying up by the seventh day, and leaving pits behind them in one patient only. He states that a great proportion of the cases, reported to have been small-pox after vaccination, were cases not of the *true*, but of the false or *spurious* small-pox; and he attributes the occurrence of genuine small-pox after vaccination, to the existence of some scrophulous or scorbutic disposition in the constitution at the time this operation is performed. The same author, in the account which he has given of the variolous epidemic which prevailed at Rotterdam, (*De Kinderpokken welke Voornamelyk in de Jaren 1817 en 1818, zoo fel te Rotterdam geheerscht hebben. Rotterdam, 1818,*) mentions that, in this epidemic, he had seen pox which exhibited all the characters of true small-pox, except that, instead of suppurating, they dried up and appeared like warts; and he states also, that he had not unfrequently seen spurious small-pox in vaccinated and unvaccinat-

ed individuals. He gives a description of the spurious small-pox, or chicken-pox, and of what he terms the anomalous or irregular small-pox. The spurious small-pox, he says, are preceded by little, if any fever; are filled with water and air; do not suppurate; leave no marks behind; are always without danger, and do not protect against an attack of the true small-pox. Of the irregular or anomalous species of small-pox, his description of which corresponds very exactly with that of modified small-pox, he says that they attack vaccinated individuals, but that the proportion does not exceed one in 2000. He remarks also, that though in some cases the disposition to small-pox is not entirely annihilated by vaccination, yet that they are by this process deprived of their usual malignity.

Dr. MOLL, in his account of the Small-pox epidemic which prevailed at Nymingen, (*Verslag der Kinderpokken-Epidemie te Nymegen in den jare 1817, &c.*) and which, he says, attacked almost all those who had not been vaccinated, or who had not already passed through the small-pox, has inserted a copy of the Report of the Local Commission of Health of that place, drawn up and published in consequence of its having been alleged that several vaccinated individuals had been attacked by small-pox, which in some cases had proved fatal. The 1st example mentioned in this report is that of three vaccinated children in the same house, who were attacked with an

eruption, which the reporters seem to admit to have been genuine small-pox. Dr. Moll appears to think, that in two of these cases the vaccination had been imperfect. The *2d* example is that of a child bearing four distinct marks of vaccination, affected with a varioloid eruption, which, in its commencement, had the appearance of genuine small-pox, but in its progress and termination seemed to differ from that disease. This case, Dr. Moll remarks, shews how difficult it is to distinguish the spurious from the genuine small-pox; and he mentions that three medical men, besides himself, took them for cases of genuine small-pox, when they saw them for the first time on the sixth day, but that, by the eighth day, they became perfectly satisfied that the eruption was the spurious small-pox or chicken-pox. The *3d* example is that of a child affected with small-pox, but who at the time of vaccination is said to have been troubled with a cutaneous eruption, or with worms. The *4th* example is that of two children, the one vaccinated, and the other unvaccinated, attacked with small-pox. The vaccinated child died; and the reporters state that they had not been able to obtain any satisfactory information respecting the appearances which the cow-pox had exhibited. The *5th* example is that of two children vaccinated seven years before, and bearing evident marks of the cow-pox, who became affected with the spurious small-pox during the progress of the

epidemic. Dr. Moll considered these, like the second case, as examples of chicken-pox. The 6th example is that of a vaccinated child, on whom there were no marks visible of previous vaccination, who was affected with the true distinct small-pox. Dr. Moll accounts for the occurrence of small-pox in this and the 4th case by supposing that the vaccination had been imperfect. The 7th example is that of a child twelve months old, who was affected with true small-pox, flat and indented, of which it died on the eleventh day. The mother said that the child had been vaccinated, and that there were slight marks left behind. Dr. Moll remarks, that this case must be admitted to be unfavourable to the unlimited protecting power of cow-pox, especially as the practitioner who had vaccinated the child had assured him that the vaccination had been perfectly regular. The 8th example is that of a child bearing marks of vaccination, who was affected with an eruption like small-pox. This eruption was supposed to be spurious small-pox, on account of the pustules drying up on the second day, and fresh ones appearing at the same time on different parts of the body; and Dr. Moll regarded it in the same light as the second and fifth cases, viz. as a case of undoubted chicken-pox. The 9th example is that of a child bearing three marks of vaccination who had passed through a cutaneous eruption supposed to be true small-pox.

The child had been blind during the progress of the eruption, which dried up on the tenth or eleventh day of the disease, leaving a few pits behind it. A physician of Rotterdam declared this eruption to be the spurious small-pox, because the pustules dried up more quickly than in the true small-pox, and Dr. Moll was of the same opinion, for the following reasons, *1st*, Because the vaccination had been perfect; *2dly*, Because the only skilful physician who saw the case declared it to be the spurious, not the genuine small-pox; and, *3dly*, Because there were several children within the city affected at the same time with different kinds of the spurious small-pox. In addition to the cases mentioned in this report, Dr. Moll relates those of two vaccinated children, both of whom had distinct vaccine cicatrices on their arms. After fourteen days sickness these children were affected with the chicken-pox, which went rapidly through their course. Dr. Moll concludes his observations, by declaring that he would rather believe that he had been deceived in mistaking spurious for genuine cow-pox, than believe that the genuine small-pox could occur after perfect vaccination, and thinks that it would be more difficult to become affected with small-pox after vaccination than even after small-pox themselves.

DR. LUISCIUS of Delft, in an Essay on Vaccination, (*De Waarde der Koepok-Inenting, &c.* Delft, 1818,) remarks, that an erup-

tion very like the small-pox, both in its commencement, its progress and termination, sometimes appears in the vaccinated, which, he says, is proved really to be that disease, because it prevails during the progress of epidemical small-pox, and because it runs through the same course as that disease, with this difference, that it is never attended with secondary fever. He ascribes the occurrence of small-pox in the vaccinated in general, to imperfect vaccination, which he says arises from various causes, such as inoculation with matter taken from a spurious cow-pock; from making too small a number of punctures, or from these being made too superficial. He relates twelve examples, however, of the occurrence of small-pox after genuine cow-pock inoculation, in one of these cases the patient died of diarrhœa, and in another the disease proved fatal in consequence of the presence of pustules in the fauces and larynx.

In the 52d volume of Hufeland's Journal for 1821, Dr. GITTERMANN has given an account of a variolous epidemic which prevailed at Emden in 1819-20. The character of this epidemic appears to have been mild when compared with those which have occurred in other countries; the proportion of deaths in the unprotected not having exceeded one in twelve. Many of the vaccinated, he informs us, were attacked with the small-pox, but the disease in them was exceedingly mild. He relates the histories of two

such cases, and mentions, that in an hospital in which there were 200 children, most of them vaccinated, five of the vaccinated became affected with modified small-pox, soon after which two unvaccinated children were seized with the natural small-pox, and that subsequently small-pox occurred in other three children who had passed through cow-pox inoculation.

It is somewhat singular that Gittermann does not mention his having seen, during the course of the epidemic which he has described, any eruption, either in vaccinated or unvaccinated children, bearing a resemblance to chicken-pox. He remarks (p. 59.) that "Varicella perhaps stands in a similar relation to variola, as roseola to scarlet fever, or to the measles; which three diseases are also, perhaps, *modifications* only of the *same contagion*, or which, though on their first appearance exhibiting but one form, have afterwards been separated by different causes, each now presenting a peculiar form of disease, and propagated by its own peculiar contagion."

REUSS, in his *Wesen der Exantheme*, printed at Nürnberg, in the year 1818, has given an account of a variolous epidemic which prevailed in the principality of Aschaffenburg, during the years 1813, 1814, 1815, and 1816. He states that the small-pox had not been epidemic in that principality since the year 1801, though sporadic cases of the disease had repeatedly occurred, but

always without spreading. It appears that several persons who had formerly been vaccinated were attacked by the small-pox, but Reuss asserts, that in these the vaccination either had not taken place, or had been imperfect, and he states, that the patients who had been vaccinated by a village barber, in the jurisdiction of Krombach, were seized with the genuine small-pox. He mentions, that in the months of September and October of 1814, during a dry state of the atmosphere, and the prevalence of the north-east wind, crystalline small-pox prevailed very extensively. Reuss also informs us, that he had never seen any other variety of chicken-pox but that denominated the water-pox, *varicellæ aquosæ*, *lymphaticæ*, *crystallinæ*, which he says were for four years uninterruptedly epidemic in the principality of Aschaffenberg, sometimes in one place and sometimes in another.

Dr. ELSASSER, in his description of the small-pox epidemic which prevailed in the kingdom of Wirtemberg during the years 1814, 1815, 1816, and 1817, (*Beschreibung der Menschenpocken-Seuche*. Stuttgart, 1820,) has given an account of the irregularities which the eruption frequently assumed in the unvaccinated. In almost the whole of these cases, the disease was ushered in by smart fever; in some patients the eruption consisted of pustules, surrounded with areolæ, in some cases with, and in others without depressions in the centre,

while in other patients, the eruption dried up without any evident suppuration. In some children, one half of the pustules at least were dried up by the sixth or seventh day, and in others this change had taken place by the third or fourth day; in all, the scabs fell off by the tenth day. In no case was the peculiar smell of small-pox perceptible, and in all, the secondary fever was either very slight or altogether absent. "This irregular form of small-pox," Elsasser observes, (p. 26,) "occurred only in children who had not been vaccinated, and spared nearly the whole of those who had undergone that process. Some of the vaccinated, however, were attacked with this irregular form of the disease; in these the eruptive fever was severe, but scarcely any pustules broke out, and when they did appear, they formed only a few patches, which in the course of two or three days were either converted into thin scales, or decayed without discharging their contents."

"The secondary small-pox," Elsasser remarks, "likewise presented in the course of the general epidemic an uncommon appearance." He mentions that he saw eighteen cases of this kind, four of which occurred in boys, twelve in girls, and two in women. "The individuals," he observes, "who were attacked with secondary small-pox, had passed through the primary variculous disease in a regular manner, generally in a severe form, and bore the characteristic cicatri-

ces of the eruption upon their bodies, particularly on the face." "Every circumstance," he adds, "attending the primary disease, proved that it had been the genuine small-pox; thus, the patients had become affected with the variolous disease at the same time with their brothers and sisters, some of whom had fallen victims to it, while others who survived were deeply pitted by it. The primary attack also occurred precisely at the time when the small-pox were epidemic, for example, in the years 1798, 1799, and 1802."

"The spurious small-pox, or chicken-pox," Elsasser remarks, (p. 51.) "sometimes occurred at the same time with the benign small-pox, whilst other children were attacked first with the spurious, and from ten to fourteen days afterwards, with a copious eruption of the genuine small-pox. Both kinds of varioloid disease, moreover, frequently appeared in the same situation, so that some children had the chicken-pox only, and others the genuine small-pox. During the course of the epidemic which prevailed at Wimsheim, a child two years of age, who was in the neighbourhood of children affected with the small-pox, took the chicken-pox, which disappeared in a few days. The chicken-pox occurred most frequently in those who had been previously perfectly vaccinated, and who were exposed to the contagion of small-pox. In a small place, for example, fifteen children who had not been vaccinated

took the genuine small-pox, and on the other hand, four who had passed through vaccination in a satisfactory manner were only affected with chicken-pox. In another place, where about twenty children were affected with the small-pox, a child who had been previously vaccinated took chicken-pox at the same time. In the spring of 1815, in a village on the Wild Alps, two children took the small-pox, whilst a third child of the same family became affected only with the chicken-pox. Three other girls, (one of whom had been previously vaccinated,) who had been exposed to the contagion of small-pox from sitting in the same school with the children last mentioned, were likewise attacked with the chicken-pox without having been previously affected with the small-pox. About the same time also two children in the neighbourhood, who had been vaccinated, took chicken-pox, while small-pox prevailed in some other families around. The chicken-pox generally occurred previous to, or along with small-pox in several children, in places where the genuine small-pox afterwards broke out, or both kinds of varioloid disease prevailed at the same time in the same place. In many situations the chicken-pox occurred very numerously; as, for example, in the summer of 1815, at Baihingen, on the Enz and surrounding country, and in other situations where the small-pox prevailed, the chicken-pox did not at all appear. The

chicken-pox frequently prevailed during the time of a small-pox epidemic, only at such neighbouring places as remained free from the small-pox." "Many experienced physicians," Elsasser remarks, (p. 54.) "have made the observation, that since the introduction of the practice of vaccination small-pox have become more rare, and thus the chicken-pox have more frequently been accompanied with distinct fever, severe inflammation, &c. and are not in all cases so insignificant a disease. And more recent observations have shown, that the chicken-pox are occasionally ushered in by severe fever, generally continue long, and in certain circumstances may even prove fatal."

Several of the cases which Dr. Elsasser has related as examples of chicken-pox, appear to have been cases of the disease which has been denominated modified small-pox. He admits, however, that the constitutions of some individuals remain susceptible of small-pox infection after the most perfect vaccination; and he details the history of ten cases of small-pox after vaccination, and refers to many more which had occurred during the course of the epidemic which he has so ably described. He states, "that in all the districts of Wirtemberg in which small-pox had prevailed, and attacked the vaccinated, he had only heard of two cases in which the disease had proved fatal to individuals who had

passed through the process of vaccination in a regular and satisfactory manner."

From the continent of America I have not been able to obtain any full or satisfactory information with respect to the occurrence of varioloid eruptions in the vaccinated. In a letter, however, dated August 1819, with which I have been favoured by my friend Dr. Post of New York, he remarks, "the opinion you have expressed with respect to the identity of the contagions of small-pox and chicken-pox, though novel, is, I think, very much supported by the facts which have occurred under your observation, and which will receive no little confirmation from the matter contained in the document herewith transmitted." This document is a REPORT of a committee, consisting of Drs. Post, Hamersley, Neilson, Pascalis, and Watts, appointed by the Medical Society of New York, to inquire into the nature and progress of "the Epidemic Small-Pox and Chicken-Pox which prevailed in that city during the autumn and winter of 1815."—"The proportion of deaths from the confluent small-pox," the Committee remark, (p. 9.) "has been greater, in our opinion, than has ever been observed in London or on the continent of Europe. The number of deaths recorded in the Inspector's Office amounts to 254; and thirty-nine deaths are reported to have occurred at the Lazaretto. This number, in our opinion, is somewhat more than one-third of the

aggregate cases of the confluent small-pox that have occurred in the city.”—“The varicella, or chicken-pox, (p. 10,) appeared about the *same time* with the small-pox, and prevailed generally throughout the city and its suburbs. It was marked by severe and unusual symptoms, and presented the appearances, in particular cases, that have been said to belong to swine-pock or water-pock, authorizing the conclusion of their being varieties of the same disease.”

In speaking of the “improved mode” of vaccinating recommended by the London National Vaccine Establishment, the Committee observe, (p. 17.) “It appears that the Board attributes many failures to vaccinating by a single puncture, and afterwards opening the vesicle, and taking a portion of the lymph for the purpose of propagating the infection. Should the doctrine thus officially promulgated by that Institution be true, your Committee must necessarily infer, and deeply lament, that vast numbers of persons in this and in other countries remain only delusively protected by vaccination, since the practice thus reprobated has been very generally approved, and has as generally prevailed throughout Europe and America.” “The Board of the London Vaccine Institution,” they continue, “have not been at the pains to state the period of the disease at which the puncture or rupture of the vesicle may interfere with its operation on the system; but inasmuch as the effect of the

disease generally takes place on the seventh or eighth day, it may be inferred that the Board apprehend that danger may arise from puncturing the vesicle at any time during the existence of lymph in it. With all deference to such high authority, your committee owe it to themselves, to the medical society of which they are members, to the laws of the animal economy, to the laws of contagion in general, which they consult, and to the tranquillity of the public mind, which they wish to establish, explicitly to declare their dissent from the doctrine promulgated by that Board, and which is founded upon the principle, that, by diminishing the quantity of the vaccine virus, or lymph, after it is formed in the part, the operation of the disease on the system is in danger of being destroyed or enfeebled, notwithstanding the lymph is secreted in the part, and possesses all the characteristics of the vaccine virus." "Your committee conclude, that the mode recommended by the London Vaccine Establishment, of exciting two vesicles instead of one, is never absolutely necessary, and that the utility of it can only be urged as an additional security to the introduction of the virus, by multiplying the chances of success."

