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A
COMPREHENSIVE VIEW
OF THE
SMALL POX, COW POX,
AND
CHICKEN POX.



EDINBURGH:
Printed by James Clarke.



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.

By JAMES SANDERS, M. D.
LECTURER ON THE PRACTICE OF MEDICINE IN
EDINBURGH.

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AND
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1813.

*To Drs. ALEXANDER MONRO,
Sen. and Jun. Professors of Anatomy and
Medicine in the University of Edinburgh :*

*To Dr. JOHN BARCLAY, Lecturer
on Anatomy in the same City :*

*And To ALL THE OTHER FRIENDS OF IM-
PARTIAL INQUIRY, this Treatise is most respect-
fully inscribed by*

JAMES SANDERS.

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NOTANDA.

THE Small POX *always signifies the Legitimate, as opposed to the Illegitimate or Chicken Pox.*

Spot—*any superficial mark on the skin.*

Papula (*Pl. Papulæ*)—*a pimple in any state.*

Pustule—*a pimple containing a white or cream-coloured fluid.*

Vesicle—*a pimple containing a thin transparent fluid.*

Ulcer—*an open sore.*

INTRODUCTION.

CAN THE HUMAN CONSTITUTION BE RENDERED SECURE AGAINST THE SMALL POX?

From our wishes proceed our most grievous disappointments; no prudent man therefore, would admit the affirmative without unexceptionable evidence.

The experiments of Dr. Jenner convinced by far the greater part of Medical men, that the desired antidote was in the Cow Pox; in a short time however, the most zealous promoters of the New Inoculation adopted the opinion, that it sometimes failed; in the years 1808 and 1809, the alleged instances of failure were so numer-

ous, that, with many others, I was induced most seriously to doubt, and therefore resolved to satisfy myself at least, on this subject.

During the years 1810 and 1811, eruptive diseases of almost every description prevailed in Edinburgh and its environs. I omitted no opportunity of watching those which either were, or resembled the Small Pox; the general character of the diseases of these two years, was malignity. At the end of this period I was particularly struck with this fact, that of nine cases of Legitimate Small Pox, in those who had never undergone any inoculation, three were fatal; while of those cases, believed also to be the Legitimate Small Pox which occurred after Vaccination, the generality was mild and short, a small number violent in the first stages, but they all *terminated mildly, speedily, and without fever.*

This result is in perfect unison with the accounts given in the reports of the Medical Colleges submitted to Parliament, and in the statements of the Institutions for promoting Vaccination; all of which inculcate, that the disease of the Small Pox acquires a new character, solely attributable to the influence of the Cow Pox.

But in the writings of the seventeenth century, cases are detailed the same in every respect with those now published as Legitimate Small Pox, modified by Vaccination; you cannot find however, that an eruptive disease, having the steady and unequivocal course of the Legitimate Small Pox, ever occurred twice in the same person; or even once after the Cow Pox.

This Treatise consists of three Parts.

The First Part, contains those Small Pox which have been distinguished by the name of Legitimate, divided into Species and Varieties, such as they were recognised before Inoculation was admitted into the Medical art.

The Second Part contains the history of the Old, and the New Inoculations; the arguments both of the promoters and the opposers of each, are given with equal care; the Old or Variolous Inoculation is brought to the state in which it was, when the other was first promulgated; and the New or Vaccine is brought to its present state.

The Third Part contains 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.

Authors have well described the regular Small Pox ; but with regard to the complex and anomalous cases, there is nothing but doubt and variance ; no precise limits have been fixed between the Legitimate and Illegitimate, or between those which afford security, and those which do not.

I have endeavoured to give such an account of the Old, and the New Inoculations, as will show their comparative merits ; and such descriptions of the Variolous diseases, as will enable any person, though not of the Medical profession, to distinguish the Illegitimate Small Pox, even in those instances where they most nearly resemble the Legitimate.

We shall perceive, 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.

To establish this inference, it was not requisite to institute either experiments, or observations, for no one could imagine facts more conclusive, than are detailed in the works of those who considered the occasional failure, both of the Variolous and Vaccine inoculations, unquestionable.

In short, on the above principle, all the anomalies vanish, and the cases asserting their proper station, leave us either the Legitimate Small Pox once, or the Cow Pox once; but no such an occurrence as both, either conjointly, or separately in the same person.

The opponents of Vaccination, so far from having done injury, have excited observation, and directed us to the source of the misunderstanding.

To doubt is the beginning of wisdom, but to doubt after demonstration, is mental imbecility.

It were well, if physicians were engaged in no other discussions than those which would enlighten the public mind, respecting the most dignified profession that ever arrested the attention of man, whether we regard the preliminary knowledge, or the object of its attainment. I cannot discover the motive of some men, even of the Medical class, who affect to think lightly of the healing art, which, according to the sages of antiquity, made the human approach the divine nature, and was ranked among the attributes of gods, demi-gods, and heroes.

The conclusion above stated, was not previously formed, solely because the cases of Small Pox, published during the last two centuries, were not compared with those which have occurred since the introduction of Vaccination. I am not conscious of having been biassed; I have formerly shown, that I would not hesitate to differ from the whole Medical world; and on the present occasion also, I laid the facts before me, and was governed absolutely by them. This is the most difficult path; you are opposed at every step, nor

have the countenance of the flattered leader of any party; but you have the support of truth, that immovable atom which steadily retards, and will ultimately destroy all the movements of error.

We end with a contrast between certain epidemic Small Pox recorded by Sydenham, and those of the years 1810 and 1811, which shows at once the dreadful evil removed, and the infallibility of Vaccination.

Occupied with the present real or imaginary evils, mankind forget, or undervalue what they have escaped; the shower of to-day is less supportable than the thunder storm of yesterday! it is therefore, often of the first importance to recall to our view the picture of the past, to prevent us from moving retrograde into our former misfortunes. Let any one but read the accounts given of the Small Pox on different occasions, and the most courageous of us all would shudder at the thought of their recurrence.

“What shall I say of the Small Pox!” exclaimed Horstius, “which sometimes in destruction equal the pestilence, as happened in the year 1614. O pernicious year! O detestable Small

Pox! In Autumn, they attacked Alexandria, Crete, and the neighbouring states of Greece; in the following Winter, Turkey, Calabria, &c.; in Spring, Sclavonia, Venice, Italy; next France, Flanders, England, Germany, Poland, and perhaps Muscovy; in short, they pervaded Europe in the space of one year, spreading despair and death."

PART I.

THE SMALL POX.

A BRIEF

HISTORICAL ACCOUNT OF SMALL POX.

NEITHER Europe nor America is accused of giving origin to the Small Pox, except perhaps by the Asiatics and Africans; and though there is no proof, that they were known to the ancient Greeks and Romans, this was a subject of the keenest controversy among the learned. It is agreed, however, that we have the first distinct account of this disease from Rhazes, an Arabian physician of the ninth century, who, contrary to the custom of more polished times, acknowledges himself indebted to his predecessors: he informs us, that the symptoms, different species, and treatment of Small Pox, were detailed by a native of Alexandria, named Aaron, who practised during the reign of Mahomed, in the year 622, and was the

author of thirty books on Medicine ; but still the disease might have been known, as some fancy, for several thousand years to the Bramins, before the peculiar symptoms and species of it were sufficiently ascertained to furnish any tolerably good history of them.

Mead joins with those who think, that the Small Pox originated in Africa, and spread thence into Arabia and Egypt ; but the general opinion is, that they began in Egypt and the interior of Arabia, accompanied the Mahometan arms into many countries, and were introduced into Spain, and the other parts of Europe, at the end of the eleventh, or beginning of the twelfth century, in return for the memorable zeal of the crusaders in the Holy Land ! What we know for certain is, that the Small Pox have been felt in Europe above 600 years.

In the thirteenth century, this disease was very frequent in England ; from Europe it was conveyed to America, a fit companion of war and rapine, and more dreadful than they, as the extermination of this scourge of humanity was believed impossible ; but intelligent observation and experience have at length inspired us with hope.

SMALL POX--THEIR PROMINENT FEATURES; CAUSES;
DIVISION INTO GENERA, SPECIES, AND VARIETIES;
AND OF EACH SPECIES, &C. INTO STAGES.

THE prominent features of this disease, are a certain fever and characteristic eruption; but which admit of such differences in the symptoms, appearances, and duration, as to constitute species and varieties.

The disease is referred to a specific contagion as its peculiar cause, the effects of which are modified by age, sex, habit, temperament, manner of living, season, &c. and hence, it is believed, arise the differences above mentioned.

All constitutions were not equally obnoxious to this disease, so that, on ordinary occasions, a great number escaped the contagion; though even these were always in danger, as many fell under it at an advanced period of life.

Sydenham, treating of the regular Small Pox of the years 1667, 68, and part of 69, says, "The
" regular and mild epidemical Small Pox begin
" about the Vernal Equinox; but when they are

“ not only epidemical, but irregular and more
 “ dangerous, they may appear as early as the
 “ month of January; infecting whole families,
 “ they spare no one of whatever age, who has not
 “ previously laboured under the disease; *nor are*
 “ *those exempted who have had a certain spurious*
 “ *kind of Small Pox, but which do not in the least*
 “ *participate in the nature of this disease*.*”

According to Boerhaave, (§ 1380,) the Small Pox are generally epidemical; they begin early in the Spring, increase in Summer, abate in Autumn, and cease almost entirely in the Winter. The sooner they begin in Winter, the more violent they are.

Once at least, therefore, every human being seemed liable to them. The child in the womb has been covered with the Small Pox, though the mother neither laboured under the disease, nor was susceptible of the infection.

We all know, that the contagious matter was generated in the diseased body, and was commu-

* *Integras familias contagio suo adflantes nemini parcunt, cujuseunque demum ætatis is fuerit, nisi prius hoc morbo laboraverit; neque tamen eximuntur illi, quos adulterinum variolarum genus aliquod, ad hunc morbum nihil adtinentium, prius obsiderit.*

nicated to the sound in various ways, by contact, by the air, by clothes, &c.

When this disease prevailed, some alarming exceptions were supposed to occur; the having of it once seemed, in many instances, to be no security against its contagion; but further observation discovered, that there was a different disease of a much less dangerous nature, which often imitated the other so closely, as to deceive even the most experienced physicians. On which account, though medical men did not come to the definite and precise conclusion, that the real disease never occurred twice in the same person, they found themselves authorized to distinguish the Small Pox into two *genera* or kinds, viz. *The true, genuine or legitimate; and the spurious, bastard or illegitimate.*

The true, genuine or legitimate Small Pox, are the present part of our subject: There is a diversity in the eruption; the papulæ or pimples are distant from one another, or they run together as it were, forming on various parts large flat sores or blisters; hence this *genus* or kind is divided into two species, *the Distinct, and the Confluent*; these epithets are applied according to

the state of the eruption on the face; if, for example, the pimples on the face are distinct, the affection is considered to be of the distinct species, without regard to their state on the other parts.

The Distinct are much less to be dreaded than the Confluent, yet in both there occur instances that are mild; and others, that are severe; hence we have *the Benign, and the Malignant*, of each species.

It is impossible to establish precise distinctions among them, because nature has not done so.

There are certain symptoms common to all, and others peculiar to the more dangerous cases. In some, only the gentle symptoms appear; in others, none almost, except the alarming; but in the plurality, the good and the bad are occasionally more or less blended, and apprehension is diminished or increased, as the former, or the latter predominate.

The mildest Small Pox, however, are not exempt from fatality, nor ought the most malignant in appearance to be considered desperate.

The events which generally characterize the disease, are as follow: It commences with fever

red elevated small spots appear on the surface of the body; fever returns or is aggravated, the tops of the pimples become white from a certain contained fluid, and the fever again abates; lastly, the fever increases again, the pimples become more yellow, their edges turgid, and from the centres they dry, darken, harden, at length separating at the edges, they fall off in crusts. Hence the disease is described as consisting of four distinct stages:—The Febrile; the Eruptive; the Suppurative; and, lastly, that of Incrustation, vulgarly known by the Blackening.

1st, *The Febrile Stage*.—From the commencement of the Fever to that of the Eruption.

2d, *The Eruptive Stage*.—From the commencement of the Eruption to that of Suppuration.

3d, *The Suppurative*.—From the commencement of the Suppuration to that of Incrustation.

4th, *The Stage of Incrustation*.—From the commencement of the Incrustation, till the Constitutional Disorder terminate.

THE TRUE, GENUINE, OR LEGITIMATE SMALL POX,
THEIR SPECIES AND VARIETIES, WITH OCCASION-
AL REMARKS, &c.

SPECIES FIRST,

*Comprehending the Benign, and the Malignant
Distinct Small Pox.*

THE BENIGN DISTINCT SMALL POX.

First Stage.—SOMETIMES the disease of the Small Pox is so mild, that there is no marked feverishness during its course. In by far the greater number, however, it commences with a doubtful state of health, which continues a few days, and this is succeeded by the unequivocal signs of fever, which generally comes on about mid-day. The patients are affected with shivering followed by heat, thirst, anxiety, restlessness; they are tormented, though not constantly, with pain in the head, back, and joints; they are sick, vomit, or desire to vomit, and have pain under the pit of the stomach, particularly if that part is pressed; along with these, there are stupor or

drowsiness; in adults, a great propensity to sweating, and, about the third day, convulsions in those under the age of puberty. The fever generally remits in the morning, but it is aggravated in the afternoon and evening; in many, these accessions and remissions are scarcely perceptible; the pulse continues regular, strong, and full, the heat is diffused over the whole body, and the urine is red and thick; to these are often added, watching, delirium, ferocious looks, cough, and dropping of blood from the nose; in short, strong inflammatory fever increases during the whole of this stage.

Second Stage.—Toward the end of the third day, the beginning of the fourth, or even a little later, the eruption breaks out sparsely, first on the face, forehead, lips, cheeks, neck, breast, and arms; consisting of small red points, like punctures made by a pin: on the first day of the eruption, and sometimes when it has scarcely commenced, the fever suddenly ceases or becomes mild; the elated patients begin to recover appetite with strength, and imagine themselves almost well: in the space of twenty-four hours, the spots

or punctures become round, hard, small distinct tumors or papulæ of a dark red colour; and in the same time, they spread successively from the face over the shoulders, hands, belly, back, lower extremities, and seldom increase in number afterwards: on the second day of the eruption, their bases enlarge; and on the third day, they terminate in a point. In the mean time, the eyelids and eyes may be affected by the papulæ breaking out on them, and in the inflamed passages of the nose, mouth, and throat, they cause much pain, sneezing, cough, hoarseness, and difficulty of swallowing. In their progress, they become more painful, some small ones which broke out first are obliterated, the surrounding skin becomes tense and red, and on their tops are frequently observed vesicles containing a thin limpid fluid. In this interval or remission, adults are enfeebled by sweating, which ceases on the commencement of the next stage.

Third Stage.—About the end of the sixth day or beginning of the seventh of the disease, that is, on the fourth or fifth day of the eruption, all the febrile symptoms recur, often with aggrava-

tion; at this time, the papulæ become larger and more inflamed; the interstices of a more lively red, resembling the damask rose, and swell with an uneasy tension and lancinating pain: this swelling affects the face; next, the hands and feet; now ensues depression of mind, the patients complain of internal and external heat, and are restless; the papulæ, at whatever time they appeared, making equal progress, soon exhibit a red margin, are full and white on the top, and contain a thin fluid; for two days these vesicles increase in breadth only, and there is a small pit in their centre; then the papulæ become broader at the base, terminate in a peak, and their tops are less pellucid; on the third day, the pustules are uniformly swelled, many of them have attained the size of a pretty large pea, and the fluid is converted into pus: the swelling begins to subside in the order of its invasion; all the alarming symptoms abate, the surface of the body is uneasy and itchy.

This stage is sometimes protracted in the following manner: on the first or second day of the suppuration, the papulæ become white with their apices depressed, they do not fill or rise to a point

before the third or fourth day, and they begin to grow yellow on the fifth.

Fourth Stage.—Generally on the tenth or eleventh day of the disease, if the eruption is copious on the face, the febrile symptoms return or are aggravated; at the same time, first on the face, and next in succession downwards, the pustules begin to assume a dark colour in their centre or apex, where they open and pour out a yellow glutinous matter, not unlike honey in colour and consistence, which gradually hardening, resembles concrete gum Arabic; after this, they become rough, white, palish, and yellow; the fever now goes off, and frequently a gentle sweat pervades the body. While on the face and trunk they are becoming rough, dark, brown, or yellow, on the limbs they appear full of pus, and somewhat depressed. On the twelfth, thirteenth, fourteenth, or even fifteenth day, the pustules on the face and upper parts of the body, quite converted into crusts, begin to fall off, but on the extremities they are generally one or two days later, where they may be often rather said to burst, than harden gradually. The dried pustules

are succeeded by mealy scales. When the crusts separate, there only remain slight depressions; when the mealy scales also separate, the pits are formed. In the more mild of this species, there, for the most part, remain only a few red spots, which are all nearly obliterated in the space of about two months, when the skin resumes its healthy colour. During the whole course of the disease, there is generally a strong tendency to constipation.

Such, with occasional deviations, is the course of the distinct and benign Small Pox.

Remarks concerning the Stages into which the disease is divided.

IN the Benign of, the space of time occupied by each stage may be stated as follows:

The First Stage occupies from three to four days; the Second, the same; the Third Stage occupies about five days; the Fourth about the same.

The medium duration of the disease is about fourteen days, which, if each stage were reckoned

separately, might appear to be sixteen or more ; but such a mistake will be prevented by attending to this circumstance, that one stage ends and another begins on the same day ; when, for example, the eruption appears on the fourth day, that day belongs both to the first and second stages.

All the stages occasionally vary in length, and the following inference has been drawn from this occurrence in the first and second stages : If the first stage is long, the disease is short and mild ; if the second stage is long, the disease is severe and tedious ; but the malignant Small Pox furnish numerous exceptions to this rule.

✓ In the second stage, it is said, that the papulæ or pimples diffuse themselves over the whole body within a single day, and seldom increase in number on the following days : though this statement is confirmed by accurate observation, yet a very different view of the eruptive process has been given. Van Swieten on § 1396, says, “ The
 “ pimples do not all come out at once, unless in
 “ the worst confluent Small Pox, in which swarms
 “ of very small pimples are produced every where
 “ externally and internally ; otherwise the erup-
 “ tion generally occupies three days, *especially in*

“ *the distinct and gentle Small Pox*, in which they
 “ begin to appear on the fourth day, and are sel-
 “ dom or never all out before the seventh. An au-
 “ thor of undoubted credit,” continues he, “ as-
 “ sures us, that the first eruption is always suc-
 “ ceeded by another on the seventh day from the
 “ commencement of the disease; but that this
 “ second swarm ripens at the same time with the
 “ first *.”

Here the truth is almost reversed, for generally the eruption of the benign distinct legitimate Small Pox is soonest completed, and that of the confluent continues for several days; but this discrepancy will be explained by supposing, that the affections differed from each other in their symptoms; and perhaps there is another mistake discoverable in attributing this manner of eruption, *especially to the mild and gentle Small Pox*, for it occurs in the spurious, the most gentle of Small Pox.

Much confusion has been caused by using the terms *suppuration* and *maturation* synonymously. In order to explain this, we must review the

* *Violante de Variol. & Morbill. p. 60.*

symptoms from the beginning of the suppurative stage. The febrile symptoms recur, the pimple enlarges, first a thin liquid appears on its top, which gradually assumes the colour of milk or cream, and is now called pus; this fluid becomes of a straw colour; and all this is the distinct period of the suppuration: next a dark crust begins to form in the centre of the pustule, the top flattens, the crust enlarges, the margin swells with a yellow matter, which is gradually inspissated, and disappears, leaving a dried crust. During this time, the pustules, it was believed, were ripening, and this is the period of the maturation. The fever which recurred at the beginning of the suppurative process, often abates when the pus is formed; but, in the malignant cases, instead of abating, it proceeds with increased severity, till the crusts be completed.

It is necessary then to observe, that the suppurative stage has terminated when the dark spot begins in the centre, and that this spot begins with what has been called the maturation, and is here considered the beginning of the fourth stage, or that of Incrustation.

Authors seem to have characterized the fourth stage chiefly by the separation of the crusts, but this is inadvertently done, since in this species, when the crusts begin to separate, the constitutional affection, which is in fact the disease, has ceased ; the whole process of hardening or incrustation is the proper stage, beginning, when the suppuration is complete, accompanied with constitutional disorder, an attendant of the first importance, whether we consider the nature, or the treatment of the Small Pox.

We shall perhaps find, that not discriminating properly between this and the suppurative stage, has caused to be in some measure neglected the fever and other symptoms attending the drying of the pustules, which, in ambiguous cases, afford perhaps the only means of distinguishing the legitimate from certain forms of the illegitimate, commonly called the Chicken Pox.

THE MALIGNANT DISTINCT SMALL PÓX.

First Stage.—THE Malignant Distinct Small Pox differ from the Benign chiefly in the violence of the symptoms. In the first stage, the pain of the head and loins is more distressing; there are greater debility, anxiety, restlessness, and alienation of mind; the symptoms indeed are often inconsistent with one another, or even evince sudden changes; there may be high fever, obstinate watching, great activity of mind and body, with wild delirium; or, on the contrary, deep sleep, starting of the tendons, trembling, languor, and faintishness, with an irregular and quick pulse; quick and laborious respiration, and frequent sighing. The fever is either ardent, like a continued one, and accompanied with a quick and strong pulse at the very beginning; or it is attended with a pulse somewhat quick, small, weak, and irregular, with mild heat, either no thirst or very little, although the tongue is apt to become dry: sometimes on the second or third day of the dis-

ease, the miliary eruption, petechiæ or livid spots, break out on the neck, breast, and arms. In the mean time, there is a copious discharge either of thin watery urine, occasionally so acrid as to irritate the bladder and urethra, or turbid without depositing any sediment.

Second Stage.—The eruption, as in the Benign Distinct, commences about the fourth day ; the pimples, however, come out slowly and with difficulty ; and do not observe the same order as in the Benign. Those which appeared on the fourth day are gradually succeeded by others on the fifth, or sixth ; the more numcrous they are, the less prominent they become. The pimples, in many cases, differ much from one another, in size, figure, and colour : some smaller than others ; some peaked, others obtuse, and depressed in the middle, and are therefore called *umbilicales* ; some palish, or brownish, others pellucid containing a very thin fluid. Most of them occasion none, or very little acute pain, though they are often intolerably itchy ; the more tardily the spots break out, their bases are the longer of being extended, and their peak or apex, of being formed. The

fever does not cease on the eruption taking place, nor always evince alleviation.

When the number is great, the papulæ gradually flatten and sink slightly in the middle: there is pain in the ears, or deafness, the saliva flows, the voice is remarkably hoarse, the face soon swells enormously, the eyelids resemble inflated pellucid vesicles, and shut the eyes; next the swelling pervades the hands, the feet, and all the surface of the body; all these may occur, though, at first, the pimples, in size, figure, and colour, resembled the Benign Small Pox; at the same time there are extreme debility, weak and quick pulse, immoderate looseness, sweating followed by no relief, delirium, watching, and great anxiety; if the livid spots called petechiæ, or the miliary eruption, has not appeared in the first stage, they will appear on the second day of the eruptive in the interstices of the Small Pox, especially on the neck, breast, and arms.

In the mean time, the variolous pimples, gradually increasing, attain their height about the eighth day; when suppuration or the third stage should take place; but it frequently happens, that sudden spasms, convulsions, or apoplexy here terminate the disease with the life.

Third Stage.—Sometimes, however, the fever is moderate, and the suppuration is completed slowly, in proportion to the copiousness of the eruption.

Fourth Stage.—Here also the fever may continue moderate, the drying or maturation proceed, desquamation ensue, and gradual convalescence terminates in good health; but if the suppuration has been deficient, and during this stage, the pimples are of a crimson colour; if there is violent fever with pain, and a frequent pungent sensation; if, in fine, these things happen, and maturation fail, then you may apprehend whatever is most alarming in disease; then supervene the extreme disorders of the vital and animal functions with effusions and congestions: delirium or coma; spasms, convulsions, or the most profound lethargy; water in the head, in the chest, in the abdomen, or even universal dropsy; dreadful anxiety, oppressed breathing, and threatened suffocation, soon to be relieved by the end of all mortal suffering.