In allusion to the supposed existence of a spurious vaccine disease, and spurious vaccine matter, the committee remark, (p. 21,) "great stress has been laid on this subject, without of-

fering the least direct or convincing proof of the reality or existence of such an article as a spurious cow-pock matter. From whence does it proceed, and where shall we search for it? Does it originate in the cow, and is it thence perpetuated by inoculating the human body, or is it spontaneously generated in man? Is it durable, ephemeral, or variable? By what regular characters can it be detected, judged of, and described? And why, if it be a specific contagion, does it occasionally arise from the use of genuine cow-pock matter? It appears somewhat remarkable that many of these points have hitherto been only carelessly adverted to, by persons who have endeavoured to engage the sanction of the public in instituting a vaccine establishment, sounding the alarm and danger of a spurious matter, and ascribing the want of success in vaccinating to the use of it."

Almost the only information which I have been able to obtain of the occurrence of small-pox in our foreign colonies, has been derived from the official returns to the Medical Board office, with the perusal of which you have so obligingly favoured me. By the report of Dr. Wright, Inspector of hospitals, Quebec, it appears that small-pox had been very rare in that city till the winter of 1819-20, when a most alarming epidemic small-pox appeared, which spread rapidly amongst the unvaccinated, and carried off many adults as well

as children. The proportion of deaths in the unvaccinated was from one to three and a half to one in four. "The disease," says Dr. Wright, "continued its progress, and at length several cases of what was considered as small-pox occurred amongst those who had been vaccinated; some of these I myself visited, which enables me the better to appreciate the accuracy of the details supplied by others." Of 238 cases of small-pox after vaccination, some of which Dr. Wright had himself seen, and of twenty of which the histories are detailed at full length, some resembled genuine small-pox and others chicken-pox. In all the eruptive fever was more or less severe. In four patients the disease proved fatal; on one of these there were two distinct marks of vaccination, and in the other three one mark.

The occurrence of small-pox in the vaccinated, says Dr. Wright, "strongly confirmed the modifying powers of what I am disposed to consider partial or imperfect vaccination, where it appears to have imparted its protecting influence to the constitution only in a slight degree, from some interruption to the perfect development of the process, by the early destruction of the vesicle, or by temporary insusceptibility of the constitution from other causes; indeed so much so as to have excited doubts in the minds of some whether the present disease should be called variola, others considering it as

varicella; however, my own opinion is, that it is the true and genuine variola." "With respect," continues Dr. Wright, "to the opinion of some who have considered a few of the cases which have occurred during the epidemic as varicella, I find, upon inquiry, that it has originated more from the short duration of the eruption, and the very slight indisposition which accompanied many of the cases, than from any differences in the appearance of the eruption itself, and in some degree to quiet the alarms of the patients: But my own opinion is, that the whole of the cases which I have myself seen, or which have been communicated to me, have originated from the same source, that is, variolous infection. I will not go so far as to say, he adds, that no such disease as varicella exists, but several cases have come within my knowledge, which have led me to doubt the correctness of my own opinion, as well as that of others. But further experience is requisite, and a more numerous collection of facts, before I can consider myself warranted to give a correct opinion upon this point."

Dr. WRIGHT relates five cases of secondary small-pox, one of these occurred in a person who had passed through natural small-pox, and the other four had had small-pox by inoculation—of the latter, one was distinctly vesicular from its commencement, in another, the secondary fever supervened, and in all, the disease left marks behind it.

In a letter addressed to yourself by Dr. JACKSON, dated November 13, 1818, this gentleman observes, " I am sorry I had not noted the appearances of the varioloid disease which appeared in the 8th West India Regiment, (stationed at Barbadoes,) with more precision than I have done. There were about thirty persons who had been vaccinated, and were supposed to have had the disease in its proper form, in whom a pustular eruption made its appearance, resembling, in so far as I was able to judge, common small-pox, except in its shorter duration, and being without symptoms of danger, or any thing like secondary fever. I reported the occurrence of these cases to the Secretary of the Vaccine Institution, with whom, as Inspector of Hospitals, I was then in correspondence. The small-pox were in Barbadoes, and the vaccine matter was lost for the time. The fact, so far as it goes, is correct ; and if Dr. Thomson should wish to know, I think he may depend upon its accuracy, for I saw the subjects daily in the Regimental Hospital, and was led, by observing it, to the opinion, that though vaccine inoculation does not altogether preclude the occurrence of small-pox, it evidently has the effect of mitigating their violence, or modifying their form."

Dr. LEFOIS, King's physician in the island of Martinique, in a letter dated July, 1819, addressed to Mr. Green, Inspector of Hospitals, observes, that from the month of December, 1818,

to the date of his letter, "the small pox have prevailed extensively in this island, and proved very fatal. A great number of vaccinated individuals of every age, sex, and colour, have been attacked with this dreadful disease. It appears certain, he says, that the vaccine virus had either not been developed, or that a spurious cow-pock had been produced in all those vaccinated individuals who were seized with the small-pox; but, on the other hand, he adds, I have seen several incontestible examples of small-pox in individuals who had had the genuine cow-pock, but in these the disease has always been very mild."

In a letter from the Island of St. Vincent to a gentleman of this city, dated June, 1819, with a sight of which I have been favoured, the writer remarks, that "the whole of Dr. Hennen's queries may be answered, and Dr. Thomson's theory of chicken-pox and modified small-pox being the same disease, overthrown, by what has occurred in this island. From June, 1818, till February, 1819, chicken-pox were epidemical in the island, and no one thought or dreamed of small-pox; but in February small-pox were brought to the island by some French people from Martinique, and then we became acquainted with a most alarming complaint, a complaint which, I think, when once seen, will never be confounded with any other. To distinguish between chicken-pox, modified small-pox, and genuine small-pox, is to me no difficult task. *I have seen them all three on one estate*

at the same time, and have been enabled to judge from comparison." "On the estate where I have seen them all at once, prior to the governor's proclamation, (against small-pox inoculation,) I inoculated 100 negroes with small-pox matter, whom I had formerly inoculated with cow-pox, of whom four took modified small-pox. I also inoculated about thirty others who had been previously vaccinated. Of this number two had modified small-pox; so that I had two cases of genuine small-pox, six of modified small-pox, and four of chicken-pox, at the same time."

Dr. CHRISTIE, in his "Account of the ravages committed in Ceylon by Small-pox," &c. published in 1811, relates the histories of two cases of small-pox which had occurred after vaccination. "These cases," he remarks, (p. 53.) "if all the circumstances had not been particularly inquired into and considered, would have tended to invalidate the proofs of the preventive efficacy of the cow-pox." The first case occurred in an old man of fifty-five years, who had been vaccinated about eight weeks previously, and had been granted a certificate of perfect vaccination on the eighth day of the disease. It proved, however, says Dr. Christie, that this had been *prematurely* granted, for, on exposure to small-pox contagion, he caught the disease, though in a mild form. The second case occurred in a native child of eight months, who had been vaccinated by a gentleman in a distant part of the island. "No certificate," says Dr. Christie,

“ was, I believe, in this instance granted, but there is no doubt that the gentleman who inoculated this child, conceived it had the *genuine* disease, as he lately subjected this patient, with four others inoculated with cow-pox from the *same source*, to inoculation with variolous matter, the action of which they all completely resisted, except the child in question, who, on the eighth day had fever, and on the ninth and tenth there appeared about a dozen of pustules, which had all the appearance of small-pox.” “ Allowing, however,” he continues, “ that this was a case of small-pox, it is surely more reasonable to suppose that the child had a spurious pustule, the insidious appearance of which had deceived the inoculator, than to doubt the preventive efficacy of the cow-pox, after the numerous and decisive experiments that have been performed by inoculation, and exposure to natural infection, at every considerable station on this island, as well as in many other parts of India, and every part of Europe.” “ Chicken-pox,” Dr. Christie remarks, (p. 101.) “ is of frequent occurrence in Ceylon, and often mistaken for small-pox, but I never chanced to meet with a case where it occurred in a vaccinated person.”

Dr. FARREL, Deputy-Inspector of Hospitals, in his report from Ceylon, states that small-pox had prevailed epidemically in that island during the year 1819-20; and that, “ by returns which he had received from the maritime districts, from

32.0 p/m
+9.5 p/m
the 15th July, 1819, to the 15th January, 1820, it appears, that of 5451 persons attacked with small-pox, no fewer than 1745 died; and by returns from Kandy, Allipoot, Badulla, and other military stations in the interior, from the 15th August, 1819, to the 15th January, 1820, it appears, that 2423 small-pox patients had been admitted into hospitals established for their accommodation, and that of this number 1200 had died."

"The *whole European* colony, he says, including the troops, their wives and children, and all the descendants of Europeans, with four exceptions, escaped small-pox, and all other eruptive diseases bearing a resemblance to them." "Of the four cases of exception, one was that of a British soldier, who had small-pox in his youth, and bore the marks of them. The second was that of a British soldier also, who said he had natural cow-pox in his youth, and that he had been repeatedly exposed to the contagion of small-pox. The third was that of a young girl, born in the island, of British parents, who there is no reason to doubt had genuine cow-pox about ten years before; but in whose case the eruption bore a stronger resemblance to chicken-pox than to small-pox. And the fourth was that of a child of European parents, who had been vaccinated about five years before, but in whom it is uncertain whether cow-pox had been produced or not. The disease in this child's case was severe and well marked;

but she passed through all the stages of it in the same house with four children who had formerly had cow-pox, but who escaped small-pox and every other eruptive disease. Of the four cases just alluded to one proved fatal, and it was that of the soldier who, we were informed, had natural cow-pox in England."

" Reports," Dr. Farrell says, " of several cases of small-pox after cow-pox, or what was supposed to be cow-pox, (among the natives,) reached me; but there were so many defects in the history of most of them, that they leave the question much the same as they found it. I have taken much pains to come at the bottom of this subject, by visiting several suspicious cases, ascertaining their history and watching their progress. Of these I have seen about twenty, all of which had been vaccinated, and I have no reason to doubt had passed through the regular stages of cow-pox. In six of them the disease appeared to me to be what we have been accustomed to call chicken-pox, but in the remaining fourteen I honestly confess that I was unable to say whether it was chicken-pox, or a very mild form of small-pox. In all, the symptoms of the disease were mild, except during the period of the eruptive fever; and not one proved fatal. I may remark, he adds, that I have lately seen four well marked cases of variolous eruption, two of them confluent, which proved fatal in natives who acknowledged that

they had had natural small-pox in the early part of their life, and even bore the marks of it on their skins." In his letter to you, dated January 26th, 1820, Dr. Farrell remarks, " It would appear that there is a connexion, if not a similarity in the contagion of small-pox and chicken-pox, for chicken-pox were as little known in this island as small-pox, until the contagion of the latter was introduced in July last from the Malabar coast, after which it was found that chicken-pox became very prevalent. I am also induced by my experience to believe, that variolous contagion, during the late period, modified many diseases, and produced a variety of anomalous affections of the skin. In some cases of this description that fell under my notice, there was fever, attended with an affection of the skin, not unlike measles; in others, especially young persons, who had passed through the vaccine disease, there was fever of three days duration, succeeded by slight elevated red points in the skin, which never advanced farther, and disappeared in four or five days. With respect to the form of eruptive disease which we have been accustomed to call chicken-pox, I am strongly inclined to think that we are not yet in possession of sufficient data to establish in all cases a satisfactory diagnosis between it and small-pox. The difficulties lying in the way of the attainment of this point, in as far as the inhabitants of this country are concerned, are much increased

by the black colour of the skin, and by the circumstance of the cuticle being thickened and indurated by free exposure to the weather.

“I have instituted some experiments, and other medical officers of the establishment have done the same, with the view of ascertaining the powers of chicken-pox in propagating itself by inoculation, and of determining how far it secured against small-pox; but it must be confessed that a share of doubt, amounting almost to invalidity, has been thrown over all our measures by the presence of variolous contagion. In some cases of persons who never had either small-pox, chicken-pox, or cow-pox, inoculation with fluid taken from a chicken-pox vesicle was followed by well marked small-pox, unfortunately more than once by small-pox of the confluent kind. In other cases of persons who had passed through small-pox or chicken-pox, inoculation in the same manner, and from the same source, did not produce any disease. In the persons in whom an eruption succeeded to inoculation with chicken-pox matter, no disease was afterwards produced by inoculation with variolous matter. Having pronounced the difficulty of distinguishing in all cases between chicken-pox and small-pox, it is right to observe, that the cases of chicken-pox selected for the purpose of taking fluid from them, were remarkably mild, and, according to received opinions, well marked cases of that disease.”

I regret that I have not as yet received from Madras or Calcutta any accounts of the progress of the late small-pox epidemic, which, I have been informed, has reached these places, the more that I know it has been imagined that small-pox and chicken-pox prevail in India at different seasons of the year. I am not in possession of any documents by which I could verify or disprove this belief, except an extract from the Official Returns of Sick in the centre division of the Army on the coast of Coramandel, from 1803 to 1810, with a sight of which I have been favoured by Dr. BERRY, late member of the Medical Board at Madras. From this abstract, it appears, that during the period mentioned, the small-pox and chicken-pox had repeatedly co-existed, and alternated at very short intervals with one another, and "had not been confined," as Dr. Berry justly remarks, "to any particular month or season of the year." I do not doubt, however, that when accounts shall be received from India of the appearances which the small-pox epidemic has exhibited there, these appearances, in the unvaccinated, the vaccinated, and those who had previously passed through small-pox, will be found to coincide with those which it has every where else been observed to produce. My confidence in this anticipation is increased by finding that small-pox and chicken-pox are constantly recorded as co-existing with one another, in all the Tables of the Diseases of different Coun-

tries which I have had an opportunity of consulting.

From this review of the opinions of practitioners, in other Countries besides Britain, respecting the occurrence of varioloid eruptions in the vaccinated, it appears,

1st, That from the first introduction of vaccination into these Countries, varioloid eruptions have been observed to occur in the vaccinated sometimes co-existent with, and at other times subsequent to, cow-pock inoculation.

2d, That these eruptions have, in some Countries, particularly in France, been regarded as the genuine product of vaccine virus, and have accordingly had the epithets applied to them of *vaccine*, *vaccinal*, and *vacciniform* eruptions.

3d, That in those cases in which it seemed to the observers to be doubtful whether the varioloid eruptions co-existent with or succeeding to vaccination, arose from the infection of cow-pox, of small-pox, or of chicken-pox, they have not unfrequently been termed *anomalous eruptions*.

4th, That the *vaccinal* and *anomalous* eruptions have exhibited appearances similar to those eruptions which, in this country, have been sometimes denominated chicken-pox, and sometimes small-pox modified by vaccination, as is evident from the appellations which they have received, of *vesicular*, *pustular*, and *horny* eruptions.

5th, That inoculation performed with the mat

ter of these general vaccinal eruptions, has most commonly produced a *local* affection only, but that in a few instances a *general* eruption has been produced similar to that from which the matter had been taken.

6th, That in those Countries (Prussia in particular) in which the varioloid eruptions occurring after vaccination, have not been supposed to proceed from the action of cow-pock virus, they have been supposed to arise either from the infection of chicken-pox, or from that of small-pox.

7th, That of those who have supposed that the varioloid eruptions in the vaccinated have proceeded from the contagion of chicken-pox, some (as M'Donald and Heim) have believed this disease to be a modification of small-pox, and others a distinct and specific disease.

8th, That under the appellation of *spurious* small-pox, have been included by practitioners all those various forms of varioloid eruptions which I have described in my former letter, (from p. 20. to 27. and from p. 30. to 44.) as having occurred during the late variolous epidemic in Edinburgh, in those who had previously gone through either variolation or vaccination; and that of these forms of varioloid diseases, the mild vesicular eruption, or *new chicken-pox*, has constituted but a small proportion even in the vaccinated, and a still smaller proportion in the unvaccinated.

9th, That the numerous diagnostic characters between *spurious* and *genuine* small-pox, so ingeniously suggested by Heim, are by himself allowed to be difficult in their application to individual cases.

10th, That the matter of the eruptions considered to be chicken-pox by Heim, and by those who have adopted his diagnostic characters, was capable of producing, and actually has produced, general eruptions.

11th, That the matter of eruptions, exhibiting in every respect the appearances which occur in small-pox *modified* by vaccination, has frequently failed in producing a *general* eruption, though the *local* pustule excited by it has not unfrequently been accompanied by a febrile action.

12th, That in all places where vaccination has not been universally adopted, the varioloid eruptions which have been observed to occur in the vaccinated, during the prevalence of variolous epidemics, have been usually regarded by the enemies of vaccination as the genuine product of small-pox contagion, and as proofs of the failure of that practice.

13th, That the varioloid eruptions which have been observed to occur in the vaccinated, have been represented by the advocates of vaccination in other Countries, as well as in Britain, as the consequences either of *imperfect* vaccination, or as cases of *chicken-pox*, or *spurious small-pox*.

14th, That in every Country in which small-

pox have prevailed epidemically, since the introduction of vaccination, spurious small-pox have been observed, and have attacked chiefly the vaccinated, or those who had previously passed through either the natural or inoculated small-pox; and, accordingly, that in every town and village in these Kingdoms, in France, Wirtemberg, Holland, America, the West Indies, and the Island of Ceylon, in which the late small-pox epidemic has occurred, small-pox and chicken-pox are recorded to have *co-existed*.

15th, That the vaccine matter which has now been employed for twenty years upon the continent of Europe, in America, and in both the Indies, as well as in this country, does not appear to have suffered any deterioration in its qualities from cutaneous eruptions, or other causes, but has continued, during the whole of this period, to communicate to those inoculated with it all the security it has ever done against the attacks of small-pox, and against the dangers of that disease.

16th, That the *vaccine* and *varioloid* eruptions seem to have occurred as frequently in those Countries in which the operation of vaccination has been performed, with three, four, or more punctures, as in Scotland and America, where that operation is usually performed by making one or two punctures only.

17th, That the possibility of the occurrence of genuine small-pox after perfect vaccination,

which was so long and so generally denied by the Central Committee of Vaccination in France, and by the Advocates of that practice in other Countries, has at last been admitted to occur in proportions varying from one or two in a hundred, to one in several millions !

18th, That the epidemical small-pox, which have spread themselves so extensively over the greater part of the globe, since the year 1814, have been observed, in almost every place in which they have occurred, to attack a considerable number of those who had previously passed through small-pox, and have rendered the possibility of the occurrence of *secondary* small-pox, which was so strenuously denied by the first medical authorities, a point about which there can now no longer exist any just grounds for difference of opinion.

19th, That while the epidemical small-pox, which have prevailed during the last seven years, have been every where of a most malignant kind, destroying a large proportion of the unvaccinated attacked by them, very few examples have occurred of their having proved fatal in those who had gone through the process of vaccination ; and,

Lastly, That the diminished susceptibility for small-pox contagion,—the general mildness of the disease when it does occur,—and the almost universal security from danger in the vaccinated, must now be considered as the real advantages

which have hitherto been derived from the inestimable discovery of Dr. Jenner.

In tracing the progress of the opinions which have been entertained by medical men respecting small-pox, their varieties, their secondary occurrence, and their natural and artificial modifications, it has been agreeable, amidst all the diversities of these opinions, to remark the very general uniformity which has prevailed in the results of practical observation, when carefully and faithfully recorded, without any admixture of hypothetical explanation. Convinced that these results alone could afford any sure basis for speculation or reasoning concerning varioloid diseases, I have endeavoured, in the general description of the late epidemic, and in the histories of the individual cases of it inserted in my first letter, to keep every where distinct the relation of facts from all hypothetical reasoning respecting them; and, in the present letter, I have deemed it to be my duty to record every opinion which could be considered as in any respect hostile to that which I found myself reluctantly obliged to adopt with regard to the common origin of varioloid diseases. How far this opinion is legitimately deducible from the past history of small-pox, and in particular from the observations which I have myself made, or which have been made by others, of the phenomena of the late variolous epidemic, I must now leave to you and to the public to

decide, and retire from an investigation which has been uninterruptedly continued, so far as my professional duties would permit, for more than three years, in the firm persuasion that, if I am right in my conjecture, it will be found to afford, virtually, information of past and of future small-pox epidemics, as well as of the present. "The phenomena which, in the actual circumstances, have been observed, we believe to have taken place as often as the circumstances before were similar; and we believe, also, that they will continue to take place as often as future circumstances shall in this respect have an exact resemblance to the present." In retiring from this investigation, I shall be fully gratified if my researches shall in any degree tend to connect and explain the results of observation, to reconcile the discordant and contradictory opinions of practical observers, to simplify our future inquiries with regard to varioloid diseases, and to enable us to estimate justly the nature and extent of the benefit to be derived from the salutary practice of cow-pock inoculation.

It is not easy to conceive that the efficacy of cow-pock inoculation, in protecting against the attacks and the dangers of small-pox, is likely ever to be subjected to a severer trial than that which it has experienced in the almost universal prevalence of the late very malignant epidemic. From the best information I have been able to procure, the deaths from natural small-pox in

this epidemic has in general varied from one in three to one in five—a degree of fatality from small-pox which has been but seldom observed to occur, and which has not, so far as I have been able to learn, any where taken place since the introduction of vaccination. It is to the severity of this epidemic, I am convinced, that we ought to attribute the greatness of the number of the vaccinated who have been attacked by it, and not to any deterioration in the qualities of the cow-pock virus, or to any defects in the manner in which it has been employed. Had a variolous constitution of the atmosphere, similar to that which we have lately experienced, existed at the time Dr. Jenner brought forward his discovery, it may be doubted whether it ever could have obtained the confidence of the public. It is to the severity, also, of the epidemic, I conceive, that we must attribute the very great number of acknowledged cases of secondary small-pox which have occurred during its progress—a number certainly much greater than is recorded to have occurred during any former small-pox epidemic. The modifying effects of primary on secondary small-pox, which I have had occasion to observe, lead me to believe, that had the late epidemic been of a milder character, the secondary small-pox occurring in it would have exhibited more of a varicelloid, and less of a variolous character than they have done, and in all probability would

not have been recognised either by myself or by others as cases of secondary small-pox. The same remark is, I conceive, if possible, still more applicable to the cases of small-pox which have occurred after vaccination ; for who, among the friends of this practice, would ever have allowed any varioloid eruption to be small-pox, to which he could have assigned any of the multifarious attributes of chicken-pox ?

It seems now reasonable to believe that in every former small-pox epidemic, secondary small-pox must have occurred, and must have assumed the appearances chiefly which have been considered as characteristic of spurious small-pox or chicken-pox, since, in the late epidemic, so considerable a proportion of the secondary small-pox have exhibited these appearances. It will be curious to observe in what the modifications of secondary small-pox, and of small-pox after vaccination, will consist, when the variolous epidemic shall be of a kind equally mild with that of which we have the following description by Dr. Jenner : “ About seven years ago a species of small-pox spread through many of the towns and villages of this part of Gloucestershire (Berkeley) it was of so mild a nature, that a fatal instance was scarcely ever heard of, and consequently so little dreaded by the lower orders of the community, that they scrupled not to hold the same intercourse with each other, as if no infectious disease had been present among

them. I never saw nor heard of an instance of its being confluent. The most accurate manner, perhaps, in which I can convey an idea of it is, by saying, that had fifty individuals been taken promiscuously, and infected by exposure to this contagion, they would have had as mild and light a disease as if they had been inoculated with variolous matter in the usual way. The harmless manner in which it shewed itself could not arise from any peculiarity either in the season or the weather; for I watched its progress upwards of a year, without perceiving any variation in its general appearance. I consider it then as a *variety* of the small-pox." Between this variety of small-pox, which was considered by the country people among whom it prevailed as *swine-pox*, and which without proving fatal or even dangerous, secured those who had been attacked by it against receiving small-pox by inoculation, and the malignant small-pox epidemic which has lately prevailed, we must suppose every intermediate degree of severity and fatality to exist, and it may require perhaps the observation of a series of such epidemics, and the lapse of ages to enable us to discover, the effects of the greater or less severity of the epidemic in increasing or diminishing the number of varicelloid appearances which occur in those who become affected with secondary small-pox, or with small-pox after vaccination.

It was, as you will recollect, the very disagree-

able state of mind occasioned by the observation of the occurrence of small-pox in the vaccinated in Edinburgh, and the discordancy of the opinions entertained by medical men respecting the causes of this occurrence, which first engaged my attention in a particular manner to the subject of small-pox. The long continuance of the Epidemic, while it has stimulated my curiosity by presenting daily fresh examples of the disease, has afforded the best opportunities of determining how far the opinions which have been entertained respecting the separate existence of chicken-pox, and of perfect and imperfect vaccination, were applicable to individual cases of varioloid eruptions in the circumstances in which they have occurred. I am under great obligations to my professional brethren for the interest they have taken in facilitating the objects of my researches; and, in particular, to my young friend and pupil Mr. DONALD M'INTOSH, for the industry, ability, and zeal with which he has assisted me in the observation of the epidemic, and in the collection and arrangement of the materials of this, as well as of my former letter.

The disappointment I felt, in common with others, in being forced to believe that Vaccination, in whatever manner it may be performed, is not in all circumstances an absolute, or even a general preventive of small-pox, has been in some measure compensated for by the increasing conviction I have received of the wonderful

power which this process possesses of modifying the phenomena, and securing against the dangers of small-pox, and I cannot but believe that the same gratifying conviction must irresistibly force itself upon the minds of every individual who may have an opportunity of observing the remarkable differences that exist in the appearances and fatality of natural small-pox, and of small-pox modified by vaccination. The results of my observation of this modifying power, have led me to regard every vaccination as being as perfect as it can be rendered, which bears the characters originally described by Dr. Jenner, and I must retain this conviction till evidence, different from any of which the public are yet in possession, shall be adduced of the existence of spurious vaccine vesicles, of the deterioration of cow-pock virus, and of the superiority of one mode of vaccination over another,—*hypotheses* which have been successively resorted to, in order to account for the occurrence of small-pox after vaccination. I have not been able to discover, after the most minute attention, that any difference of effect whatever in the modifying power of vaccination has depended upon the skill of the operator, or upon his peculiar mode of performing the operation; indeed, I have often had occasion to see the small-pox mild in children who had been vaccinated by their parents, and severe in those who had been conducted through this process by the highest authorities in vaccination.

That the practice of vaccination should not in this enlightened country have long ago become universal, and that effectual measures should not have been taken by the Medical Profession, by the Clergy, or by the Legislature, to ensure this blessing to every infant born in it, must be admitted to be a sort of national disgrace. It must be painful to every humane mind to reflect, how much misery might have been prevented, and how many lives might have been saved during the prevalence of the late Epidemic, had we employed, as we ought to have done, the very simple means which Providence, by the invaluable discovery of Dr. Jenner, has placed in our power, of putting an end to the ravages at least, if not to the existence of small-pox. Instead, therefore, of vainly bewailing or railing at the apathy, the ignorance, and the prejudices of the lower orders of the people, it is the duty of the better informed classes to endeavour to remove every obstacle which may occur to universal vaccination, and to give to the performance of that practice all the encouragement which it is in their power to afford.

The benefit of vaccination, it is well known, has long been secured to the children of British soldiers, by the excellent regulations of his Royal Highness the Commander in Chief, the Patron of this practice in the Army. It will be flattering to me in the extreme, if this Illustrious Personage to whom I owe such obligations of duty and gratitude, for recent as well as former marks of

his condescension and favour, shall view with approbation my humble endeavours to render useful to the Public, researches which were first suggested by observations made in a Military Hospital.

And now, My Dear Sir James, "Tractatus hocce nomini tuo, non eo animo inscripsimus, ut eorum patrocinium et defensionem susciperes: Veritas enim ipsa se defendet; et si quid erroris, pro humani generis infelicitate admissum sit, Patronum, ei quaerere non debeo, cui hostem me esse cum primis profiteor. Sed pro magna in me Tua Benevolentia exstare hoc volui, quale id cunque est, beneficiorum monumentum; ut dum virtutes Tuas altiores, quae omnibus patent, publicaque in Patriam merita Annales celebrant, mihi id liceat, quod privatus est, quodque ad me magis spectat, palam praedicare. Tuo enim potissimum Praesidio, et Commendatione adjutus, aetatis, et studiorum *gradu proVectiore in praefectorum medicorum militarium numerum* coopatus sum; in quo ipse olim creveras; et cujus etiamnum magnum decus es, et ornamentum."

"Si qua interim scintillula ex hisce scriptis, aut crepera lux affulserit, quae veritatem hucusque reconditam, quoque modo patefaciat, Tibi, Vir Illustrissime, quicquid a me praestitum est, ut summo jure debitum, non magis beneficiis obstrictus, quam proprio animo, et prolixâ voluntate lubens offero."

JOHN THOMSON, M. D.

5, George Street, Edinburgh,
1st January, 1822.

APPENDIX.

*Letter to DR. THOMSON from ANDREW SMITH,
M.D. Hospital Assistant, containing an Account
of Cases of Secondary Small-pox.*

DEAR SIR,

IN compliance with a wish which you expressed to me some time ago, that I would collect and arrange the evidence on record relative to the recurrence of small-pox in the same individuals, I have now to communicate to you the result of an investigation entered upon for that purpose, which I am sorry to say has, from my limited opportunities, been but very imperfect. The proofs which I have collected with regard to this point, consist, as you will perceive, partly of the opinions of medical men, and partly of matters of fact. In detailing these proofs, I shall state, *first*, those which are to be found previous to the introduction of small-pox inoculation into Europe; *secondly*, those which are mentioned by medical writers during the continuance of that practice; and, *thirdly*, those which have been collected since the employment of vaccination, observing as far as possible a chronological arrangement throughout the whole.

PERIOD I. *From the 10th Century to the year*
1720.

RHAZES, (*de Variolis et Morbillis*, p. 27, *et seq.*) the first writer on small-pox whose works have reached our times, evidently considered the recurrence of that disease as by no means unfrequent, particularly in those who had passed through it when young in a mild form, or in whom the disposition to the disease had not been completely destroyed by the first attack. When treating of the means to be employed for preventing an attack of small-pox, this author says, that blood ought to be taken away from children and young people who have either not laboured under small-pox, or who have had them at a former period, in a weak and mild form, and in another part of the same work, he observes, that the same individual does sometimes suffer a second, or even a third attack.

Shortly after the time of Rhazes, we find AVICENNA, another distinguished Arabian writer, lending his support to the same doctrine, He says, (*Opera Omnia*, T. ii. lib. 4. p. 73.) that a person frequently labours twice under small-pox when the matter is collected, so as to be expelled at two different times. This opinion seems to have been generally, if not universally admitted till the time of AVERRHÖES, who was the first to assert that a person could suffer an attack of small-pox only once in the course of life.

From Averrhoes till JOHN of GADDESSEN, none of the authors whom I have had an opportunity of consulting have made any observations with regard to the recurrence of small-pox. The last mentioned, however, (*Rosa Anglica*, p. 40.) says, that small-pox do sometimes occur a second time, when the cause of the disease has not been completely destroyed during the first attack.

FERNELIUS (*de Abditis rerum Causis*, cap. 12. liv. 2.) observes, that the two opinions which are entertained by some authors concerning small-pox, viz. that every person must

pass through them once in the course of life, and that none can have them more than once, are proved by his experience to be erroneous.

AMATUS LUSITANUS, (*Curat. Medicin. Cent. iii. p. 233.*) who practised in Italy, when speaking of an epidemic small-pox which prevailed at Ancona in the year 1551, says, that some old people who had formerly suffered an attack of that disease were seized with it a second time.

FRANCISCUS DE PIEDMONT, (*Messuæ Opera, Supplement, p. 138.*) who published a copy of Messua's work with a supplement, mentions a second eruption among the varieties which small-pox occasionally present.

FABRICIUS, (*Vogel Praxis, vol. iii. p. 12.*) mentions, that during the prevalence of an epidemic small-pox, some people who had undergone that disease before, suffered a second attack.

MAYERNE, (*app. Pract. Med.*) mentions the case of a person who had a general and copious eruption of small-pox, yet who after the scabs had fallen off, underwent a new eruption not less severe than the first.

BOREL, a French author, after observing, (*Hist. et Observat. Medico-phy. Cent. 8, obs. 10, p. 203.*) that it is generally believed that a person can only labour under small-pox once, tells us he had seen some who had been affected with them two or three times, even in their old age, but that nothing concerning this had occurred to him, so worthy of notice as the case of a certain French woman who had had them seven times, and at last perished of the eighth attack, in the hundred and eighteenth year of her age.

SYLVIUS DELEBOE, (*Opera Medica, cap. 9.*) informs us, that many individuals labour twice or thrice during their lifetime under small-pox, and sometimes twice in the same year, a circumstance which, he says, he remembers frequently to have happened.

REGIUS, (*Craanen, Observat. Art. Variola, p. 741.*) in a commentary on the works of Craanen, remarks, that we generally see the human constitution suffer only once from small-pox and measles, which is a sign that all the peccant matter had been discharged the first time; but should any of it re-

main, the disease may be excited anew, and differs from the first attack only in degree.

DECKERS, (*Exercit. Practicæ Leyden.*) tells us that he had seen individuals who had had the small-pox two or three times; and he then mentions the case of a female who, fifty years after she had had a severe attack of variola, by which she was much marked, suffered a second infection.