There is a particular species of Distinct Small Pox, partly Benign, partly Malignant: for some

time at first, the eruption completely resembles that of the Benign; but, on the suppuratory stage commencing, they dry, become white in their tops, and no longer contain any fluid; they then, indeed, suddenly become low and depressed, or assume a livid colour; there is no unusual discharge of saliva or urine, nor do the extremities swell. Sometimes, as Mead remarks, (De Var. c. iv.) this eruption appears with so little fever and pain, that it seems to be free from danger. In the third stage, however, no suppuration; the fever is aggravated, delirium and difficult respiration supervene, and the patient in a short time expires.

Not unfrequently they are combined with petechiæ, or eruptions of a similar nature; at other times they change into the confluent, or even malignant form: sometimes towards the end of the eruption, watching, delirium, hæmorrhages, or a copious discharge of urine, and other bad symptoms appear. This species is neither so rapid, nor so destructive, as the primary malignant; it generally proves fatal about the eleventh or twelfth day, as happens in the confluent. Those, who survive, experience no maturation,

they linger seemingly on the verge of the grave through the fourth stage, which is protracted to an indefinite length.

Remarks.—A sudden flattening or striking in, as it is called, of the eruption, is frequently a fatal symptom in every species and variety of Small Pox, and a similar occurrence in every eruptive disease is to be dreaded.

The medium duration of the Malignant Distinct Species is nineteen or twenty days; the stages both of suppuration and incrustation are slow.

SPECIES SECOND,

*Comprehending the Benign, and the Malignant
Confluent Small Pox.*

THE BENIGN CONFLUENT SMALL POX.

BETWEEN the Confluent Small Pox and the Distinct, an intermediate place is held by those called *Coherent*, which differ from the Distinct in this, that in most parts the pimples form groups like clusters of grapes ; but it is evident, that the Coherent are more nearly allied to the Confluent, and are justly ranked as the least dangerous of this species.

Though the Confluent are more severe and dangerous than the Benign Distinct, they sometimes proceed without much appearance of danger, and terminate favourably ; so that, compared with the Malignant Distinct, they may be called Benign : accordingly we may with propriety divide them also into the Benign, and the Malignant.

The first stage of the Benign Confluent Small Pox, is passed nearly in the same manner with that of the Benign Distinct, and differs only in being a little more severe.

The second stage commences with the third day or sooner, and is longer than in the Distinct, particularly when benign; there is often present some torturing pain, obstinately fixed in the joints, in the breast, in the loins, or in the stomach, accompanied with sickness and vomiting; the sooner the eruption appears, the more confluent and numerous it generally becomes; sometimes it is deferred to the fifth, sixth, seventh day, or even later; many pimples break out entangled with one another, coherent, or running together. Sometimes they appear distinct, but shortly after they either cohere, or run together, and form large vesicles; at first they are often small, minute, and thick, so that the affection might be confounded with measles or erysipelas. After the eruption the fever is usually much mitigated.

The Confluent Small Pox enlarge daily, but seldom or never acquire an equal magnitude with the Distinct Small Pox: communicating with

one another, they cover all the face, and in a short time assume the appearance of a broad white pellicle, a little elevated above the skin; the more distant from the face, the larger the pimples become, and they are largest on the hands and feet; they contain a watery fluid, and are very itchy. The face swells earlier than in the Benign Distinct; infants and children are generally affected with diarrhoea, and adults with ptyalism, which comes on either along with the eruption, or in a day or two after. The ptyalism, which is a copious watery discharge from the mouth, continues at least, till the suppuratory stage commence.

Third Stage.—About the eighth day of the eruption, namely, on the ninth, tenth, or eleventh day of the disease, sometimes on the fourteenth, sometimes on the fifteenth, according as the eruption appears sooner or later, the third stage or that of suppuration commences. The more slowly this happens the worse: if the disease is mild, the pimples whiten, and pus is formed, but they are never much raised, nor do they acquire an elevated apex or point.

Fourth Stage.—When the incrustation and maturation begin, the fever is more or less aggravated, and obtains the name of *Secondary*; at one time it shows an inflammatory disposition, at another, a putrid; it is prolonged till the skin be covered with a thick crust of a brown colour, under which there is a fluctuation of puriform matter.

On the seventeenth or twentieth day, and sometimes even later, the cuticle every where falls off in broad scales, leaving a new red cuticle, which in a short time is covered with a whitish pellicle; this in like manner falling off, leaves the face smooth; but there are soon formed mealy scales, which not only leave conspicuous pits, but disfigure the face with foul scars. The urinary discharge is loaded with white sediment, and often the evacuations from the intestinal canal are mixed with puriform matter. There are formed in the cellular membrane various abscesses, or red painful tumours quickly terminating in abscesses, which at one time contain proper pus, at another, acrid and corrosive sanies: this generally happens towards the end of the desquamation; the fever in the meantime abates, and, with a sort

of remittent accessions, disappears. Sometimes they are succeeded by smaller distinct ones, called Secondary Small Pox, or *repullulantes*; which do not prevent the patient from gradually recovering.

Stages of the Benign Confluent Small Pox.

First Stage occupies about three days; Second Stage, from six to seven days; Third Stage and Fourth, from five to six days each.

The medium duration of the disease is nineteen or twenty days: with regard to the Malignant Confluent Small Pox, in some, they prove fatal in a few days, in others, they are protracted to an indefinite length.

Irregularities have been observed in the symptoms, both of the Distinct, and Confluent Small Pox: De Haen, on the epidemic Small Pox of the year 1748 or 49, made the following remarks*.

* *De Haen on Small Pox—Inter Epist. ad L. B. Van Swieten, annis 1743-51. Epist. xvii. p. 136; and speaking of the epidemic Small Pox of 1748 or 49.*

“ In very many, both children and adults, the Small Pox, whether distinct, or confluent, came on, preceded neither by vomiting nor pain at stomach.

“ They were sometimes mild in their commencement, and severe in their termination.

“ In some, one or two pimples of characteristic Small Pox *matured without any constitutional disorder*, and in four or five days after, the fever began, followed by eruption on the third day. The pimples which appeared first were obstinate, and apt to degenerate; while those which succeeded the fever healed easily.

“ In many, while the crusts were falling off, and health with strength returning, *an immense eruption appeared which quickly suppurated*; in some, came on a great number of furunculi, very troublesome, and difficult of suppuration.

“ Confluent Small Pox, clustering like grapes on the same part of the body, and which appeared on the same day, differed much in their contents; some were filled with pus, others with a clear fluid, and some appeared full of lymph in different parts, as large as pigeon's eggs.”

Queries.—Since it is certain, that the legitimate and illegitimate Small Pox prevail during the same epidemic, and that they do not prevent each other, is it not probable, that that eruption, though called characteristic Small Pox, was a spurious species, which *matured without any constitutional disorder*, and that the eruption, with constitutional disorder which followed, was the legitimate Small Pox; and that *that immense eruption which appeared and quickly suppurated*, during the convalescence from the legitimate Small Pox, was also a spurious species?

Burserius has suspected, that De Haen sometimes mistook the illegitimate for the legitimate Small Pox.

Species said to be intermediate between the Benign, and the Malignant Confluent Small Pox.

As in the distinct, so in the confluent species, there is, according to authors, a form, which the disease sometimes assumes, intermediate as it were, between the benign and malignant. In this the eruption is not so rapid, the fever remains stationary, accompanied with watching and delirium; after this the fever intermits or remits;

and the patient seems convalescent. In the third stage, the fever again assumes the acute continued form; and, in the last stage, is changed into that of a mild remittent. In the second stage, *fresh eruptions appeared daily in various parts of the body*; on the first day, they overspread the face and hands; on the second, the arms and trunk; and, lastly, the legs and feet; sometimes there are none on the trunk, while the face and limbs are covered with almost cohering pimples; sometimes those, which were distinct on the first day, by others breaking out become confluent, or coherent on the third, of irregular size and shape, and not of a vivid colour; on the following days, their bases enlarge slowly, they assume an apex slightly depressed, and are not very hard; on the third day of the eruption, before the fever return, there comes on a ptyalism or flow of saliva, especially if it is Summer, though there are no pimples in the fauces, or mouth; but in Winter, they break out in these parts also, and excite frequent cough and spitting.

These intermediate Small Pox, as they are called, *may be changed into those of a completely benign description*; then, though the eruption

has been difficult, they acquire a round figure, and have a red margin; and though, on the first day of the suppuration, several of them have little pits in the middle; yet, on the third, or fourth day, they rise, become turgid and peaked; lastly, on the fifth day, being filled with pus, they grow yellow, and dry, and the patient may recover *without secondary fever, ptyalism, or swelling of the extremities.* But when there is a great discharge of saliva, the eruption is slow in its progress, and consequently the third stage is of very uncertain duration, extending to four, six, eight, or twelve days, and sometimes even a longer time. In such cases, the papulæ are uniformly depressed in the middle, without redness of margin, for the most part confluent, particularly on the joints; afterwards they become gradually raised and turgid; but even then, they are *whitish and pellucid, from being filled with water, or air;* at length, having attained the proper size, they become yellow with pus, which is then formed, though they are still flaccid. Next their drying is late, and they often leave unseemly scars. It has been remarked, that, while the ptyalism

continues, the patient remains *free not only from the fever, but every bad symptom.*

Whether diseases different in kind, are here also confounded in the description of this intermediate species, the facts to be produced will perhaps enable us to decide; in the mean time, it will be necessary to recollect the irregular manner in which the eruption appears; the papulæ filled with water or air, afterwards suppurating; the disease being changed into one of a completely benign description, and the recovery without secondary fever.

THE MALIGNANT CONFLUENT SMALL POX.

THIS is the principal difference between the Malignant Confluent Small Pox, and the Benign Confluent, that the former are not only more frequently destructive to life, but evince, during their course, a much more alarming combination and series of symptoms; select the worst of those above detailed, and you will have a correct notion of the import of the term *Malignant* in the present instance.

VARIETIES OF THE SMALL POX, &c.

THE disease is believed to have much greater deviations than any we have yet noticed. The most important of those considered to be of the Malignant nature, are distinguished by the epithets, *Erysipelatous*, *Morbillous*, *Miliary*, *Sanguineous*, *Gangrenous* or *Putrid*; because the first, in certain respects, resembles *the rose or erysipelas*; the second, *the measles or morbilli*; the third, *the miliary eruption*; in the fourth, the papulæ are filled with *a red or bloody fluid*; in the fifth, they soon become *black and mortify*.

Erysipelatous Small Pox.

IN the first stage, the greatest languor is present; the beats of the arteries are quick, weak, and small; there is a most acute pain of the head and loins; the thirst and heat are moderate; there are scarcely any unusual nausea, sickness, or vomiting, fainting fits often occur with threatened suffocation; purple, or black spots called petechiæ, appear on the surface of the body, or a pellucid, and, as it were, crystalline, miliary erup-

tion on the neck and breast; copious hæmorrhages, diarrhœa, thin and clear urine, obstinate watching, or profound lethargy, subsultus tendinum, and other involuntary movements or spasms, and even tremendous general convulsions.

The second stage begins either early or late; while the eruption of small pimples proceeds, the skin is soon covered with a diffused red intumescence, which, during the three days of the eruptive process, remains unchanged, except on the face and lips, where it continues to increase; and accordingly, this form of the disease has, with some propriety, been named the Erysipelatous. The commencement of the eruption is accompanied with extreme weakness and languor; the fever continues; dreadful symptoms assail, all of which proceed with aggravation, but not long, as death arrives either in this stage, or about the beginning of the following, the first or second day of which few indeed ever survived. When death approaches, the skin, particularly of the face, exhibits a dull white colour, like parchment. This horrid variety seldom occurs.

De Haen considered purple spots, occurring in the interstices of the variolous eruption, to be a

fatal symptom. "I saw one," says he, "in whom
" the salivation was excellent, and every thing
" continued favourable to the seventh day : on
" one or two fingers, however, the red spots broke
" out, and death soon followed ; another, a girl
" of six years, who died on the fifth day of the
" fever, her sides and back were purple, with a
" few scattered and hardly perceptible pimples."

Morbilious Small Pox.

IN the second variety, the skin of the face only becomes thick and raised, with a smooth, plain, erysipelatous swelling, while, on the limbs and trunk, the eruption is almost distinct, though in colour, size, and shape, differing considerably from the regular benign species ; the spots in colour resemble measles, except that they are less vivid : on the first day, the eruption can be distinguished from that of measles only by a certain hardness ; on the second, and third day, the spots, smaller than measles, remain low or flat, and scarcely ever rise to a point. In the mean time, they become livid, and, on the first day of the next stage, the skin of the face, as in the preceding instance,

becomes white, and this is soon succeeded by death.

This variety equals the former in malignity, and does not happen so seldom : to it might be referred the Anomalous Confluent Small Pox, which raged in London in the years 1670, 1671, and 1672, observed by Sydenham ; and also those described by Morton, whose account of them is as follows : They first broke out on the second, or third day, “ having the appearance of a red-
“ dish uniform swelling involving the face, thicker
“ than erysipelas, with scarcely any spaces be-
“ tween the papulæ.” On the rest of the body were large blotches, occupied by innumerable acrid confluent papulæ, interspersed, particularly on the thighs, with conspicuous vesicles full of limpid serum, like those caused by burning ; if these burst, the skin appeared black and sphacelated. When this happened, which was seldom, and only when the epidemy raged with uncommon violence, the patients in a short time expired. On the eleventh day, the redness of the face was interrupted in different parts by a shining white pellicle, which quickly pervaded the whole, and soon from this pellicle proceeded

a shining matter, terminating in crusts of a deep red colour like that of coagulated blood, which, as the pimples proceeded, became darker, till the face was covered as it were with soot. Some expired a few days after the eruption, others lingered to the fourteenth, or even seventeenth day, and what is remarkable, if they survived this day, they recovered. The fever was dreadful, the inflammation was pungent and fiery, and ptyalism excessive. The pimples were small, and, on their first appearance, hot and inflamed; they could scarcely be distinguished from erysipelas, or from measles. The crusts were succeeded by mealy scales, continuing long, and leaving marks, which often shockingly disfigured the countenance. At the same time, a dysentery prevailed epidemically throughout the city.

In this variety, though the pustules, on the breast, and other parts of the body, resemble those of the Distinct species, and are white in the middle, yet, in the third stage, they are not surrounded with a red circle, nor are they raised, except slightly; the intermediate spaces are pale, or livid; the pustules remain flat and depressed; the cuticle, which formerly seemed to

separate on their tops, again adheres like dry scales. In all the varieties of the Malignant Confluent Small Pox, the ptyalism, which was considerable in the second stage, diminishes in the third, and soon ceases, without swelling of the head, fauces, or extremities; but if there intervene a frequent and generally ineffectual desire to make water, the patient seldom survives the second, or third day of this stage.

If the patient has hitherto withstood the disease, he has still to contend with the late and tardy maturation, with the fever, watching, delirium, fainting, and other concomitants of malignity, which may subside on the seventeenth, or twentieth day, and be followed by convalescence: Some are soon destroyed by the hæmorrhages, which usually precede this change; while others linger under hectic fever, or slow consumption for thirty days, and are then destroyed by sudden internal mortification.

Miliary Small Pox.

THE variety of Confluent Small Pox which follows, is less to be dreaded. In it there is a copious

eruption of small, distinct, cohering pimples, irregularly distributed over the body. During the eruptive stage, they never become pointed, they only render the surface rough. In the beginning of the third stage, they also become white, and assume the appearance of a white membrane, particularly on the face. They often suppurated and dried; but the ptyalism, copious discharges of urine, and swelling of the extremities, continued, and were even reckoned necessary in the most favourable cases; and we are informed, that if the ptyalism, which came on with the eruption, stopped during the suppuration, and was not immediately followed by a permanent swelling of the extremities, or a free evacuation by the kidneys, bowels, or skin, the life of the patient was seldom protracted to the fourteenth, or fifteenth day of the disease.

Sanguineous Small Pox.

THE eruption consists of numerous vesicles, at one time livid, at another, having black, or purple spots interspersed; either at first or afterwards, they resemble tubercles full of black

blood; on the third, or fourth day of the eruption, they become livid, or bloody; while black spots, vibices, or petechiæ pervade the body, and in one or two days, life abandons the patient. In the mean time, blood often flows copiously from the mouth, nose, eyes, or any passage, particularly the kidneys, bladder and uterus; and this happens sometimes not only in the third stage, but in the two former ones. De Haën once saw the Sanguineous Small Pox in a short time become livid, attended with a very copious discharge of blood in the urine, and prove fatal on the fifth day; on such occasions they might with propriety be named *the Gangrenous or Putrid*.

Putrid Small Pox.

WE shall now take notice of that variety accompanied with petechiæ, with the miliary eruption, or both combined, observed by Haller in the year 1735. “For several years,” he observes, “the Small Pox had lain nearly dormant, attacking only few, and in a mild manner. The whole former part of the year 1735 was damp, rainy, and the north wind prevailed so much,

“ that, during the whole Summer, thunder was
“ heard only once or twice, which is certainly a
“ thing of rare occurrence, and inundations were
“ common. In the month of March, the Small
“ Pox broke out, and, as generally happens in
“ our country, were of the benign description :
“ the number of patients gradually increased, and,
“ in the months of May, June, and August, was
“ uncommonly great, few escaping the com-
“ plaint who had not already had it. In Septem-
“ ber, the disease began to give place gradually
“ to the miliary fever : in the Summer months,
“ the Confluent Small Pox were frequent, and,
“ often on their breaking out, black spots super-
“ vened, and in adults the miliary eruption : few
“ escaped who were severely affected, and they
“ only after a tedious illness. On the fourth, or
“ fifth day, the black spots broke out along with
“ the Confluent Small Pox ; and on the second,
“ or third day of the eruption, in great numbers ;
“ they were plain, two lines broad, of a colour
“ frequently blacker than ink ; they were pre-
“ ceded by sharp pains of the back, of the sides,
“ and by spitting of blood ; and were succeeded
“ by delirium, most severe cough, and on the

“ eighth, and ninth day, in cases about to be fatal,
“ by a collapse of the papulæ.”

In the epidemic Small Pox, which Sagar has described, towards the end of the third, or beginning of the fourth stage, a severe pain of the bones took place in all the limbs, continuing twelve or at most twenty-four hours. Infants were chiefly subject to this attack, they shrieked, tossed, and evinced much anguish during it; the pain ceased, and was followed by a watery swelling of the limbs, which was considered a favourable substitute for the swelling of the face; but when the pain exceeded in duration the time above mentioned, death was near,

Sometimes intermittent fevers are combined with Small Pox. In other cases, there occur the symptoms called *nervous*, *malignant*, or *typhus*, being such as distinguish *the slow nervous fevers*. The person labouring under this form of Small Pox, has, generally before the attack, been long in a feeble state, and, after the attack, has become much more languid; the fever is not violent, the pulse weak, small, quick, irregular; the heat of skin moderate, or even below that of health; and the thirst, slight; the mind is dejected; face pal-

lid, and looks haggard; the head is heavy and often giddy; there are trembling, nausea, sickness, stupor, wakefulness, mild delirium, and universal lassitude; the evacuations are very bad; the urine, thin and limpid; the stools, dark, green, and slimy; when the affection is most malignant, sickness, vomiting, or restlessness, seldom harrass the patient; in this state, six, seven, eight, or nine days may pass before the eruption appear, which is generally palish, depressed, tardy, and never properly ripens; on the contrary, the pimples remain flat, flaccid, and almost empty, or run into blisters filled with an ichorous fluid; and towards the end, those on the face have formed black crust, or one of a dirty ash colour, adhering to the skin.

In all those called *putrid*, the eruption, breath, sweat, and urine have a most nauseous fetor; the pulse is soft, languid, and easily compressed; dark spots of different sizes appear on the skin; the body is emaciated, and the general debility much increased by hæmorrhages; in one, the eruption becomes black and gangrenous; in another, the pimples are sanguineous, or even discharge blood.

Variolous eruptions, about the nature of which doubts are entertained.

The varieties above detailed, are referred to the Legitimate Small Pox with universal consent; and we may remember, that they are all slow in their last stage, which is accompanied with *fever*, and other indications of constitutional disorder.

There are certain other varieties, about the nature of which authors do not agree. Some pronounce them of the legitimate; others, of the spurious kind; some, of the benign distinct; others, of the malignant confluent species.

These varieties of Small Pox are denominated *Crystalline, Siliquose, Verrucose*; which are said to be distinguished by this circumstance, that they almost never arrive at suppuration.

The Crystalline Small Pox, also called the Lymphatic, are filled with a thin, pellucid, acrid fluid, and hence their name; they resemble the spurious kind, from which, we are told, they are to be distinguished by the *continued fever, the danger, and greater duration*.

The Siliquose, that is, the Husky Small Pox, are round, soft, hollow, empty vesicles; they were

first accurately described by Freind, and Mead refers them to the preceding variety.

The Verrucose, or Wartlike Small Pox, are hard, very like warts raised above the skin, and consist of a thick, tenacious, concrete mucus. They are red and hard from the fourth day, and constantly preserve the same appearance and figure.

The *Variolæ Crystallineæ* or *Lymphaticæ*, or those called *Siliquosæ*, sometimes take place in the confluent species. Sagar, in the fatal variolous epidemy, of which he has left us a description, mentions, "That several of the lymphatic papulæ sometimes run together forming blisters as big as nutmegs." Others call them *siliquosæ*; but he has given them the name of *bullatæ*; he seldom saw them filled with a clear; but generally with a whitish, red, or dark brown fluid; and he often found them flaccid and empty: he affirms, that he never saw these *variolæ bullatæ* alone in any patient, but interspersed among the *verrucosæ*, *herpetosæ*, and purulent ones, separately, or all in one patient; he acquaints us, that in them all the stages were unusually long, especially the third, in which they seldom suppurated; but bursting dried. Several patients af-

affected with the lymphatic Small Pox, in which suppuration took place, and there was neither swelling of the face, ptyalism, nor much fever, without any assignable cause died suddenly.

All the varieties comprised under the present head, even after the eruption, were attended with *a constant fever*, a weak and quick pulse, dry tongue, a sense of heat, delirium, coma, watching, subsultus tendinum, &c. throughout the whole second stage; and many were affected with an unavailing and frequent desire to make water, which was succeeded by ischuria, and death.

Sometimes they come on like the benign Small Pox; but still the diarrhœa, the colliquative sweating, the delirium, want of sleep; or the petechiæ and miliary vesicles appearing in the interstices of the Small Pox, on the neck, breast, and arms, about the beginning, or at latest on the second day of the eruption, show well the nature of the disease.

During some epidemics, all the kinds, species, and varieties prevail; not only one species of legitimate Small Pox precedes another, but all the species and varieties appear either separately, or are so blended, that coherent and confluent Small

Pox, the crystalline, and siliquose, the morbil-
lous, erysipelatous, and sanguineous, &c. are oc-
casionally observed in one patient at the same
time; which Sagar affirms to have happened in
the epidemy of 1776.

In those who died of Small Pox there is not a
part of the body, but has been found injured; ef-
fusions and abscesses in the head, lungs, bowels;
and gangrene in various organs; and it is certain,
that water in the head has suddenly destroyed
many, who seemed to be recovering from the
most benign Small Pox.

Eminent physicians formerly asserted, that the
brain, lungs, liver, and intestines, were seen co-
vered with the papulæ; but now it is denied, that
they ever attack any of the cavities, except those
to which the air has access, as the nose, mouth,
wind-pipe, external ear; and we are informed,
that, in cases of prolapsus ani, they have attacked
the exposed portion of gut.

Great numbers, whom the disease did not de-
prive of life, were much disfigured, or rendered
irrecoverable invalids. In some were hideous
scars; in others, the eyes, ears, and mouth were
destroyed; some were lame from inveterate ulcers;
others laboured under pernicious internal disor-

ders; in fine, innumerable were the bad effects of this pestilence.

Remarks on the latter Varieties, &c.