DIEMERBROECK, (*Opera Omnia Medica et Anatom. Hist. i. p. 290.*) in describing an epidemic small-pox which prevailed at Utrecht, during the months of July and August, 1640, mentions, that at that time there were many patients who had had a very copious variolous eruption, and had scarcely recovered when they suffered a relapse of the same disease, and that the second attack was often more copious than the first; nay, some were seen, who within the space of six months suffered three very copious eruptions, which he adds rarely happens in so short a time. As examples of such secondary attacks, he relates the cases of four children of his own servant, Isaac Schorer. The disease in this family commenced with the oldest, and went gradually down to the youngest, and about the time when this child was convalescent, the disease re-attacked the oldest, and then went over the others again in the same succession as during the first attack.

WILLIS (*De Febris*) mentions, that it is usual for small-pox to attack an individual only once, but that when a part of the miasmata remains after the first infection, the patient may experience a second or a third attack.

FORTIS (*Consult. et Resp. Med. tom. ii. cent. 4. p. 604.*) says, that we are not to believe, with Fernelius, that the constitution of the atmosphere is the sole cause of small-pox, for many suffer from them not only one, but two attacks.

BLANCARD, (*Traité de les Maladies des Enfants, Part 2.*) states, that there are some people who pretend that a person can only suffer an attack of small-pox once, which opinion, he adds, is erroneous; for, in the first place, a great number of young, and even old people, die without having had that disease; and, in the second place, there are many who, before death, pass through it two, and even three times, and certain-

ly not in a slight manner, but each time so severe as to produce blindness during the disease.

DOBZENSKY DE NIGRO PONTE, (*Ephemer. German. Dec. 2. An. 4. Obs. 29.*) details the case of a boy seven years old, who caught the natural small-pox from exposure to the contagion of that disease, by being near a child who had died of it. This boy had a severe attack, and a copious eruption, but got well and remained so ten years, when upon being again exposed to the contagion of small-pox, he suffered a second attack, which was more severe than the first.

SCHWEINSBEER, (*Ephemer. German. Dec. 2. An. 6.*) states, that he saw a robust boy suffer five attacks of small-pox, and happily survive them all.

STALPERT VANDER WEIL (*Obs. rar. Med. Anat. Chir. tom. ii. par. 1. Obs. 42. p. 424.*) mentions the case of an infant who had a severe attack of small-pox three weeks after it had passed through that disease in a mild form.

HOYER (*De Haen, Refut. de l'Inoculation*) says, he has often seen individuals suffer even three attacks of small-pox.

HARVEY, (*Treatise on small-pox and measles*), in treating of the causes of small-pox, says, "it is agreeable with universal experience that three fourths of those northern regions do once or oftener in their life pass that sort of purification, many once, some twice, and some, very few, three times.

ETMULLER (*Opera Omnia, tom. ii.*) says, that he has seen many old people die without ever having had the small-pox or measles, and, on the contrary, some examples of others who had had them more than once.

HAGGENDORN (*Obs. et Hist. Med. Pract. Cent. 1. Hist. 66.*) tells us, that examples are known to him which occurred in practice, of the same individual suffering a second attack of small-pox, either in the course of a year after the first infection, or after a longer interval; he then relates the case of a noble lady, who, many years after she had undergone that disease, was attacked by it a second time very severely.

BERHENS (*Acta Physica, Med. N. C.*) asserts, that it is no extraordinary thing in Germany, for a person to suffer several times from the small-pox; thus, he says, I had them myself

three times in my youth, and each time with considerable danger.

BOERHAAVE, (*Praxis Medica*, t. v.) says, that a person who has had the distinct small-pox, may afterwards suffer from the confluent, but that he who had had the confluent small-pox first, can never be again affected.

PERIOD II. *A. D.* 1721 to 1799.

Mr. MAITLAND, who first called the attention of English practitioners to the practice of inoculating the small-pox, remarks, (*Account of Inoculating to Small-pox Vindicated*, 1722,) that some think the genuine disease is not produced in that way, and that consequently it is not a certain preventive of the natural small-pox, which opinion he considers as erroneous, and adds, that he believes the patient who has laboured under inoculated small-pox as safe from a future attack of that disease, as if he had had the natural small-pox themselves, which, he remarks, is not even an absolute preventive of a second infection.

In a tract published at Boston, in New England, in 1722, (*London Medical and Physical Journal*, vol. xvii.) entitled, "Inoculation of the Small Pox, as practised at Boston," the author declares "that those who were inoculated, often had the small-pox afterwards in the natural way."

DWIGHT (*De Variolis et Morbillis*, 1722.) says, that one must not be astonished at finding some individuals who have laboured twice, or oftener, under small-pox; and he then mentions the case of a nurse whom he knew die of that disease, after having formerly suffered two attacks, by each of which she was much marked.

WAGSTAFFE (*Letter to Dr. Friend*, showing the danger of inoculating the Small-pox, 1722.) observes, that the rule that none who have had the natural sort can catch them by

inoculation, has been contradicted by one in St. Thomas's Hospital, on whom the pimples appeared pretty fairly, though the pits in his face to a great degree were sufficient testimony that he had suffered before from this disorder.

MARESCOT (De Variolis, 1723.) gives the cases of two infants, one of whom had the small-pox twice, and the other three times.

HELVETIUS (Dissert. sur la Petite Verole, 1727.) remarks, that few who are versant in practice will not recognise the truth of the following observations, that many people never suffer from small-pox, and that many also suffer from them oftener than once.

KRISCH (De Inoculatione Variolarum) asserts, that many old men suffer an attack of small-pox after having undergone inoculation for that disease in their youth. He then mentions that it is stated in the *Acta Medica Berolin.* 6 Dec. 2. that a London physician of the name of Edlington, was sent for to see a patient labouring under true small-pox which proved fatal, a year after this patient had passed through variolous inoculation.

JUNKER (Pratique Medecin) details the case of a person whom he actually treated for a second infection of small-pox, after the first had left many marks.

WICHMANN, in his notes on the works of Werlhof, mentions, that small-pox do sometimes attack the same individual a second time, which he considers as a rare occurrence, unless those which occur in nurses and other people from contact, be admitted, which are certainly common. He then refers to the history of a curious case given by Spigelius of a young man who had three attacks of intermittent fever, and after each of them was seized with small-pox. Werlhof, also, according to Wichmann, had lately seen two cases of secondary small-pox.

DEERING (An Account of the Improved Method of treating the Small Pox,) says, "I was an eye-witness of the inoculation of a little boy, who, notwithstanding the great care there was taken in the choice of the pus, had the confluent

kind severely, and twelve months after, had them naturally, and of the favourable sort."

The editors of the *Leipsic Commentaries* (vol. ii. p. 722.) state, that they had heard from a friend in Holland, that the small-pox had been prevailing extensively throughout Zealand, Gilderland, and Holland, and that many individuals had suffered a second attack, which excited suspicions, and forced many to confess that a person who had not suffered an attack of confluent small-pox might have them again.

THEBESIUS (*Acta Physico-Med. Acad. Cæsareæ*, vol. x.) relates the case of a girl who had small-pox twice in the course of two months. The first attack was very mild; the eruption in the second was general, attended by considerable swelling of the palpebræ; the pustules went through their regular stages.

DR. VAN LEENDT (*Disput. Medica Inaugural. de Variolis*), remarks, that every person does not undergo an attack of small-pox, nor do all who have once had them, remain, during their life-time, free from a second attack; for there are every where examples of men who have had them twice, thrice, and even oftener, as testified by Blancard, Diemerbroeck, Sylvius Deleboe, &c.

CANTWELL (*Dissert. sur l'Inoculation*) makes the following observations on the subject of the recurrence of small-pox in the same individuals, viz. Professor Josnet, treated in 1736, or 1737, a young gentleman labouring under variola, who had been inoculated in London some years before. M. Molin knew an instance in which small-pox attacked a person very severely, and disfigured him much, after he had passed through a regular inoculation many years before. Heister says he had seen small-pox twice or thrice in the same person. M. Molin assured him (Cantwell) that he had treated twice the same person with small-pox, and that he was much marked by them each time; the second attack was more severe and dangerous than the first. M. Seron mentions the case of the Rev. Peter Burlette, who, after having had small-pox six times, died of a seventh attack. Boyer,

says his sister had small-pox seven times, and was much marked by the two last attacks; also, that he saw a lady labouring under confluent small-pox, although she had had them severely when a girl; and that Miss Perion, who died the same year of that disease, had had it so severely in her youth that her life was thought in danger. Cantwell then observes, that there are few practitioners who have not met with examples of such recurrences; and a great number are to be found in authors. He relates the case of a gentleman who, after a regular inoculation, suffered an attack of the natural disease. The pustules were very large, and almost touched each other, although without confusion; also that Lord Montjoy, who died of that disease at Paris, was said to have passed through it artificially in England.

MOSCA, a Neapolitan physician, tells us, (*Dell Aria et de Morbi dall aria depend. Trattato*, Tom. 2. Part 2. Diss. 2.) that it is a vulgar error to believe that the human constitution can be only once affected by small-pox, for observation proves that it may suffer a second or even a third attack.

SCHACHT, (*Instit. Medicinæ Practicæ*, cap. 13.) a celebrated professor in the university of Utrecht, when speaking of small-pox, says, that they but rarely attack those who have already passed through them; and afterwards he adds, that his father saw an individual who experienced three attacks of small-pox; one of them was so violent at the age of 36, that the patient recovered with difficulty.

VAN JUCHEM, (*Dissert. Med. Inaug. de Variolis, &c.*) when attempting to explain the rapid appearance of a new variolous disease, after small-pox, by the absorption of pus, observes that in that way a man in the space of a fortnight might labour twice under small-pox. Such a case is related by Morton; sometimes others, after a longer interval, have been observed to fall again into small-pox.

Dr. HOSTY (*Journal de Médecine*, tom. iii.) mentions that he was told by Mr. Ranby, Surgeon to the King of England, that he had only seen one case of natural small-pox succeed the inoculated disease when regularly performed.

Dr. Cox (*Letter to a friend on inoculation*) admits that

small-pox do sometimes attack the same person a second time ; but he adds not more frequently after the inoculated than the natural disease.

J. G. ROEDERER, in his Inaugural Dissertation, printed at Gottingen in 1757, relates the histories of seven cases of secondary small-pox.

MACQUART (*Journal de Médecine*, tom. viii.) describes the case of an individual who laboured twice under small-pox ; the second attack occurred seventeen days after the first. The first infection was ushered in by fever, followed by a pretty abundant eruption ; the pustules went through their regular stages in both attacks.

RAZOUX, (*Tables Nosolog. et Météorol. tres étendues dresses à l'Hotel Dieu de Nîmes*) mentions the case of the daughter of M. Baux, who, on the tenth day after inoculation for small-pox, was seized with slight fever, which was followed by a scanty eruption of pustules which remained out for a short time, yet, fifteen months afterwards, this girl was attacked by a confluent small-pox, of which she recovered.

TISSOT (*Lettre à Mons. De Haen en réponse à ses questions sur l'Inoculation*) admits, that those who have laboured under natural as well as inoculated small-pox, may again, although rarely, suffer a second attack.

M. GAULARD (*Journal de Médecine*, tom. x.) refers to four cases of secondary small-pox. The first was a boy who had a well marked attack of variola after he had been sometime before inoculated. The second occurred in an infant who passed through small-pox twice in the course of a month. The third was the case of a person who, after having been marked by a former attack of small-pox, suffered from that disease again in its confluent form ; and the fourth is stated upon the authority of Astruc.

KARONEGIESSER (*Acta Physico-Medic. N. C.* vol. viii.) informs us, that a girl who had had small-pox two years before, was attacked a second time in a form so terrible, that nobody thought she could recover ; however, after these pustules were dried, she survived another fresh attack of small-pox.

A writer in the *Journal des Savans*, (tom. ix. l'an 1759.) relates a case of the recurrence of small-pox in a young woman who bore the marks of a previous attack of the same disease. She appeared to have caught it by sleeping in a bed in which a child had been confined who died of that disease.

FRANCISCUS, (*Dissert. Epistol. in Variol. Inocul.*) when mentioning the blood as having considerable effect in producing small-pox, says, that unless that fluid be purged, how can he who has undergone the artificial disease remain free from a relapse, or who can promise that no person will again labour under the same disease after he has been cured of it? for it may be appealed to experience, that men have been affected twice, thrice, or even oftener, with small-pox.

OLIVIER (*Journal de Médecine*, tom. ii.) describes the case of a woman who, bearing the marks of small-pox on her face, was seized, after being exposed to the contagion of that disease, with fever, and had an eruption of variolous pustules, which went through the regular stages and course of a mild distinct small-pox.

The Editors of the same Journal, in a note, remark, that variola does rarely attack the same individual more than once; but they admit that there are some incontestible proofs on record of second infections, as that given by Macquart. They add, that they knew a similar observation had been made by a famous physician in that city (Paris); but that these facts are so rare, that they scarcely injure the cause of inoculation.

KIRKPATRICK (*Analysis of Inoculation*) admits that small-pox do sometimes attack an individual a second time, and he then relates the case of a young man, who, when he was inoculated, had slight fever and a few pustules, in consequence of which he was considered safe by Mr. Lee, the inoculator. About four years afterwards, upon being exposed to the variolous contagion, he was seized with violent fever, and died of a confluent small-pox.

LE CAT, in a letter to Pouteau, (*Journal de Méd.* tom. xvi.) asserts that inoculation has no more power in preventing a recurrence of small-pox than the natural disease itself; and he then mentions the case of a man who died of a second attack,

fully nine years after he had been inoculated ; which operation had been followed by a very severe disease.

HENSLER (Dissert. de Morbo Varioloso) furnishes us with the histories of the cases of nine individuals who had suffered two or more attacks of small-pox: *Case 1.* A woman who, when a girl, had a mild distinct small-pox, caught that disease again when nursing an infant affected with it. The pustules were most numerous on her breasts and face; went through their regular stages, attended and preceded by a good deal of fever, and left some marks about the *alæ nasi*. *Case 2.* A woman who had small-pox when a girl, of which evident marks yet remained, when nursing her child under that disease was seized with fever, followed by an eruption of pustules, which were filled with pus about the ninth day. *Case 3.* A girl became sick, and on the following day a distinct variolous eruption appeared, the pustules suppurated properly, and scabs and spots remained for a considerable time afterwards. About a month from that date she sickened again, and papulæ appeared over the whole body, which rose well, although they were small, and did not suppurate freely; the scabs soon became detached. *Case 4.* A boy fell sick, and on the seventh day papulæ appeared, which became filled with pus about the thirteenth; yet nearly three months afterwards he was again seized with fever, upon being exposed to the contagion of small-pox, and suffered a copious eruption; the pustules became filled about the seventh day with a purulent matter, and went through their different stages regularly. *Case 5.* The brother of the last patient had a scanty eruption at the same time with him, and again, about three months afterwards, papulæ succeeded to fever of one day's duration, which suppurated a little, and then dried. *Case 6.* A boy who, four years before, had gone through small-pox inoculation, caught the natural disease from his sister. The pustules amounted to about one hundred, were distributed over the whole body, but did not suppurate freely, and by the seventh day were all gone, when a new eruption appeared, and about three months afterwards a third. *Case 7.* The brother of the foregoing child also suffered a second attack, the pustules were less numerous, and there was only one erup-

tion. *Case 8.* A girl who, four years before, had laboured under a very mild small-pox, which scarcely left marks, upon being exposed again to the contagion of that disease, when prevailing epidemically, was seized with slight indisposition, followed by an eruption of papulæ, which, on the fifth day, contained a whitish serum, began to dry on the sixth, and on the eighth the small scales, or scabs, which had formed, began to fall off. *Case 9.* In a note, the author mentions that he himself, after having had a mild small-pox, which left marks, suffered a second attack, when his sisters were labouring under that disease, which proved mild and propitious.

TIMONI, (Dissert. sur l'Inoculation,) a physician at Constantinople, and a zealous promoter of small-pox inoculation, mentions two cases in which it had failed of protecting from the natural disease. One of them was the case of his own sister, who was inoculated when six months old, and considered safe, but when about twenty-two years of age she caught the natural disease from her inoculated sister, and died of it on the thirteenth day. The other was a boy who, seven years after inoculation, caught the natural disease from his brother, and had it pretty severely, but by proper care recovered.

KRAUSE, (Dissert. Med. Inaug. de Extirp. Variol. insitione Suestit.) when advocating the cause of inoculation against those who said that it was not a certain protection against the natural small-pox, affirms that it is generally so, and that the natural disease itself does sometimes recur, as he knew of a girl who had it four times, twice true, once conoidal, and once crystalline.

ROBERT (Rescherches sur la Nature de l'Inoculation de la Petite Verole) says that small-pox may occur a second time, when the cause of the disease had not been entirely destroyed during the first attack, or when an imperfect cure had taken place.