“THESE also,” says Burserius, speaking of the Verrucose or Wartlike Small Pox, “are generally of the distinct malignant species, and incapable of suppuration, although I do not deny, that they are sometimes ranked among the benign or spurious Small Pox; but then they are without the proofs of malignity, namely, *the fever*, and other dreadful symptoms. Besides, when malignant they do not suppurate, nor do they crack or fall off in crusts; but a gradual desquamation ensues. Mead supposed this form to be worse than the crystalline, which others will not allow, probably because they saw it, as De Haën did, in the benign state.” And he adds in a note, “De Haën doubts, whether the crystalline and verrucose Small Pox of Mead, the siliquose of Freind, with other varieties, really belong to the anomalous and malignant Small Pox; because he saw them *terminate without inconvenience and danger*. But I should imagine, that he then saw only a variety of the benign or spurious Small Pox.”

Burserius was certainly correct in considering such assertions as premature; for no man, after reflection, could call those cases benign, which were attended with the most violent symptoms; and he who believed the spurious Small Pox to be not only mild, but short, could not consistently call those affections spurious, which were both severe and long; and that De Haën formed this notion from some similarity in the eruptions, appears from his own words, “That he saw them *terminate without inconvenience and danger;*” but the crystalline or watery eruptions occurring both in the legitimate and the spurious Small Pox, might have undeceived him.

And if Burserius had attended to the fact, which he often mentions, that fever, particularly in the fourth stage, was characteristic at least of the legitimate confluent species, he might have hesitated to place, among the legitimate Small Pox, that species of the intermediate, which is *changed into an eruption of a completely benign description, and from which recovery may ensue without secondary fever.*

PART II.

CONTAINING

THE OLD AND THE NEW INOCULATIONS

FOR

THE SMALL POX.

THE
OLD OR VARIOLOUS INOCULATION.

ITS PROBABLE ORIGIN, AND WHERE FIRST KNOWN;
ITS INTRODUCTION INTO BRITAIN; CULTIVA-
TION; OPPOSITION, AND DEFENCE.

WITH the wise and the benevolent it must have been a question of the deepest interest, Whether means might be devised of at least diminishing this calamity.

Some one having reflected, that the disease was infectious, and seldom recurred in the same person, conjectured, that many of its bad effects might be avoided by artificial communication; the experiment succeeded, and in this, or some similar way, originated the Inoculation for the Small Pox, which is the art of transferring the disease from one person to another.

This art, it is reported, was first invented among the Circassians, in order to preserve the boasted beauty of their women *; but both this superior beauty, and their prior claim to the means of its preservation, are equally questionable.

Artificial infection was used in various parts of Europe, Asia, and Africa, by means both of the liquid virus and crusts; it has been traced to the Highlands of Scotland, to Wales, and to several parts of France, Germany, Denmark, Sweden, Italy; it was known to the Negroes on the coast of Guinea, and to the Arabs; it was generally called "buying the Small Pox;" the operation was attended with superstitious ceremonies, and mystery a custom not confined to the uncivilized; the operators were old women, from whom physicians would not deign to receive instruction.

In some of the eastern nations, the practice has been followed from time immemorial, as a part of the medical profession.

In the kingdoms of Tripoli, Tunis, and Algiers, the child to be inoculated was taken to a patient.

* Phil. Transact. No. 339 & 347.

in whom the pustules were ripe; the surgeon made an incision on the back of the hand, between the thumb and fore-finger, and inserted a little matter taken from the largest and fullest pustules.

In Indostan, like every other thing there, this art was considered of the most remote antiquity. The operation was performed by a particular tribe of the Bramins, delegated annually for this office from the different colleges throughout the distant provinces; they performed their circuits about the beginning of Spring, and inoculated only those who had undergone a certain preparatory regimen; they made a few scratches with a small instrument, and tied on the wounded part, a pledget of cotton, charged with variolous matter, and moistened with a few drops of the Ganges' water.

In the seventeenth century, the Chinese introduced the Small Pox by the fallen off crusts, which, prepared with cotton and musk, they inserted into the nostrils, and not above one died of a hundred so infected. But the accounts given of this country are to be received with much caution; for China was the Utopian region, which

the philosophers of the last two centuries adorned with imaginary perfection, that the contrast might expose the defects and vices of the European states.

How the practice of Inoculation was introduced into Britain ; Lady Mary Wortley Montague leads the way ; experiment made on certain criminals in Newgate ; some of the Royal Family inoculated, &c.

ABOUT the middle of the seventeenth century, Inoculation was practised at Constantinople by the Greeks and Armenians ; whence, about the beginning of the eighteenth, came that information which first directed the serious attention of any of the medical men in Britain to the subject.

In the year 1714, appeared, in the Transactions of the Royal Society, an account of the inoculation at Constantinople by Dr. Emanuel Timoni ; and in 1716, appeared another from Dr. James Pylarini, the Venetian Consul at Smyrna, both insisting on the great advantages of the practice.

The first British author, that recommended inoculation, was Mr. Kennedy, a Surgeon, who published an *Essay on External Remedies* in 1715,

in which he states, that he was credibly informed, both by the physicians and merchants of Constantinople, that, of two thousand persons who had received the Small Pox by inoculation, all recovered, except two, and of these two the proper care had not been taken.

But there was wanting some mind of superior enterprize, at once to introduce the practice by example.

Lady Mary Wortley Montague being with her husband the English Ambassador at Constantinople, carefully inquired, and, in the month of March 1717, had her son inoculated at Pera, near Constantinople; the disease was mild, he had about a hundred pustules, and quickly recovered.

Mr. Maitland, Surgeon to the Honourable Wortley Montague, in his diplomatic character at the Ottoman court, relates, " That the ambassador's lady, being convinced of the advantages of inoculation, determined that her only son, then six years of age, should undergo the operation. For this purpose, she desired Mr. Maitland to procure the variolous matter from a proper subject, which being done, an old Greek woman, many years in the constant habit of inoculating, was employed

to insert it. But," says Mr. Maitland, "the good woman went to work so awkwardly, and by the shaking of her hand put the child to so much torture with her blunt and rusty needle, that I pitied his cries, and therefore inoculated the *other arm* with my own instrument, and with so little pain to him, that he did not in the least complain of it."

This Lady also, in the April following, wrote on the subject from Adrianople, after noticing the plague, in which she thought "there was little more than a fever;" she proceeds, "*A propos* of distempers, I am going to tell you a thing that will make you wish yourself here. The Small Pox, so fatal, and so general amongst us, is here entirely harmless, by the invention of *ingrafting*, which is the term they give it. There is a set of old women, who make it their business to perform the operation, every Autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the Small Pox: they make parties for this purpose, and when they are met (commonly fifteen or sixteen together) the old woman comes with a nut-shell full of the matter

of the best sort of Small Pox, and asks what veins you please to have opened. She immediately rips open that you offer to her, with a large needle, (which gives you no more pain than a common-scratch,) and puts into the vein as much matter as can lie upon the head of her needle, and after that, binds up the little wound with a hollow bit of shell; and in this manner opens four or five veins. The Grecians have commonly the superstition of opening one in the middle of the forehead, one in each arm, and one on the breast, to mark the sign of the cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those that are not superstitious, who chuse to have them in the legs, or that part of the arm that is concealed. The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty in their faces, which never mark, and in eight days time they are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which I don't doubt is a

great relief to it. Every year thousands undergo this operation; and the French ambassador says pleasantly, that they take the Small Pox here by way of diversion, as they take the waters in other countries. There is no example of any one that has died in it; and you may believe I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England, and I should not fail to write to some of our doctors very particularly about it, if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue, for the good of mankind. But that distemper is too beneficial to them, not to expose to all their resentment, the hardy wight that should undertake to put an end to it. Perhaps, if I live to return, I may, however, have courage to war with them."—*Let. xxxi. p. 107.*

So difficult is it even to introduce a practice of the most salutary nature, that it still remained for Lady Montague to set the example in Britain. In April 1721, she made her daughter, about six years of age, be inoculated. Mr. Maitland gives

the following particulars of the case : “ This noble lady sent for me last April, and when I came, she told me she was now resolved to have her daughter inoculated, and desired me forthwith to find out matter for the purpose. I pleaded for the delay of a week or two, the weather being then cold and wet ; for indeed I was unwilling to venture on an experiment altogether new and uncommon here, in a cold season : though I am now convinced it may, with due care, be practised at all times and seasons ; but still with more safety in the temperate and favourable. I also prayed, that any two physicians, whom they thought fit, might be called, not only to consult the health and safety of the child, but likewise to be eyewitnesses of the practice, and contribute to the credit and reputation of it. This, indeed, was at first denied me, it may be, out of design to keep it a secret, or lest it should come to nothing. In the mean time, having found proper matter, I ingrafted it in both arms, after the usual manner ; the child was neither blooded nor purged before, nor indeed was it necessary, considering the clean habit of body, and the very cool regular diet she had ever been kept to from her infancy. She

continued easy and well, without any sensible alteration, bating the usual little spots and flushings, till the tenth night, when she was observed to be a little hot and feverish. An ancient apothecary in the neighbourhood, being then called, prudently advised not to give the child any medicine, assuring them there was no danger, and that the heat would quickly abate, which accordingly it did; and the Small Pox began next morning to appear, which was indeed some two days later than usual, by reason of the uncommon discharge of matter at the incisions from the beginning. Three learned physicians of the College were admitted, one after another, to visit the young lady; they are all gentlemen of honour, and will, on all occasions, declare, as they have hitherto done, that they saw Miss Wortley playing about the room, cheerful and well, with the Small Pox raised upon her; and that in a few days after she perfectly recovered of them. Several ladies, and other persons of distinction, visited also this young patient, and can attest the truth of this fact."

The second inoculated by Mr. Maitland in Britain, was the son of Dr. Keith. The accounts of both these favourable cases soon spread from Lon-

don throughout the kingdom; in April 1721, therefore, commenced our era of inoculation. "When," says Kirkpatrick, "that noble Lady's very pretty poetical compositions may be overlooked, from the fluctuation of language, and through the waste of time, that excellent sense, which prompted her to more than female resolution, in tenderness for her offspring, and proved in its consequences an introduction to this most salutary practice, shall do unfailing honour to her memory; and *England*, that is said to have been termed abroad the Paradise of women, shall exult on this occasion, with the justest gratitude to one, *Dux Femina Facti.*"

Still physicians dreaded inoculation; the royal authority interposed; on the 9th of August 1721, in the presence of several eminent physicians and surgeons, six malefactors in Newgate were each inoculated in both arms, and in the right leg by Mr. Maitland; on a seventh, Dr. Mead tried in-odoration or the inserting of the virus into the nostrils; this one soon complained of excruciating headach, and the symptoms were the most severe. They all recovered, and regained their liberty; nor were they more elated, we may believe,

than Maitland, who could hardly be induced to perform the operation.

These results greatly favoured inoculation; and early in the Spring of 1722, it was adopted in various parts of England.

About this time, by order of the Princess of Wales, first six, and afterwards five charity children of the parish of St. James', were inoculated, and with success; now thinking, that it might be prudent to have the Princesses Amelia and Carolina inoculated, she consulted Sir Hans Sloane; he answered, "That by what appeared in the several essays, it seemed to be a method to secure people from the great dangers attending the Small Pox in the natural way. That the preparations by diet, and necessary precautions taken, made that practice very desirable; but that not being certain of the consequences which might happen, he would not persuade, nor advise the making trials upon patients of such importance to the public. The Princess then asked him, if he would dissuade her from it: to which he answered, he would not in a matter so likely to be of such advantage. Her reply was, that she was then resolved it should be done; and ordered Sir Hans to go to

the King, (George the First,) who had desired a conversation with the Doctor on that occasion. Sir Hans then told his Majesty, that it was impossible to be certain, but that on raising such a commotion in the blood, there might happen dangerous accidents not forseen. To this the King replied, that such might, and had happened to persons, who had lost their lives by bleeding in a pleurisy, and taking physic in any distemper, let ever so much care be taken." In this opinion, Sir Hans coincided with his Majesty, and the two Princesses were inoculated on the 19th April 1722*, by Serjeant Surgeon Amyand, under the direction of Sloane. These cases being mild in their course, and favourable in their termination, added much to the celebrity of the practice. The Duke of Bedford and his sister, with many others of distinction, were also successfully inoculated, though even among the great, it occasionally proved fatal.

* Historical Register for 1722.—History of Inoculation by William Woodville, M. D. &c.

The cultivation of the art ; the inferences which the inoculators deduced ; the operation and phenomena of the inoculated disease.

THE universal reception of this art, was not retarded by the motives which Lady Montague alleged ; as soon as their fears and doubts were dissipated, physicians cultivated, improved, and promoted it with a zeal becoming their generous profession.

They satisfied themselves, that the inoculated affection was, in the great majority, mild and free from danger ; the constitutional disorder, during the suppurative stage, slight ; during the incrustation, the secondary fever rarely intervened, and some constitutions completely resisted the infection ; they remarked also, that the variolous fever might occur, and be a complete preventive of Small Pox, without any eruption, except the pustules at the place of insertion ; it was long believed, indeed, that the variolous fever often occurred without eruption by casual contagion, particularly when the Small Pox prevailed epidemically. This fever was of uncertain dura-

tion; it began with such symptoms as usually preceded the eruption of the Small Pox, and in its course there sometimes came on the ptyalism or copious flow of saliva.

Another remark, and perhaps of more importance, was made, that matter from the most benign Small Pox might induce the most dangerous confluent; and that the matter from the confluent might induce the mild. This truth seems to have been evinced without experiment, from what happens during most epidemics, that some have them mild and distinct, and others, confluent and severe, while under the influence of the same contagion.

Various methods were devised of preserving the virus, of diminishing its activity, of preparing the constitution for its reception, and of performing the operation; for which some obtained great fame.

The best matter is taken from the seventh to the ninth day of the eruption, or before the pustule be of a deep yellow colour; it is best preserved on the lancet, or on glass, wrapped up so as to exclude the air, and it must not be exposed to heat, nor long kept; the diminution of its viru-

lence was fanciful; the preparation of the constitution seldom useful, often hurtful; the best method of inoculating, is to introduce a little of the virus by means of a lancet, below the cuticle or superficial skin; the place generally chosen is near the shoulder; the merit of inoculators was nearly equal, and the great fame of some the result of accident.

The phenomena of the Inoculated Disease from the commencement of the fever or the signs of constitutional disorder, are the same nearly as those of the casual; and we shall here detail only the symptoms with strict reference to the operation.

In the mild and regular cases, about twenty-four, or at most forty-eight hours after the insertion of the virus, the punctured part is a little swelled, and by a lens we discover an orange-coloured circle round it; on the fourth, or fifth day, it is hard, slightly inflamed, itchy, and a vesicle is formed; on the sixth day, pain and stiffness in the axilla or arm-pit, which continue to the tenth, or eleventh day; on the seventh, or eighth day, the febrile symptoms come on, such

as slight pains in the head and back, increased stiffness in the arm-pit, transient shiverings, with alternate heats; the papulæ at the place of insertion, much inflamed, hasten to suppuration, and the fever continues till the eruption be completed; the inflammation in the arm spreads, little pustules surround the wound, and enlarge as the disease advances; on the tenth, or eleventh day, the redness is sometimes half way round the arm, and the more extensive it is, the fewer the pustules are, and the milder the disorder. During the eruption, the pustules at the place of insertion, contain true pus, are round and intensely red: on the second day of the eruption, the patients are free from fever; while the general eruption increases in number, the redness, at the original pustule, is diminished, or disappears; and within three, or four days, the eruption is all out; there is a hardness spreading from the puncture as from a centre, the pustule, or pustules at this part dry, a crust is formed; which gradually separates and falls off, leaving a round scar or red mark.

The progress varies considerably in different instances; in one, the wound may remain for

many days without any change, or may lessen; but if it do not heal, the constitution is infected; in another, it may begin to inflame in a few hours, and in a little more than a day, may have become a highly inflamed pustule; usually portending a violent disease.

In some instances, the pustule was induced at the point of insertion, and the constitution remained susceptible of the Small Pox, though the matter here formed would cause the regular constitutional disease in another.

The fever generally commences between the seventh and the tenth, or eleventh day after the operation; never before the fifth, and has been as late as the sixteenth, seventeenth, or twenty-third.

The eruption generally appears on the second, or third day of the fever, though it may be as late as the eleventh.

The unfavourable symptoms are a purple inflammation, a narrow, deep, red circle round the puncture, and the incrustation depressed, or concave in the middle.

The art disapproved from religious scruples, and from the opinion of its inutility, or danger; the objections answered.

INOCULATION, however, had obstacles to overcome, and enmity to subdue; for while one party endeavoured to convince the world of its utility, others contended against it with determined resolution; the causes of opposition were in some religious scruples; in others, the opinion, that the art was either of no utility, or dangerous; and we may in this, as in every similar instance, ascribe not a little to the pure spirit of controversy.

The argument seemingly supported by religion and strongly urged, was, that it betrays an entire want of confidence in the divine power and goodness, to use means to avert or oppose, as it were, the decrees of providence: to which it was replied, that certain means are evidently pointed out for the support and preservation of health and life: the Supreme Being could support and protect, without any co-operation of mortals, yet, in doing good, we act agreeably to his dictates; who thinks it impious, or presuming, to use food and clothes? who would not avoid, or fly from a city in which

the plague raged? who would not avoid a precipice ready to fall? and what rational being would not prevent a disease, the most cruel and terrible that ever depopulated the earth?

They affirmed, that it is a part of the divine plan in the maintenance and improvement of society, to allot an immense share of useful knowledge to be acquired by the industry and ingenuity of man; that in preventing or removing calamity, it is his duty to exert all his faculties; that to destroy life, and neglect the means of preserving it, are crimes equally heinous; and only in peril from which no human efforts can extricate, is it truly magnanimous to submit with confident resignation to the will of Omnipotence.

The argument, that Inoculation was useless or dangerous, if well founded, would have been decisive.

With regard to the inutility of Inoculation, it was contended, that, though the insertion of variolous matter was followed by an eruptive disease, we had no right to infer, that that disease was the genuine natural Small Pox; even Maitland did not at first suppose, that the inoculated

disease was infectious; besides, cases were detailed, in which, it was affirmed, that the real Small Pox came on, though the individual had previously undergone the inoculated disease: thus, they believed, that both by reason and experience, they had shown, that this art did not prevent the Small Pox.

Others were of opinion, that the preventive power of the inoculated disease would only be temporary.

Accurate inquiry however, proved, that the disorder induced by inoculation, was the genuine natural Small Pox; that it prevented the repetition of the Small Pox in the same individual, as completely and as permanently, as when the disease occurred by accidental contagion or without the interference of art; that it was equally contagious, and that the matter taken from the inoculated pustules produced the legitimate disease; of the alleged cases, some had occurred where the inoculation had been imperfect; where the constitutional disorder had not been induced, or where the virus of the spurious Small Pox had been used through ignorance; others were the spurious mistaken for the genuine Small Pox;

and the cases allowed to be the Small Pox, *were not more numerous after inoculation, than after the disease caught by contagion or in the natural way.*

Here it is not improper to observe, that some physicians, and among them Mead, denied, that the legitimate Small Pox ever attacked the same person a second time; but most inoculators admitted their recurrence; Kirkpatrick reckoned, that it did not happen to more than one in ten thousand.

Authors mention imperfect inoculations, with regard to which there is something mysterious; were inoculators deceived by matter taken from pustules, that only resembled those of the legitimate Small Pox?

Kirkpatrick gives, p. 125 & 127, a table of 897 persons inoculated in Great Britain from the year 1721 to the end of 1728, containing 845 who had the Small Pox by inoculation; 13 who had *an imperfect Small Pox*; 39, in whom no effect was produced; 17, suspected to have died of inoculation; and he adds another table from Dr. Boylston, of 282, inoculated in and near Boston, New England; in 274 the operation succeeded; in 6 it failed, and 6 died; but no imperfect Small

Pox. Of what description were these imperfect Small Pox? why are there so many instances of them in the first, and none in the second table?

In page 159, Kirkpatrick says, "The accurate Dr. Jurin considers 5 out of 474, as having had an imperfect Small Pox. This gives us an idea of some eruption, which did not exactly fill, mature, or observe the usual stages of the regular disease. Boylston does not set down one patient of near 300 under this predicament; but his inferior accuracy and greater temerity on this subject are very obvious. It were to be wished we had been informed of any remarkable sequel to this imperfect Small Pox; though if they had taken the disease afterwards, it is probable we must have heard it, from one party at least."

Were not the instances of Small Pox, which were declared to have followed in defiance of inoculation, sequels to such imperfect Small Pox? and may not all of them be ascribed to the matter of illegitimate Small Pox inadvertently used?

The practice would have been worse than useless, if indeed it had been dangerous, which the following statements were thought to confirm.

That it might communicate other distempers; that it induced the Small Pox in those who had had them by casual infection; often caused a bad confluent eruption, however carefully the matter might have been selected; those, who survived the usual course of the disease, were afflicted with various chronic distempers, which either deformed the body, or undermined the constitution, as pimples, tumors, boils, imposthumes, ulcers, caries, itch, hectic fevers, consumptions; that, in fine, the casual disease was not more fatal than the inoculated; and Maitland was accused of credulity, selfishness, and ignorance, for believing the old women of Turkey, that the practice was safe and mild; for persisting in his dangerous error, and for not knowing that the inoculated disease was strongly contagious. How arduous the task of doing good!

The friends of inoculation admitted, that some of these charges were well founded; for the inoculated Small Pox being the same with the disease got casually, it produced similar consequences; and they would not maintain, that inoculation was free from danger, but only that it was a mean of diminishing it; and what contri-

buted greatly to this, was the having of it generally in their power to select the age, habit, and season; that inoculation particularly communicated other distempers, or endangered those who had previously taken the disease, they pronounced altogether visionary; and so far from being equally fatal, it was calculated, that the mortality from the inoculated disease, was eight or nine times less than that from involuntary infection*.

The art declared injurious to society; this objection answered.

The victory of inoculation would have been complete, had not the opposition assumed a different, and at least an equally formidable aspect; the favourable calculations were found defective, or erroneous; and on the firm ground, that the inoculated disease is contagious, the adversaries most confidently asserted, that, though the operation might be salutary to the individual, it was destructive to the race of mankind.

* Dr. Jurin, in an account of the success of inoculating the Small Pox in Great Britain, 1723—6.

The calculations were declared defective, or erroneous, because those only were inoculated, who were of sound constitution, and in the most eligible circumstances; while the contagion attacked all those susceptible and exposed to it, indiscriminately; and that therefore, they should not have compared all those who died of the casual Small Pox, with those who died of the inoculated, but only all those of sound constitution, and who were in circumstances equally *propitious*, and if this were done, they denied, that the inoculators would have any cause to extol their art.

In order further to demonstrate the baneful effects of this practice to society collectively, the obituaries were searched, and the deaths from Small Pox, during a certain number of years before the prevalence of inoculation, were compared with those during an equal number after. I shall exemplify this also from De Haën, who was on this occasion the great adversary of inoculation.

“The promoters of Inoculation,” says he, “were obliged to allow, that the number of deaths from Small Pox, was much increased after its introduction. Taking the 22 years immediately preceding the year 1755, which were famous for

inoculation, it appears that 48,975 died of Small Pox in London; but during the same period immediately preceding the commencement of inoculation in England, 36,530 died, a difference of 7,445 against the practice*:" and in another place he says, "The deaths from Small Pox in England, during the first 38 years after the introduction of inoculation, exceeded those for the same space of time previous to it, by one-fourth."—"The adepts in the art," continues he, "forbade the inoculation of those below 5 years of age; of those between 14 and 17, and seldom after the 25th year; the athletic, plethoric, the bilious, and those addicted to wine, spirits, and highly seasoned food, were all exempted; the operation was prohibited in Winter and in Summer; those affected with worms, the nervous, irritable, rickety, were exempted; and no one was to be inoculated during the prevalence of epidemic distempers, as inflammatory and putrid fevers. Asthma, consumption, hectic or slow fever of any kind, internal ulcers, obstructed glands, obstructions of the viscera from fevers; scrofula, scurvy,

* De Haën, *Rat. Medendi*, tom. 3. cap. 7. p. 134, &c.—
Also Cap. 25. p. 596.

itch, eruptions, local inflammations, or pains of any kind; debility, suppressed, or irregular menstruation, chlorosis, jaundice, pregnancy; lues venerea, whether in the parent, or transmitted to the child; and a constitution under the strong influence of mercury, prevented the operation; it was also strictly prohibited during the epidemic Small Pox, which sometimes prevailed 15 or 20 years, so that the number that could in general be inoculated, was reduced to a very small proportion of mankind, and on some occasions to none, and consequently the greatest part was always left liable to the infection, and the very inoculation, by propagating the infectious matter, endangered the lives of those who might have escaped."