LE HOC (l'Inoculation de la Petite Verole renvoyie a Londres,) asserts that he had seen many individuals labour twice under small-pox, as instances of which he gives the cases of two of his own sons.

WEBER (Obs. Med. Fasc. 1.) says, that a case was commu-

nicated to him by the celebrated Werlhof, in which, on the eighteenth day, when the small-pox were all dried, the patient was seized with a fresh fever, and another variolous eruption, which also dried.

M. GATTI, (*Reflexions sur les Prejuges qui s'opposent aux Progres et la Perfection de l'Inoculation*,) in supporting the cause of inoculation, says, that small-pox do rarely occur in the same individual, and that not oftener after artificial than after natural infection.

CALURIUS (*Comment. de rebus, Lip. vol. 12.*) mentions the case of a boy who was inoculated, and had a scanty eruption, which went through the regular stages of small-pox. When this boy had recovered, he was seized with a fresh fever, followed in three days by an eruption of small-pox, which also observed the usual course of that disease.

HAUTESIERCK (*Recueil d'Observat. de Med. des Hosp. Milit. tom. 2.*) remarks, that during the prevalence of an epidemic small-pox at Challon, on the Soane, in the year 1764, towards the commencement of July, the disease became so general that some who had already had it, either mildly or severely, were attacked a second time. He gives the case of a young man who, six years after having had small-pox, was attacked with fever, followed on the fourth day by a general variolous eruption, which became pustular about the ninth day, began to scab on the tenth, and by the twelfth some of them had fallen off.

DE HAEN, (*Ratio Medendi, vol. ii. cap. 7.*) when treating of the inoculation of small-pox, mentions five cases of that disease occurring for a second time in individuals who had previously passed through it. *Case 1.* A girl, after inoculation, had fever, and a scanty eruption of pustules, which suppurated; nevertheless, about two years afterwards she caught the disease again, and had a very heavy load. *Case 2.* A person, after fever, had a scanty eruption on his body, but copious on the face; this, after secondary fever, became pustular, went through the regular stages of small-pox, and left marks. This same individual, some time afterwards, caught the same disease again, and had it so severely, that nothing could save him.

Cases 3. 4. and 5. The daughter of Dr. Krap was seized with fever, which was followed by an eruption on the third, that became pustular by the seventh day. At this time also his two sons, Xeverus and Leopoldus, were likewise seized with variola. His daughter again, nearly four months afterwards, had a second attack, the pustules matured and dried regularly; the eruption was seven times more numerous than the first time. About two months after her, Xeverus was attacked with fever, and on the third day had a confluent small-pox, more severe than the first attack; the eruption became pustular about the eighth day, and went through the regular stages of small-pox. Leopoldus at this time, likewise, underwent a second attack, which was also more severe than the first.

This author, in another work, (*Refutation de l'Inoculation*) brings forward the testimony of eighteen authors in favour of the possibility of the same person suffering a second attack of small-pox, and then relates five cases of that description. The first came under his own observation, and the four others were communicated to him by respectable individuals, two of them medical men. *Case 1.* A young man had small-pox very severely in his infancy, by which his face was much marked, yet, nevertheless, he caught them again, and had a very severe attack. *Case 2.* The brother of the young man whose case has just been detailed, also bearing marks of a former attack, caught the small-pox a second time from his brother, and had a most violent disease. *Case 3.* A young woman, while nursing a child affected with small-pox, was seized with severe fever, followed by a general variolous eruption, which went through its regular stages. The face of this woman was marked by a previous attack of variola. *Case 4.* A person of the first rank was displeased with his physician, for saying that a person could not have the genuine small-pox twice, because the definition of the spurious small-pox given him did not accord with the three severe attacks of small-pox which he had suffered at different times of his life, and which he remembered well. *Case 5.* A boy was brought to me who had an abscess in his breast, which supervened upon an attack of small-pox; nevertheless, some weeks afterwards he was seized with fever, which was followed, on the fourth day, by an eruption, which became

pustular, and began to dry about the eighth day, and in about four days more the scabs began to fall off.

SIDOBRE, (*Tractatus de Variolis et Morbillis*,) when attempting to trace the cause of small-pox to a viscosity of the blood, remarks, that the Swedes, Danes, English, and even the Parisians, sometimes labour under them twice, thrice, or even four times, whilst the Italians, Spaniards, and Portuguese, never more than once, which circumstance he attributes to the difference in the temperature of these countries.

STRACK, (*Journal de Médecine*, tom. 22.) in defending the cause of inoculation, says, that the having had small-pox does not infallibly guard against a second infection; and then mentions six cases of individuals suffering second attacks. The three first were said by their father, a man deserving of credit, to have passed through that disease before. Two others were well marked by the first attacks; and the sixth had a copious eruption, after being much pitted by the first affection.

In the report of the Faculty of Medicine of Paris on Inoculation, made to Parliament in June, 1765, (*Journal de Médecine*, tom. 22.) we find a number of authors referred to who had witnessed the occurrence of small-pox a second time, upon the authority of M. de l'Epine. M. Pouse, the father, they said, saw one case; M. Pouse, the son, three; Bouvart, two; Bourdelin, one; Petit, the father, one; Bone, one; Boyer, one; Cochu, one; M. Dalby, two; and nine others were known to Cantwell; and that M. de l'Epine himself knew an instance of a person who had passed through variola two different times.

TRILLER, (*Epist. 2. ad Doctiss. Hahn*,) when mentioning that the plague does sometimes return, says, it is exactly the same with small-pox, as there are some people who have them only once, and others who have them twice or thrice. He then details three cases, two of which were seen by himself; in one of them the second attack was most severe; the third was communicated to him.

CASIMER (*Comment. de rebus*, vol. 13.) agrees with Tissot, that one person in a hundred may suffer a second attack of small-pox, which would make, in Germany alone, in the course of a year, 211,200 instances of such recurrences.

LANGTON (*Observations on Inoculation*) transcribes a letter of Mons. Gatti's, in which the case of the Duchess of Bouffliers is detailed, who, two years and a half after regular inoculation, suffered an attack of natural small-pox, of a distinct and favourable sort.

Dr. RUSTON (*Essay on Inoculation for the Small-pox*) mentions the case of a lady whom he inoculated, after which she had fever, and several pustules round the wound, which induced him to consider her safe from a future infection; yet about three weeks afterwards, upon being exposed to the contagion of small-pox, she caught that disease, and had an eruption of about three or four hundred pustules, which matured regularly.

VAN DOEVERN (*Comment. Souet. Scient. Harlem. tom. 12.*) says, that variola may attack the same individual more than once, proofs of which have occurred in his own practice, as well as in that of other practitioners worthy of credit. His own wife was an instance of that occurrence, for about nine years after she had had a confluent small-pox, she was seized with fever, followed by an eruption, which at first he was inclined to believe was the spurious small-pox, but the progress of the complaint caused him to alter his opinion. She was seen by Camper, Brill, Grunner, and Swighausen, who had also seen her during the first attack, and they all allowed her's to be a case of genuine variola. A second case was that of a boy, who was seized with fever, followed by an eruption of small-pox, which went through the regular stages of that disease, five years after he had had it, according to the testimony of the celebrated Eding. A third case was communicated to him by Swighausen, who was previously a strong opposer of the possibility of a second attack; but he never afterwards entertained any doubt concerning such an occurrence.

ERNEST. A. NICOLAI (*Pathologia seu Scientia de Morbis, t. 2. p. 286.*) relates the case of an individual who passed twice through small-pox.

SERVANS VAN DE CAPELLO, (*Comment. de Rebus, Lep. vol. 17.*) in a paper on the occurrence of variola in individuals who had previously gone through it, relates three cases of that

description. The first was that of an infant who, seven weeks after having had a mild small-pox, suffered a second attack, attended by a pretty general eruption, which went through its regular stages. The second and third were in the same family; both attacks were mild; and the last infection in each after an interval of sixteen years.

DRYFOULT (*Comment. de Rebus, Lep. vol. 17.*) gives the case of his own daughter, who, nine years after inoculation, caught the natural disease from her husband, which went through its natural stages, as was witnessed by the celebrated Hovius.

C. R. HANNES, in an *Essay on the Practice of Inoculation for the Small-pox*, (*Nova Acta Phys. Med. t. 5. Ob. 72.*) admits the possibility of the secondary occurrence of small-pox, and relates the history of two cases of this kind which had been communicated to him, the one by Bruningium, and the other by Burggravius. He quotes also Wolfius, and some older authors.

DE MAN (*Nova Acta Phys. Med. Acad. Cæsar. tom. 7.*) informs us, that he had seen five cases of secondary small-pox in his practice: the histories of two of them he has detailed. 1. A boy, fourteen days after he had had a distinct small-pox, was seized with fever, and on the fourth day from that time an eruption came out, which went through its regular stages, attended by secondary fever. 2. A boy, who had not been long recovered from variola, by eating of some cakes which had been handled by a person whose hands were covered with small-pox crusts, caught that disease a second time, which proved fatal.

MARESCHAL DE ROUGERES, (*Journal de Médecine, tom. 39.*) when stating that Tissot considers a second attack of small-pox as very rare, says, daily experience contradicts that opinion, and that he himself knew of more than twenty individuals who died of secondary small-pox in Lamballe, and who bore the marks of the first attack.

In the 4th Volume of the *Memoirs of the Medical Society of London*, Dr. WITHERS has related the case of Mr. R. Langford, who was infected with the small-pox at a very early

period of life, and was much marked from the severity of the disease. Many years afterwards, he was again infected with the small-pox, which were of the confluent kind, and proved fatal on the twenty-first day from the attack.

CAMPER (*Dissert. de Emolumentis et Optima Method. insit. Variolarum*) believes that small-pox attacks but rarely the same person a second time; but, he adds, many worthy men, and most excellent physicians, have confirmed, by examples, the possibility of such occurrences.

An anonymous writer, in the *Gazette de Sante*, (No. 33, August 1776,) relates four cases of the recurrence of small-pox in the same individuals.—*Cases 1. and 2.* The Marquis and Viscount of Coigny having been inoculated, were considered safe from future infection, so that some years afterwards they exposed themselves, without reserve, to the contagion of the small-pox under which Madam Coigny then laboured. Both caught them a second time, and the Marquis died.—*Case 3.* An apothecary's boy by chance applied some variolous matter to the nose of a dog which was in the constant habit of caressing its mistress, especially about the face. By this means she was variolated, and had the disease again, after having had formerly a regular and well marked attack.—*Case 4.* Miss Laporte had delivered into her charge some linen which had been employed about inoculating a prince of the blood, with strong injunctions not to open it: her curiosity, however, prevailed, and the consequence was, that she caught a second attack of small-pox.

JOHN ALOYSIUS TARGIONI of Florence relates, (*Avvis Sopra la Salut. Uman. Ann. 1775, et 17.*) the histories of two cases of secondary small-pox.

DOMINICUS JUVANELLI (*Idem liber. Ann. 1776. No. 9. p. 71. and No. 10. p. 79.*) mentions that he saw three sisters who passed twice through small-pox. And LILIUS (*Avvis Suddett. Ann. 1777, p. 167. and 1778, No. 36. p. 281.*) relates the histories of two similar cases.

Dr. BAYLIES (*Facts and Observations on Inoculation*) gives the cases of Luisa and Elizabeth de Goetzen, who were ino-

culated by Dr. Meckel of Berlin; their arms inflamed, and an eruption came out in each, most numerous, however, on the oldest; they all broke and disappeared without leaving crusts or pits. The following winter, the natural small-pox being epidemic, they caught them very severely; the fever run very high, and the pustules were numerous, matured properly, then scabbed, and fell off, leaving marks behind them.

GASTELIER (*Gazette de Sante*, No. 8. l'an 1777) says, were there not sufficient proofs on record to establish the possibility of the same person suffering more than one attack of small-pox, he himself could add a great number more, which, however, would only be superfluous.

M. D'ARCET (*Journal de Médecine*, tom. 49.) details the case of M. Harcourt, who, after he had been inoculated, and had had a copious eruption which was well marked, was seized with fever, followed by a general and pretty copious eruption over the whole body. The pustules were filled with pus about the fifth day, and on the sixth they began to dry.

MEZA (*Compend. Med. Pract. Fasc. 1st.*) says, that he and Dr. Buchwald attended a woman labouring under secondary small-pox, whom Dr. Buchwald himself attended during the first attack. The same author, in his description of an epidemic small-pox (*Acta Havniensis*, vol. 3d.) which prevailed in Elsingore in 1768, mentions that a widower, whose child was under his care during an attack of that disease, constantly asserted that his daughter had formerly small-pox.

VOGEL (*Praxis Med.* tom. iii.) refers to a number of instances of secondary small-pox which are contained in the works of Hensius and other authors, and then adds, that five cases of that description had appeared in the family of Professor Meissner.

MUMSEN (*Acta Med. Havniensis*, tom. iii.) informs us, that a young woman was seized with fever, followed by an eruption of papulæ, which became pustular; they were scanty on the face, more numerous on the body, and confluent on the left side; began to dry about the ninth day, and left marks behind them. Three years afterwards, when her brother was inoculated, she submitted to the same operation, which was

followed about the usual time by fever, and the other symptoms of small-pox, which left her convalescent about the eighteenth day.

ASHEIM (*Acta Med. Havniensis*, tom. iii.) relates a case of small-pox in an individual who had previously undergone inoculation. The eruption was at first vesicular, but about the seventeenth day it became pustular, and had not completely gone before the thirtieth day.

BURSERIUS (*Inst. Med. Pract.* vol. ii.) says, "they also entertain an erroneous opinion who think, that, after once having the genuine small-pox, the disposition of the body to receive them is destroyed; for it appears from undoubted facts, and the investigations of medical men of unquestionable authority, that not a few, after experiencing the complaint in the natural way, or by inoculation, have afterwards been infected a second, and even a third time." He then goes on giving the observations of several authors which have already come under our notice, and then adds, "For the sake of brevity, passing over the numerous testimonies of foreigners, I shall only touch upon a few of those of the Italian physicians, that I may not seem to lose sight of such as are afforded by our own writers. It is not an uncommon thing in Naples, as we are informed by Sarcon and Mosca, for the same person to be attacked twice or thrice with small-pox, and of the confluent kind. In Florence the same observation holds. Targioni, in the year 1775, saw a woman twice attacked with small-pox in the natural way, and in the following year he published another account of the return of small-pox: Dom. Juvanelli attended three sisters affected with small-pox at the same time, who on a former occasion had laboured under the genuine complaint, as it was acknowledged to be by the physicians who attended them. In like manner Lilius, in order to establish the fact, published two complete histories of the return of small-pox in the year 1777. I find nearly the same opinion entertained by the ingenious Azzouguidi, Professor of medicine at Bologna, who, not contented with having mentioned two instances of the return of the complaint, adduces the case of an old woman, who, we are informed by Borel, at

the age of one hundred and eighteen, died of the eighth attack of small-pox. Lastly, to crown the whole, he mentions the case of Louis XV. who, after experiencing the complaint at the age of fourteen, was afterwards attacked with it at sixty-four years of age. I might confirm the fact by the published observations of Michael Girard, then residing in Padua, as well as by other testimonies, were I not restrained by a great controversy which shortly afterwards arose concerning them."

HUFELAND (Bemerkungen uber der Blattern) relates two cases of the recurrence of small-pox which came under his observation, the subjects of both of which he himself had inoculated. The operation on both of them was succeeded by fever, and a scanty eruption, with a variolous smell, yet one of them, in the course of eight weeks, was seized with a violent natural small-pox, and the other also caught the same disease again in the progress of the epidemic.

Under the head of intelligence, (HUFELAND's Journal der practischen Arzneykunde und, &c. Band, 3.) are mentioned two cases of small-pox occurring after inoculation, one after an interval of two weeks, and the other three weeks after the pustules consequent to inoculation had dried. The second attack in both was copious.

PERIOD III.—*Since the Introduction of Vaccination to the present time.*

DR. JENNER in his "Further Observations on the Variolæ Vaccinæ," says, (p. 54.) "Happy it is for mankind that the appearance of the small-pox a second time on the same person beyond a trivial extent, is so extremely rare, that it is looked upon as a phenomenon. Indeed, since the publication of Dr. Heberden's paper on the *varicella* or chicken-pox, the idea of such an occurrence, in deference to authority so truly respectable, has been generally relinquished. This, I conceive has been without just reason." He then quotes the case recorded by Mr. Withers in the Memoirs of the Medical

Society of London, as a striking example of the occurrence of secondary small-pox. He has related also the case of a nurse who, though she had previously passed through small-pox, was again attacked with them when nursing a child labouring under the disease from inoculation. The same author, in his "Continuation of Facts," &c. informs us, that many facts had been communicated to him in corroboration of his opinion, that "the human constitution frequently retains its susceptibility of the small-pox contagion, both from effluvia and contact, after previously feeling its influence;" and he has related at length the case of Mr. Miles who passed through small-pox twice; the second time from accidental inoculation.

Mr. RING, in his Treatise on the cow-pox, has instanced many cases of the recurrence of small-pox in the same individuals. Mr. Earl, he says, witnessed four cases of secondary small-pox in individuals whom he had previously inoculated; and the same gentleman also had inoculated three children twice, and each time they laboured under fever and eruption. Mr. Leighton had a case in which the number of pustules amounted to some hundreds, although the patient had been inoculated by himself three years before, and had at that time the disease regularly. Dr. Aubert had a woman under his care with a scanty eruption of small-pox, contracted by nursing a child affected with that disease in a confluent form; she had been previously regularly inoculated at the small-pox hospital. A young woman, six years after regular inoculation, caught the natural small-pox, and had them very severely. A child was inoculated and had an eruption of a few pustules, yet two years afterwards it caught the small-pox in the natural way. A young lady, previous to going abroad, was inoculated, yet some time afterwards, when she returned to England, she caught the natural small-pox and died of them.

Maria Hunt (Lond. Med. and Phys. Journal, vol. v.) had the small-pox severely when five months old, as the marks they left sufficiently testified, yet some time afterwards she caught the disease a second time; the fever ran high, the eruption was copious, and went through its regular stages. Mr. Pur-

ton, who relates this case, remarks, that he had been told by an elderly lady of respectability that she knew a person who certainly had the small-pox twice, and her statement was so very accurate and circumstantial, that it was sufficient to stagger the firmest sceptic, but he confesses that his opinion remained unchanged, till the case which is mentioned came under his observation.

In the 6th volume of the same journal two cases of secondary small-pox are recorded; the first, by Mr. Rolfe, occurred in a woman whom he attended during the second attack, the eruption of which was copious. She had passed through the small-pox previously when twelve years of age. The second case, which is related by Mr. Pythian, occurred in a girl whom he had inoculated twice with variolous matter; both inoculations were followed by general indisposition and eruptions; the latter inoculation, however, it is stated, produced the most perfect disease.

In the 14th volume of Hufeland's Journal, 1802, Dr. OSWALD, in describing the case of a lady who was affected with puerperal fever, incidentally mentions, (St. I.) that he was assured by her ordinary medical attendants that she had passed twice through small-pox.

In the 12th vol. of the Lond. Med. and Phys. Journal six cases are recorded; two of these are related by Mr. Cusson as having occurred in children who had been inoculated with genuine small-pox matter, and had fever and eruptions in consequence, with the appearance of which the medical gentleman was satisfied, yet caught the disease afterwards in the natural way. A third case is related by Mr. CROCHFORD of Lewes, of a boy twelve years of age who had been inoculated for the small-pox, and though no eruption of pustules followed, he was supposed to have had the disease, and had afterwards been repeatedly exposed to the contagion of small-pox with impunity. About ten years after the first inoculation he was re-inoculated, and a copious eruption of small-pox pustules appeared, which ran their usual course and left marks behind. The three remaining cases are related by Mr. TYRE of Gloucester; in one of them the disease was produced by inoculation, about twelve months

subsequent to the first inoculation, and in the other two cases the disease was caught by natural infection several years after inoculation.

Mr. LITTLE, of Plymouth Dock, in a letter to Mr. Dunning, relates the case of Mrs. Rogers who had passed through inoculated small-pox when an infant, and had frequently been exposed to the contagion of small-pox with impunity, till lately, when she caught them naturally, had a large crop, and got through them with difficulty, having been in great danger under the disease. Mr. Embling of Knackers-hole, in a letter to Mr. Dunning, details the case of a child of the name of Andrews whom he himself had inoculated with variolous matter, and declared safe from future infection. Some time after this, the child, upon being exposed to the contagion of small-pox, was attacked with the disease in its confluent form, and died on the ninth day. M. E. likewise mentions that of five children who were inoculated, two of them, four weeks afterwards, caught small-pox in the natural way, and the other three, when re-inoculated, passed through the disease in a very satisfactory manner.

Mr. STEWART, of Plymouth, in a letter addressed to Drs. Remmett and Woolcombe, (See Postscript to Dunning's Minutes, &c.) has related the case of his eldest daughter who passed twice through small-pox by inoculation after an interval of six years. From the first inoculation she had nearly 200 pustules, and though the eruption which followed the second inoculation was more scanty than the first, the eruptive fever was much more violent. In the same work Mr. Dunning has inserted the following communication which he had received from Dr. McGennis, physician of the Royal Hospital, Plymouth. "A young woman who had formerly *passed the small-pox*, was some years ago bled with a lancet charged with variolous poison, and this accident was followed in the usual way by the symptoms attending the commencement of small-pox, and, as nearly as can be recollected by eleven pustules."

Mr. DUNNING, in his "Short Detail of Circumstances," &c. mentions the case of a son of Captain Forshall, who passed

through inoculated small-pox in 1796 and in 1798 had an attack of severe natural small-pox, during the course of which he was blind for five days.

Dr. MERRIMAN, in his *Observations on Vaccine Inoculation*, in speaking of the appearance of small-pox after vaccination, says, "the failure of small-pox inoculation, under similar circumstances, in preserving the habit from subsequent infection, is universally known and acknowledged; repeated instances of the kind have been published, and further inquiry would bring more to light."

In the 13th volume of the *Lond. Med. and Phys. Journal*, Mr. Ring has recorded twenty examples of the secondary occurrence of small-pox, some of which had come under his own observation, and others had been communicated to him by other practitioners.—*Case 1.* Mrs. Smith was inoculated, and had the regular disease, yet about twenty years afterwards, upon being exposed to the contagion of the small-pox she caught them again, and had a copious eruption.—*Case 2.* Mrs. Skittleworth went through regular variolous inoculation when a child, but upon coming to London some time afterwards she caught the natural disease, and had a very heavy load, which marked her much.—*Case 3.* Mr. Wood, though he had the small-pox when a child, had lately that disorder again in rather a severe form.—*Case 4.* A young woman after having undergone regular inoculation, was attacked two years afterwards by natural small-pox, which terminated fatally.—*Case 5.* Mr. Geary was inoculated, and had regular small-pox, attended with considerable constitutional indisposition; and three years afterwards a natural attack, the eruption of which was copious, and left many marks.—*Case 6.* A child, two years after inoculation, had a very severe attack of the natural disease.—*Case 7.* A gentleman had the small-pox when young, yet afterwards caught them from his children, and had a very heavy load.—*Case 8.* A child after having been inoculated for the small-pox, and declared to be safe from future infection, had the disease a second time.—*Case 9.* Dr. Glass knew a person who underwent natural small-pox after regular inoculation for that disease.—*Case 10.* A young man was inoculated, and an eruption

followed, which led his medical attendant to consider him safe from future infection; yet after an interval of four years he died of a second attack.—*Case 11.* Mr. Chamberlane was attended by two eminent physicians while labouring under a disease which they declared to be small-pox; yet some time afterwards he had that disease again in a most unquestionable manner.—*Case 12.* A similar instance occurred in an aunt of Mr. Hurlock, Surgeon, of St. Paul's Church-Yard. The first and second attack were such as to leave no room for doubt that she really had the small-pox twice.—*Case 13.* A child was inoculated by a most respectable practitioner, and considered safe from future infection, yet sometime afterwards he had the disease again.—*Case 14.* Mrs. Chamberlane had confluent small-pox when a child, yet when nursing two children ill of that disease, at different times afterwards, she each time had a variolous eruption, accompanied with fever of considerable severity.—*Case 15.* A daughter of Mrs. Chamberlane's suffered an attack of small-pox after being exposed to the contagion of that disease, and a year afterwards passed through them again.—*Case 16.* A young lady was inoculated, and considered safe from future infection, yet three years afterwards she caught the disease from her sister and died of it.—*Case 17.* Mrs. Thomson suffered an attack of small-pox at South Bolton; and some time afterwards, on coming to London, she suffered a second and confluent attack, by which she was much marked.—*Cases 18. and 19.* Mr. Bell of Wigton mentions the cases of two individuals who passed through natural small-pox after having previously had the disease from inoculation. In one of these cases the second attack was very severe, and attended with delirium.—*Case 20.* The son of the Earl of Westmeath, after having been inoculated by an eminent inoculator, and considered safe, was attacked with natural small-pox; the eruption was so copious that he was covered over from head to foot. Mr. Forbes mentions the following case. Three children were inoculated at the same time; the pustules were perfect, though unaccompanied by constitutional symptoms, and they were all declared to be secure from subsequent small-pox by several medical men who saw them. These children were

however re-inoculated, when one of the three only took the disease. He mentions also another case which occurred under precisely the same circumstances in another family.

In the 14th volume of the same journal, Mr. Ring has recorded twenty-four additional examples of secondary small-pox.—*Case 1.* Communicated by the Rev. Mr. Jenner. A young lady of the name of Price was inoculated when an infant, and had the disease in a satisfactory manner. Some time afterwards she sickened with the natural small-pox, and had a pretty full eruption; it is added that she had also had the chicken-pox when a child.—*Case 2.* Mrs. Young had twice laboured under small-pox; the second time she caught them when nursing a child ill of the disease.—*Case 3.* Mrs. Cottis caught the small-pox from a child whom she nursed affected with that disease, although she had formerly suffered an attack of it.—*Case 4.* Mrs. Read also caught the small-pox from nursing a child affected with them, after she had the natural disease; the second attack was attended with high fever, and she was almost blind for three days.—*Case 5.* Mrs. Watts had had the small-pox severely when four years old; nevertheless, when nursing her child, she again underwent an eruption, accompanied by much constitutional indisposition.—*Case 6.* A child of Mr. Hookman's, in Old Bond Street, was inoculated for the small-pox, and supposed to be safe from future infection, but it afterwards had the disease in the natural way.—*Case 7.* A child of Mr. Butts, when three months old, passed through inoculated small-pox, which left pits behind. Nine months afterwards it caught the natural small-pox, and recovered with difficulty.—*Case 8.* A young woman passed through inoculated small-pox, at the Small-pox Hospital in London. She afterwards lived in the service of Mr. Twigg, in Gutter Lane, where she caught the small-pox and died.—*Case 9.* A young woman who had been inoculated in the country also fell a victim to a secondary attack.—*Cases 10. and 11.* Dr. BECU, Professor of Physiology at Wilna, when in London, informed Dr. Jenner of two cases of secondary small-pox. The patients were attended each time by the same physician, who was a man of the first eminence.—*Case 12.* Mrs. Ro-

binson had the small-pox very severely, and was much marked by them, yet, many years afterwards, when waiting upon a young lady under that disease, she had an eruption of about 100 pustules, with great general indisposition.—*Case 13.* Mr. Waschel saw a woman who had had the small-pox before, suffering under a variolous eruption of about 300 pustules, in consequence of nursing her child labouring under that disease.—*Case 14.* Mrs. Briggs had the small-pox by inoculation, yet when nursing her child affected with them, she had a scanty eruption, with severe constitutional indisposition.—*Case 15.* Mrs. Downing went regularly through inoculated small-pox; yet many years afterwards, upon being exposed to the contagion of that disease, she experienced a general eruption, which left several pits behind it.—*Case 16.* A gentleman was inoculated, and had an eruption, which made the medical attendant pronounce him safe; sometime afterwards, however, he experienced an attack of the natural disease.—*Case 17.* Mrs. Miller, after having had the small-pox when young, suffered a second attack while nursing a child labouring under that disease.—*Case 18.* Communicated by Mr. Plowden of Arundel. A man of the name of Birt, who in the year 1739, when eight months old, suffered a severe attack of small-pox, from the marks of which he was deemed secure against future infection, was therefore appointed to attend on variolous patients in the pest-house. On the 28th February, 1799, he sickened, and an eruption appeared on the fourth day, which proved to be confluent small-pox, of which he died on the twelfth day.—*Case 19.* Mrs. Norris was inoculated for small-pox, which was followed by an eruption which left marks behind; yet ten years afterwards she caught the natural small-pox; the eruption was moderate, but the fever ran high.—*Case 20.* Miss Browne was inoculated, and experienced a regular eruption; but about four years afterwards she had the small-pox severely in the natural way, which left many marks behind.—*Case 21.* Miss Albert was inoculated by Mr. Broomfield, and the disease which was produced was by him considered as genuine small-pox, yet she afterwards

caught the natural disease from her brother, and had a heavy load.—*Case 22.* A postillion was inoculated, and had an eruption of small-pox with fever, yet sometime afterwards he was attacked with the same disease, and had it very severely.—*Case 23.* A man, after he had been regularly inoculated by Mr. Mudd, a surgeon, was seized with the natural small-pox, and had them in so violent a form that he narrowly escaped with his life.—*Case 24.* Major Dode suffered two attacks of natural small-pox, both of which were very severe. Mr. LEESE mentions the case of a Mr. Pidgeon, who was inoculated for small-pox, and had a general eruption in consequence; yet about thirteen years afterwards he was again seized with a very confluent small-pox, which proved fatal.

Dr. CLUTTERBUCK (Med. Chirurg. Review, vol. xi.) relates the following case. William Butler, six years old, was inoculated for small-pox four years ago by Mr. Pope of Hanley. The appearance of the arm was such as to satisfy the inoculator, though no scar is now to be perceived. The mother says she recollects that a few pimples appeared, but never came to any size or head. April 4th, 1806, he sickened for small-pox, and had a very copious eruption of the confluent sort; having caught the infection from his brother who was under inoculation. In the same Review, Mr. FREAKER gives the following account from his notes taken at the time the events occurred. On the 8th July, 1784, he was sent for to attend a child of Mr. Waters, milkman, of Kentish-Town, when dangerously ill with fits; during the continuance of which it died: it had been attacked three days previously with the symptoms usually preceding small-pox. On the 18th of the same month another child sickened with small-pox, of the confluent kind, and with difficulty got over them. On the 3d August, a third child of the same family sickened with small-pox, had the distinct sort, and got through them very well. The above three children had been inoculated by Mr. Weatherall, of Highgate, about eighteen months before, who, on inquiry, declared they were inoculated with small-pox matter, and all had eruptive fever, and a fair shew of pustules.

The editors of the *Bibliothèque Britannique* (t. 88.) remark, It is well known that a person may have the small-pox more than once, as a great number of respectable authors testify.

Mr. JONES (*Vindication of Vaccination*) allows that the small-pox have sometimes followed what had been supposed to have been complete vaccination, but they have also followed complete inoculation. Every experienced medical practitioner, he adds, can testify this; and cases might be quoted on each side, if any useful end was to be obtained by it.

Mr. MOORE (*Reply to Antivaccinists*) says, that he had the honour of being acquainted with a lady who had had the small-pox in her infancy, yet who since that time had had a variolous affection at six successive periods, when suckling her children when under inoculation. The pustules during each attack filled, and were not distinguishable from ordinary small-pox.

Dr. WILLAN (*Treatise on Vaccination*) remarks, the circumstances and appearances which have been repeatedly announced as proofs of the occurrence of small-pox after vaccination, cannot have much weight, because we find that similar symptoms take place after the small-pox, in persons who have been inoculated with variolous matter. He then refers to the case of Mr. Miles, communicated to Dr. Jenner, and mentions the cases of two medical students who had previously had the small-pox, and had them a second time severely, in consequence of scratching their hands while dissecting the body of a man who died of the small-pox.