Such arguments as these of De Haën, had not much intrinsic validity; they only show, that the ardour, with which we defend a party accidentally espoused, diminishes our discernment, if not our candour. He found, no doubt, that the friends of inoculation gave a flattering or extravagant account of it; but this was no reason, that he should be extravagant in his condemnation, or

ascribe to them ideas which they never entertained.

Persons labouring under the affections above enumerated, were not forbidden to be inoculated because this operation was more dangerous to them than accidental infection, but because every additional attack upon their constitution ought to be, as much as possible, avoided; and if the Small Pox became general, or if, for any other reason, their contagion could not be guarded against, then even in these invalids inoculation could be beneficially employed, since the inoculated disease was much more manageable than the casual; besides it was often found, when necessity compelled the experiment to be made, that the inoculated disease performed its course without augmenting the original malady.

The greater number of deaths from Small Pox, so far as it did not depend on the increase of population, or the different virulence in the epidemics compared, could only be ascribed to the contagion being propagated by the inoculation; this, however, was not the fault of the art, but of those who neglected, and of those whom prejudice induced to deprecate the practice.

*The universal adoption of the art only prevented by
the discovery of a New Inoculation.*

SIMILAR principles actuate men of every climate; the artificial communication of the Small Pox, had overcome similar opposition in all those countries where it was established; from the liberal policy and spirit of the British, it made more rapid progress among them, than it did in those parts of the world to which it was conveyed with all the proofs of its utility; and from their labours also, even where it had been already known and received, an additional impulse was given; comparative calculations continued to be made; opposition daily diminished.

It has been computed, "that a third of the adults die of the disease, who catch it accidentally, and about one seventh of the children; while of the inoculated and well treated, probably not more than one in five or six hundred;" this contrast is inaccurate; for when the epidemy was mild, the deaths even from the casual Small Pox, were not one in fifty; and in a bad season one in fifty would perish of the inoculated; though,

as usual, the inoculator, who had the succession of favourable seasons, would acquire celebrity, and ascribe not a little to his own sagacity.

In the mean time, it was difficult to convince mankind, that a general good would be destructive to the community ; this was a species of logic fit only for philosophers ; the decided, great, and evident advantages daily experienced from the inoculation, achieved more for it than many hundred volumes of contention could have done ; except when occasionally checked by a death in some family of high rank, it made rapid and steady progress, and would have been permanently established ; had not universal attention been attracted by another discovery, seemingly of much higher claim ;—that diminished the evil, this promised to deliver the world from it for ever.

THE
NEW OR VACCINE INOCULATION,
CALLED ALSO VACCINATION.

ITS ORIGIN, AND FUNDAMENTAL PRINCIPLES; THE
OPERATION, AND SYMPTOMS OF THE VACCINE
DISEASE; ITS ADVANTAGES, AND APPROBATION
OF PARLIAMENT; OBJECTIONS, AND REPLY; PA-
PER OF THE ORIGINAL VACCINE POCK INSTITU-
TION, &c.

BOERHAAVE conceived, that the Small Pox were caused by a specific contagion, for which might be discovered a specific antidote; and “surely,” says he, “the great benefit that such an antidote would be to mankind, is a sufficient inducement to search for it;” but this is only a conjecture equally applicable to every contagious disease.

To accident the world is indebted for the most valuable improvements; what the means were to be of preventing the Small Pox, no penetration

could anticipate. In this also, the illiterate and the humble were destined to instruct those proud of their attainments; here we have one added to the many warnings how attentive we ought to be to common occurrences and common reports; in order to distinguish the false and the useless from the true and important.

There had long prevailed a belief in several of the Dairies in England, particularly in Gloucestershire, that a certain eruption to which milch cows were liable on their udders and teats, infected the hands of the milkers, and rendered them secure against any attack of the Small Pox.

But this was the report of the rude, and none of the learned would listen to it, before Dr. Jenner, a physician of Berkeley in Gloucestershire.

From about the year 1777, it had repeatedly obtruded itself upon him, that he failed in producing the Small Pox by inoculation in some individuals who were said to have formerly caught a certain disease from the cows; at length he ascertained by experiment, that this vaccine infection proved a complete preventive of the Small Pox, and this fact animated him to proceed.

In the year 1796, May 14, he first inoculated with the Vaccine Virus; the affection followed

distinct in all its stages, and remarkably mild. Afterwards he inoculated the same person twice at the distance of some months from each, with the virus of the Small Pox; no disease was induced.

Might not this eruption so easily transferred to man, have its origin in some other animal than the cow? he seems much inclined to infer, that it was communicated from a disease in the heels of the horse, called the grease.

In the Spring of the year 1798, the grease appeared among the horses, this eruption among the cows, he resumed his experiments, and published his Inquiry into the causes and effects of the Variolæ Vaccinæ.

With matter taken from the Vesicles on the teats of the cow, he inoculated several persons, and from the vesicles produced in them, he inoculated others, and satisfied himself by the test of variolous inoculation, "that the vaccine matter, in passing from one human subject to another, through five gradations, lost none of its original properties;" that is, with regard to the prevention of the Small Pox.

During the investigation, he observed, that the Cow Pox can only be propagated by actual con-

tact or inoculation; that no eruption takes place except at the part to which the virus is applied, and that even in the most unfavourable circumstances this affection never proves fatal.

With the virus of the Small Pox he inoculated persons who had been accidentally affected with the Cow Pox 25, 27, 31, and 53 years before, and they resisted the disease; with the virus of the Cow Pox he inoculated others who had never had the Small Pox, and they also, whether inoculated or exposed to the contagion, resisted every form of the legitimate Small Pox.

In fine, the whole of his labours enabled him, as he believed, to establish the two fundamental truths:

1. That the matter of the Cow Pox taken from the vesicles of the Cow, and inserted into the human body, produced a safe affection, and rendered the constitution unsusceptible of the Small Pox.

2. That that affection, with the same result, can be propagated from one human being to another.

The proper Vaccine Virus ; the method of inoculating ; and the phenomena of the disease induced.

The matter generated by the agency of that of the Cow Pox in the human body, is now exclusively employed, both because it induces an affection certainly mild, and less liable to popular antipathy ; and therefore it is not necessary for us to point out any other matter or virus, nor to detail any other phenomena than those which succeed the inoculation with such virus ; and this operation with the consequent effects on the constitution, is expressed in the term Vaccination.

The proper virus is transparent, and should be taken on the seventh, eighth, or ninth day after the operation ; the best method of inoculating is that of Mr. Bryce ; he puts a small quantity of the virus on the arm, and makes two or three slight scratches through it, in the skin, till the blood just appear. The papula which follows may be circular, or oblong, according to the shape of the wound.

When the operation is successful, the following are generally the signs :

About the third day after the insertion of the virus of Cow Pox, there is a small inflamed spot, tending to elevation in the inoculated part ; next day this spot is more florid, especially if the body is warm, and here are some hardness and swelling : on the fifth day a small pale vesicle containing a thin transparent fluid, occupies the spot ; the whole has a milky whiteness, the vesicle is turgid, centre depressed, and edges elevated : for the next two days the vesicle enlarges ; by the seventh it has acquired considerable magnitude, the margin is regular and well defined ; while the more turgid edges, and more depressed centre with the small crust forming there, give the whole a characteristic appearance.

About the eighth day inflammation begins to surround the base of the vesicle ; this increases for two, or perhaps three days, and when at the height, the inflamed part is in general quite circular, and from half an inch to two inches, or more in diameter ; this circle or areola acquires an erysipelatous brightness, and more especially the part contiguous to the vesicle, is hard and tense.

The vesicle is still concave, the crust in the centre is enlarged, and begins to darken; while the edge becomes more opaque and white. About the eleventh day the vesicle has attained its full size, and then the surrounding inflammation and hardness abate; the redness generally disappears first from the neighbourhood of the vesicle, and thence gradually towards the edge of the areola, often leaving a slender florid ring or circle of inflammation, marking the circumference of the areola, the inner part of which is changed into a dingy yellow; what the vesicle contains, is now viscid and slightly turbid; soon after this, the whole is converted into a smooth, shining, and sometimes transparent dry crust of a dark, brown, or red colour. This crust remains one, or sometimes two weeks, and then falls off, leaving the part sound.

Such is the general course of the external affection, and in the greater number, especially in children, little more is to be remarked; though, in some, particularly adults, symptoms of a constitutional affection occur.

About the eighth day from the time of inoculation, the glands in the axilla become a little

swelled, occasioning pain and stiffness on moving the arm. Headach, shiverings, a frequent pulse, and other febrile symptoms take place; and these, though generally slight and transient, have been observed to continue from a few hours to two, or more days.

With regard to the Vaccine Vesicle, we may remark, that its structure is different from that of the Variolous pustule; the fluid of the pustule is confined in an undivided cavity; but the vesicle is composed of cells somewhat resembling a honey-comb, and has a general covering from the cuticle.

The infection of the Small Pox is said to be longer in producing its manifest operation on the system, than that of the Cow Pox; but they both vary in this respect.

Dr. Jenner, in his further observations, published in 1799, p. 25, says, "Although the susceptibility of the virus of the Cow Pox, is, for the most part, lost in those who have had the Small Pox, yet in some constitutions, it is only partially destroyed, and in others, it does not appear to be in the least diminished."

And in his Inquiry, p. 50, he says, "It is singular to observe, that the Cow Pox virus, although it renders the constitution unsusceptible of the Variolous, should nevertheless leave it unchanged with respect to its own action."

Variolous and Vaccine matters acting in the system at the same time, variously modify the effects of each other; and these effects differ according to the interval between the insertion of the one and of the other; but Variolous matter inserted on the ninth day after the Vaccine, is for the most part altogether inert.

How far the various infectious and contagious diseases can influence, modify, and counteract one another, would be a curious and important subject of research; the phenomena of epidemics show a general influence in all co-existing distempers; but why does one take the Small Pox, another, the Chicken Pox, a third, the Scarlet Fever, all at the same time, and with similar general symptoms, whether of active inflammatory, or of low typhus fever? Here is at once similarity and diversity.

The advantages of the New Inoculation, the approbation of Parliament, &c.

THE most strenuous supporters of the Variolous Inoculation could only maintain, that it did not produce so many bad effects as the Small Pox from accidental or general contagion ; but, as has been already said, the vaccinators declare, that their art is never attended with danger, seldom with sickness, never produces any bad consequences to those who have been affected by it, and generates no contagion injurious to others through the medium of the atmosphere.

This operation is safe in almost every circumstance of constitution, and at every period of life, in infants a few days after birth, as well as in those farther advanced: deferring to the third month, as is advised, unless the Small Pox are in the neighbourhood, is quite unnecessary, and perhaps prejudicial, since it might interfere with the irritation of teething, since the eruptions at this period are apt to deceive, and the contagion of Small Pox may be conveyed in many ways not easily guarded against ; I do not know, however,

that there is any good reason for thinking, that common eruptions should counteract the Cow Pox.

During this disease, there is no severe fever, no fits, no inflammations of internal parts; it neither excites hereditary disorder, nor creates any morbid tendency; though it is perhaps too much to allege, "that weakly children subject to eruptions, have had their health improved by vaccination." By the Cow Pox certainly none of the senses are impaired, nor any bodily deformity induced; this affection was never known, directly or indirectly, to cause blindness, deafness, lameness, scars, foul ulcers, consumptions; the Cow Pox never proved fatal; the annual mortality of the Small Pox in Great Britain and Ireland was computed at 45,000.

In the year 1802, the subject of Vaccination was brought before the House of Commons, by petition from Dr. Jenner. His claims were opposed on two grounds: first, that he was not the original discoverer; second, that the legitimate Small Pox occurred in the same persons after the Cow Pox; but the evidence against both these assertions was so complete, as to sa-

tisfy the House, that Dr. Jenner had the sole merit at least of discovering, That the Cow Pox could be transferred from one human being to another; and that so transferred, they destroyed the susceptibility of the Small Pox. The sentiments expressed by the members were highly honourable to Dr. Jenner, and they voted him the sum of £10,000, which they in 1807 augmented to £30,000.

In the report of the Committee of the House of Commons on this occasion, it is stated, that some cases are not explained in a satisfactory and indisputable manner; “ But in leaving them to have such weight as they may appear to deserve, your committee cannot avoid recurring to the multitude of instances, in which endeavours have been used to communicate the Small Pox to patients, who have been known to go through the regular vaccine disease, in which neither repeated inoculations, nor exposure to the most malignant Small Pox, have been able to produce any effect.”

It is of importance to recollect, that perhaps the principal case here alluded to, was that of a marine, who, after he had gone through the regular vaccine disease, received the Small Pox by

inoculation; and that, in this case, his *symptomatic fever entirely disappeared* on the fourth day of the eruption, and, excepting a slight affection of his throat, he had no complaint.

Objections to this Inoculation, and the reply, including the different sources of error on this subject, with Bryce's method of ascertaining the constitutional affection, the general inferences of the Vaccinists, &c.

IT must not be supposed however, that even the authority of the British legislature put an end to the disputes respecting the efficacy of Vaccination: to many opposition seems to be much more dear than truth, so that they would far rather waste their lives in contention, than patiently devote a few days to acquire that information which would convince them of their error.

For the general complexion, both of the objections to Vaccine Inoculation, and of their refutation, we may refer to the discussion on the variolous inoculation.

That the affection of Cow Pox is either dangerous, or has no preventive power, is so contrary

to an invincible host of facts, that it deserves no serious consideration ; but the opponents of Vaccination seized one strong hold which they deem impregnable, that the prevention is not to be depended on ; in proof of which, they bring forward a great number of instances, in which the Small Pox have occurred after the Cow Pox ; and they urge, that the most devoted friends of the new art are forced to allow, that the Small Pox do sometimes occur after the Cow Pox in the same person.

The vaccinists reply, that the great majority of the alleged instances of failure, are to be ascribed to various incidental causes of deception, either from the matter used, or the manner in which the operation was conducted.

There are other eruptive diseases of cows than Cow Pox, that may be communicated to man, without rendering him unsusceptible of Small Pox. The operation has been performed from vesicles on the human body, which were not Cow Pox.

During the years 1799 and 1800, Vaccine Inoculation was performed by ten or twelve thousand persons in the united kingdom, who had never

seen the vaccine vesicle before they began to inoculate, and who could not be acquainted with its different stages and appearances; and vaccinators at first were in general satisfied with any vesicular appearance surrounded by inflammation.

Many had neglected to observe, whether the affection had undergone its proper course, or even whether it had really taken place or not.

A great number of the supposed cases belonged to the Chicken Pox.

Unless the patient has undergone the constitutional as well as the local affection, he has been inoculated in vain.

Vesicles may be formed, the virus from which will induce the regular and constitutional disease in others, though the person has not been constitutionally, or effectually vaccinated.

It is often difficult to judge, whether the constitution has been affected; if about the third, or fourth day after the operation, the patient be uneasy, sick, or feverish; or though these symptoms do not occur till the areola begin to form, that is, about the eighth day; the requisite constitutional change has unequivocally taken place; in the great majority however, there is scarcely any

such disorder; but security has been obtained, if the vesicle has proceeded regularly through all the different stages.

It is not yet determined what those irregularities are, which indicate, that the affection will not prove an antidote; and indeed, considering the great number of mistakes to which those who first practised this art were exposed, it is astonishing, that there are so few instances of Small Pox occurring after the inoculation of Cow Pox.

Mr. Bryce surgeon, devised, how to ascertain, whether the constitution had been affected during the progress of the vesicle; in the Small Pox those pimples which break out late, generally suppurate as soon as those which first appeared, showing, that the affection advances equally throughout the system; accordingly, in those undergoing Vaccination, he inoculated one arm five or six days after the other, and found, that though the second vesicle never equalled the first in size, they came to maturity and disappeared together.

In this way the objectionable cases were reduced to a very small number; but still a proportion of them, however small, was acknowledged, in which the Small Pox succeeded, the regular

Cow Pox; Dr. Jenner could not satisfactorily explain the exceptions transmitted to the committee of the House of Commons; and that the preventive power of the Cow Pox occasionally fails, seemed to be confirmed by all the public statements of the Institutions for promoting Vaccination; by the reports of the different Medical Colleges presented to Parliament; and by recent cases, which the president of the Vaccine Establishment pronounced the real Small Pox succeeding the vaccine affection.

This, which is received as an established truth, that Cow Pox do sometimes fail in preventing the Small Pox, caused a more minute comparison to be instituted between the effects of the Variolous and Vaccine virus, in preventing the Small Pox; and after the most scrupulous examination of all the facts and circumstances, the vaccinists conceived themselves fully justified in concluding, That the Small Pox do not occur more frequently after Vaccination, than after Small Pox, either from accidental contagion, or from inoculation; that even when the Cow Pox do not prevent the Small Pox, they render the constitution less susceptible of injury from

them ; and that, in this respect, the Vaccine is preferable to the Variolous Inoculation.

In short, that this harmless art furnishes a more potent preventive, than the hazardous inoculation and contagious disease of the Small Pox.

Admitting the exceptions, Mr. Bryce makes the following computation of the number of the human race, which might be preserved annually in the united kingdom by Vaccination, and as the same art is rapidly adopted over the civilized world, who could calculate the magnitude of its utility ?

According to the report of the Royal College of Surgeons of London, made to the Royal College of Physicians of that place, it appears, that of 164,381 persons vaccinated by the members of that body, 56 were afterwards affected with the Small Pox ; that is, about one in three thousand. Now if we allow, that 40,000 persons died annually of the Small Pox in Great Britain and Ireland, and that this is one in 14 of all that are born in these countries, then we have $40,000 \times 14 = 560,000$ persons born, or that may be vaccinated yearly in the united empire ; and if one in 3,000 be still left liable to the Small Pox after

Vaccination, 187 only will remain unprotected ; of which number, allow, that one in 14 die of the Small Pox, then will 13 persons only suffer annually in Great Britain and Ireland from the Small Pox, in place of forty thousand.—*Bryce, Appendix, p. 31.*

In every point of view, therefore, Vaccination is hailed as a most salutary discovery, and Dr. Jenner is esteemed worthy almost of the veneration of mankind.

Additional practical observations, &c.

WE have now brought the subject of Vaccination to that point, beyond which our present information will not allow us to advance, and the following extract from a paper, published by the Original Vaccine Pock Institution, will afford a correct summary of the successive practical observations, which have been made relative to this art.

“ 1. With regard to the occurrence of Small Pox subsequent to Vaccination ; out of 5000 patients registered in our tables, it appears, that

nine have subsequently taken the Small Pox, as admitted by the Medical Establishment: they had all gone through the distinct stages of Vaccination: the matter with which some of them had been inoculated, was from patients ascertained to have been rendered unsusceptible of the Small Pox; and some of them had furnished matter for inoculation, which rendered persons incapable of taking the Small Pox, as appears by the test of variolous inoculation. Some of them had evidently disorder at the usual time. They had all distinct scars. Four of these failures occurred in two families, viz. two in Maber's and two in Lemon's. None had dangerous symptoms, and the pocks scabbed sooner than usual in most of them, sooner by at least two or three days; most of them had the disease so mildly, that they would have been considered as even the mildest cases of inoculated Small Pox. These failures induced the Medical Establishment to inquire concerning their occurrence in the practice of others: a great number of communications were accordingly made; but after investigation, not more than forty-three were found to be substantiated; of these, three died. Most of them had

the Small Pox very mildly, more so than the inoculated Small Pox; some having merely a slight fever, and an eruption of pimples, or of vesicles, so small, and so speedily scabbed, that they would not perhaps have been allowed to be the variolous disorder, if other children in the same family had not been ill in the distinct sort, and who had apparently infected one another. Two of these failures occurred on inoculation for the Small Pox, and the rest, of course, occurred in the natural way.

“ 2. It has been proved, that a large proportion of our patients have been rendered secure against the Small Pox, by means of re-inoculation of above sixty children publicly, in 1804, at the Small Pox Hospital; and of several hundreds, at different times, at the Institution, with Small Pox matter.

“ 3. A great number of our patients, it is well known, have been repeatedly exposed to the effluvia, or contact with persons in the Small Pox; and hence, such a degree of confidence has been produced, that notwithstanding the proposed reward of five guineas to any who should take the Small Pox, after having been certified to be se-

cure by the Medical Officers, very few would submit to the test required of the second inoculation.

“ 4. One of the physicians of this Institution, (Dr. Pearson) after repeated trials, found, that a person who had gone duly through the Cow Pock, was equally incapable of being infected with the vaccine matter a second time, as by the variolous. Many trials of this kind were instituted publicly, at the Institution in 1807, in the presence of several Fellows of the College, to shew, that the re-inoculation with vaccine matter was equally a test of security of the constitution against the Small Pox as variolous matter. The same member announced the result of his experience on this point as early as 1799. In the printed directions of the Institution for Vaccination, in January 1801, the test of re-inoculation is recommended by the Institution, to answer the same purpose as inoculation with variolous matter. To afford the most decisive proof, vaccine matter has been often inserted into one arm, and variolous into the other, or both into different parts of the same arm, and in no instance has the Small Pox been produced at all, or the vaccine a second time; but if a lo-

cal affection, viz. a large pimple, or a small vesicle, has been produced by one kind of matter, it has been equally produced by the other; and if no affection at all was excited by one, there was none by the other.

“ 5. Numerous trials have shown, at the Institution, that the same constitution cannot take the Cow Pock subsequently to the Small Pox, contrary to a high authority, who asserts also, that the Cow Pock is producible a second time. Hence, the variolous matter and the vaccine are mutually tests, or afford a counterproof of each other having affected the human subject, to be incapable of taking either of these diseases.

“ 6. We have made a great many trials, by which, perhaps, may be determined the exact period when the constitution is by Vaccination rendered incapable of being affected by the Small Pox, and which appear in our minute-book, viz. by re-inserting either vaccine, or variolous matter on any one, or each succeeding day from the first insertions. It has appeared, that the succeeding insertions can only produce pimples, or vesicles, of the figure and magnitude they usually do, according to the time after inoculation, but

cease to grow larger at the period the constitution is supposed to be affected by the first inoculation. Mr. Bryce has proposed these re-inser-tions during the Vaccination, as a test; and we agree with him, that they may be relied upon; but we do not think they will be so satisfactory to the patients as the second inoculation, some weeks, or longer, after the first.

“ These experiments, if the explanation could be given in this place, would prove further the fact above asserted, that a person who has gone through the Small Pox cannot take the Cow Pock, nor can a person who has gone through the Cow Pock take it a second time.

“ 7. Farther proofs of the proposition just stated, may be found in the trials at the Institution, of inserting variolous and vaccine matter in different places of the same arm on the same day; in which cases, the respective vesicular pocks of each kind of matter are produced in the inoculated parts: but in some cases the Small Pox fever and eruption are produced, and in others only the vaccine affection.

“ 8. The inoculation, with a mixture of the vaccine and variolous matter, does not produce a

hybrid disease, but sometimes the Cow Pock distinctly, and at other times the Small Pox only.

“ 9. With respect to the subsequent health, children have been frequently brought to the Institution some time after the Cow Pock, with various eruptive complaints; but as most, or all of these, have been seen in those who have not been vaccinated, we doubt, whether they can be reasonably imputed to Vaccination. If any of these be peculiarly the consequence of inoculation, it is a kind of rash not unlike the red gum, and also the tooth rash, the nettle rash, and some undescribed cutaneous affections.

“ 10. We have only seen one great anomaly in the course of our practice, which occurred four years ago, in August and September. The vaccine pocks had not their usual distinct figure; a cutaneous affection attended; and the patients had sore arms; but they appeared quite unsusceptible of the Small Pox, and in a few months the same matter by succession produced the regular vaccina.

“ 11. We have had very little trouble with sore and inflamed arms, especially the last three, or four years.

“ 12. It is now twelve years since the original matter for the Institution was taken from the cows by Dr. Pearson, and we can perceive no deterioration or difference in its effects.