In the 15th volume of the *Lond. Med. and Phys. Journal*, Mr. Ring has mentioned the seventeen following cases.—*Case 1.* Lady Morris was inoculated by Dr. Cowell, and declared to be safe from future infection; but she afterwards caught the small-pox at Bath, and died of them.—*Case 2.* Mrs. Frankham had the small-pox when young, and was considerably marked by them, yet she had a second attack of the same disease when suckling a child ill of it.—*Case 3.* Mrs. Dean was inoculated, and had a regular eruption of small-pox pustules on different

parts of her body, yet afterwards, when nursing a child ill of that disease, she suffered a second attack of small-pox, which was attended by considerable indisposition, and the pustules went through their regular stages.—*Case 4.* A young lady was inoculated, and supposed to have had small-pox in a most regular and complete manner; yet about seventeen years afterwards she caught the same disease a second time.—*Case 5.* Woodly had the small-pox when twenty-five years old, yet he suffered a second attack after an interval of fifteen years, which proved fatal.—*Case 6.* A woman was regularly inoculated at the Small-pox Hospital, and dismissed in the course of a fortnight, when she was attacked with fever, followed by an eruption of small-pox, in the course of which she was blind for several days.—*Case 7.* A young woman had two pustules on her knee, from contact, attended by the usual constitutional symptoms of small-pox; yet three years afterwards she again had the small pox of a confluent kind, and with difficulty passed through them.—*Case 8.* A woman had the small-pox when seventeen years old, which was so severe as not only to produce pits, but even seams on the face; yet some years afterwards she again caught the disease, and had it in a very severe form.—*Case 9.* Mr. Wilson was inoculated, and had regular small-pox in consequence; yet twenty-one years afterwards, when that disease was prevailing epidemically, he caught it again, and had a regular eruption.—*Case 10.* A young woman was inoculated, and had an eruption of twenty pustules with fever. Five years afterwards, she caught the natural small-pox in a confluent form.—*Case 11.* Mr. Scott had the small-pox by inoculation, which proved to be of the confluent kind; yet he had them again twenty years after, with a considerable degree of severity.—*Case 12.* A boy was inoculated with variolous matter, and was covered with the eruption: about a year afterwards he caught the disease again in a confluent form.—*Case 13.* A black woman was attacked with small-pox after she had had them twice before. She remarked, when she felt herself unwell, that if it proved to be the small-pox, she would certainly die; that in India small-pox sometimes attacked the same person three times; but in

that case they always died. Her words proved prophetic, for she died of the third attack.—*Cases 14. and 15.* Elizabeth Everitt died of small-pox after having formerly undergone that disease. Dr. Geach related a similar case to Mr. Dunning, which happened to a nurse at the Royal Hospital, Plymouth, under his own observation.—*Cases 16. and 17.* Sarah and Mary Taylor were inoculated for the small-pox; the former had a few pustules, and was pronounced safe; the latter had a considerable crop, which went regularly through the different stages of small-pox. After a lapse of nineteen years, they both experienced a second attack; the eruption on Sarah was confluent on the face, but distinct on other parts of the body; she was blind three days. The pustules on Mary were more numerous, but distinct, and turned on the second day. Besides these, other five cases of secondary small-pox are recorded in the same volume of the Journal.—*Case 1.* Communicated by Dr. ROYSTON. Mary Feakens had the small-pox in their most severe form, yet about nineteen years afterwards, she caught them a second time. The fever ran high; the pustules on her face amounted to about 200, with a proportionate number on other parts of the body.—*Cases 2. and 3.* Communicated by Dr. SIMPSON. A boy had small-pox very severely by inoculation; yet seven years after, when that disease was epidemic where he lived, he caught it again, and had a very heavy load of pustules.—A gentleman had small-pox twice with an interval of two years between the attacks. The first time the disease was very severe, and the second attack, though not quite so severe, was by no means mild.—*Case 4.* Communicated by Mr. ARMSTRONG, occurred in a child who was inoculated when an infant, with its mother. Both were considered as safe from the small-pox; but about seven years afterwards, when another child of the same family was under inoculated small-pox, it passed through the disease for the second time in a favourable manner.—*Case 5.* communicated by Mr. William to Mr. Tyre, occurred in a man who was much marked by the small-pox, and who, at the time that three of his children were passing through inoculated small-pox, suffered a second attack.

Mr. HILL of Portsea, in the 18th volume of the same *Journal*, mentions the case of a child whom he had inoculated, and had the disease in such a manner as to induce him to declare it secure from future infection, yet ten years afterwards this child was attacked with a copious eruption of natural small-pox.

Mr. RING has recorded the seven following cases in the 17th volume of the same *Journal*: *Case 1.* Miss Lutridge was inoculated for small-pox, and had an eruption, yet three years afterwards she had an attack of natural small-pox.—*Case 2.* A girl was inoculated by Mr. Bliss, had several pustules, and was considered safe; but after an interval of five years, she had a full crop of small-pox, attended by much constitutional indisposition.—*Case 3.* Mrs. Turton, had small-pox twice, and was each time blind from the disease.—*Case 4.* Mrs. Jones was inoculated for the small-pox by Mr. Shedwick, who assured her the operation had succeeded, and that she was secure from future infection, yet about eleven and a half years afterwards she had a severe attack of the same disease, and was blind for two days.—*Case 5.* Mrs. Waller, after she had been inoculated for small-pox, caught the natural disease, and passed through it in the usual manner.—*Case 6.* A young woman was inoculated for the small-pox, and was supposed to be safe, yet she afterwards caught the natural disease, which proved fatal to her.—*Case 7.* A child was inoculated, and had fever with an eruption, yet upon being exposed to the contagion of small-pox, three years afterwards she caught that disease again, and had an eruption of about 500 pustules, which matured regularly. Mr. SCAMMELL mentions the following case: Robert Bartlett was inoculated, and the operation was succeeded by fever and a varicellous eruption, but nearly eighteen years afterwards he caught the disease again, and had a pretty copious eruption.

The 18th volume of the same *Journal* contains the seven following cases recorded by Mr. Ring: *Case 1.* A boy who had been regularly inoculated for small-pox caught the disease afterwards in the natural way, and had it rather severely.—*Case 2.* Mr. SHARPNELL, surgeon of the Gloucester Militia, in a letter to Dr. Jenner, relates several instances of

secondary small-pox, particularly one which occurred in the wife of John Elder, who had had the small-pox twice, and at each time was blind during the course of the disease.—*Case 3.* Susannah Piper had the small-pox by inoculation, and was blind three days, yet several years afterwards, when nursing some individuals under the inoculated disease, she caught them again, and had a pretty copious eruption.—*Case 4.* Mrs. Quatermain had the small-pox so severely, that she was given up by two medical men, yet twenty-two years afterwards, when exposed to the variolous contagion, she had an eruption of about fifty pustules, with severe constitutional indisposition for several days.—*Case 5.* Ann Tolhurst was inoculated by Mr. Watt, and she had an eruption. Thirteen years afterwards she nursed her children in the small-pox, and then she underwent a second attack, of which the eruption was very copious.—*Case 6.* Mrs. Palmer, after she had had the small-pox, nursed a child ill of that disease, in consequence of which she was seized with fever, followed by a variolous eruption.—*Case 7.* Mrs. Martin was inoculated for the small-pox, and had a heavy load, yet six years afterwards, on being exposed to the contagion of that disease, she caught it again, and had an eruption of eight or nine hundred pustules, attended by fever.

Dr. LAIRD (Edin. Med. and Surg. Journal, vol. iii.) says, “It has been proved that the same individual may be twice susceptible of the specific operation of the variolous poison. I conceive the following to be a case in point. During the course of last summer, (1806,) one of my patients at the Public Dispensary, a boy thirteen years of age, had the natural small-pox very severely. It was regular in its progress and duration; and yet, when a year old, he had slept in the same bed with his grandmother, while she laboured under this disease, which proved fatal to her; and at that period he was the subject of an eruption accompanied with fever, considered not only by his friends, but by a respectable surgeon who attended him, to be genuine small-pox.”

In an anonymous letter to Dr. RUSH, (Lond. Med. and Phys. Jour. vol. xx.) we find the following paragraph; “Per-

haps it may be worth remembering that there are many instances where the infectious matter of the small-pox and kinepox applied to persons who have before passed through these diseases respectively, have been capable of producing a representation more or less perfect of certain of these symptoms."

MR. BRYCE, (App. No. IV. Practical Observations on Cowpox,) after quoting several examples of the occurrence of secondary small-pox, observes, "There are now before me nearly one hundred cases on record, in which the human constitution has suffered more or less severely from a second attack of small-pox : in many of these the attack has proved fatal."

Dr. HEIM of Berlin (Horn's Archives, vol. 10th.) relates the cases of the two sons of Mr. Karbe, who were inoculated in 1797 with genuine variolous matter, in the opinion of all the physicians except Heim, who saw the eruption from which it was taken. This inoculation was followed by a general eruption and fever, yet in the following year, upon being exposed to the contagion of the small-pox, they both passed through that disease a second time. Dr. Heim, after mentioning that neither genuine small-pox nor perfect cow-pox can be any protection against spurious small-pox, and that this spurious small-pox generally attacks individuals once only in the course of life, though he had frequently seen them occur a second time, and in two instances in the same person a third time, says, "a son of Mr. Von Gerlach, who had been inoculated, and took the genuine small-pox very severely, was seized about four months afterwards with chicken-pox, in which he was considerably worse than in the inoculated small-pox."

MR. CAMERON has related the following case, (Lond. and Med. Phys. Journal, vol. xxiii.) John Skyrme was inoculated for small-pox, and passed through that disease to the entire satisfaction of his medical attendant; yet about eighteen years afterwards he was seized with fever, followed by an eruption, which observed the regular course of variola. The Editors of the same Journal have recorded in the 24th volume the two following cases.—Case 1. A boy caught the

small-pox, had a plentiful eruption, and was blind during the disease; yet three years afterwards he was again seized with the same complaint, and had a copious eruption, which matured regularly.—*Case 2.* A person after having had small-pox, which left marks behind, suffered a second attack of distinct small-pox, which was preceded by the usual eruptive fever.

In the Report of the Central Committee of Vaccination in France for 1810, two examples of the recurrence of small-pox in the same individual are recorded.—*Case 1.* A girl, nine years of age, who had had the small-pox in her infancy, was, at a subsequent period, when two of her brothers and sisters were labouring under small-pox, attacked with the confluent small-pox.—*Case 2.* M. Onslow was inoculated in 1794, and about fourteen years afterwards again suffered an attack of distinct small-pox, which left pits behind.

In the Lond. Med. and Phys. Journal, vol. xxvi. the Editors have recorded the six following cases.—*Case 1.* The Rev. Mr. Rowley was inoculated for the small-pox by Mr. ADAIR, Surgeon-General, and had a considerable eruption, yet about forty years afterwards he was seized with severe distinct small-pox.—*Case 2.* Miss Booth had been inoculated, and had all the appearances which were believed necessary to afford perfect security from a future attack of the disease; yet she was again seized with fever, followed by a varolous eruption, which went through its regular stages.—*Case 3.* A man, who had been inoculated for small-pox, was seized, after an interval of twelve years, with a confluent attack of the same disease.—*Case 4.* A young woman, who had had small-pox in the severest form, and by which she was much marked, about nineteen years afterwards suffered a second attack.—*Cases 5. and 6.* Two young women had had the small-pox to such a degree, that their faces were much marked, and indelible vestiges of them remained on their arms; yet some time afterwards, when the younger branches of the family were inoculated, they both caught the disease again in a severe form, and had a plentiful eruption. The Editors add, that they “could adduce a great number more

cases, in which small-pox, either casual or inoculated, had, within their knowledge, succeeded to former inoculations." In the same volume, Mr. STORER has related the case of Thomas Lingforth, who was inoculated, and had an eruption, with fever in consequence; yet about eight years afterwards was seized with fever, followed by a confluent variolous eruption, which went through its regular stages.

Dr. BATEMAN, in his Quarterly Report of the Carey Street Dispensary, (Edin. Med. and Surg. Journal, vol. vi.) informs us, that an instance of the *second occurrence* of small-pox in the same individual presented itself under circumstances which left no room for doubt as to the former existence of it, since the face exhibited *numerous pits*. The eruption appeared on the third day of fever. The pustules were somewhat less full than is often observed in the distinct variola, and began to dry on the eighth day of the eruption. In the Second Volume of the Medico-Chirurgical Transactions of London, the same gentleman has related the following case: Frances Bird, after having passed through the small-pox in her youth, in such a severe form that her life was despaired of, and several years afterwards, when attending upon a child who died of natural small-pox, she was attacked with fever, and on the third day an eruption made its appearance, which was scanty, but pretty generally dispersed over the body, and bore the evident variolous character. The pustules went through the regular stages of the small-pox.

Dr. SANDERS, in his Treatise on small-pox, amongst several other cases of secondary small-pox, has quoted the two following: *Case 1.* Peter Sylvester was inoculated by Mr Ring, and had the disease in the most perfect manner; yet, about ten years afterwards, he suffered an attack of distinct small-pox.—*Case 2.* John Godwin had the small-pox when six months old, and afterwards underwent the test of small-pox inoculation without effect; yet, after an interval of some years, he caught the casual small-pox.

Dr ADAMS (Dissert. Inaug. de Variola et Vaccinia) mentions that, when small-pox were prevailing epidemically in Forfar, some individuals who had formerly passed through

that disease, either naturally or by inoculation, were then attacked with fever, followed by an eruption.

Dr. REYNOLDS, (Moore's History of Small-Pox,) Physician to his Majesty, relates the following anecdote: "He was sent for by a lady unknown to him, and conducted by her maid, rather mysteriously, into a handsome bed-chamber, where he saw, lying in a splendid bed, a lady masked. Being a good deal surprized, the maid stifled a laugh, while her mistress, in a soft-toned voice, apologized for concealing herself even from a professional gentleman. This (she said) had become proper, from the peculiarity of her situation. At present she stood greatly in need of his superior medical talents, and was extremely anxious for his opinion on her case, which, she understood from others, was a very rare one. The doctor being thus put upon his guard, inquired minutely into all her symptoms, and examined critically a pustular eruption which was spread over the lady's person: He then pronounced the disease to be, without all doubt, the small-pox, on which the patient unmasked, and displayed features scarred with that disorder."

The Rev. Mr. COLERIDGE, (Lond. Med. and Phys. Journal, vol. xxxvii.) after exposure to the contagion of small-pox, sickened, and shortly afterwards an eruption appeared on various parts of his body, to the number of fifteen: these came to maturity, and fell off in the usual way. About twenty-seven years afterwards, when exposed to the infection of the same disease, he was seized with fever, followed by an eruption of pustules on different parts of his body, which went through the regular stages of small-pox.

Dr. PUGENS, (Petite Verole Observée à Milau, en 1817.) informs us that two examples of the same individuals labouring a second time, under small-pox, had occurred in the course of the epidemic which he has described.

FRANK (Præceos Med. T. II.) admits the possibility of small-pox attacking an individual twice in the course of life.

Dr. BUCHAN (Domestic Medicine, 1818,) says, "I have known a nurse who had the small-pox before, so infected by lying constantly a-bed with a child in a bad kind of small-pox,

that she had not only a great number of pustules, which broke out all over her body, but afterwards a malignant fever, which terminated in a number of imposthumes or boils, and from which she scarcely escaped with her life."

It is stated in the Quarterly Report of the New Town Dispensary, (Edin. Med. and Surg. Journal, vol. xiv.) that the Medical Gentlemen of that Institution had seen one case of well marked small-pox, and that they had been informed, on unquestionable authority, of another in which there was evidence which appeared to them satisfactory, of both patients having gone through the disease before.

Dr. HENNEN, Deputy Inspector of Hospitals, in his account (Edin. Med. and Surg. Journal, vol. xiv.) of the eruptive diseases which appeared in the military hospitals of Edinburgh, relates the histories of four cases of secondary small-pox which occurred during the course of the epidemic. He also mentions that there was an officer of dragoons then in the neighbourhood, who was a living instance of the recurrence of small-pox in the same individual; and, in a note, he informs us that the son of Fracastorius, the poet and historian of Verona, suffered a repetition of small-pox.

Dr. MONRO (Observations on the different kinds of Small-Pox) says, he had lately had occasion to meet with four persons who had had small-pox twice in the progress of life, and three of these were very much marked by the first attack of the disease. He farther observes, that the second attack is sometimes mild, but in other instances malignant and fatal, and that of both instances he had lately had occasion to see examples.

In the Report of the National Vaccine Establishment for 1817, the Board remark, "The small-pox occur occasionally twice in the same individual; and since the last report, twelve cases of small-pox occurring after small-pox, in this country, were communicated to the Board by medical practitioners. Two of these cases were individuals who had had small-pox from inoculation, and who caught the second attack from being in houses where mitigated small-pox after vaccination had appeared. Both of them, and one in particular, had the

disease more severely than those who had been vaccinated."

In the "Correspondence of the Directors of the Dublin Cow-pock Institution," we are informed, 1st, That Dr. Sayers of Limerick had under his care a case of true small-pox in the same person a second time, and who between the attacks had passed through chicken-pox; 2d, That Dr. Ferris of Portarlinton had, in the course of nine years, seen two cases of natural small-pox succeed to the inoculated small-pox. He saw the marks of inoculation on both the patients. 3d, That Mr. Simpson of Roscommon had seen formerly, and not unfrequently, small-pox occur after variolous inoculation; and, 4th, That the Rev. Dr. Walsh of Glasnevin knew that a woman who had had the small-pox, and had been very frightfully marked by them, took the disease again, which proved fatal.