“ 13. With respect to the effects of matter, according to the state of the pock, of the arm, and the constitution, the result of eleven years experience is :

1. That matter taken before the scabbing begins, is the most efficacious.

2. If taken later, there is no other consequence but frequent failure to infect.

3. When the scab itself was used, it in no instance produced the Cow Pock.

4. The presence or the absence of the areola appeared to be of no consequence.

5. No difference has been observed according to the health of the patient from whom it is taken.

6. The rule for taking the matter should be according to the state of the pock, and not according to the day after inoculation; but the usual course is such, that in general it is more efficacious before the eighth, or ninth day than later.

7. Matter of the usual, regular, and distinct pock should always be preferred: not perhaps on any other account, but to prevent disappointment in producing the vaccine affection.

8. We have met with no such matter as that called *spurious*, or which produces a similar affection somewhat like the Cow Pock by inoculation from subject to subject, but does not destroy the susceptibility of the Small Pox.

“ 14. The deviations from the usual course are imputable,

1st, To certain peculiarities of the constitution;

2dly, To the pre-occupancy and intervention of other diseases; and,

3dly, To cutaneous affection of the part inoculated.

“ 15. We have not been able to observe a constitutional disorder on the fourth day referable to the agency of the matter on the constitution, distinct from that usually on the ninth day from the local affection.

“ 16. The inoculation of vaccine matter in several places in each arm, does not appear to produce more local inflammation than a single pock,

but it seems attended with the advantage of more frequently affecting duly the constitution.

“ 17. In a few instances the Cow Pock cannot be produced at all by even repeated inoculation ; and in such cases the Small Pox cannot be produced ; there being, perhaps, a connate unsusceptibility of both disorders.

“ 18. We have seen no unusual inflammation from repeatedly inserting matter of Small Pox, or Cow Pock, to determine the question of susceptibility of either of these disorders.

“ 19. No danger is to be apprehended from the inoculation for the Cow Pock at any time after exposure to the Small Pox: the two diseases do not subsist together constitutionally ; so that nothing can be lost, and advantage may be gained by vaccination.

“ 20. We have had no deaths by vaccination, as already said, in our own practice ; but accounts have been communicated—*1st*, Of the case of an infant, of which we could get no particulars to determine the cause of the death ; *2d*, A few cases proved fatal in the practice of others, from the state of the arms ; *3d*, By deficiency of food, by exposure to cold, and externally injuring the arms inoculated.

“ 21. With regard to the influence of vaccination in diminishing the mortality of the Small Pox, the following statement may give some satisfaction, or serve to assist the judgment. For this purpose we shall state the number of deaths by Small Pox from the Bills of Mortality of Parish Clerks, of London, during the twelve years since Vaccination was introduced, viz. from January 1799 to January 1st, 1811; and also during the twelve years immediately preceding the Vaccine practice, viz. from the 1st of January 1787, to January the 1st, 1799. But in order to judge more accurately, we shall arrange the two periods of twelve years under three heads, each comprehending four years.

This distribution affords the underwritten tables :

1. Deaths by Small Pox preceding Vaccination, in the first four years.		2. Deaths by Small Pox during the Vaccine practice in the first four years.	
1	In 1787 2418	1	In 1799 1111
2	1788 1101	2	1800 2409
3	1789 2077	3	1801 1461
4	1790 1617	4	1802 1579
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 7213		<hr style="width: 10%; margin-left: auto; margin-right: 0;"/> 6560

Deaths, &c.		Deaths, &c.	
<i>In the 2d four years.</i>		<i>In the 2d four years.</i>	
1	In 1791 1747	1	In 1803 1202
2	1792 1568	2	1804 622
3	1793 2382	3	1805 1685
4	1794 1913	4	1806 1158
	<hr/>		<hr/>
	7610		4667
 <i>In the 3d four years.</i>		 <i>In the 3d four years.</i>	
1	In 1795 1040	1	In 1807 1297
2	1796 3548	2	1808 2257
3	1797 522	3	1809 1163
4	1798 2237	4	1810 1198
	<hr/>		<hr/>
	7347		5915

The total number of deaths by Small Pox in twelve years previously to Vaccination, amounts to.....	22,170
Ditto, subsequently to Vaccination.....	17,142
	<hr/>
	5,028

the number of deaths in the first twelve exceeding the number in the twelve succeeding during Vaccination, *i. e.* 419 persons per annum fewer for twelve years died since, than before Vaccination.

Directions for the Vaccine Inoculation.

“ 1. THE limpid matter should be taken from a decidedly characterized Cow Pock, which is proceeding, apparently, through its respective

stages. It is most efficacious in producing the vaccina from a pock before the eighth, or ninth day ; but is most abundant, and is usually taken about the ninth day. It may be used at an early period, even as early as the fifth day, if it can be collected. However, matter from a pock later than the eleventh, or twelfth days, is not more liable to produce inflamed arms than that from younger pocks ; and if the Cow Pock be excited at all, it is as distinct as from any earlier matter. No differences in the effects of the vaccine matter inoculated appear to depend on the presence, extent, or absence of the red areola.

“ 2. The matter is usually taken on glass, thread, or a quill, on which it should be suffered to become dry without applying heat ; and when so dried it is scarcely visible. The matter may be kept fluid between two glass plates, in one of which a small cavity has been drilled, or in a bottle filled with hydrogen gas.

“ 3. To produce more effectually the unsusceptibility intended ; and as dried matter fails much more frequently to excite the vaccina than recent fluid matter, it will be adviseable, that, instead of a single puncture or scratch, there be matter inserted in two, or even three punctured or

scratched parts in each arm. If the constitution be affected, one pock is as effectual in producing the unsusceptibility required, as any greater number; but the chance of the constitution being affected, seems to be greater from several, than from a single pock. The dried matter at the time of inoculation, should be softened by warm, but not very hot water.

“ 4. The inoculation must be performed in the same manner as for the Small Pox.

“ 5. If the infectious matter produce the required effect, in three, four, or five days there will be seen a red spot like a small gnat bite; in six, or seven days a small vesicle will appear; in nine days a circular vesicle (improperly called a pustule) will be found as large as a pea, or from about two-tenths to four-tenths of an inch diameter, usually surrounded by a red areola. By the eleventh day the vesicle begins to scab or grow dry, and turn black in the middle, and the areola becomes more extensive. By the fifteenth day, but often later, the pock becomes a mere scab, circular, prominent, well defined, of a blackish or mahogany colour, adhering firmly; but the areola disappears. Unless it be separated by violence, the scab does not fall off, in general, sooner than

the twentieth day. It then leaves a cicatrix permanent for life.

“ 6. If the eruption or pimple, excited by inoculation, has not the characters, and does not pass through the stages in the course above stated (5), although sometimes anomalous, this Cow Pock may render the constitution unsusceptible of the Small Pox; yet it cannot be depended upon. In such cases the inoculation should be re-instituted; for if the vaccina cannot be again excited, the unsusceptibility desired will have been produced; but if a further proof be wanted, recourse must be had to inoculation with the variolous matter.

“ 7. In many cases, no constitutional affection or fever can be perceived: when it occurs, it is almost always on the ninth and tenth days; but provided the pock exhibit the distinctive characters of the Cow Pock, even without areola, with the usual course of its stages, the susceptibility of the Small Pox will be generally as effectually destroyed, as if there had been considerable febrile affection and an extensive areola.

“ 8. Experience having at length shown, that persons who have gone through the vaccina with all the known appearances of the most effectual sort, are susceptible of the Small Pox, although

in the proportion of at the most, one out of five hundred, it is advisable to re-inoculate either Cow Pock, or variolous matter in a few months after the first inoculation.

“ 9. If erythema, like erysipelas, extend over the arm, with swelling, pain, &c. it has always subsided in a few days of itself, only avoiding irritating applications, or at most on using sedatives.

“ 10. Eruptions sometimes occur, but they require no particular treatment.

“ 11. The Small Pox may break out at any period within twelve days of inoculation for the Cow Pock. If they appear earlier than the sixth, or seventh, the vaccina is cut off in its progress; if they appear later, the vaccine-pock goes forward in its usual course.

“ 12. The medical treatment which may be required from unusual or supervening complaints, is similar to that in the Small Pox.

“ 13. Measles, Chicken Pox, hooping cough, and other disorders may intervene during the vaccina, without, in general, varying its progress*.”

* Extract from a Paper, containing the Results of eleven years Experience, concerning some of the most useful practical

Remarks.—IN the first paragraph of this extract, cases are mentioned which would not have been allowed to be variolous, that is, of the legitimate kind, “if other children in the same family had not been ill in the distinct sort;” here also we have three forms of the disease, some which suppurated resembling “even the mildest cases of inoculated Small Pox;” others resembling the mildest Chicken Pox, “having merely “a slight fever, and an eruption of pimples, or of “vesicles, so small, and so speedily scabbed.”

These three varieties arising from the same contagion, the suppurating, the mere pimples, and the lymphatic, are referred to the legitimate solely, *because they were believed to be modified by vaccination*; for two of them have the well known symptoms of the common Chicken Pox, and most of those, which suppurated, *scabbed sooner than usual by at least two or three days.*

Might it not have rather been inferred, that these cases were, what they most resembled, a spurious Small Pox, than that the legitimate had assumed a new form, in defiance of the general

antidote Vaccination? In the same paper, indeed, the facts are related which might almost decide the question.

The experience of eleven years appears to confirm the general conclusions above stated. Vaccination, indeed, rests on so firm a basis, that it must ultimately triumph over all opposition; but, in the mean time, its universal adoption is greatly retarded by this very inference, which the friends of the practice have promulgated, that the instances of Small Pox after vaccination are as rare, as the repetition of the Small Pox in the same person; people cannot divest themselves of the opinion, that it may be otherwise; they know, that medical men, as well as others, have their predilections, that practices and substances have been fashionable, and in high estimation as remedies, which are now abandoned as inert, or pernicious; it were well therefore, if it could be established by unequivocal evidence, that, against their dreaded enemy the Small Pox, Vaccination furnishes a security without exception.

ERRATUM.

Page 102, line 9, *omit*—the president of

PART III.

THE
SPURIOUS OR ILLEGITIMATE SMALL POX,

WITH
THE PROOF,

THAT
THE PREVENTIVE POWERS OF VARIOLOUS INFEC-
TION, AND OF VACCINATION HAVE NEVER FAILED.



THE
ILLEGITIMATE SMALL POX,
CALLED ALSO VARICELLA AND CHICKEN POX.

EXAMINATION OF THE SMALL POX AS THEY OCCUR
AFTER VACCINATION; THE OPINIONS OF VACCI-
NATORS, &c.; THE RECOGNISED ILLEGITIMATE
SMALL POX.

*Report of the National Vaccine Establishment, with
Remarks.*

WE shall now examine particularly and minute-ly, those cases of Small Pox occurring after the Cow Pox, which are admitted by the promoters of the New Inoculation to be of the Legitimate genus; and also the inferences which they have drawn.

As containing suitable examples, let us take the following document, which appeared while the hesitation of Medical men confirmed the fears of parents, and rumour, with numberless tongues, was magnifying the common misfortune.

“ The board of the National Vaccine Establishment having learned, that great interest has been excited in the public mind, by the occurrence of Small Pox after Vaccination, in the families of the Earl of Grosvenor and of Sir Henry Martin, Bart. have thought it their duty to lay the following cases before the public, accompanied with some observations, and a statement, how far, in their opinion, these cases affected the general advantages of Vaccination.

“ The case of the Hon. Robert Grosvenor, third son of the Earl of Grosvenor, was procured through the favour of Sir Henry Halford and Sir Walter Farquhar, the physicians who attended the young gentleman during his illness; and the case of the son of Sir Henry Martin was obtained through the favour of Dr. Heberden. Both of these cases were also visited by the Director of the Vaccine Establishment.

“ I. *The Case of the Hon. Robert Grosvenor.*— On Sunday, May 26, 1811, the Hon. Robert Grosvenor, who was recovering from the hooping cough, became much indisposed, and threw up his dinner. Fever followed, and he complained most particularly of excruciating pain in his back. He

dwelt on this symptom until Thursday, when he became delirious, and there were observed on his face about twenty spots.

“ He had been vaccinated by Dr. Jenner, in his infancy, about ten years ago, and the mark left in his arm indicated a perfect disease.

“ On Friday morning, the eruption had not increased materially in point of number, but the appearance of the spots and the previous symptoms, suggested strongly a suspicion, that the disorder was the Small Pox.

“ Sir H. Halford had occasion to go to Windsor in the afternoon of Friday, and did not see Mr. Robert Grosvenor until the Monday following (June 2d), but he learned from Sir W. Farquhar, who attended him most carefully during Sir Henry's absence, (and subsequently) that the eruption had increased prodigiously in the course of Friday; that, on the evening of that day, Mr. Robert Grosvenor began to make bloody water, and that he continued to do so until Monday morning.

“ On the tenth day of the disease, the pustules began to dry upon the face, which was swollen to a considerable degree, but not to the extent of

closing his eyes, and was attended by a salivation, which lasted several days. Petechiæ had occurred in the interstices of several of the spots, particularly on the limbs, and there was that particular smell from the whole frame which is remarked in bad cases of Confluent Small Pox.

“ It was obvious, that the first symptoms of which Mr. Grosvenor complained, were such as indicated a violent disease about to follow ; and Sir Henry confesses, that he entertained a most unfavourable opinion of the issue of such a malady, when it was fully formed ; having never seen an instance of recovery under so heavy an eruption attended by such circumstances. It seemed, however, that the latter stages of the disease were passed through more rapidly in this case than usual ; and it may be a question, whether this extraordinary circumstance, as well as the ultimate recovery of Mr. Grosvenor, were not influenced by previous Vaccination.

HENRY HALFORD.

WR. FARQUHAR.

“ In addition to the preceding account, the Board have authority to state, that during the

illness of Mr. Grosvenor, the other children of the Earl of Grosvenor, who had been previously vaccinated, were exposed to the contagion of the Small Pox under which their brother was suffering, and were also submitted to Small Pox Inoculation without effect.

“ II. *The Case of the Son of Sir Henry Martin.*—Sir Henry Martin’s son, aged eleven years, was vaccinated by Mr. Tegart, in the year 1801, and exhibited all the usual marks of that disorder in a complete and satisfactory manner. He still retains on his arm the characteristic scar.

“ This boy was taken ill on Saturday the 22d day of June 1811 ; at the period of the attack he was recovering from hooping cough.

“ 23d, Continued to be feverish.

“ 24th, Mr. Tegart was sent to.

“ 25th, The fever increased, and at night he became delirious.

“ 26th, An eruption was perceived chiefly about the mouth, at the same time his eyes and throat were slightly inflamed. The fever continued.

“ 27th, or 2d day of the eruption, the pustules increased, so as to afford suspicion of the Chicken Pox.

“ 3d day of the eruption, the pustules increased, the fever decreased.

“ 4th. At the close of the fourth day, Dr. Heberden first saw this boy, with a distinct eruption of the most perfect kind of Small Pox, all pretty uniform in size, well filled with a fluid already beginning to grow yellow, and surrounded by a rose-coloured margin precisely like Small Pox of the fifth day. There were about one hundred pustules on the face, and perhaps twice as many on the limbs, but the trunk was almost free; the features were swollen, but not very much so. The skin was hot, and the pulse quick.

“ 5th day. The pustules were more uniform, and yellow, and the patient complained of soreness, but he was cooler, and his pulse was quieter.

“ 6th day. The fever had entirely subsided, and the pock began to turn.

“ 8th. The pustules were dried, and continued to fall off from the face. The boy continued quite well.

W. HEBERDEN.

Pall Mall, 4th July, 1811.

“ With a view of obtaining the most accurate knowledge of the early symptoms of this case,

which did not come under the immediate observation of Dr. Heberden, the Board have procured, through the favour of Mr. Tegart of Pall Mall, an account of the commencement and course of the disorder, which corroborates the above statement. And from the same source they have been informed, that Miss Martin and a nursery-maid of Sir H. Martin's family, who had both been vaccinated, were inoculated with matter taken from Master Martin on the fifth day of the eruption, and were exposed to the contagion of the Small Pox during the course of his disorder, without effect.

“ The BOARD are of opinion, that the case of the Hon. Robert Grosvenor was a case of Confluent Small Pox. That the attack and progress of the disorder were attended by symptoms which almost invariably announce a fatal termination. But they observe, that the swelling of the face, which is generally so excessive as to close the eyes, and is considered as a favourable symptom, was slighter than usual; that on the tenth day the pustules began to dry upon the face; and that from that time the disease passed with unusual rapidity through the period, when life is generally esteemed to be in the greatest hazard.

“ Those who are acquainted with the nature of the Confluent Small Pox, are aware that this peculiarity cannot be attributed to the effect of medical treatment.

“ The case of the son of Sir Henry Martin exhibits a mild form of distinct Small Pox, occurring after Vaccination.

“ In most cases of Small Pox which have succeeded to Vaccination, the pustules have been observed to dry more rapidly, and the disorder has concluded at an earlier period than usual.

“ If allowance be made for the relative periods in which the confluent and distinct Small Pox complete their course, the rapid progress towards recovery through the latter stage of Confluent Small Pox, as exhibited in the case of Mr. Grosvenor, may be compared with the rapid desiccation of the pustules in the distinct and peculiarly mild form of the disorder which is considered as Small Pox modified by Vaccination. Both forms of the disorder proceed in the usual course, the one attended with violent, the other with mild symptoms, till they arrive near to the height, when they appear to receive a check, and the recovery is unusually rapid.

“ From this correspondence of circumstances, the Board are induced to infer, that in the case of Mr. Grosvenor, which has been more violent than any yet submitted to them, the progress of the disease, through its latter stage, and the consequent abatement of symptoms, were influenced by an antivariolous effect, produced upon the constitution by the Vaccine process.

“ The occurrence of Small Pox after Vaccination, has been foreseen and pointed out in the Report on Vaccination made to Parliament, by the College of Physicians in the year 1807, to which the Board are desirous of calling the attention of the Public; wherein it is stated, that “ The security derived from Vaccination against the Small Pox, if not absolutely perfect, is as nealy 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 has been surprisingly small, so much so as to form certainly no reasonable objection to the general adoption of Vaccination; for it appears, that there are 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 in which 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 the same in 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." *Vide* Report of the College of Physicians.

“The peculiarities of certain constitutions with regard to eruptive fevers, form a curious subject of Medical History. Some individuals have been more than once affected with Scarlet Fever and Measles; others have been through life exposed to the contagion of these diseases without effect; many have resisted the Inoculation and contagion of Small Pox for several years, and have after-

wards become susceptible of the disorder, and some have been twice affected with Small Pox.

“ Among such infinite varieties of temperament it will not appear extraordinary, that Vaccination, though so generally successful, should sometimes fail of rendering the human constitution unsusceptible of Small Pox, especially since it has been found, that in several instances Small Pox has occurred to individuals over whom the Small Pox Inoculation had appeared to have produced its full influence. Three instances of this kind have taken place within the last month, and in another instance the natural Small Pox has occurred a second time.

The Secondary Small Pox.

“ I. *Case of the Reverend Joshua Rowley.*
The Rev. Joshua Rowley, brother to Sir W. Rowley, when an infant, was inoculated by the late Mr. Adair, 1770; the scar left by the inoculation is perfectly visible; his mother, the Dowager Lady Rowley, remembers perfectly his having a tolerable sprinkling of Small Pox, and says, he was afterwards repeatedly exposed to Variolous

infection in the nursery, when his three younger brothers were successively inoculated, all of whom had some degree of eruption, and since that time, frequently, in performing the clerical duties of his profession.

“ On Wednesday the 5th of June, he felt much indisposed, complained of pain in his head and back, attended with considerable restlessness and prostration of strength: on Friday the 7th, an eruption appeared chiefly on his face and breast; he was attended by Mr. Woodman, of Bognor, only, till the Monday following, when Mr. Guy, surgeon, of Chichester, was first consulted. On examining the eruption, Mr. Guy was immediately struck with its resemblance to the Small Pox, and on gently hinting his suspicion to Mr. Rowley, received the information above related. On the following day the progress of the eruption towards maturation, and the swelling of the face, which is characteristic of the Small Pox, left no doubt of the nature of the malady. The eruption was perfectly distinct, it was very full all over the trunk and body, and there were about two hundred pustules on the face. Mr. Guy is

of opinion, that this was a clearly marked case of Small Pox.

“ The History of the previous Variolous inoculation in 1770 was procured from the Dowager Lady Rowley by Mr. Dundas, Sergeant Surgeon to his Majesty; and the account of the present case was transmitted to the Director of Vaccination of this Establishment, on the application of the Board, by Mr. Guy, an eminent surgeon of Chichester.

“ II. *Case of Miss Sarah Booth, of Covent Garden Theatre.* Dr. Bree was called to visit Miss S. Booth, on Monday, June 25th. She was said to be ill with the Small Pox, and the following circumstances were reported by the mother and sisters :

“ Miss Booth is 18 years of age; she had been inoculated for the Small Pox at 5 years of age, and had been affected with the usual degree of fever; the arm had been violently inflamed, and an eruption of Small Pox pustules had appeared round the inoculated part, from which matter had been taken by Mr. Kennedy, the surgeon who attended her. Mr. Kennedy expressed himself sa-

tified, that Miss S. Booth had passed regularly through the disease.

“ The usual scar of Small Pox inoculation is perfectly evident on the arm.

“ On Thursday, June 20th, Miss Booth was seized with fever, distinguished by vomiting, violent head-ache, pains in the back, and loins.

“ The symptoms continued till Saturday, June 22d, in the evening of which day some pustules came out on the forehead and scalp.

“ Sunday, June 23d, a more complete eruption appeared on the face and neck, and she was relieved from the violence of the fever. The vomiting however continued, the throat became very sore, and a salivation began.

“ Monday, June 24th. The eruption extended itself on the body, the fever was still more abated, but the salivation, soreness of the throat, and vomiting, were urgent symptoms.

“ Tuesday, June 25th. The fourth day of the eruption, the salivation and retching continued, with soreness of throat.

“ Wednesday, June 26th, fifth day of the eruption. Pustules were noticed on the lower extremities, those on the face advance, and the eyes

are swelled; the number of the pustules on the head and face is about two dozen.

“ Thursday, June 27th, sixth day of the eruption. The pustules on the face begin to turn. She still suffers from sore throat and salivation. This evening, contrary to advice, she went to her business at the Theatre.

“ Friday, June 28th, seventh day of the eruption. The pustules on the face are turned, those on the lower extremities are few in number, but well filled, and not yet changed.

“ Saturday, June 29th, eighth day of the eruption. She only complains of sickness. After this day the pustules turned and dried on the lower extremities, and no complaint remained.

“ This case appeared to have been a very mild case of distinct Small Pox.

ROBERT BREE.

“ This case was visited by the greater number of Members of the Board, and also by the Director, and was attended by Mr. Hewson, of James' Street, Covent Garden, who entertains no doubt of this having been a case of distinct Small Pox.

“ III. *Case of John Godwin.* Mrs. Godwin, No. 6, Stratton Street, Piccadilly, states, that she was brought to bed of this son in October, 1800; that six weeks after he was born, the Small Pox prevailed very much in her neighbourhood, and one child died of it in the house in which she lived. About this time her son was attacked with very violent fever, succeeded by a copious eruption all over the face and body, which was declared by Mr. Smith, an apothecary who attended him, to be the Small Pox, and which was ten, or twelve days before it completely scabbed and dried off.

“ Some time after this, a brother of her husband, a medical man, who had not seen the child during its illness, inoculated him for the Small Pox, in order to insure his complete security; a small pimple on the part was only formed, which soon disappeared, and no fever, or eruption ensued. About six weeks ago, this boy, now eleven years old, was attacked with fever, followed with an eruption, which broke out on the face, body, and limbs, exhibiting the ordinary appearance of Small Pox, and which turned on the eighth day.

“ Mr. Kerrison, of New Burlington Street, who attended this boy, states, that the eruption exhibited the exact appearance, and passed through all the stages of distinct Small Pox. He also from this boy inoculated a child who had fever at the usual time, followed by a slight variolous eruption.

“ The history of the former disease was procured from Mrs. Godwin, and the history of the second attack of Small Pox from Mr. Kerrison, by Mr. Moore, Director of Vaccination at this Establishment.

“ IV. *Case of Peter Sylvester, No. 10, Cross Street, Carnaby Market.*—This boy's parents are both dead. He was born on June 7th 1798, and on the 21st Feb. following, was inoculated for the Small Pox by Mr. Ring, of New-street, surgeon. Mr. Ring shewed the Director of Vaccination at this Establishment, his account-book of that period, in which there is a charge regularly entered for inoculating this boy for the Small Pox.

“ The cicatrix on his arm is still conspicuous, and six or seven Small Pox pits, occasioned by the former eruption, have marked his face.

“ On the 24th June last, this boy was taken ill with fever; on the 27th, an eruption on the skin took place. Mr. Moore, the Director, saw him on the 30th; the spots on the skin were very numerous, but distinct, and the skin round their bases was inflamed; many had formed within the mouth and throat.

“ July 1st, the eruption has now assumed the appearance of genuine Small Pox, the pustules are augmenting, and the face is beginning to swell. 2d. The pustules are larger, and the face much swelled. 3d. The pustules on the face are at the height, and the eyes are nearly closed. 4th. The pustules on the face have all began to turn; all fever is gone.

“ This case is drawn up from the notes of Mr. Moore. The case was visited by several members of the Board, and by many other medical gentlemen of the highest respectability.

“ FROM the period at which the violent opposition to Small Pox Inoculation subsided, till the establishment of Vaccination, no reasonable parent has refused to allow his children the benefit of inoculation, although it has been generally acknowledged, that the inoculation of the Small

Pox sometimes produces a fatal disease; and if at that time the instances in which the natural Small Pox had occurred after inoculation, had been communicated to the public, every intelligent man would undoubtedly have still continued the same course, from a desire of affording his children the best chance of safety, although his confidence in the absolute security from natural Small Pox must have been in some degree abated.

“ In the same manner, no effect injurious to Vaccination ought to result from the knowledge of the above failures. Parents always had been apprized, that there were occasional failures of Vaccination, but they were always aware, that none of their children would die of Vaccine Inoculation, and that, when it failed, the succeeding Small Pox was almost always much mitigated and disarmed of half its terrors. It was natural therefore, that they should choose Vaccination as the less dangerous disorder, and the same reason still exists for their perseverance in that choice. If there be constitutions, which are twice susceptible of Small Pox, a disorder which produces a violent action upon the human frame, and often destroys life, it is natural to expect, that

Vaccination should not in every instance prevent the Small Pox, and that the anomaly which occurs in the one disease should likewise take place in the other. It is ever to be kept in view, that the number of deaths from inoculated Small Pox, exceeds the number of failures of Vaccination. It appears from the present state of our information, that one person in three hundred dies from the inoculated Small Pox, and that there is perhaps one failure in a thousand after Vaccination. An individual, who, under such circumstances, should prefer the inoculation of his children for the Small Pox, to submitting them to Vaccination, would be guilty of an improvidence similar to that of a parent who should choose for his son a military service, in which there was one chance in three hundred of being killed, in preference to a station, where there was only one chance in a thousand of being slightly wounded.

“ The Board are of opinion, that Vaccination still rests upon the basis on which it was placed, by the Reports of the several Colleges of Physicians and Surgeons of the United Kingdom, which were laid before Parliament in the year 1807. That the general advantages of Vaccina-

tion are not discredited by the instances of failure, which have recently occurred, the proportion of failures still remaining less in number than the deaths which take place from the inoculated Small Pox. They are led by their information to believe, that since this practice has been fully established, no death has in any instance occurred from Small Pox after Vaccination.—That in most of the cases in which Vaccination has failed, the Small Pox has been a disease remarkably mild, and of unusually short duration; and they are further of opinion, that the severity of the symptoms with which Mr. Grosvenor was affected, forms an exception to a general rule.

“ That absolute security from the Natural Small Pox is not even to be attained by Small Pox Inoculation, is sufficiently evident from the annexed cases; and the Board are enabled to state, that they have been made acquainted with instances of individuals who have twice undergone the Natural Small Pox.

“ Under all these circumstances, the Board feel justified in still recommending and promoting Vaccination, and in declaring their unabated confidence in this practice. Since in some peculiar

frames of constitution the repetition of Small Pox is neither prevented by inoculation, nor casual infection, the Board are of opinion, that in such peculiar constitutions, the occurrence of Small Pox after Vaccination may be reasonably expected, and perhaps in a greater proportion; but with this admission, they do not hesitate to maintain, that the proportionate advantages of Vaccination to individuals and the public, are infinitely greater than those of Small Pox Inoculation.

“ They are anxious, that the existence of certain peculiarities of the human frame, by which some individuals are rendered by nature more or less susceptible of eruptive fevers, and of the recurrence of such disorders, should be publicly known; for they feel confident, that a due consideration of these circumstances, and a just feeling of the welfare of the community, will induce the Public to prefer a mild disease like Vaccination, which where it fails of superseding the Small Pox, yet mitigates its violence, and prevents its fatal consequences, to one whose effects are frequently violent; to one which often occasions deformity and blindness; and when it is contracted by casual infection, has been supposed to de-

stroy one in six in all that it attacks. And it must not be forgotten, that in a public view this constitutes the great objection to inoculation of the Small Pox, that by its contagion it disseminates death throughout the empire, whilst Vaccination, whatever be the comparative security which it affords to individuals, occasions no subsequent disorder, and has never, by the most violent of its opposers, been charged with producing an epidemical sickness.

“ By Order of the Board.

“ JAs. HERVEY, Register.

“ *July 18, 1811.*”

As we proceed, it will be useful to retain in memory the following remarks suggested by this report.

The cases generally related as occurring after Vaccination, are very gentle in their first stages, and *terminate speedily*; those here particularly detailed resemble the legitimate Small Pox, chiefly in the phenomena and duration of the first stages, in which there are fever, eruption, suppuration, accompanied with swelled face, salivation, &c.; but they are remarkable for *the rapidity and mildness of their termination.*

In these accounts, we may observe two examples of variolous eruption following Vaccination, viz. a Benign and a Malignant.

Swelling of the face no more characterizes Small Pox, than Measles or any other eruption attended with superficial inflammation, or even where there are no spots, as in erysipelas.

From severity of symptoms in the first stages, the disease is judged to be Small Pox, though the Vaccine virus, an antidote, they allege, more powerful than that of the Small Pox, had operated on the constitution. At the same time, it is declared, that the disease, as it occurs after Vaccination, *deviates* much from its usual course. When an eruptive disease is prevented neither by the Variolous, nor the Vaccine infection, and is conspicuously different in the changes which it undergoes, ought it hastily to be pronounced the legitimate Small Pox?

The opinion, which the report inculcates, that Vaccination, even when ineffectual, so diminishes the susceptibility for the Small Pox, as to render them safer and shorter than when they occur after the body has undergone the Variolous operation, is not confirmed by the cases of Small Pox after Small Pox in the same report; for they are

at least equally *mild and short* with the other. What ought the conclusion to be, if cases, *precisely the same with those supposed to be the Small Pox modified by Vaccination*, existed before any inoculation?

Opinions of the Vaccinators, and of the former Physicians, concerning the Small Pox.

IN this report also are those opinions, which we have said, were received as established truths:

That the occurrence of Small Pox after Vaccination, is scarcely more frequent than their repetition in the same person; that the Small Pox after Vaccination are generally a short and gentle affection, and when they commence with violence, they are mild in their termination; but after Small Pox, whether accidental, or artificial, they are in some steadily malignant, in others fatal; that, therefore, Vaccination is on every account preferable.

If it had been definitively settled, that Small Pox recurred occasionally in the same person; if there were no causes of deception which had not been discovered, explained, and made generally known, so that the Illegitimate Small-Pox

of whatever form, and in whatever circumstances, could be at once detected, we might readily assent; but the subject continues in a very different predicament; the repetition of the legitimate Small Pox is affirmed and denied by authorities of equal weight.

Burserius details and refers to many seemingly well authenticated cases of repeated Small Pox; he gives the instance of Lewis XV. of France, who, it was asserted, had the legitimate Small Pox first at the age of 14, and next at that of 64; also another, on the authority of Borelli, of a woman who died aged 118 of the eighth attack of the Small Pox.

Mead, Van Swieten, Vogel, and others, maintain, that physicians have been deceived in this respect by a certain spurious Small Pox.

That the Illegitimate and the Legitimate have always been in some degree confounded, and that their discriminative marks are not yet pointed out, is acknowledged in the statement of the Original Vaccine Pock Institution, published in 1804.

“ However generally practitioners of experience and observation may agree on what is, and what is not Small Pox, yet now and then

cases occur, in which there is a difference of opinion; and in employing the test of inoculation with the matter, sometimes such cases were proved to have been, and at other times were proved not to have been the Small Pox. The same is true with regard to the Cow Pock."

And with this statement I would say, "Considering all these points, is it not more probable, that the adverse instances are deceptions, than that they afford exceptions to a law of the human animal economy?"

To which is added in a note: "We do not pretend, that we are able to prove in what respects the cases were deceptions; on the contrary, in place of rejecting, we must admit them according to the statements; and future observations can alone explain such anomalies*."

In the mean time, therefore, let us proceed on the principle, that these conclusions may be founded in error.

* A Statement of Evidence from Trials by Inoculation of Variolous and Vaccine matter, &c. published in 1804, by the Physicians of the Original Vaccine Pock Institution, established December 1799.

*The Illegitimate Small Pox as generally recognised
according to Authors.*

IN order to arrive at a correct judgment on this question, it is necessary to take an accurate survey of those eruptive diseases, which resemble the legitimate Small Pox.

It was long ago stated, that the Small Pox were divided into the Legitimate and the Illegitimate or Spurious. These, it is proper to add, are more commonly understood by the term *Varicella*, in our vernacular language *Chicken Pox*; but the latter denomination had formerly no such import; Morton gave this name to what he thought the mildest species of the legitimate Small Pox, from which that eruption differed very little in the suppurative stage, and was chiefly distinguished by the *rapidity and mildness* of its termination.

Sauvages attached a very different meaning to our Chicken Pox; he gives thirteen species of Small Pox; his second species is the benign distinct legitimate Small Pox, to which he adds this variety: "No suppuration happens on the

seventh day ; but the pimples are gradually terminated by resolution, that is, disappear without danger, and sometimes without perceptible fever. The English call this resolved variety the Chicken Pox.’

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.

Having agreed respecting the essential or fundamental character of the Varicella or Chicken Pox, we are prepared to examine the different ac-

counts given of them ; and as it will best suit the purpose of contrast to follow the order in which they seem to approach the legitimate Small Pox, we shall begin with those of the former which have the most distant resemblance to the latter,

Swieten concerning the Chicken Pox, on § 1881.

VAN SWIETEN says, “ That he has seen the Spurious Small Pox break out on the ceasing of the legitimate, which had prevailed epidemically for a long time, and seize both the young and the old in great numbers ; nay, they seemed to be contagious, since they attacked almost every one who frequented the same school ;” he never saw the disease violent, nor did he remember any instance of death from it.

He observed three varieties of the Spurious Small Pox. They are, according to him, “ generally preceded by a slight fever, sometimes only by a little faintness, and 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 ; occasion-

ally these pimples immediately harden, dry, and fall off, and the common people in this country generally call them the *Steen Pocken*, (*i. e.*) the *Stone Pocks*: in other cases, the pimples seem full of a thin lymph, especially at the point; these also speedily dry and fall off; they are called *Water Pocken*, *i. e.* the *Water Pocks*: in the third variety, there appear vesicles distended, but containing no lymph, which in like manner soon fall off; they are called *Wind Pocken*, *i. e.* *Wind Pocks*."

"All these varieties of Spurious Small Pox," continues he, "have this one character in common, that they differ from the legitimate in the symptoms of the first stage; that they break out at no stated times; and that the pimples never contain any *genuine pus*, nor leave *any marks* on the skin."

Chicken Pox according to Burserius, Heberden, and Cullen.

THE appearance of the Spurious or Illegitimate Small Pox is generally preceded by no fever, or a very slight and short one; occasionally

however, by chillness, lassitude, cough, broken sleep, wandering pains, loss of appetite, and feverishness for three days.

Accordingly on the first, second, or at farthest on the third day of the disease, an eruption of a few reddish pimples takes place, which are conspicuous, prominent, sparse, and distinct. They sometimes break out first on the back, they vary in size on the same patient, most of them are as large as the common Small Pox, while others are less; on the second day of the eruption, they have a red margin, and on the top of most of them, a transparent vesicle, about the size of a millet seed, full of a serous or mucous liquid, and hence they have been named Lymphatic or Crystalline; and sometimes this liquid becomes in a short time opaque or yellowish; on the third day at farthest from the beginning of the eruption, as many of these Pox, as are not broken, seem arrived at maturity; and those which are fullest of that yellowish liquor, very much resemble what the genuine Small Pox are on the fifth, or sixth day, especially where a larger space than ordinary happens to be occupied by the extravasated serum.

It happens to most of them, either on the day when this little bladder rises, or on the day after, that its tender cuticle is broken by the rubbing of the clothes, or by the hands of the patient to allay the itching which attends this eruption. A thin scab is then formed at the top of the pock, the swelling of the other part abates, but pus is never formed as in the legitimate Small Pox. Some escape being broken, and the little drop of serum, contained in the vesicle at the top of them, grows yellow and thick, and dries into a scab: on the fifth day of the eruption, they are almost all dried and covered with a slight crust.

The patients scarcely suffer any thing throughout the whole progress of this illness, except some degree of impaired appetite, languor, debility, and depression of mind; and the fallen off crusts are succeeded by no cicatrices, or at most, only certain evanescent marks, the whole disease often terminates in three, four, or five days, and when it proceeds with less rapidity, it is entirely ended on the seventh day.

This disease is at one time sporadic; at another, epidemic; it is almost peculiar to children, and may attack either before or after the Small

Pox; and is reckoned so mild throughout as to seldom require any remedies.

“The principal marks,” says Heberden, “by which the Chicken Pox may be distinguished from the Small Pox, are,

1. The appearance on the second, or third day of the eruption, of that vesicle full of serum upon the top of the pock.

2. The crust which covers the pocks on the fifth day; at which time those of the Small Pox are not at the height of their suppuration.”

There is sometimes seen an eruption, concerning which Dr. Heberden is in doubt, whether it is one of the many unnoticed cutaneous diseases, or only a more severe kind of Chicken Pox.

This disorder is preceded for three, or four days, by all the symptoms of approaching Chicken Pox, only much more severe: on the fourth, or fifth day the eruption appears with very little abatement of the fever: the pains likewise of the limbs and back still continue, to which are joined pains of the gums. The pox are redder than the Chicken Pox, and spread wider, and hardly rise so high, at least not in proportion to their size.

Instead of one little head or vesicle of a serous matter, these have from four to ten or twelve. They go off just like the Chicken Pox, and are distinguishable from the Small Pox by the same marks; besides which the continuance of the pains and fever after the eruption, and the degree of both these, though there are not above twenty pox, are circumstances never happening in Small Pox.

Dr. Cullen, seemingly following Swieten, says, "That the Chicken Pox may in general be distinguished from the real Small Pox, by attending to the following circumstances:

The eruption of Chicken Pox comes on with very little fever preceding it, or with fever of no determined duration.

The pimples of Chicken Pox more quickly than those of Small Pox, are formed into little vesicles or pustules.

The matter in these pustules remains fluid, and never acquires the colour, or the consistence of the pus, which appears in the pustules of Small Pox.

The pustules of Chicken Pox are always in three, or four days from their first appearance, formed into crusts."

The distinguishing marks are here reducible to three: *Mildness, Shortness of their course, and their lymphatic nature.*

Chicken Pox or Varicella according to Willan, in his work on Vaccination, with remarks.

THERE are three varieties of the Varicella, which from the different forms of the vesicles, may be entitled the Lenticular, Conoidal, and Globate.

In the northern part of England, and in some counties of Scotland, these varieties are denominated the Chicken Pox, the Swine Pox, and the Hives. In the south, both the latter varieties are called Swine Pox.

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 soon 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, nor 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 the 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.

This variety does not accord with the diagnostic, "That the pustules of Chicken Pox are *always* in three, or four days from their first ap-

“pearance formed into crusts;” nor with the other, “That the crusts cover the pocks on the fifth day, at which time those of the Small Pox are not at the height of their suppuration;” and here let it be observed, that the early formation of “the vesicles full of serum,” is not peculiar to the Varicella, as the same thing happens in the legitimate Small Pox.

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 sometimes more turgid, 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 semi-transparent. 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 duration of the eruptive stage in this species of Varicella, is six days; the last formed scabs therefore, are not separated before the eleventh, or twelfth day.

This variety does not accord with the diagnostic, "That the matter in these pustules remains fluid; and never acquires the colour or the consistence of the pus, which appears in the pustules of the Small Pox;" and at the same time disproves the common notion, that the inflammation is always slight, and that cicatrices or pits never follow the Chicken Pox. In this and the preceding variety, the disease continues from eight to twelve days, or even longer, which with the two days of fever gives the duration of ten, or fourteen days, differing greatly from the former varieties, which continue from three to seven days.

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 to 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.

The fever in *Varicella* commences two, or three days before the eruption appears, and it sometimes continues to the third day of the eruption. Its symptoms are, languor with disposition to sleep, loss of appetite, thirst, heat of the skin, occasional flushing of the cheeks, a severe cough, soreness of the throat, a white fur on the

tongue, a quick and unequal pulse, pains in the head, back, and limbs, sometimes pain in the stomach and bowels, with nausea, or vomiting of bile. These symptoms are sometimes more, sometimes less violent, but I do not remember to have seen any case of Varicella without some disorder of the constitution. Infants are often affected with convulsions during the fever, and adults suffer severely.

How does this accord with the diagnostic, "That the eruption comes on with very little fever preceding it, or with fever of no determined duration?" or with the opinion, "that the disease is so mild as seldom to require any remedies?"

The eruption usually commences on the breast and back, appearing next on the face and scalp, and lastly on the extremities. It is attended, especially in children, with an incessant tingling or itching, which leads them to scratch off the tops of the vesicles, so that the characteristics of the disease are often destroyed at an early period. Many of the vesicles, thus broken and irritated, but not removed, are presently surrounded by

inflammation, and afterwards become pustules, containing thick yellow matter. These continue three, or four days, and finally leave pits in the skin. The eruption is usually fullest in the Conoidal form of Variella; I have seen the vesicles close together, or coherent, but seldom confluent. When they are numerous on the scalp, some of the glands below the base of the cranium are enlarged.

In these instances, “the pimples are *not* few, “sparse, and distinct.”

“The incidental appearance,” says Willan, “of pustules among the vesicles, sometimes occasions a doubt respecting the nature of the eruption.” But it may be observed, that the same thing occurs in both the legitimate and the Illegitimate Small Pox.

According to Willan, the 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 Va-

ricella, 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.

On the third and fourth day the shrivelled or wrinkled state of the vesicles which remain entire, and the radiating furrows of others, whose ruptured apices have been closed by a slight incrustation, fully characterize the Varicella, and distinguish its eruption from the firm and durable pustules of Small Pox. As the vesicles of the Chicken Pox appear in succession during three, or four days, a partial examination will not always discover the characteristic here specified. In order to form a proper judgment, practitioners should inspect the eruption on the face, breast, and limbs, attending more especially to the places in which it was first observed. If the whole eruption be viewed on the fifth, or sixth days, every gradation of the progress of the vesicles will appear at the same time. This circumstance may be added to the diagnostics of Varicella, as it cannot take place in the slow and regulated progress of the Small Pox.

The globated vesicles 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 is evident, that the Mildness, Shortness, and Lymphatic nature, pointed out as the three distinguishing peculiarities applicable to the former, do not in the same degree suit the varieties described by Willan; which in the symptoms, severity, and duration of the three first stages, approach the Small Pox; but let it not be neglected, that the difference uniformly manifested in all the varieties of the Illegitimate Small Pox, consists in *the mildness and shortness of the last stage or that of incrustation.*

A PECULIAR FORM OF SUPPURATING SMALL POX ;
HOW ILLEGITIMATE SMALL POX ARE TO BE
ASCERTAINED ; THE LEGITIMATE SMALL POX
MODIFIED BY COW POX, ERRONEOUS ; NOTHING
NEW IN THE PHENOMENA OF THE SMALL POX
WHICH SUCCEED VACCINATION ; ANCIENT AND
MODERN CASES COMPARED ; THE EPIDEMICAL
ILLEGITIMATE SMALL POX.

THE eruptions above described could not have long deceived ; the fallacious eruption therefore, must be attended with symptoms, and assume a form much more closely imitating the legitimate Small Pox.

General resemblance is deceitful ; minute differences discover the real character.

I hope we have not far to proceed before we find the solution of our difficulties ; but, to arrive at this desirable end, we must be guided by these principles :

That, however much a disease resembles the legitimate Small Pox, if it neither prevents, nor is

prevented by them, it belongs to another, that is, to a Spurious or Illegitimate genus.

That, if it observes any uniform deviation, this deviation must be received as the proper mark or character, by which it is to be distinguished from affections of the legitimate genus.

And if it occur after Vaccination, with its proper mark or character, and no other can be produced, as having caused the opinion, that Small Pox occur either twice in the same person, or after Vaccination; then that opinion is altogether a deception.

Morton, in his Pyretologia, p. 93. c. 6. treating of the cause of the difference among Small Pox, says,

“ Sometimes the crisis is sure and complete *in the second stage*, the papulæ appear mild and benign, of the regular size, colour, and shape; they soon increase and maturate, and at a determined period, they decline and dry, *without the return of any degree of fever*, so that good health is restored without the use of remedies: of this sort are those called, in our vernacular language, *the Chicken Pox*, in which, after very severe sym-

ptoms for two, or three days, the papulæ break out in a single night, unusually large and sparse, speedily maturate, and, in three days more, have formed dry crusts, *without fever or any troublesome symptom*, except the uneasiness of the inflamed parts."

And in p. 215, he says, "On the first day (*of the eruption, viz.*) the margins of the Small Pox are of a lively red; their bases gradually enlarge; their apices are elevated, and filled with limpid serum; on the second day they become less clear; on the third day, yellow with laudable pus, and soon after they are covered with crusts, and terminate.

"When I say, that the benign Small Pox are the rule for all the rest, I mean all those distinct and regular Small Pox, unattended with petechiæ, miliary eruption, or bad marks of any kind; except those which we call *Chicken Pocks*, for though they may resemble the other Variolæ in the *length and severity* of the first stage, yet they are more frequently observed to appear, maturate, and decline on the same day; so that, after the first stage, we can say nothing definite concerning their progress, except, that for the most part, like comets, *they*

suddenly disappear, without observing any regular course, and this is the pathognomonic difference between them and the other benign Small Pox."

In this account we have two examples, the one very speedy in its course, and the other, of considerable duration, with the first stages closely resembling the legitimate Small Pox; nor does Morton seem to have suspected, that they were of a different nature; though he has well marked this difference, *viz. the mildness and rapidity of their termination.*

Such variolous eruptions seem to have dictated the brief descriptions, which authors give of the benign legitimate Small Pox.

Van Swieten, on § 1381, says, "That sometimes the genuine Small Pox happen to be very mild, they cause very little disorder, bring very few, and those very slight symptoms, soon dry and fall off."

Cullen, in his Nosology, defines Small Pox and their species, as follows: "Gen. Contagious synocha, with vomiting, and pain upon pressure of the epigastrium. On the third day an eruption of phlegmonic pimples appears, which is complet-

ed on the fifth ; in the space of eight days they run into suppuration, and terminate in crusts, often leaving depressed scars or pits in the skin.

Species 1. Distinct Small Pox, attended with a few distinct, circular, and elevated pustules ; *the fever ceases after the completion of the eruption.*

Species 2. Confluent Small Pox, attended with numerous confluent pustules, not regularly circumscribed, little elevated, and flaccid ; *the fever continues after the eruption ;*” but when does it cease ?

What is here, that could distinguish the legitimate from the Illegitimate Small Pox ?

If there has been an Illegitimate species of suppurating Small Pox mistaken for the mildest of the benign legitimate, how many must have been inoculated with the matter of the Illegitimate ? who can be surprised at the contradictory results of experiments with variolous matter ? at real instances of the legitimate after the old, or at supposed instances after the new inoculation ? would not such a mistake most certainly cause the belief, that Small Pox occurred more than once in the same person, or after any preventive that might be discovered ?

But fortunately for the preventive, the supposed instances of Small Pox would be as frequent after the natural disease, as after the operation of the preventive.