BERARD and DE LAVIT (*Essai sur les Anomalies de la Variole et de la Varicelle*) after quoting many instances and authorities which have already been taken notice of, add, that Dr. Laudun saw, in 1812, a young girl suffer an attack of small-pox, after having passed through them the preceding year; that Mr. Christien mentions two cases of the recurrence of small-pox; that Mr. Lamure saw the same person suffer small-pox twice in the course of one year; the first time she was dangerously ill, and the last time she died; that Dr. Farjon had a patient labouring under small-pox, whose body was marked by a former attack of the same complaint, and that Dr. Golfin attended a person affected with genuine distinct small-pox, about three years after he had had the same disease in a regular manner, which had left marks. The proofs, these authors continue, which we have given, and which we could multiply a great deal more, proves that the same person may suffer more than once from small-pox.

Mr. JOHNSTON of Dunbar, in a letter to Dr. Thomson, dated February 1819, has given an account of his own case. In 1805, when dissecting an Asiatic who had died of confluent small-pox, he punctured his finger; in consequence of which

he had fever, followed by a variolous eruption. He had passed through small-pox many years before.

In the Report of the National Vaccine Establishment for 1819, it is stated, that "while there are still persons who can be found to question the efficacy of the vaccine, it is proper to remark, that, in the course of the year, *fifteen* cases have been reported to the Board, of small-pox attacking the same individual twice, two of which proved fatal."

Dr. BARNES, in his Observations on Fever and Vaccination, extracted from the Reports of the Carlisle Dispensary for 1817-18, relates a case of secondary occurring after variolous inoculation, performed more than twenty years before, and leaving two large distinct scars on the left arm. The pustules were numerous and confluent; there was considerable swelling and tumefaction of the face, and great salivation.

Mr. DUNNING, (Edinburgh Medical and Surgical Journal, vol. xv.) in a postscript to a paper on vaccination, informs us, that two instances of second attacks of small-pox had lately occurred in the neighbourhood of Plymouth. The first was the case of a young surgeon: the disease was so severe that the loss of his sight was very seriously apprehended for many days. The second was that of a young gentleman, who had the disease with some severity, after having passed through inoculation for the small-pox.

Mr. FOSBROOKE (London Medical Repository, vol. xi.) brings forward the testimony of several authors who had seen the disease for a second time; such of them as have not already been noticed I shall give in his words. Dr. Coxe, of Philadelphia, relates three cases without unusual symptoms, and then says that he himself had known one of secondary distinct, and another of secondary confluent. Dr. Jenner, continues Mr. Fosbrooke, informed me that when he was at Gloucester assizes three years ago, Mr. Justice Holroyd asked him to observe how universally his countenance was indented. People have been absurd enough to say small-pox cannot be taken twice. I had the disease when a little boy, with others. I got it a second time, when twelve years old, and this was the consequence. The Marquis of Hertford told

Mr. F. that his father was inoculated by Sir Cæsar Hawkins, and from the eminence of Sir Cæsar, when a boy he went with him on a tour to France. At Paris he took the small-pox and died. Mr. Bromfield, a celebrated surgeon in London, inoculated Miss Pappendeck, the Duke of Clarence, and Prince Ernest. Miss Pappendeck afterwards had secondary small-pox, and was pitted. A Mrs. G. a solicitor's wife at Cheltenham, had small-pox five times. Mr. Chamberlayne, Clerkenwell, has had small-pox twice. Colonel Brysac twice severely. Two persons in Mr. St. Angerstein's family. The poet Campbell, gave Dr. Jenner two cases in one family. The grandfather of Mr. J. Nichols, the publisher, is another case.

Mr. FOSTER, (Report of Parliament on the Contagious Nature of the Plague, 1819.) when asked by the Committee whether he had heard or seen instances of the small-pox affecting persons more than once? answered, that he was personally acquainted with a man who had it three times. When asked whether he had heard frequent instances of a man having it twice? said that he had heard very frequent instances of it, but very few well authenticated. When asked whether he knew *any* instances of it well authenticated? answered, that he knew two or three besides the one alluded to.

The foregoing are most of the cases of secondary small-pox I have been able to find recorded in the works which I have had an opportunity of consulting. I am aware that the collection must still be very imperfect; but such as it is, I shall be happy if it can be of any use to you in the investigation in which you are at present engaged.

I remain,

My dear Sir,

With much respect and regard,

Your obliged and obedient Servant,

ANDREW SMITH, M.D.

Queensberry House, Sept. 1819.

Lately Published, by the same Author,
AN ACCOUNT
 OF THE
VARIOLOID EPIDEMIC,
 WHICH HAS LATELY PREVAILED IN
EDINBURGH AND OTHER PARTS OF SCOTLAND;
 WITH
 OBSERVATIONS ON THE IDENTITY OF CHICKEN-POX WITH
 MODIFIED SMALL-POX:

IN
A LETTER
 TO
SIR JAMES M'GRIGOR,
 DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT, &c. &c.

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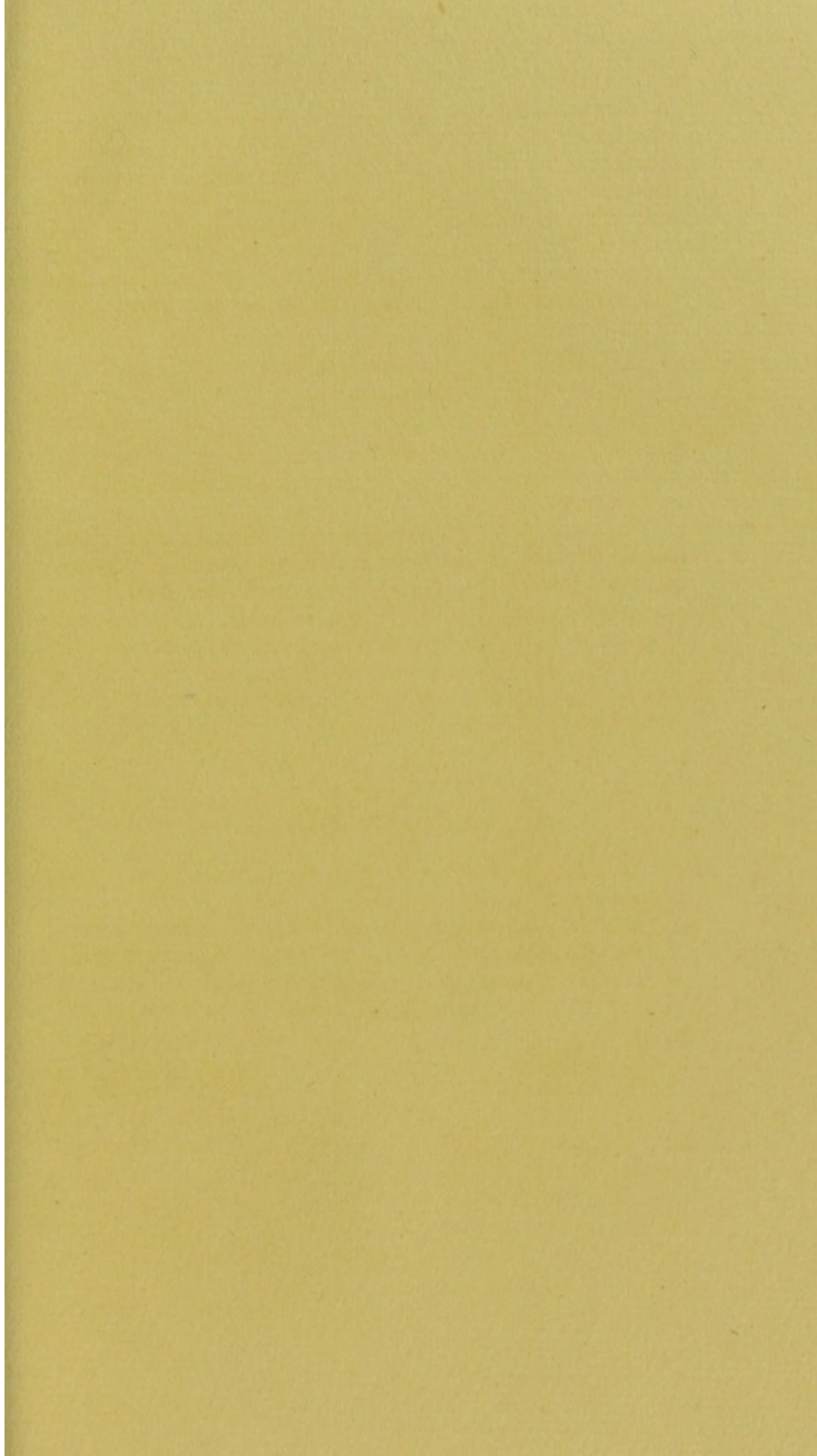
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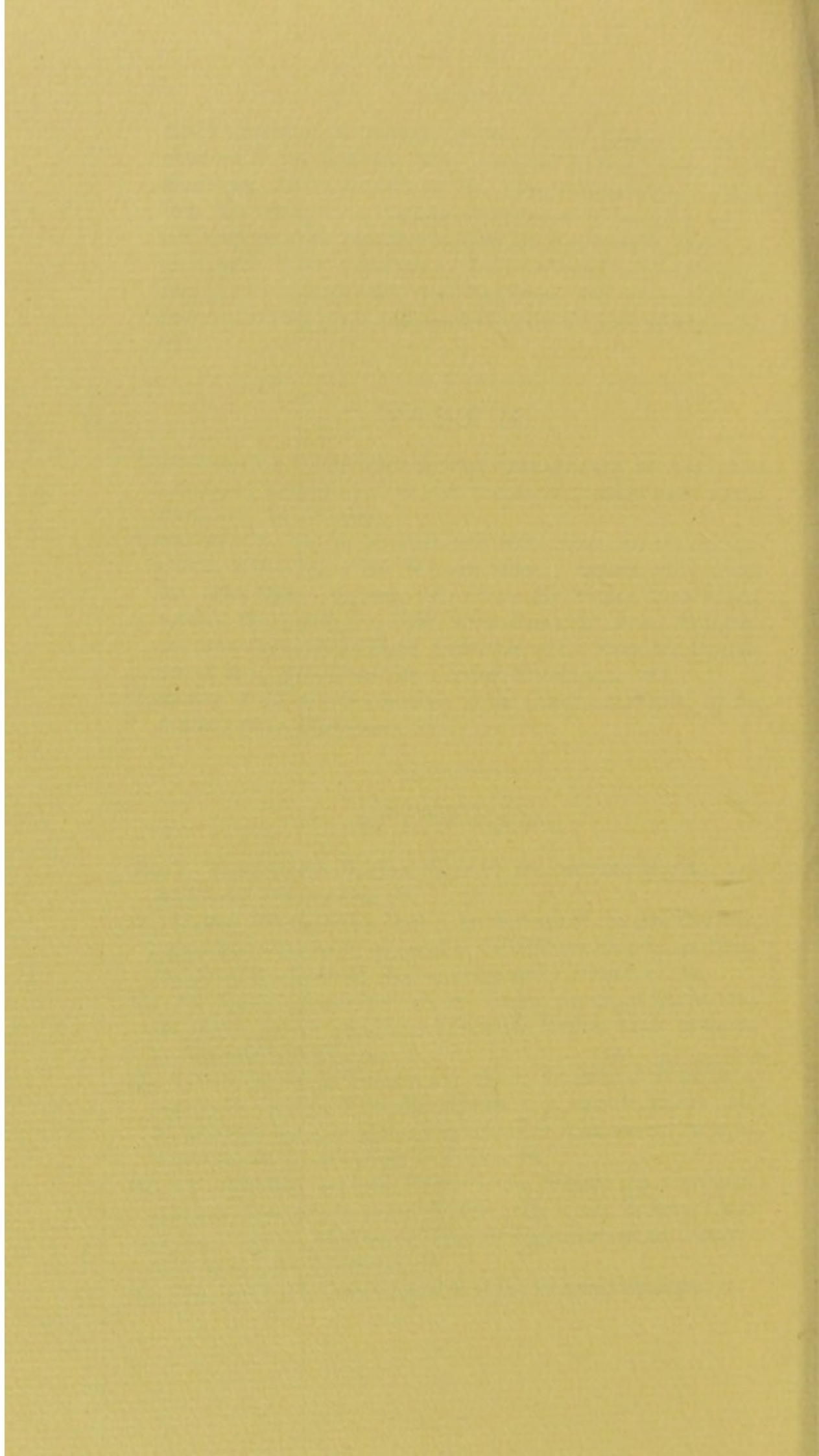
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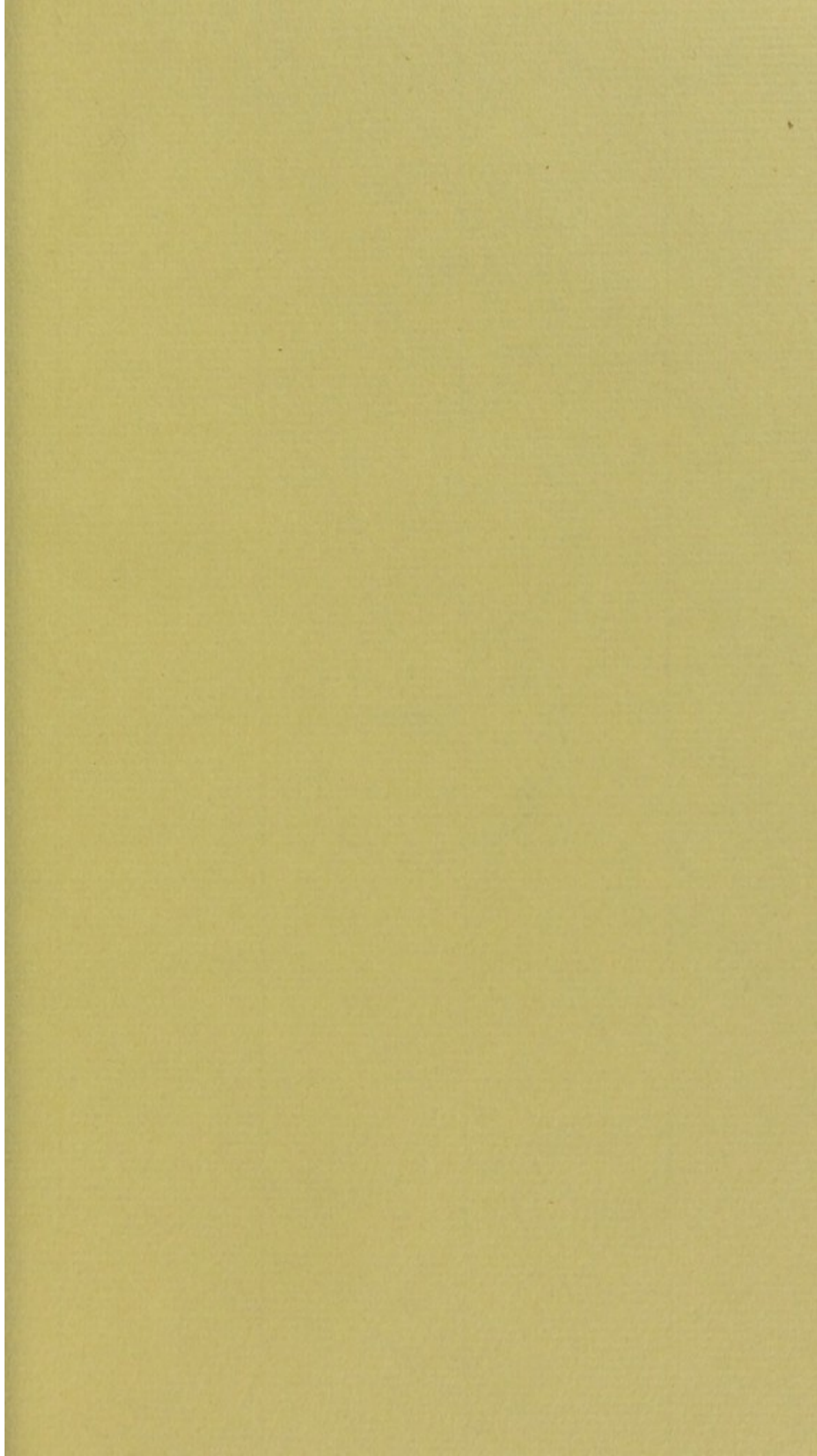
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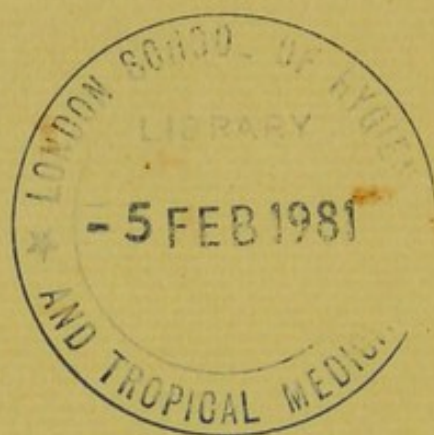
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