The following are examples from Willan, of what he believed to be the legitimate Small Pox modified directly, or remotely by Vaccination: P. 4. "The Variolous and Vaccine fluids, inoculated about the same time, do restrain the action of each other on the human body, so that, in some cases, the Vaccine vesicle is smaller than usual, and has a very slow progress; in other cases, the areola is scarcely perceptible, while, in others, it is large but premature,—and the Variolous eruption consists of hard distinct shining pustules, which have but little inflammation round them, and which seldom maturate. Some of these pustules are tuberculated. The small quantity of matter contained in them soon disappears, leaving the cuticle, which confined it, horny and elevated for many days afterward. The rest of the eruption is minute and papulous, not suppurating, but desquamating.

I was fully satisfied, that the pustules produced under these circumstances were genuine Variolous Pustules, as many opportunities occurred to me of ascertaining by inoculations from them, that they were capable of communicating every species of Small Pox, from the mild and distinct to the confluent and most dangerous form."

P. 50. "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 often to exhibit an ambiguous appearance. The nature and extent of this modification of Small Pox should however, be fully understood. The fever which precedes it, is similar in form, and equal in degree, to the fever usually attending the inoculated Small Pox, and the eruption is either papuliform, or tuberculated, without much surrounding inflammation; it therefore coincides, in these leading circumstances, 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 ex-

posed to Variolous contagion, has been inoculated with Vaccine lymph early enough to mitigate the eruption of the Small Pox, but not wholly to supersede it. I may be allowed to illustrate a position of such importance by a few examples.

In July 1800, I saw a case of Variolous eruption, six months after Vaccine inoculation, and another about Midsummer 1801, ten months after Vaccination. In both these cases there was a considerable degree of fever, but the pustules, which were distinct, small, and hard, began to dry off on the sixth day of the eruption. The subjects of them were infants, who took the Small Pox by infection, and as the cicatrix on the arm, was in both instances very slight, I concluded, at that time, that the Vaccine inoculation had wholly failed.

A third case occurred in the family of Mr. Minton, Banner-square, St. Luke's, which excited much attention. A boy was vaccinated at the age of three months, (March 1802,) by a respectable practitioner, who did not observe any thing particular in the case. Two years afterwards, 4th March 1804, this child was affected with sickness at the stomach, heat of the skin, headach, and

restlessness. The fever continued through the night, and the following day, March 5. In the evening there was an extensive efflorescence, and his parents observed an eruption of red pimples, chiefly on the neck. On the sixth the rash had disappeared, but the pimples were numerous on the face, and other parts of the body. On the fifth day of the fever (8th March,) some of the eruption became pustular, and was thought to resemble that of the Small Pox, the pustules being indented, having a red base, and containing a whitish fluid. Only a few of them matured; and a considerable part of the eruption remained hard and papulous throughout the disease. The face and eye-lids were much swollen from the fifth morning to the seventh night, (10th March). On the eighth day of fever, and sixth of the eruption (11th March,) the swelling had subsided, the inflammation had disappeared, the pustules were brown, hard, and dry, and the patient had no further uneasiness. As the eruption in this case, terminated so speedily, several medical gentlemen were desirous of ascertaining by inoculation, whether it would produce the Small Pox or some other disease. Accordingly, a sister of the little

boy, aged five months, was inoculated in both arms, with matter taken from him on the seventh day of the disease. Two days afterwards, a physician, from what motive I know not, inoculated her with the Vaccine fluid. Both the Variolous and Vaccine inoculation proved effective on the right arm: the Vaccine vesicle was distinctly formed on the sixth day, and arrived at its acmè on the tenth. The pustule which arose from the other puncture, exhibited the usual appearances after inoculation with variolous matter. The child was affected with fever on the eighth day, and there was an eruption of about eighty pustules on the eleventh and twelfth days. These pustules were hard and conoidal: on the thirteenth day there was a whitish fluid at their points, and a little redness at their bases. Before the end of the fifteenth day the redness or inflammation had disappeared, and the pustules were become brown and dry. On the seventeenth and eighteenth day after inoculation, or seventh and eighth of the eruption, all the scabs had separated, leaving the usual marks in the skin."

P. 54. "In the case of Mary Hodges, the pustules were of the chrySTALLINE kind, minute, and

indented, and severally bounded by a line of a purplish colour, without any intervening redness. The eruption was however, extensive, and in many places coherent, and the fever was at first, violent enough to excite a considerable alarm among the child's friends. They were agreeably surprised, at the period when the greatest danger was apprehended, to find the eruption dried, and the child playing about the room, free from fever, and from every other complaint.

Sarah Smith, of Wilderness-lane, near Fleet-street, was vaccinated in 1800, at the age of ten months. October 22d, 1804, she became feverish: an eruption of distinct pustules appeared on the 25th. By inoculation from it, the disease was proved to be the Small Pox. The pustules were acuminated, and did not maturate."

P. 57. " Mr. Blair favoured me with the following particulars, respecting a child, Alice Gorthorpe, vaccinated at the Bloomsbury Dispensary, 7th May, 1803. " The appearances were as usual, and a well marked cicatrix was left on each arm. From this child many others were vaccinated. In the beginning of June 1805, she had an eruption of the Small Pox, attended with

considerable fever. The pustules were numerous, but small and distinct; they desiccated very speedily."

Here we have all the forms arising from the same infection, we have the mild, and *the severe with their mildness of termination.*

Throughout the whole of this section of Willan on Vaccination, are examples of the commonly acknowledged forms of Chicken Pox, nor are any of them referred to the legitimate kind, but because he believed them to have been influenced by Vaccination. Preconceived opinion is the bane of inquiry.

May we not suspect, that the Illegitimate variolæ or Chicken Pox were prevalent, while these experiments and observations were making?

We need not however, be content with probability. In the extract from the paper of the Original Vaccine Pock Institution, given in the second part of this work, it is proved from various experiments, *that Vaccine and Variolous matters introduced by inoculation, do not cause a mixed or hybrid disease, but either the Small Pox, or Cow Pox exclusively; and that the two disorders do not co-exist constitutionally.*

*Ancient and Modern cases compared,
with remarks.*

THE sketch of Chicken Pox quoted from Morton, establishes, that the supposed cases of Small Pox after Vaccination, had not received any "sudden check from the antivariolous virtues of the Cow Pox." To satisfy ourselves fully, whether there is any thing new or singular in the cases which have occurred after Vaccination, we have only to compare the reports of the Vaccine Institutions, as well as the cases which come under our own observation, with those which were recognised before Vaccination was discovered; of which we may take the following as examples:

1. A summary of the cases and opinions contained in the report inserted at the beginning of this Part.
2. A detail of three of those cases which lately happened in Edinburgh.
3. Certain cases recorded by Morton

Summary of the cases and opinions contained in the report of the Vaccine Establishment.

I. *The Case of the Hon. Robert Grosvenor.*

“Violent and long first stage; fifth day of fever, eruption commences with twenty spots on face; next day eruption increased prodigiously; tenth day of disease, *i. e.* fifth of eruption, pustules began to dry.”

“It seemed however, that the latter stages of the disease were passed through more rapidly in this case than usual; and it may be a question, whether this extraordinary circumstance, as well as the ultimate recovery of Mr. Grosvenor, were not influenced by previous Vaccination.”

Remark.—According to Heberden, the pimples begin to dry on the fifth day of eruption in Spurious Small Pox, on which day, the legitimate Small Pox are scarcely at the height of suppuration.

II. *The Case of the Son of Sir Henry Martin.*

“Fourth day of fever, delirious at night; fifth eruption about the mouth; second day eruption

increased; third day eruption increased, fever, decreased.—*Remark.* Willan says, “That the fever sometimes continues in Varicella to third day of eruption.” “Fourth day filled with a fluid beginning to grow yellow; fifth day pustules more uniform and yellow; sixth day fever had entirely subsided, and the pock began to turn; eighth the pustules were dried and continued to fall off from the face. The boy continued quite well.

“The Board, *inter alia*, observe, that on the tenth day, *i. e.* the fifth of the eruption, the pustules began to dry upon the face; and that from that time, the disease passed *with unusual rapidity* through the period when life is generally esteemed to be in the greatest hazard.

Those, who are acquainted with the nature of the confluent Small Pox, are aware, *that this peculiarity cannot be attributed to the effect of Medical treatment.*

In most cases of Small Pox which have succeeded to Vaccination, the pustules have been observed *to dry more rapidly*, and the disorder has concluded *at an earlier period than usual.*

If allowance be made for the relative periods, in which the confluent and distinct Small Pox

complete their course, the *rapid progress* towards recovery through *the latter stage* of confluent Small Pox, as exhibited in the case of Mr. Grosvenor, may be compared with *the rapid desiccation* of the pustules in the distinct and peculiarly mild form of the disorder, which is considered as *Small Pox modified by Vaccination*. Both forms of the disorder proceed in the usual course, the one attended with violent, the other with mild symptoms; till they arrive near to the height, when they appear to receive a check, and the recovery is unusually rapid.

From this correspondence of circumstances, the Board are induced to infer, that in the case of Mr. Grosvenor, which has been more violent than any yet submitted to them, the progress of the disease through *its latter stage*, and the consequent abatement of symptoms, were influenced by an *anti-variolous effect*, produced upon the constitution by the *Vaccine process*.

Report of the College of Physicians in 1807, states, "That in almost every case, in which 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 the same in violence, nor in the dura-

tion 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."

*Four Cases of Secondary Small Pox from
the same report.*

I. *Case of the Rev. Joshua Rowley.* "Third day of fever, eruption appeared; fifth day of eruption—The progress of eruption towards *maturation*, and the swelling of the face, which is characteristic of the Small Pox, left no doubt of the nature of the malady. About 200 pustules on the face, eruption perfectly distinct, and very full all over the trunk of the body."

II. *Case of Miss Sarah Booth of Covent Garden Theatre.* "Third day of fever, eruption; second and third day eruption increasing, fever abating; sixth day of eruption, pustules on the face begin to turn; she went to her business at the Theatre; seventh day of eruption, the pustules on the face turned; few in number on the lower extremities, well filled, and not yet changed; eighth day of

eruption, after this day, the pustules turned and dried on the lower extremities, *and no complaint remained.*”

III. *Case of John Godwin* is not given in sufficient detail, and therefore, nothing decisive can be said concerning it; but it is worthy of remark, that a child inoculated from him, “had fever at the usual time, followed by a *slight variolous eruption.*”

IV. *Case of Peter Sylvester.* “Fourth day of fever, eruption; fifth day of eruption, pustules augmenting, face beginning to swell; eighth day pustules on the face all begin to turn; all fever gone, *and of course mild and speedy termination.*”

“They are led by their information to believe, that since this practice has been fully established, no death has in any instance occurred from Small Pox after Vaccination. That in most of the cases in which Vaccination has failed, the Small Pox has been a disease *remarkably mild, and of unusually short duration.*”

With the admission, that Small Pox may be expected to occur perhaps more frequently after

Vaccination, than Variolous inoculation, “ they do not hesitate to maintain, that the proportionate advantages of Vaccination to individuals and the public, are infinitely greater than those of Small Pox Inoculation.”

*Three of those cases which lately happened
in Edinburgh.*

I. October 4th, 1810, ——— aged 9, underwent regular Vaccination, when four months old. This day her skin was all red, as if she were attacked with Scarlatina; but there were on the face and shoulders, small elevated conical papulæ. She had been under fever four days; but much worse last night and this morning, eyes wild; delirium ferox, tongue foul, heat of skin intense; pulse rapid and strong.

The head was shaved, bowels opened, and the whole body sponged with cold vinegar and water.

5. Eruption increasing much in number, and a little in size, fierceness of the delirium, wildness of the looks, and fever unabated. These were much relieved by leeches to the temples.

6. All the symptoms become mild; vesicles on the tops of some of the papulæ.

7. Pulse 84, appetite for food returning ; white tops on some of the papulæ.

12. Ninth day of eruption, no trace of them remains on the breast and belly ; numerous on the face, arms, and legs ; many of the common size of Small Pox, with inflamed margins, and a few distinctly suppurating.

14. Eruption much diminished, not forming dark crusts, and where picked off, leaving no pit, many of the tops, that were white, have flattened, and the pus has disappeared.

23. Dark brown marks on the face, arms, legs, and wherever her hands could easily reach. No pit except one on the forehead ; several small indurations on the face, like millet seeds in size, and of the same colour with the skin

Remark.—The common neglect with regard to the terminations of Chicken Pox, was occasioned by the complaint being so mild, as seldom to require medical assistance during this stage ; and people have always, Willan excepted, pronounced it very short, merely because they did not examine it.

II. 19th December, 1810, ——— æt. $7\frac{1}{2}$ years, was regularly vaccinated when an infant ; has

laboured under fever, with general oppression and pains in the bowels for three days; very restless last night; pretty copious eruption of small papulæ now appears; fever abated.

20. Fever almost gone.

22. Papulæ white on their tops, many of which are depressed in the middle; on various parts some resemble in size and appearance the ordinary distinct Small Pox; others are of an oblong semilunar shape, some are small reddish points, others seem as if they contained laudable pus, though they are scarcely elevated above the general surface. On some parts of the body, as the middle of the cheeks and wrists, they are crowded; on others, as on the thighs, they are sparse. They differ from one another in size, elevation and shape, nor are the largest of them so big as the well formed mild Variolæ: they are not surrounded by any regular inflamed areola; none of them have been of a brilliant red colour.

25. Eruption on the face changed into little hard substances like pin-heads. Some of those on the arms full of pus, and particularly about the wrists and inferior extremities; on the legs they are largest, and here the papulæ are converted

into sacks full of white matter, those on the trunk changed like those on the face ; child seemingly well.

31. Most of the eruption scratched off, particularly from the face, leaving every where a thin tender cuticle, very rarely depressed ; some have, as it were, a puncture in the middle ; those untouched have all subsided into a hard, horny, semi-opaque, slightly convex, round substance, about the sixth of an inch in diameter. Child continues well.

III. ———, about 8 years of age, was Vaccinated at the Edinburgh Dispensary when five months old ; about two days after the inoculation, he became sick and vomited, and the inoculated part inflamed much, and was very sore ; he was taken to the Dispensary at regular intervals, and obtained a certificate of perfect Vaccination.

Sometime after this and before he was weaned, he took an eruptive disease, which the people called Chicken Pox ; the papulæ were red, with watery tops, they turned in three days, leaving sores which healed in a short time ; they burst spontaneously, and clear water came out of them ;

he never was very unwell of them; they left deep pits, which are still distinct on his belly.

In 1807, this boy was for a long time very ill of the Measles; there is a scar on the right side of his neck, from a tumor that followed them, which did not break in less than three months, and then became a tedious open sore.

About the middle of July 1811, he lost his appetite, and complained of much pain in his head and loins.

On the 22d, he became somewhat worse, next two days had sickness, vomiting, and considerable degree of fever. 25. Some red spots on the skin, which were thought to be the eruption of Scarlatina or Measles; he was hoarse, and at the same time his face swelled; this eruption began on the face and trunk, few however on the belly; next two days they came out on his hands and feet. 27. Evening, they seemed to rise above the surface. 28. They were white on the tops, and continued so on the 29th, and this night he was more restless and uneasy. 30. Much relieved, and it was not till this day that they ceased to increase in number; all the time of their coming out, he complained much of a prickling sensation.

31. Dr. Kellie of Leith obligingly took me to see this case: the pustules were all white; face, lips, hands, feet, somewhat swelled; eruption pretty distinct, though much more crowded in one part than another, as behind the ears and between the shoulders; almost none of them so large as the full sized distinct Small Pox; and a few interposed not larger than the Miliary eruption; red bodies of the largest *pupulæ* had diminished, and they formed sacks seemingly full of pus.

1st August, they almost all evinced a tendency to shrinking and depression, many were covered with a horny convex crust, particularly on the side of the head and behind the ears, where some had cohered and were included within one convex, hard, semi-opaque crust. In a great number, the puriform matter had been absorbed; between the shoulders they were dark and remarkably flattened; from the under part of the buttocks several of the smallest ones had almost quite disappeared, leaving a slight horny elevation; they continued most distinct on the upper and lower extremities. Two of the best filled on the arm were opened, and there issued a clear fluid mixed with coa-

gulated lymph, such as is seen to come from old strumous ulcers. The swelling scarcely perceptible except on the feet, which pitted on pressure. The pulse is moderate and he seems to be in good health.

2. Papulæ all shrunk on the face and trunk still white on the hands and feet, the others are all covered with convex horny crusts, except some from which they have been rubbed; the papulæ are disappearing rapidly; two or three were opened on the right hand, from which came a watery mucus containing white coagula. The feet still pit on pressure, some papulæ on the inside of the ancles have become very small, and the horny crust is forming over them; many on the feet are oblong, and matter comes from them like that from those on the hands.

3. Still more shrivelled, the crusts are semi-opaque and convex; where they have been rubbed off or fallen, the bases are slightly elevated, and covered with a thin white cuticle; no pits on the face; papulæ on the other parts nearly the same as those on the face, except that they are flatter, and not so many tops rubbed off; and that on the wrists and hands some are still whitish, or rather

cream coloured and flaccid, while others are covered with the crusts; the same is the state of the feet, and the swelling is nearly gone. The matter let out of two on the right hand, rather thicker, but still partly clear, and partly coagulated.

5. Those on the feet and hands are either like shrivelled empty sacks, or have brownish horny surfaces; on the back between the shoulders they are small, round, flat, horny spots, not many rubbed or fallen off, some are separating at the edges; they are almost all picked off the face, leaving the bases as formerly described.

Cases from Morton; with remarks.

History II. p. 334.—“ A girl aged about five years, the daughter of Mr. Warren of Ludgate Hill, was lately seized with coldness and shivering, after which she became very hot, vomited, and laboured under great oppression of brain and frequent tossing, to the third day, on which I first saw her, when the papulæ had broken out at once here and there, larger than usual. I now found her free from fever, with good appetite, clothed as usual, and running about in the area ;

next day they were filled with laudable pus, and on the third day, they were covered with crusts, and no symptoms of fever intervened."

This was, he says, that very benign species called *Chicken Pox*.

Three months afterwards, her whole face was covered with an obstinate erysipelatous, scabby eruption, which he ascribed to her neglecting the use of certain aperient medicines which he had ordered.

History III. Regular Distinct and Benign Small Pox.—My only son, now studying medicine, when three years of age, in the winter season was seized with nausea, vomiting, tossing, stupor, delirium, and the other alarming symptoms of the first stage of Small Pox, and he continued under intense fever for three days; toward the end of the third day this fever abated, and distinct Small Pox broke out all over the body. The papulæ, which were perfectly round, had acquired larger margins on the second day, and were of a lively red; on the third day they came to a peak, on the fourth they whitened, on the fifth began to become yellow, on the sixth were full of pus, on the seventh

the crusts began to be formed, on the ninth they were every where converted into tubercles, and no secondary fever ever occurred.

History VI. Distinct and Benign Small Pox, in which bad symptoms occurred, in consequence of bad treatment.—The son of Mrs. Fowler of Sire Lane, fifteen months old, when under the benign distinct Small Pox, being inconsiderately all along exposed to the frosty air, was on the second day of the eruption, or 5th of the disease, seized with direful spasms, epileptic fits, and profound coma, and for eight hours the infant was pale, languid, and as it were, moribund. Here were ordered, on the evening of the 27th October 1692, blisters and antispasmodics; after the second dose of the julap, the spasms and deep sleep were removed, he remained wakeful and cried incessantly from the pain of the blisters. Next day he was better, the pulse strong and equal, and the pox still distinct, though somewhat more numerous. Opiates were prescribed to procure sleep and ease pain.

Returning on the first day of November, I found the child free from fever and every bad

symptom, the papulæ on the trunk of the body, were small, numerous, almost cohering, and full of yellow matter; at the same time, some were here and there covered with crusts, and converted into concrete dry tubercles of an ash colour. Accordingly, leaving proper directions for the management of the bowels, I took my leave.

History X. Eruption of Benign Small Pox, after very alarming first stage.—About the year 1670, a servant of Mr. Bradford, in the street called Black Friars, laboured under a violent fever, attended with the most oppressive nausea, sickness, and inclination to faint. This was the first day of the fever; an emetic was ordered, which relieved the nausea, but was followed by the most excruciating headach, and such was the force of the arterial vibrations, that a dreadful hæmorrhagy seemed to be threatened; 10 ounces of blood were drawn from the arm, and an anodyne medicine administered; the patient slept well, and the next morning was entirely delivered from the fever, with the headach and every bad symptom, but there was no eruption nor any indication of it. Contrary to instructions, the young man, find-

ing himself well, and the weather warm, quitted his bed, eat, drank, slept, and attended his usual business.

In a day or two his fellow servants were alarmed at seeing the Small Pox here and there on his face and hands, and I was again sent for. But as the eruption was of the best kind, and he seemed to enjoy good health, I gave him some directions with regard to his diet, and left him. The young man passed the remaining stages quite easily within the space of eight days, and got perfectly well without any remedies.

History XII. Distinct Small Pox very small, following epileptic fits.—The son of Mr. Wheeler of Prince Street, whom I had cured of a diabetic phthisis arising from dentition, was at least once a year after this, attacked with epileptic fits, and at last on the 23d of July 1692, in the 7th year of his age, he fell into a fever and lay three days, dull and comatose. On the third day of the disease, I was sent for; he laboured under the most powerful and horrid convulsions, six ounces of blood were drawn, blisters, and rubefacients applied, antispasmodics administered.

Next day, the 26th July, the fever and stupor were gone, and there was an eruption of distinct small papulæ resembling pin points.

27. 28. 29. The antispasmodic and exhilarating remedies were still continued, a little varied.

30. The papulæ, though very small, were begun to swell with pus, and the boy was restless from the pain of them; opiates were ordered. On the 6th day of the eruption, the papulæ, which were already completely mature, began to dry, and form concrete tubercles, while fever, cough, salivation, pain of throat, in short, every troublesome symptom was absent. Antispasmodic and cathartic remedies were continued for some time longer, and the boy had a complete recovery.

History XIX. Small Pox approaching to Malignity.—A boy, aged 12, on the 10th day of September 1692, lay afflicted with the most severe lumbago; the heat of his body was mild, and there was scarcely any sickness or vomiting. About the beginning of the third day there broke out a great number of distinct, very small, livid papulæ. To the third day of the eruption, when I was called, he had remained perpetually

delirious and sleepless; his pulse was so quick and feeble, that I despaired of him. Blisters were applied *, opiates and other tonics administered. Sleep was induced, the papulæ began to inflame and ripen, the fever was mitigated, the pulse became strong and regular. The medicines were continued, with an increase in the quantity of laudanum. After the first dose of laudanum, the patient slept gently, the saliva flowed freely, the head and face suddenly swelled, the pulsations were equal and strong, the fever was quite banished. The pustules about the joints however, were still depressed in the centre, and the patient could not bear to swallow any thing, on account of the swelling and pain of the fauces. Accordingly, I ordered Welsh flannel to be wrapped round his neck, an astringent gargle to be thrown in by a syringe, and the use of the other medicines to be persevered in. Next day, viz. the eighth of the disease, the ptyalism was still great, the joints swelled, the papulæ about them, all mature, began to be dis-

* Morton generally applied the blisters to the nape of the neck, and inside of the wrists.

tended with laudable pus, and thus, without any return of fever, the boy speedily got well; evidently snatched," says Morton, "from the very jaws of death by the Medical art."

The last sentence of this case furnishes a strong contrast with the explanation which has been given of similar occurrences, since Vaccination was introduced; Morton imagined, that the violence and progress of the disease were arrested by his treatment; but the Vaccine Board observe, "That this peculiarity," viz. the rapid and mild termination, "cannot be ascribed to the effect of "Medical treatment;" but to "an anti-variolous effect, produced on the constitution by the Vaccine "process." The examples however, referred to, subvert both opinions, and prove, that it is the peculiar nature of this eruptive disease to exhaust itself in the space of eight, or ten days.

Are not the examples of Small Pox, described as severe in their commencement, and mild in their termination, of the same kind with those called by authors, the Species Intermediate between the Benign and Malignant, which ended *without secondary fever*?

Of the Epidemical Illegitimate Small Pox.

DURING one epidemy, the legitimate Small Pox were generally mild; during another, generally malignant; and the same may be said of the Illegitimate, which always appear about the same time with the other; but I have not been able to ascertain, whether the Illegitimate ever alone spread epidemically. What are we to infer from this account given by Jenner?

“There are certainly more forms than one, without considering the common variation between the confluent and distinct, in which the Small Pox appears in what is called the natural way.—About seven years ago, a species of Small Pox spread through many of the towns and villages of this part of Gloucestershire: 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 ac-

curate 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.”—*Inquiry, published in 1798, p. 54.*

THE PECULIAR SMALL POX ABOVE DESCRIBED BELONG TO THE ILLEGITIMATE GENUS; NO LEGITIMATE SMALL POX REPEATED IN THE SAME PERSON; NOR EVER AFTER VACCINATION; NATURE OF ILLEGITIMATE SMALL POX; ERRORS REMOVED; CHARACTERISTIC SIGNS.

THERE is an eruptive disease, 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 show, 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 eruptive 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.

Numerous accidents of this nature may be detected in the medical writings of the seventeenth and eighteenth centuries, the following are from Kirkpatrick.

“Since the whole of this book,” says he, “except the preface, has been printed off, a young nobleman of very high rank has died of a violent degree of the Small Pocks, after having been inoculated for it between eight and nine years past. But

having premised, that his incisions never inflamed, and of course never suppurated, closing very speedily, we are warranted to add, that, "On the 16th day from inoculation, he had a fever and a few pimples, which continued out for a few days; the slightness of the eruption would not admit of any certain judgment of its nature or species. Dr. Mead, who then attended him, Mr. Ranby, who was called in to give his opinion, and the surgeon who inoculated him, all were unanimous in declaring, that the appearance was equivocal; and that, as the infection had not produced the proper effects upon his arms, the present illness and eruption were not to be depended upon, and advised his Lordship's being inoculated again. This his most noble parents had agreed to, and the time of performing it was more than once nearly settled; however, from accidental circumstances it was postponed, and was not done after the first time."—*P. S. to Preface.*

P. 148. "Mr. John Motte, born in South Carolina, about 20 years of age, of a somewhat darkish complexion, and seemingly tense dry fibre, was inoculated in London by Mr. Lee, surgeon and apothecary, July the 1st, 1757. I saw him the

following December visiting a patient of mine recovering, by inoculation, from a large crop of the distinct Small Pocks. Mr. Motte had not a single pit from it, saying, to the best of my recollection, he had only eight small pustules, and adding, he had never been sick, nor confined to his bed for it. I remember I replied, he had been very fortunate, and that I should have had a considerable anxiety about him, had I been to inoculate him. He seemed assured himself, and had been assured by his surgeon, that he was entirely secure from a second infection; he received none at this visit, which was not a very short one, and I believe was more than once repeated. The Small Pocks were brought into Charles Town in Carolina in 1759, where he then resided, and were generally of a severe kind. He is said to have exulted so much on his supposed indemnity from it, as to have exceeded his usual way of living, and went every where to visit his acquaintance who lay down with it; until at length he sickened violently, and died of a severe confluent Small Pocks."

And in a note he says, " Mr. Lee's relation of this case to me is—That Mr. Motte was inocu-

lated at the time above mentioned in the left arm. That the orifice inflamed a little, and that the discharge was but small. That the matter with which he was inoculated was only four, or five days old. That on the seventh from inoculation, he had a very slight fit, (or rather *vertigo* perhaps;) for when Mr. Lee attended him immediately on notice of it, he found him without any complaint, but was told by him, that he had felt an odd unpainful giddiness, which, he supposed, did not last one minute. His pulse was quickish, as this gentleman expressed it, the eighth and ninth day (from which we are to suppose but the slightest perceivable degree of fever.) That on the ninth he had two pustules in his face, one of which he thinks contained matter. That he had five small ones round the incision, and no others were discovered all over him. That he purged him the fifteenth, and supposed him secure from a subsequent infection."

Such, under various forms, are the Secondary Small Pox, and such only succeed Vaccination.

We cannot now hesitate to consent, 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.

On the Nature and Origin of the Illegitimate Small Pox, with their Species and Varieties.

THE Illegitimate and legitimate Small Pox coincide in many particulars which might countenance the idea, that they are not quite dissimilar in their nature and origin.

The infection of the Illegitimate Small Pox seems to require nearly the same time, with that of the legitimate, to produce its peculiar effects.

Both prevail at the same time, and when the one is severe, so is the other.

Neither recur in the same person.

Both evince the same species and varieties.

Both commence with similar symptoms, and observe a similar course, particularly in the eruption.

The suppurating Illegitimate closely resemble the benign and malignant of the legitimate Small Pox ; and the lymphatic Illegitimate, the Stone Pox, and the Swine Pox, equally resemble the lymphatic, siliquose, and verrucose of the legitimate.

The legitimate are divided into distinct and confluent, and of each there are benign and malignant examples ; to which are added certain varieties, as the lymphatic ; and the benign are less dangerous and shorter than the malignant.

In like manner the Illegitimate ought to be divided into distinct and confluent, benign and malignant, with varieties, as the lymphatic.

May not such accidents as the following, have given origin to varieties of Illegitimate Small Pox ?

Willan, p. 32. says, “ We are now assured on good authority, that matter improperly kept, or the thick matter taken from the collapsed and scabbing variolous pustules, and used for the purpose of inoculation, does not always produce the Small Pox, nor prevent the future occurrence of that disease, although the persons inoculated may have had inflammation, and suppuration of the

arm, and pains in the axilla, with fever and eruption on the ninth, or tenth day.”

Though the Illegitimate and legitimate Small Pox resemble each other in many respects, the radical properties in which they differ, oblige us, in the present state of our knowledge, to consider them as distinct in their nature.

They occur in the same person, independently of each other, and there is no species of the Illegitimate so contagious as the legitimate.

The virus of the legitimate Small Pox, and that of the Cow Pox, have this remarkable property in common, they prevent themselves and each other. Dr. Jenner thought otherwise, but he must have been misled by the spurious matter. Does this indicate in them a common nature, and do the legitimate Small Pox, as has been supposed, owe their virulence to the preventive virus being compounded? might not experiments be instituted, to discover whether the preventive virus might not be separated from the noxious, in all those diseases which occur only once during life?

The Suppurating Illegitimate Small Pox enable us to remove the erroneous notions concerning the Small Pox and Vaccination.

THIS inquiry has detected the source, and furnished the means of obviating the misconceptions with regard to the Variolous and Vaccine eruptions.

That certain very mild Illegitimate Small Pox have been mistaken for the legitimate, shows, why Morton, Swieten, Cullen, Willan, and the members of the Colleges failed in distinguishing them.

It shows, why the Variolous and Vaccine preventives were ever believed to fail.

It shows, why the suppurating Illegitimate are described as the most benign legitimate, and since the virus of the mildest was always preferred, we see, how the Illegitimate were propagated, and why the violent epidemical legitimate attacked numbers who believed themselves secure.

Variolous inoculation has been said to succeed after the Vaccine, because the matter of the Spurious was employed; and the variolous and contra-

dictory effects ascribed to the Variolous and Vaccine matters acting in the system at the same time, are referable to the same cause.

The Vaccinators seem inclined to allow, that Small Pox after Vaccination may be more frequent than the Secondary; the reason is, that lately the Chicken Pox have been epidemic, the number of Medical men is increased, communication improved, and the instances of the real Small Pox few; but as the Fallacious Small Pox are neither prevented by the legitimate, nor the Vaccine, the liability remains the same after both.

That the Illegitimate are confluent and malignant, but mild in their termination, explains, why they were deemed an intermediate species between the benign and malignant of the legitimate: this is the termination which Morton referred to his medical dexterity; and the Vaccinators, to their preventive.

That the Illegitimate are in one mild and short; in another, severe and of considerable duration; that the suppurating, the pimples, and the vesicles arise from the same contagion, explains the cases in the work of Willan, and those in the report of the Original Vaccine Pock Institution,

which they considered to be the legitimate Small Pox variously modified by Vaccination.

That watery or vesicular eruptions are common to both the Illegitimate and legitimate, shows, why Mead, Freind, and others referred such cases to the legitimate; De Haën and others, to the Illegitimate. The termination of these disorders might have removed this discrepancy.

We may now come to some decision concerning the following form of eruption, called by Vogel, *Duræ Ovales*; which Burserius is uncertain, whether to refer to the legitimate or Spurious Small Pox, and also concerning the *repululantes*, or eruptions supervening during the convalescence from the legitimate Small Pox.

“ In this species,” according to Vogel, “ after a fever generally of some days continuance, small tumors are formed of a dark-red colour, hard, somewhat oval, surrounded with a red circle, and a little larger than the legitimate Small Pox. In two, or three days they ulcerate, gradually dry, blacken, and at last become pale and subside, while new ones may be rising; so that the disease, which generally *terminates in eight days*,

is extended to several weeks, either without fever, or with a slow gentle one."

That affection which *terminated without fever*, belonged to the Spurious; and the other *with the tedious fever*, belonged to the legitimate Small Pox; with regard to the succession of pimples, and repullulantes mentioned here and formerly, they must have been caused by Spurious eruptions; but how far the legitimate and Spurious may interfere with, or modify each other, has not been observed; though it is probable, that the Spurious Small Pox can co-exist with, as well as succeed the Cow Pox.

Authors seem to be impressed with the idea, that there is some necessary connexion between the mild nature and vesicular appearance of the Variella.

It is useful to be aware, that the skin being raised by a clear or watery fluid, is no proof of the mildness of the inflammation, as is evident from the blisters produced by cantharides, or by boiling water; and also from the vesication which happens in the most violent cases of rose or erysipelas; in the next place, the early forming of the

vesicles on the tops of the pimples, is not peculiar to the Varicella; nor is the rapidity with which they come to incrustation, any proof of the mild nature of the eruption, since all tumors undergo their changes with a rapidity proportioned to the vigour of the constitution; and there is nothing in the nature of the Varicella, showing, that it may not be both malignant and fatal; it is often so violent in the first and second stages, that it is impossible to believe, but death has sometimes happened in the one, or the other; though, even in the most malignant form, I am inclined to infer, that if the patient survive the tenth, or eleventh day, he has escaped all danger.

On comparing however, the benign Illegitimate with the benign legitimate, and the malignant of the one with that of the other, through all their species and varieties, we shall be satisfied, that the Illegitimate on the whole, are less troublesome, and of shorter duration; that they much more frequently assume the vesicular appearance; that the most severe of them seldom injure the constitution; and are seldom fatal.

The signs by which the Illegitimate Small Pox or Chicken Pox, are to be distinguished from the legitimate.

ON an exact comparison of these eruptive diseases during their progress, we find, that among the mildest Chicken Pox, which are said to be of so rapid a course, some have as long a first stage as the Small Pox ; others, nearly as long a second ; few, so long a third ; but none, so long a fourth stage.

There is no secondary fever in the last stage of the most malignant Chicken Pox ; but this is never absent in the last stage of the benign confluent Small Pox.

In the worst Chicken Pox, the constitutional disorder ceases in the third stage ; but in the confluent, or even in the distinct Small Pox, it continues during the blackening or incrustation ; so that to speak correctly, the disease has three stages in the Chicken Pox, and four in the Small Pox ; but the eruption has three stages in both.

In the termination of the benign Chicken Pox, the papulæ contract in all dimensions, become

covered with semi-opaque, convex, horny crusts, which falling off, leave on some occasions a few pits, but in general only brown, superficial spots of no long continuance.

The last stage of the benign Small Pox, begins with fever; black, thick, flat crusts cover the papulæ, as broad as the original base, and when they fall off, they leave conspicuous scarlet or red marks, which remain many weeks.

In the most benign Chicken Pox the papulæ have shrivelled, and disappeared almost unnoticed, leaving scarcely any vestige; in the most benign Small Pox, where fever is not perceptible, the papulæ remain one, or two days large and full of pus, next they gradually maturate, darken, and fall off, leaving still their durable red marks.

In the former, the last stage of the eruption, that is, from the beginning of the incrustation to the falling off, may continue five, or six; in the latter, it seldom continues less than ten, or twelve days. In the most malignant Chicken Pox the last stage of the eruption may occupy even a fortnight; but who has not seen the black sores of the most malignant Small Pox, continue from six weeks to two, or three months?

We find also, that some varieties of Chicken Pox commence and terminate in almost less than half of the time, and are throughout milder than the distinct benign Small Pox; others have at first symptoms equally alarming with those of the most malignant confluent Small Pox, and have an eruption for a day or two, altogether resembling them, and yet terminate their three first stages as soon, and their last stage even sooner than the most benign Small Pox.

The course of the malignant Illegitimate is nearly of the same length with that of the benign legitimate; but, in the most dubious cases, the Illegitimate or Chicken Pox will be discovered by *the characteristic mildness and shortness of the last or terminating stage*; and these constitute the only infallible criterion of the most severe Illegitimate Small Pox.

THE INFALLIBILITY OF VACCINATION; CERTAIN
YEARS OF EPIDEMIC SMALL POX, RECORDED BY
SYDENHAM, COMPARED WITH THE YEARS 1810
& 1811.

THE preventive of the Cow Pox is now proved to be a much greater acquisition, than even its most strenuous promoters supposed. This will be well illustrated by comparing the Small Pox of one period, in which they raged uncontroled, with those of another, in which they would have been equally destructive.

For this purpose, I have selected the years of epidemic Small Pox, recorded by Sydenham, to be compared with the years 1810 and 1811, and if we find, that formerly, while malignant diseases prevailed, the Small Pox spread with dreadful rapidity, violence, and mortality, sparing neither young nor old, except those who had undergone the disease; and that since Vaccination was introduced, while the prevalent diseases were also malignant, the instances of Small Pox were

of the same nature; but occurred only in those who had not undergone the Cow Pox; to what should we ascribe this limitation of their contagious power?

Epidemic Small Pox, which prevailed in the years 1667, 1668, 1669, 1670, 1671, 1672, 1674, 1675, 1680, 1681.

SYDENHAM left us an account of the various species of Small Pox, which raged in London with but little interruption from the year 1667 to 1681 inclusively, and has shown in a most judicious manner, how far they were then modified by the particular state of the atmosphere, and in what respects they were related to the other prevalent diseases.

As if eager to emulate the plague of 1666, they began to be active in the Spring of 1667, and during the fourteen succeeding years committed dreadful havoc.

In 1670, from their irregularity and putridity, they were named the Anomalous Black Small Pox; they were preceded by the Measles, which spared no family, at least no infants, and accom-

panied with severe dysenteric fevers, and these affections of the bowels were more destructive, than they had even been the preceding year.

In the years 1674 and 1675, the same species seemed to have returned; only when confluent, they were more horrid in appearance, and more destructive. The patients could not be approached on account of their loathsome smell; the papulæ were at first of a dark-brown colour; but when they should have been mature, they were as black as soot.

This species of Small Pox proved fatal even after the twentieth day; but if the patient was among the very few not carried off, not only his legs swelled, which is not uncommon in confluent Small Pox, but also his thighs, arms, shoulders, or, in short, any part of the body. These tumors began with pains, equalling those of the most excruciating rheumatism; they next frequently suppurated, forming immense abscesses and sinuses in the muscular parts, and the patient was in danger of his life being exhausted for many days after the eruption had disappeared.

“When these,” says he, “were most confluent, they sent more to the grave, than any other spe-

cies that I had ever witnessed, in which respect, if my judgment is to be relied on, they vied with the plague.”

In the year 1680 and 1681, occurred that species of confluent Small Pox, which he calls *Pessimæ*, or worst; in this species purple spots frequently preceded the eruption of Small Pox; such spots indeed, with a discharge resembling blood from the bladder, were occasionally the harbingers of death, when little or no eruption of papulæ had taken place; a similar event frequently occurs in the Measles and Scarlatina: the more violent the symptoms, the slower the papulæ proceeded towards maturity, and at length instead of pus, they contained a dark, acrid humour.

The diseases which prevailed along with the variolous eruptions in the years 1810 and 1811, have a remarkable coincidence in their nature with those of which we have here given a summary; but any person observing, that during the latter period, the Small Pox though malignant, were few, and only in those who had not been vaccinated, will at once be delighted and astonished at the magnitude of domestic calamity

from which we have been preserved by this blessed discovery.

Diseases of Edinburgh for 1810 and 1811.

1810.—ABOUT the beginning of April, the chin-cough prevailed with such other ailments as are common in Spring.

From the middle of April to the middle of May, a species of *Influenza* or inflammation of the throat was prevalent. It was generally accompanied with excruciating pain in one of the ears, with swelled tonsils, with toothach, or rheumatism of the jaws, and great uneasiness in attempting to swallow. There was not much fever; the patient only felt drowsy and languid for some days; and at last perhaps, was subject to a slight coldness or shivering. All this happened in general before the physician was consulted. The throat, when examined, was of a dark red colour, much swelled, and covered with aphthous sores; and in some the mouth also. There appeared at the same time a sporadic typhoid fever, which assumed, in several instances, the form of an irregular intermittent.

In June, the chincough continued to prevail, and even proved fatal to some. About the middle of this month, erysipelalous affections became prevalent, and sore throats recurred of considerable severity, resembling those above described; but the febrile state was more severe, of less duration, and, on the whole, less obstinate. These two species of affection were not unfrequently combined; and several, who had the influenza of April, were again assailed in June.

In July, the chincough was less frequent; cough however, sore throats, shifting pains were generally complained of, and temporary deafness had seldom been so often observed. At the same time occurred to not a few, pains in the breast, with constriction in the throat, and difficult breathing, during which, in several instances, a considerable loss of voice or aphonia came on. This attack was extremely distressing to those with injured lungs, though others were not exempt from it.

About the middle of the month, several persons were seized with a sort of mild typhus. They had headach, dullness and heat of the eyes, very

little appetite, torpid bowels, general irritability, disturbed sleep, apprehension approaching to melancholy, and great heaviness in the situation of the stomach. These symptoms were preceded by much languor, and accompanied with a feeble and irregular pulse; the beats of which seldom exceeded 100 in the minute, except on some occasions, when the heart and aorta suddenly acted with immense force and frequency. We have known the strong pulsations in the bowels to be the first thing that made the patient seek medical assistance.

In the beginning of the month of August, the cynanche maligna, quinsy, or putrid throat demanded attention. In this the throat was swelled, painful, and livid; the general system laboured under a typhus fever, and the surface of the body became marked with dark spots: at the same time the scarlet fever prevailed, and seemed to be variously blended with the former. Some had the sore throat without fever, or eruption; others had the fever and eruption without the sore throat; in many the inflammation of the fauces and ulceration of the tonsils preceded, but in as many succeeded the commencement of

the fever. In some the throat was livid, in others, of a brilliant erysipelatous or scarlet redness from the beginning. In fine, among those of the same family, one had the cynanche with typhus fever; another, the scarlatina with the inflammatory fever called synocha. At the same time were Chicken Pox, Crystal Pox, and various complaints of the bowels under the forms of colics, diarrhœas, dysenteries. These attacked many, particularly females, in a most formidable manner; they began with vomiting, urgent desire to evacuate downwards, and violent contractions of the stomach and bowels, recurring at intervals of a few minutes with the most excruciating torture, generally referred to the region of the stomach.

In September, cynanche maligna, typhus fever, chincough, bowel complaints prevailed, and there were not a few cases of hydrocephalus internus.

The scarlet fever was less frequent, the cases of cynanche had increased in number and severity; the typhus fever was for the most part accompanied with a pulse neither strong nor quick; in one the fever was remarkable for sickness, vomiting, and petechiæ; in another, for depres-

sion and stupor; in a third, for soreness of throat; in almost all, for openess of bowels, general feebleness, and long duration.

In October, the diseases became more numerous and various; there were cutaneous eruptions of almost every kind, with fever and without it; among which were the Small Pox and Chicken Pox; there were also many affections of the throat, both external and internal; among which was the cynanche parotidœa or mumps. Dropsical affections were very numerous, the consequences of the eruptive diseases, and particularly of the scarlet fever.

In November, the scarlet fever assumed an extremely dangerous character; it was accompanied with swelling of the neck, externally and internally; the fauces, and particularly the tonsils, were speedily covered with foul ulcers, even though no uneasiness was previously felt in the throat, and then there appeared the signs of the worst typhus fever, and its consequences. This affection of the throat proved rapidly fatal to several persons of adult age. Ulcerations of a very distressing kind occurred in children from five months to three years old. In one they covered

all the body; in another, only affected the tongue; in a third they attacked the pudenda, and the neighbouring parts; they were attended with typhoid fever; the stools were dark coloured, and the sores putrid.

Almost all the diseases of this year were marked by a strong typhoid or putrid tendency; and this disposition now evinced itself with peculiar virulence.

In December, some laboured under the effects; and others were newly attacked with the diseases just described; there were also many cases of Chicken Pox, and one or two died of the real Small Pox.

Towards the middle of the month, the bilious complaints became general indeed, and were attended with a great variety of symptoms according to age, sex, and habit; the most frequent signs however, were squeamishness, vomiting spasmodic twisting or pain in the belly, costiveness, or dysentery; and the alvine discharges, whether spontaneous, or the effect of medicines, were black, green, brown, slimy, or mixed. If any one had been liable or subject to any peculiar affection of the head, chest, or abdomen, this

was at the same time induced, aggravated, or renewed; infants seemed to be suddenly threatened with hydrocephalus, or with croup; those of weak lungs, with pneumonia, or hydrothorax, &c.; males, with strangury; females, with spasms referred to the uterus. In fine, sudden cramps or spasms in the extremities, particularly the legs, seized a great number.

1811.--THE commencement of this year brought no melioration.

All the diseases above detailed continued, only varying in their frequency and fatality. Some of them being more prevalent in one month; others, in another; and in the Summer, their number was increased by the measles. In January, March, and April, Small Pox were not uncommon; they were almost all of the malignant, or confluent kind, and a great part of those who laboured under them died. There were the Chicken Pox also in February.

In April, the measles became frequent in Leith.

In May, bilious complaints became numerous; in June, the scarlet fever and cynanche became as general as ever, and deaths from the putrid

throat were frequent in those of every age ; nor had any preceding month witnessed a greater number of bilious complaints, colics, choleras, &c.

In July, the measles became frequent in Edinburgh ; and also inflammatory affections of the brain and head, and there were some instances of Chicken Pox.

In the end of August and beginning of September, occurred several sudden deaths both in England and Scotland : during September the scarlet fever continued ; the measles were common ; some had the Small Pox, and the putrid throat was fatal to many. October witnessed the same maladies, we knew of death from the scarlet fever, measles, and Small Pox, and towards the end of the same month, severe diarrhœas and dysenteries attacked many ; sore throats of every kind were generally complained of ; the cynanche maligna was dreadful ; and such disorders continued during the ensuing Winter.

But during these two years, remarkable for eruptive diseases of the worst character, I could not, after the most diligent search, detect one instance of legitimate Small Pox to have followed in defiance of Vaccination.

CONCLUSION.

A FEW years ago, if you inquired of the disconsolate parent, the cause of his sorrow, the general answer was, My children have been destroyed by the Small Pox. If you inquired of the blind, the disfigured, and the lame, to what they ascribed their ailments, the answer was, To the Small Pox. Invalids of this description, some as opulent valetudinarians; others as mendicants, crowded the watering places in quest of alleviation; what man does not perceive in the smooth, fair countenances of the present generation, an incalculable melioration of the human figure and appearance, solely accomplished by this inoculation?

On former occasions when the Small Pox prevailed epidemically, the Chicken Pox were observed at the same time, but comparatively rare; why was the proportion completely reversed in 1810 and 1811? Because Vaccination protected all those on whom its influence had been exerted.

The Small Pox partake of the malignity of the season; if the other diseases are of a bad kind,

so are the Small Pox; the diseases of 1810 and 1811 were of the most malignant nature; and the Small Pox, which appeared, were also most malignant; why then did they not spread devastation as in the time of Sydenham? Because Vaccination was to them an insurmountable barrier.

I never commenced an undertaking with more solicitude, and terminated it with more satisfaction than this; all my doubts are removed; my children, whose lives are infinitely more dear to me than my own, are for ever exempt from that dreadful malady the Small Pox; would, that I could inspire every other parent with an equal confidence! Small Pox would soon be extirpated; but from the annals of the world, it never could be erased, that Vaccination is the most beneficent present, that ever genius made to humanity.

FINIS.



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